Attachment 1

Public Notices for the Pantex Third Five-Year Review

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AFFP
NOTICE OF INITIATION OF FIVE-Y

Affidavit of Publication

STATE OF TEXAS } SS
COUNTY OF POTTER }

Jaime Pipkin, being duly sworn, says:

That she is Multi-Media Account Executive of the Amarillo Globe-News, a daily newspaper of general circulation, printed and published in Amarillo, Potter County, Texas; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following

July 28, 2022

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

JPipkin

Multi-Media Account Executive

Subscribed to and sworn to me this 28th day of July 2022.

Kimberly Dawn Megrew

Kimberly Dawn Megrew, Notary Public, Potter County, Texas
My commission expires: January 09, 2023

NOTARY PUBLIC STATE OF TEXAS
Kimberly Dawn Megrew
My Commission Expires
01/09/2023
ID No. 131847518

00005359 16121648

Jennifer Pylant
CNS PANTEX PLANT_Legal
PO Box 30020
AMARILLO, TX 79120

Legal Notices

NOTICE OF INITIATION OF FIVE-YEAR REVIEW

The National Nuclear Security Administration (NNSA) Production Office [NPO] of the U. S. Department of Energy/National Nuclear Security Administration announces the start of the third Five-Year Review of the Selected Remedy for the Pantex Plant Site, as required by Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Hazardous Waste Permit No. 50284. This review will begin August 1, 2022, and is scheduled to be signed by September 13, 2023.

NPO will be conducting a review of the Selected Remedy for the Pantex Plant Site, in conjunction with the U.S. Environmental Protection Agency (USEPA) and the Texas Commission on Environmental Quality (TCEQ) to ensure that the Selected Remedy remains protective of human health and the environment. The predominant contaminants at the Site are high explosives, solvents, perchlorate and chromium. The Selected Remedy is comprised of the following components for protection of human health and the environment:

For soil units
- Land use controls for restricting access and maintaining protective measures for workers.
- Protective covers of clean soil for containing contaminants in landfilled material and ditch liners.
- A Soil Vapor Extraction System to finish removing solvents released into subsurface soils at the Burning Ground.

For impacted perched groundwater
- Land and groundwater use controls for restricting access, drilling, and perched groundwater use without prior treatment.
- Pump and treat systems for stabilizing contaminants and reducing saturation.
- In situ treatment zones to reduce contaminant concentrations to groundwater protection standards where pump and treat systems are not effective.
- A Long-Term Monitoring network of perched groundwater and Ogallala Aquifer wells to gather data needed to determine remedy effectiveness and provide for early detection of unexpected conditions.

Information about the Selected Remedy and progress toward achieving the established goals is available via the Internet at https://pantex.energy.gov/mission/environment/environmental-cleanup-documents-0, the Amarillo Central Public Library, 413 E. 4th, Amarillo, Texas, and the Pantex Plant Administrative Record file located at Pantex Plant, on FM 2373 and U.S. Highway 60, Amarillo, Carson County, Texas.

The public is invited to provide pertinent information and observations for consideration during the review by telephone to Mr. Steven Wyatt, NPO Public Affairs Officer at (865) 576-9918 or by e-mail to: Steven.Wyatt@NPO.doe.gov. Requests for additional information about the review process may be submitted in the same manner.

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Figure 1. Amarillo Globe News Notice, July 28, 2022

DPS traffic stop leads to drug seizure

The Texas Department of Public Safety (DPS) seized more than 71 pounds of suspected methamphetamine on Monday, July 18, after a Texas Highway Patrol Trooper stopped a vehicle in Carson County.

At approximately 4:55 p.m., a DPS Trooper stopped a 2012 Jeep Liberty traveling east on I-40 near Conway for a traffic violation. The Trooper then discovered multiple plastic-wrapped bundles of methamphetamine inside a suitcase in the rear area of the vehicle.

DPS Special Agents and Drug Enforcement Administration (DEA) Special Agents were contacted and assisted with the investigation. DEA Special Agents adopted the case.

SEIZED METHAMPHETAMINE

The driver, Bruno Alvarez-Nuno, 21, of San Jose, California, was arrested and charged with felony possession of a controlled substance and was transported and booked into the Randall County Jail.

The drugs were reportedly being transported from San Jose, Calif. to Oklahoma City.

Notice to All Persons Having Claims against the Estate of Billy Bob Brown, Deceased

Notice is hereby given that original Letters Testamentary upon the Estate of Billy Bob Brown, Deceased, were issued to Kevin Brown on July 20th, 2022 in the proceeding indicated below, which is still pending, and that Kevin Brown now holds such Letters. All persons having claims against said estate, which is being administered in Carson County are hereby required to present the same to him at the address below given, before suit upon same are barred by the general statutes of limitation, before such estate is closed, and within the time prescribed by law.

All correspondence should be directed to the attorney for Kevin Brown at: Beau A. Cross, Esq., 701 S. Taylor, Suite 500, Amarillo, Texas 79101.
DATED this July 20th, 2022.

/S/: Kevin Brown
Kevin Brown Independent Executor of the Estate of Billy Bob Brown, Deceased, Cause No. 3982 in the County Court of Carson County, Texas

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Figure 2. Panhandle Herald Notice, July 28, 2022

Attachment 2

References and Documents Reviewed for the Third Five-Year Review

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Attachment 3

Site Inspection Checklist for the Pantex Third Five-Year Review

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1 Completed Site Inspection Checklist

During the Site Inspection conducted with Ms. Maria Sifuentes-Chaves and Mr. Wyatt Hooks of the Texas Commission on Environmental Quality (TCEQ), Mr. Kevin McNeely and Mr. Steven Tzhone (via phone) of the U.S. Environmental Protection Agency, and Mr. Philip Harte of the U.S. Geological Survey in September 2022, CNS personnel recorded information regarding observations and discussions of the parts of the remedial action systems and monitoring well network encountered. Representatives of the Five-Year Review support contractor (HGL) were also in attendance. CNS personnel completed the checklists for the portion of the systems and wells that were not inspected during the September 2022 walk down to ensure a comprehensive evaluation was conducted.

The completed forms are appended at the end of Attachment 3.

2 Site Inspection Photographs

During the September 2022 Site Inspection, photographs were taken to document portions of the walk-down. A select number of representative photographs are included as follows.

Figure 1. Playa 1 (P1PTS) Treatment Building, the system was inactive at the time of the Site Inspection and was undergoing modification to connect the new Pivot Irrigation System. Intermediate holding tank (center), GAC units (right side).

Figure 2. P1PTS four ion exchange units (right side), GAC unit (left side)

Figure 3. Southeast Pump and Treat System (SEPTS) – Chet Bohlar leads the tour including (left to right) P. Harte (USGS), T. Fox (HGL), J. Montague (HGL), K. McNeely (EPA), W. Hooks (TCEQ), and M. Sifuentes-Chavez (TCEQ). (C. Bohlar is just in front of J. Montague)

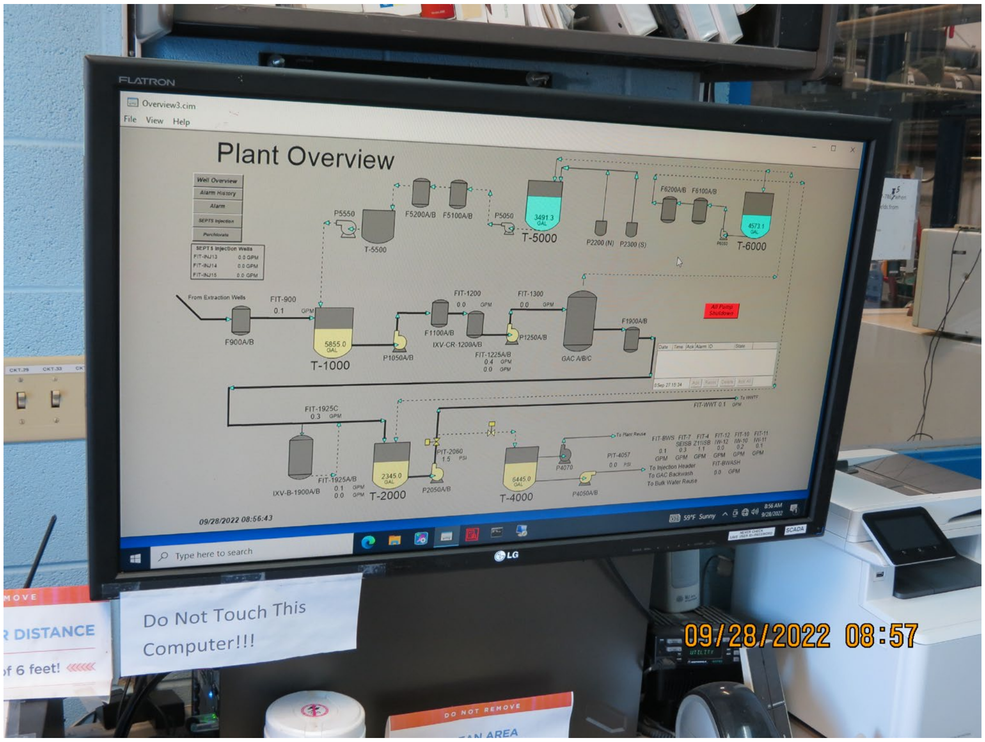

Figure 4. Southeast Pump and Treat System (SEPTS) – supervisory control and data acquisition (SCADA) system.

Figure 5. SEPTS Chromium and Boron treatment units.

Figure 6. SEPTS New Perchlorate treatment units.

Figure 7. Offsite ISB Inspection with O&M contractor (Trihydro Corporation)

Figure 8. Offsite ISB Injection well PTX06-ISB412 with hoses for injection

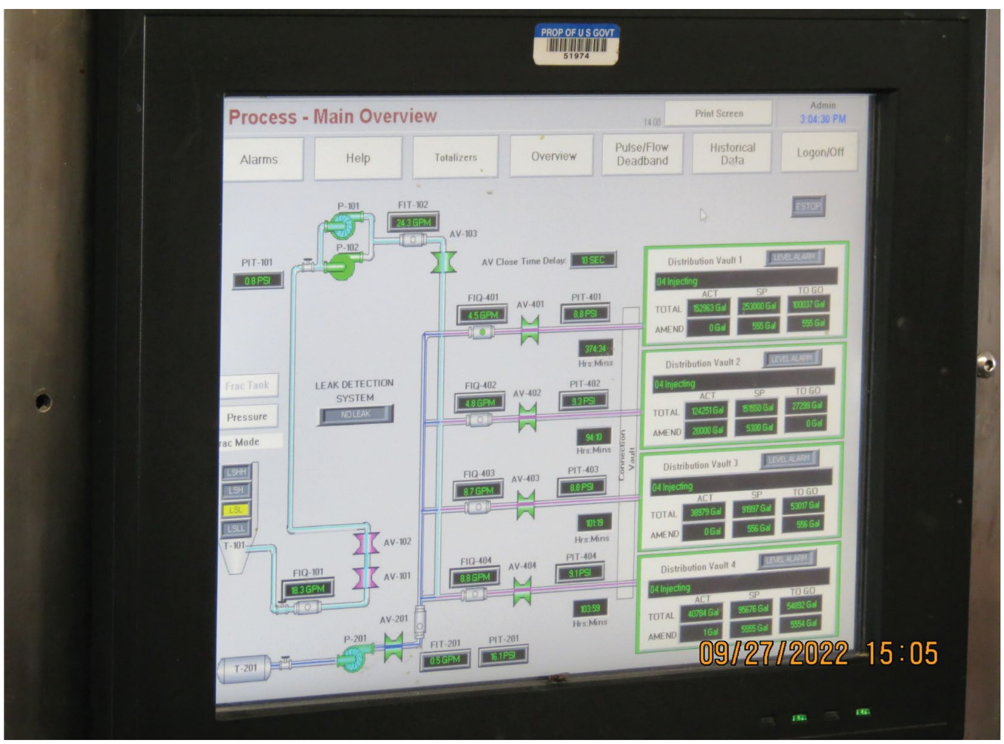

Figure 9. Offsite ISB SCADA System – Injecting at four wells, PTX06-ISB411 through PTX06-ISB414

Figure 10. SEISB Extension Injection Wells

Figure 11. Zone 11 ISB mobile injection trailer

Figure 12. Burning Ground SVE System – CatOx unit, Conex container, and scrubber stack in the background, hose connecting SVE-S020 to the blower (center right)

Figure 13. Burning Ground Landfill 1 Protective Cover (Beyond SVE sign)

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Site Inspection Checklist

(Pantex Plant Five-Year Review)

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Site Inspection Checklist

I. SITE INFORMATION	
Site name: US DOE/NNSA Pantex Plant	**Date of inspection: Sep 27 – 28, 2022**
Location and Region: Amarillo, TX 79068	**EPA ID: 4890110527**
Agency, office, or company leading the five-year review: Consolidated Nuclear Security, LLC **Contractor to US DOE/NNSA**	**Weather/temperature:** Sunny, clear, lows in the 60s highs in the upper 80s. Low wind.

Remedy Includes: (Check all that apply)

- ☑ Landfill cover/containment
- ☑ Access controls
- ☑ Institutional controls
- ☑ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☑ Other: Perched Groundwater In Situ Bioremediation (4 systems)
- ☑ Other: Soil Vapor Extraction (SVE)
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☑ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Chester "Chet" Bohlar — P&T Manager — 9/28/2022
   Name — Title — Date
   Interviewed ☑ at site ☐ at office ☐ by phone Phone no. ______________
   Problems, suggestions; ☐ Report attached

Toured the SEPTS treatment building with Chet. He noted the system was ~66 wells with typical capacity of 350 to 375 GPM. At the time of the site inspection, 8 to 10 wells were down so the system running at about 245 gpm. System has been modified through time. Wells are grouped such that groundwater comes in through 6 to 8 headers. Water first goes through Cr treatment, then through GAC, then through Boron Treatment. Boron Treatment only for a portion of the flow so the water that goes to irrigation does not inhibit crop growth. Perchlorate treatment (ion exchange, 54-100 gpm) was operating manually during the visit and will automated in a few weeks. GAC tanks consist of 3 tanks in series; change lead tank about every 3 months. GAC cannot be recycled because not all chromium is removed by chromium treatment system and GAC retains Cr. Change lead GAC vessel about every three months, spent GAC and new GAC transferred out/in as slurry. Spent GAC disposed at landfill in Canyon, TX.

2. **O&M staff** Kenny Robinson (Trihydro) — ISB Operator — 9/27/2022
   Name — Title — Date
   Interviewed ☑ at site ☐ at office ☐ by phone Phone no. ______________
   Problems, suggestions; ☐ Report attached

Southeast Offsite ISB injections are limited by the extraction rate from recovery wells. Typical injection rates are between 5 to 10 gpm per well, only 4 wells injected at a time. Injections were in process into the ISB injection wells installed just south of Highway 60. The Southeast Offsite ISB takes about three times longer to inject than the SEISB Extension. Visited ISB412; it and all other ISB wells are individually instrumented with automatic cutoff at 50 feet below top of casing to prevent overfilling the wells. Injections under pressure show little benefit. Also toured the injection trailer, which was tracking injection flow rate and flow volumes to ensure the design or planned amendment volumes were injected at each ISB well.

3.	**Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply. Agency ***Texas Commission on Environmental Quality*** Contact ***Maria Sifuentes-Chavez*** ***TCEQ Project Manager*** ***9/27-28/2022*** ***512-239-6778*** Name Title Date Phone no. Problems; suggestions; □ Report attached ***Concerned about recent detections of DNT4A in the Ogallala Aquifer.*** Agency ***Texas Commission on Environmental Quality*** Contact ***Wyatt Hooks*** ***TCEQ Project Manager*** ***9/27-28/2022*** Name Title Date Phone no. Problems; suggestions; □ Report attached *512-239-2362* Agency ***US Environmental Protection Agency*** Contact ***Kevin McNeely*** ***Remedial Project Manager*** ***9/27-28/2022*** ***214-665-6757*** Name Title Date Phone no. Problems; suggestions; □ Report attached Agency ***US Environmental Protection Agency*** Contact ***Steven Tzhone*** ***Remedial Project Manager*** ***9/27-28/2022*** ***214-665-8409*** Name Title Date Phone no. Problems; suggestions; □ Report attached ***Tied in by phone during initial meeting. Noted that EPA was looking for information on PFAS. Also noted the site had been taken off of a list – sitewide ready for anticipated use – and noted it as a performance measure that EPA was trying to recover.*** Agency US Geological Survey Contact ***Philip Harte*** ***Research Hydrologist*** ***9/27-28/2022*** ***803-750-6113*** Name Title Date Phone no. Problems; suggestions; □ Report attached ***Concerned about the fate of contaminants within and at the edge of the perched zone and possible migration into the Ogallala Aquifer.***
4.	**Other interviews** (optional) □ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☑ O&M manual	☑ Readily available	☑ Up to date	☐ N/A
	☑ As-built drawings	☑ Readily available	☑ Up to date	☐ N/A
	☑ Maintenance logs	☑ Readily available	☑ Up to date	☐ N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	☑ Readily available	☑ Up to date	☐ N/A
	☑ Contingency plan/emergency response plan	☑ Readily available	☑ Up to date	☐ N/A
	Remarks			
3.	**O&M and OSHA Training Records**	☑ Readily available	☑ Up to date	☐ N/A
	Remarks			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☐ N/A
	☑ Effluent discharge	☑ Readily available	☑ Up to date	☐ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☐ N/A
	☑ Other permits ***SWMU Interference***	☑ Readily available	☑ Up to date	☐ N/A
	Remarks			
	Systems operate under RCRA Permit HW-50284			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
7.	**Groundwater Monitoring Records**	☑ Readily available	☑ Up to date	☐ N/A
	Remarks			
	Groundwater monitoring for groundwater elevations, geochemical parameters, concentrations of contaminants of concern (COCs) are presented in quarterly and annual reports. Groundwater data are maintained in CNS databases and were available for inspection.			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			

9. **Discharge Compliance Records**

☑ Air ☑ Readily available ☑ Up to date ☐ N/A

☑ Water (effluent) ☑ Readily available ☑ Up to date ☐ N/A

Remarks

Groundwater treatment plant influent and effluent water are sampled monthly. Air Quality Monitoring Reports are submitted quarterly for SVE permit-by-rule compliance and samples are collected every two weeks at system startup and transitioning to monthly. SVE effluent samples are not collected when the system is off.

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☑ N/A

Remarks

The Pantex facility is secure with limited access to the entire site controlled by security personnel. Treatment buildings for the SEPTS, P1PTS, and SVE are behind security check points and locked when unattended.

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State

☐ PRP in-house ☐ Contractor for PRP

☑ Federal Facility in-house ☐ Contractor for Federal Facility

☐ Other____

2. **O&M Cost Records**

☑ Readily available ☑ Up to date

☑ Funding mechanism/agreement in place

Cost details and analysis to be provided as part of the main Five-Year Review report.

Original O&M cost estimate____________________ ☐ Breakdown attached

Total annual cost by year for review period if available

From__________ To__________ __________________ ☐ Breakdown attached
Date Date Total cost

From__________ To__________ __________________ ☐ Breakdown attached
Date Date Total cost

From__________ To__________ __________________ ☐ Breakdown attached
Date Date Total cost

From__________ To__________ __________________ ☐ Breakdown attached
Date Date Total cost

From__________ To__________ __________________ ☐ Breakdown attached
Date Date Total cost

3.	**Unanticipated or Unusually High O&M Costs During Review Period** Describe costs and reasons: ***Costs for raw materials and parts has increased as a result of supply chain issues and inflation.*** • ***Offsite ISB infrastructure, offsite recovery and injection wells, and offsite monitoring wells are being installed at a cost of approximately $20 million.***
	V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable ☐ N/A
A. Fencing	
1.	**Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☑ N/A Remarks ***Fences around and within the Pantex facility were in good condition and well maintained. Access to the facility is highly restricted.***
B. Other Access Restrictions	
1.	**Signs and other security measures** ☐ Location shown on site map ☐ N/A Remarks ***Pantex is a secure, fenced facility with continuous monitoring by CNS security personnel. Entry to the Pantex Facility is controlled and requires advance notification / clearance for access. Property east of the main Pantex Facility is owned by Pantex with the surface used for crop cultivation with new pivot irrigation systems being constructed by Pantex. The area is not overtly restricted and is patrolled less frequently by security personnel. Southeast of the main Pantex Facility is an offsite area that is leased by Pantex for treatment of COCs. This area is not restricted/patrolled by CNS security personnel, but is equipped with locked entry gates and fencing around operations pads. Land use controls are in place across the Pantex property and on several neighboring properties including portions of the Texas Tech property and areas to the north and southeast. No unauthorized drilling or excavation activities were noted on these properties.***

C. Institutional Controls (ICs)
1. **Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes ☑ No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes ☑ No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by) ***ICs are enforced by site security personnel and CNS prime contractor to NNSA/DOE.*** Frequency ***Continuous*** Responsible party/agency ***NNSA/DOE, CNS and subcontractors*** Contact Martin Amos (Name) Project Manager (Title) 9/26-27/2022 (Date) 806-573-6458 (Phone no.) Reporting is up-to-date ☑ Yes ☐ No ☐ N/A Reports are verified by the lead agency ☑ Yes ☐ No ☐ N/A Specific requirements in deed or decision documents have been met ☑ Yes ☐ No ☐ N/A Violations have been reported ☐ Yes ☑ No ☐ N/A Other problems or suggestions: ☐ Report attached
2. **Adequacy** ☑ ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks ***The Pantex Plant has a high level of security. All access is controlled and all building construction and projects involving excavation or drilling must be receive approval by Pantex Plant Environmental Projects management before beginning.***
D. General
1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident Remarks ***The facility is surrounded by a fence and patrolled by security personnel. All access to the site is highly restricted.***
2. **Land use changes on site** ☐ N/A Remarks ***Pivot systems are being installed east of the main Pantex Facility to beneficially reuse treated groundwater from the SEPTS and P1PTS. A new lagoon is also being constructed to support the Center Pivot system operation in accordance with Texas Land Application Permit No. WQ0004397000 issued on August 11, 2020. Operation of this system will ensure the pump and treat systems can operate continuously.***
3. **Land use changes off site** ☑ N/A Remarks

VI. GENERAL SITE CONDITIONS
A. Roads ☐ **Applicable** □ **N/A**
1. Roads damaged □ **Location shown on site map** □ **Roads adequate** □ **N/A** **Remarks** **Main roads were generally in good condition. Paved roads around Playa 1 had general weathering and some moderate potholes. Unpaved roads were generally in good condition. Access roads to several SWMU areas were overgrown.**
B. Other Site Conditions
Remarks ***Facilities are well maintained and in good condition. Ample room to perform maintenance and repairs in treatment plants safely and efficiently. Wells are refurbished as needed.***
VII. LANDFILL COVERS ☑ Applicable ☐ N/A
A. Landfill Surface
1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident Areal extent______________ Depth____________ Remarks • ***SWMU 56 / Landfill 5: settlement noted west of former road crossing the area. Concrete culvert outlet was disconnected and at a slightly higher elevation than the rest of the culvert. Possibly leading to voids forming in the subsurface causing settlement.***
2. **Cracks** ☐ Location shown on site map ☑ Cracking not evident Lengths____________ Widths___________ Depths__________ Remarks____ ____
3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident Areal extent______________ Depth____________ Remarks • ***SVS 8 / Zone 10 Abandoned Landfill: minor erosion along the roadway southwest of the landfill. Flow appeared to be focused towards a culvert at the southwest corner of the landfill where ponding may occur. Cover within the swale along the roadway was bare in this area.***
4. **Holes** ☐ Location shown on site map ☐ Holes not evident Areal extent______________ Depth____________ Remarks • ***Prairie dogs are present in the north and west of the Pantex Facility. Holes were not noted in landfills, but the possibility of prairie dogs burrowing in through a landfill exists. The largest SVS 6 landfill contained large animal burrows that should be addressed.***

5.	**Vegetative Cover** ☑ Grass ☑ Cover properly established ☐ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram) Remarks • ***SWMU 54 / Landfill 3: grass cover is kept very short for security purposes. The geotextile liner was exposed as a result of reduced cover and possible stress from mowers driving over the area.***
6.	**Alternative Cover (armored rock, concrete, etc.)** ☐ N/A Remarks ***Some landfills covered by Closure Turf™.***
7.	**Bulges** ☐ Location shown on site map ☑ Bulges not evident Areal extent______________ Height____________ Remarks____
8.	**Wet Areas/Water Damage** ☑ Wet areas/water damage not evident ☐ Wet areas ☐ Location shown on site map Areal extent______________ ☐ Ponding ☐ Location shown on site map Areal extent______________ ☐ Seeps ☐ Location shown on site map Areal extent______________ ☐ Soft subgrade ☐ Location shown on site map Areal extent______________ Remarks____
9.	**Slope Instability** ☐ Slides ☐ Location shown on site map ☑ No evidence of slope instability Areal extent______________ Remarks____
B. Benches	☐ Applicable ☑ N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	**Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay Remarks____
2.	**Bench Breached** ☐ Location shown on site map ☐ N/A or okay Remarks____
3.	**Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay Remarks____

C. Letdown Channels ☐ Applicable ☑N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. Settlement ☐ Location shown on site map ☐ No evidence of settlement
Areal extent______________ Depth____________
Remarks____

2. Material Degradation ☐ Location shown on site map ☐ No evidence of degradation
Material type_______________ Areal extent_____________
Remarks____

3. Erosion ☐ Location shown on site map ☐ No evidence of erosion
Areal extent______________ Depth____________
Remarks____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent______________ Depth____________
Remarks____

5. **Obstructions** Type_____________________ ☐ No obstructions
☐ Location shown on site map Areal extent______________
Size____________
Remarks____

6. **Excessive Vegetative Growth** Type____________________
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent______________
Remarks____

D. Cover Penetrations ☑ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☑ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks

Installed at turf closures to mitigate bulges in the turf. Tests indicated COCs were not present in vented air at time of installation.

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A
Remarks____

3.	**Monitoring Wells** (within surface area of landfill) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A Remarks_______________
4.	**Leachate Extraction Wells** ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A Remarks_______________
5.	**Settlement Monuments** ☐ Located ☐ Routinely surveyed ☑ N/A Remarks ***LiDAR comparison used to determine settlement.***
E. Gas Collection and Treatment ☐ Applicable ☑ N/A	
1.	**Gas Treatment Facilities** ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse ☐ Good condition ☐ Needs Maintenance Remarks_______________
2.	**Gas Collection Wells, Manifolds and Piping** ☐ Good condition ☐ Needs Maintenance Remarks_______________
3.	**Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings) ☐ Good condition ☐ Needs Maintenance ☐ N/A Remarks_______________
F. Cover Drainage Layer ☐ Applicable ☑ N/A	
1.	**Outlet Pipes Inspected** ☐ Functioning ☐ N/A Remarks_______________
2.	**Outlet Rock Inspected** ☐ Functioning ☐ N/A Remarks_______________
G. Detention/Sedimentation Ponds ☐ Applicable ☑ N/A	
1.	**Siltation** Areal extent__________ Depth__________ ☐ N/A ☐ Siltation not evident Remarks_______________
2.	**Erosion** Areal extent__________ Depth__________ ☐ Erosion not evident Remarks_______________

3. **Outlet Works** ☐ Functioning ☐ N/A Remarks______________________________	
4. **Dam** ☐ Functioning ☐ N/A Remarks______________________________	
H. Retaining Walls ☐ Applicable ☑ N/A	
1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident Horizontal displacement____________ Vertical displacement____________ Rotational displacement____________ Remarks______________________________	
2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident Remarks______________________________	
I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☑ N/A	
1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident Areal extent____________ Depth____________ Remarks______________________________	
2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A ☐ Vegetation does not impede flow Areal extent____________ Type____________ Remarks______________________________	
3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident Areal extent____________ Depth____________ Remarks______________________________	
4. **Discharge Structure** ☐ Functioning ☐ N/A Remarks______________________________	
VIII. VERTICAL BARRIER WALLS ☐ Applicable ☑ N/A	
1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident Areal extent____________ Depth____________ Remarks______________________________	
2. **Performance Monitoring** Type of monitoring____________ ☐ Performance not monitored Frequency______________________ ☐ Evidence of breaching Head differential____________________ Remarks______________________________	

IX. GROUNDWATER REMEDIES ☑ Applicable ☐ N/A
Southeast Pump and Treat System (SEPTS)
A. Groundwater Extraction Wells, Pumps, and Pipelines ☑Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☑ Good condition ☐ Needs Maintenance ☐ N/A ☑ All required wells properly operating Remarks ***Some extraction wells may have operational problems due to limited saturated thickness (< 15 ft).***
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☑ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☑ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A
1. **Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks
2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks

C. **Treatment System** ☑ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☑ Metals removal (Cr(VI), Boron) ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☑ Carbon adsorbers ☑ Filters ***10 µm filters*** ☐ Additive (*e.g.*, chelation agent, flocculent)________ ☐ Others________ ☑ Good condition ☐ Needs Maintenance ☑ Sampling ports properly marked and functional ☑ Sampling/maintenance log displayed and up to date ☑ Equipment properly identified ☑ Quantity of groundwater treated annually ~***130 million gallons – 158 million gallons (139 million gallons in 2021)*** ☐ Quantity of surface water treated annually ***None*** Remarks ***Three 20,000-pound granular activated carbon (GAC) vessels to remove high explosives (HE), with sequential change out schedule (about one tank every three months). Cr(VI) and Boron ion exchange treatment units are located prior to GAC (two units each with only one used at a time). Perchlorate ion exchange added in 2022. Cr(VI) and Boron ion exchange are swapped approximately every three months and resin is sent offsite for regeneration.*** ***Perchlorate detected in higher concentrations after Cr(VI) and Boron ion exchange than in influent concentrations. Results indicate that perchlorate may be leaching off of ion exchange resin and may require new resin to be used rather than regenerated.***
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☑ Good condition ☐ Needs Maintenance Remarks________
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☑ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks________
4. **Discharge Structure and Appurtenances** ☐ N/A ☑ Good condition Needs Maintenance Remarks
5. **Treatment Building(s)** ☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks________

6.	**Monitoring Wells** (pump and treatment remedy) ☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks ***An abandoned monitoring well was visible on the former Cockrell property. The well cap was not locked and inspection of the well revealed that the casing had been grouted. Additional documentation is needed to confirm when the well was plugged and construction details.***
D. Monitoring Data	
1.	Monitoring Data ☑ Is routinely submitted on time ☑ Is of acceptable quality
2.	Monitoring data suggests: ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining ***Concentrations are generally stable over the five-year review period in monitoring wells within the SEPTS extraction wells. Monitoring wells located at or near the plume margins have more variable trends with increasing trends to the east and southeast suggesting that the plume is expanding to areas outside of the SEPTS area of influence. The plume has migrated to the southeast to the offsite area. Additional data were evaluated and presented as part of the Long Term Monitoring Optimization Report for Perched Groundwater (Attachment 11 to the Five-Year Review).***

IX. GROUNDWATER REMEDIES ☑ Applicable ☐ N/A
Playa 1 Pump and Treat System (P1PTS)
A. Groundwater Extraction Wells, Pumps, and Pipelines ☑ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☑ Good condition ☑ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☑ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☑ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A
1. **Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks
2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks

C. **Treatment System** ☐ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☑ Metals removal (Boron) ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☑ Carbon adsorbers ☑ Filters________ ☐ Additive (*e.g.*, chelation agent, flocculent)________ ☐ Others________ ☑ Good condition ☐ Needs Maintenance ☑ Sampling ports properly marked and functional ☑ Sampling/maintenance log displayed and up to date ☑ Equipment properly identified ☑ Quantity of groundwater treated annually ***up to 131 million gallons by design. (1.4 million gallons in 2021).*** ☐ Quantity of surface water treated annually ***None*** Remarks ***Four 10,000-pound GAC vessels in two pairs in series to address HE compounds. Effluent from GAC vessels goes to boron ion exchange unit. System was operated only 1 week per quarter as a result of issues with the subsurface irrigation system and limited ability to discharge to Playa 1. SEPTS was prioritized over P1PTS for operation over the five-year review period.***
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☐ Good condition ☐ Needs Maintenance Remarks________
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☑ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks________
4. **Discharge Structure and Appurtenances** ☐ N/A ☑ Good condition Needs Maintenance Remarks
5. **Treatment Building(s)** ☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks________
6. **Monitoring Wells** (pump and treatment remedy) ☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks________

D. Monitoring Data	
1.	Monitoring Data ☑ Is routinely submitted on time ☑ Is of acceptable quality
2.	Monitoring data suggests: ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining ***Groundwater concentrations are slightly increasing in areas around Playa 1. Possibly as a result of increased discharge to Playa 1 resulting from irrigation system failures over the five-year review period.***

Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☑ N/A

Remarks____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

SWMU 2 and 5/5 Ditch Liner

A. Ditch Liner

1. **Liner intact** ☐ No repairs needed ☐ Headwall requires anchoring
☑ Rips/tears in liner ☐ Headwall in place

Areal extent ______________ Depth ______________

Remarks

Rips along liner edge from grass trimming/snow removal.

2. **Excessive Siltation** ☐ Location shown on site map ☐ Siltation not evident

Areal extent ______________ Depth ______________

Remarks

Siltation within ditches, more siltation located at the eastern end of the 5/5 ditch.

3. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
☑ Vegetation does not impede flow

Areal extent ______________ Depth ______________

Remarks____

4. **Discharge Structure** ☑ Functioning ☐ N/A

Remarks____

Burning Ground SVE System

A. SVE Extraction Wells and Pipelines	
1.	**Wellhead Plumbing** ☑ Good condition ☐ Needs maintenance ☐ N/A ☑ All required wells properly operating Remarks ***Well SVE-S-20 is the only remaining SVE well in operation.***
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☑ Good condition ☐ Needs maintenance Remarks
3.	**Spare Parts and Equipment** ☑ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks
B. SVE Treatment System	
1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air Stripping ☐ Carbon adsorbers ☐ Filters ☑ Additive (e.g., chelation agent, flocculent) ***Base to neutralize HCl production.*** ☑ Other: ***Catalytic Oxidation Unit*** ☑ Other: ***Scrubber Unit with sodium hydroxide*** ☐ Good condition ☐ Needs maintenance ☐ Sampling ports properly marked and functional ☐ Sampling/maintenance log displayed and up to date ☐ Equipment properly identified ☑ Quantity of VOCs treated annually ***~800 pounds in 2017 decreasing to 268 pounds in 2020 and 46 pounds in 2021 with the system operated less frequently (21% of the time)*** Remarks ***A pulsing plan was initiated in 2020 and continued through 2021 in anticipation of requesting closure of the system in 2023. Additional shutdowns resulting from recirculation pump failure led to reduced operation in 2021.***
2.	**Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☐ Good condition ☐ Needs maintenance Remarks ***SVE container was locked and inaccessible during inspection.***

3.	**Tanks, Vaults, Storage Vessels** ☑ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance Remarks____
4.	**Discharge Structure and Appurtenances** ☑ N/A ☐ Good condition ☐ Needs maintenance Remarks____
5.	**Treatment Building(s)** ☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks ***Inspection of SVE container from the outside only.***
6.	**Monitoring Ports** ☑Properly secured/locked ☑Functioning ☑Routinely sampled ☑Good condition ☑All Required ports located ☐ Needs maintenance ☐ N/A Remarks____
C. Monitoring Data	
1.	Monitoring Data ☑ Is routinely submitted on time ☑ Is of acceptable quality
2.	Monitoring data suggests: ☑ VOC (gas/NAPL) plume is effectively contained ☑ Contaminant concentrations are declining
Groundwater ISB Systems (Zone 11, Southeast, Southeast Extension, and Offsite)	
A. ISB Injection Wells, Pumps, and Pipelines ☑ Applicable ☐ N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☑ Good condition ☑ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks ***The older wells in the Zone 11 ISB are not able to inject at rates comparable to newer wells.***
2.	**Injection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☑ Good condition ☐ Needs Maintenance Remarks ***Pre-injection maintenance and repairs are part of injection efforts.***

3. **Spare Parts and Equipment**

☑ Readily available ☐ Good condition
☐ Requires upgrade ☐ Needs to be provided
Remarks____

B. ISB Injection Structures, Pumps, and Pipelines ☑ Applicable ☐ N/A

1. **Injection Structures, Pumps, and Electrical**

☑ Good condition ☐ Needs Maintenance

Remarks_

Mobile injection trailers operated by O&M contractors (currently Trihydro).

2. **Spare Parts and Equipment**

☑ Readily available ☐ Good condition
☐ Requires upgrade ☐ Needs to be provided

Remarks____

C. ISB Treatment System ☑ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers
☐ Filters____
☑ Additive (*e.g.*, chelation agent, flocculent) ***Molasses added currently, previously Newman Zone***
☐ Others____
☑ Good condition ☐ Needs Maintenance
☑ Sampling ports properly marked and functional
☑ Sampling/maintenance log displayed and up to date
☑ Equipment properly identified
☐ Quantity of groundwater treated annually ***As the ISB remedy is below ground, precise measurements of treatment are difficult to develop. Concentrations in nearby groundwater are generally decreasing, indicating successful treatment of COCs. Injections are performed approximately every 7 months with molasses amendments at SEISB Ext, annually Zone 11, and semi-annually at the Offsite ISB.***
☐ Quantity of surface water treated annually________________________

Remarks

Injections were being conducted at the Zone 11 and Offsite ISBs during the site inspection. The Zone 11 ISB was nearing completion of injections and the mobile injection trailer was going to be transferred to the Offsite ISB to inject the southernmost row of wells.

Injection water at the Zone 11 ISB is supplied by SEPTS. Injection rates vary between 2 and 15 GPM. Injection at Zone 11 began in May and was finishing up at the end of September.

Injection water at the Offsite ISBs is supplied by recovery wells that limit the injection rate.

2.	**Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☑ Good condition ☐ Needs Maintenance Remarks______________________________
3.	**Tanks, Vaults, Storage Vessels** ☐ N/A ☑ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks ***Frac tanks are used to store water and molasses for use in the ISB system. In the ISBs located north of highway 60, treated effluent from the SEPTS is pumped into frac tanks for use in mixing with molasses to prepare the injection fluid. In the Offsite ISB, perched groundwater is removed from recovery wells at varying rates and stored in frac tanks for mixture with molasses. Injections at the Offsite ISB are limited by the rate of groundwater extraction from the recovery wells.***
4.	**Injection Structure and Appurtenances** ☐ N/A ☑ Good condition ☐ Needs Maintenance Remarks______________________________
5.	**Treatment Building(s)** ☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair ☑ Chemicals and equipment properly stored Remarks ***Mobile injection trailers are used for the ISB systems and were in good condition.***
6.	**Monitoring Wells** (pump and treatment remedy) ☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition ☑ All required wells located ☐ Needs Maintenance ☐ N/A Remarks______________________________
D. Monitoring Data	
3.	Monitoring Data ☑ Is routinely submitted on time ☑ Is of acceptable quality
4.	Monitoring data suggests: ☐ Groundwater plume is effectively contained ☑ Contaminant concentrations are declining ***Contaminant concentrations are generally declining across the site with some exceptions. Groundwater plumes are contained in most areas with some plumes extending beyond the Zone 11 ISB and into areas outside of the pump and treat systems.***

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

SEPTS / P1PTS are designed to reduce saturation in the perched zone and intercept COCs for treatment and beneficial reuse. ISB remedies are designed to enhance degradation of HEs and VOCs. Overall the system is reducing plume mass.

SEPTS and P1PTS were operating at reduced capacity because of subsurface irrigation system failures. The P1PTS operates about one week per quarter with priority given to the SEPTS. Discharge was going to Playa 1, as the ISB injections for the year were finishing.

The SEISB system was installed to treat contaminants migrating towards an area where the Fine-Grained Zone (FGZ) is more permeable. Amendment injections have reduced perched groundwater contaminant levels, and much of the area has been dewatered due to SEPTS operations, which both act to limit potential migration to the underlying Ogallala Aquifer. However, a TNT degradation product DNT4A has shown an increasing trend in PTX06-1056, which is downgradient of the more permeable FGZ. A high volume purge sampling event was completed to provide information on the possible extent of DNT4A in the Ogallala. During the post inspection meeting, CNS noted a detection of RDX in Ogallala well PTX06-1157 of 0.338 ug/L. Confirmation sampling was conducted for this well after the inspection and none of the high explosive compounds were detected. Of note, during the site inspection, a private well stickup and protective posts were noted on the former private landowner property. A visit to the well verified the casing was grouted. PTX06-1157 is downgradient of this location.

Injections were occurring in both the Zone 11 ISB and southeast Offsite ISB during the site inspection. TCE and Perchlorate plumes extend slightly past the Zone 11 ISB with increasing concentrations that may indicate those downgradient areas are no longer benefiting from increased degradation or the contamination had already migrated past the Zone 11 ISB system. Increasing concentration trends of RDX are present in PTX06-1153, an area downgradient of the SEISB where the fine grained zone is more permeable. RDX concentrations in this well increased from 200 ug/L to about 800 ug/L from 2017 to 2019 and have since dropped back down to about 300 ug/L. Recent exceedances of DNT4A in Ogallala well PTX06-1056 were discussed and previous modeling that predicted PTX06-1056 as the most likely area where HEs would migrate to the Ogallala. Additionally, a recent detection of RDX in Ogallala well PTX06-1157, east of the perched unit saturation was discussed. A former private well upgradient of PTX06-1157 was identified and visual inspection determined that the casing was grouted; however, the details on the grouting need to be determined.

Landfill covers were observed to be mostly well vegetated and function as intended to prevent direct contact with contaminants and convey storm water away from buried waste. Regrading of landfills was occurring during the site investigation to level out low spots.

Burning Ground SVE was operational during the site inspection, but the building was locked and inaccessible. Pulsing of the SVE system is underway to support system closure.

The SWMU 2 and 5/5 ditch liners have siltation and some rips were present.

B.	Adequacy of O&M
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. ***Offsite ISBs are limited by the extraction rate of recovery wells and therefore injections in this area take about three times longer than ISBs where water from SEPTS is available.*** ***Pump and treat systems are operated at a limited capacity because of subsurface irrigation system failures. A new five-pivot irrigation system was being constructed during the site inspection and will allow for an increase of the volume of water that can be extracted from SEPTS and P1PTS.***
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. ***Several levels of groundwater and treatment system monitoring provide early warning about potential problems in treating and containing contaminants. Additional wells are planned for installation into the Ogallala to monitor recent detections of HEs above groundwater protection standards.***
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. ***See Long-Term Monitoring Optimization Report attached to the Five-Year Review Report (Attachment 11)***

Attachment 4

Interview Questions Third Five-Year Review

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Table of Contents

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Pantex Plant Remedial Action Overview

Pantex Plant initiated a Remedial Action in 2009, after completing soil and groundwater investigations, selecting remedies, and constructing remedial action systems. The Record of Decision that describes the Selected Remedy and current reports on the progress of cleanup activities can be found at https://pantex.energy.gov. As part of ongoing operation, maintenance, and reporting on the remedial action systems, Pantex is conducting a Five-Year Review.

The Five-Year Review evaluates the short-term and long-term protectiveness of the Remedial Action. The five-year review will focus on:

- Are the actions performing as designed?
- Are the data used to select the actions still valid?
- Are the actions protective of human health and the environment?

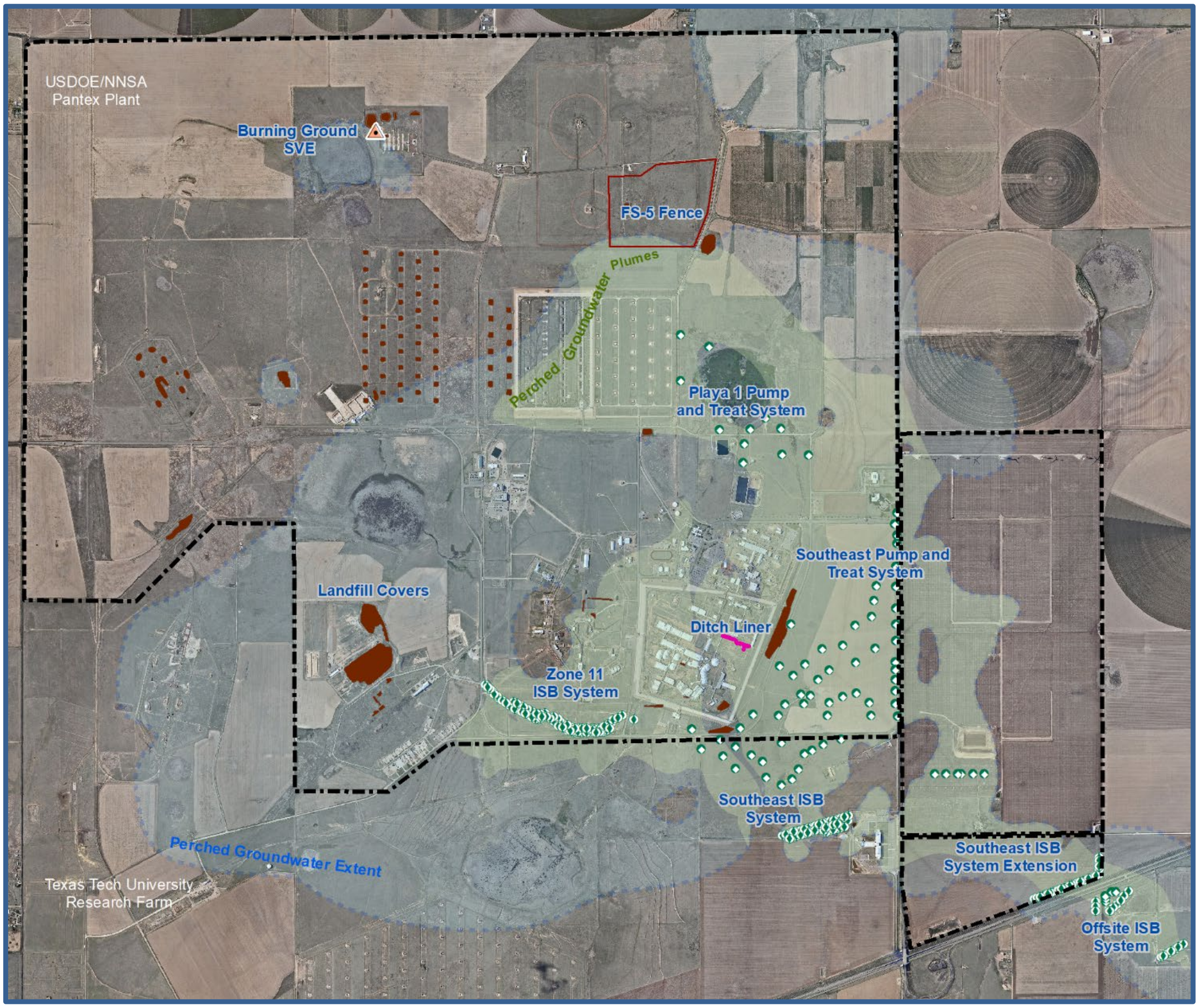
The results of the review are used to help optimize the long-term cleanup, if needed, or determine if the cleanup actions, as currently operated, will ensure long-term protectiveness of people and the environment.

This is the third five-year review to be conducted since the start of the Remedial Action. The Remedial Action at Pantex consists of the following:

- Groundwater – Pantex treats impacted perched groundwater using two pump and treat systems and four *in situ* bioremediation systems to remove impacted water and contamination from the perched groundwater and to protect the underlying drinking water aquifer. Pantex controls use of the affected perched groundwater to prevent use of untreated water. Pantex also conducts a comprehensive monitoring program to evaluate the effectiveness of the groundwater remedial actions and to monitor the drinking water aquifer.

- Soils – Pantex has installed soil covers, liners, and other controls to isolate workers from contact with soil contaminants and to prevent migration of those contaminants to groundwater. Pantex has placed controls on the impacted soil areas to allow only industrial use of the areas. A soil vapor extraction (SVE) system has been installed to remove solvents in deep soils to prevent migration of those solvents to groundwater. Pantex also conducts a program to monitor the effectiveness of the SVE system and also maintains and monitors the soil covers, liners, and controls (such as fencing and signs) to ensure the continued effectiveness of the Remedial Action.

Additional information on the Remedial Actions can be found at https://pantex.energy.gov, select "Mission," then "Environment," then "Environmental Cleanup Documents." Several fact sheets have been developed to provide information on the groundwater cleanup and can be viewed on the website. The cleanup actions at Pantex are depicted in the following map.



Environmental Cleanup Actions at Pantex

Pantex Plant Remedial Action Interview Questions
For the Third Five-Year Review

Site Name: Pantex Plant

EPA ID No. TX 4890110527, RN100210756 (Pantex Plant), CN600125009 (USDOE), CN600125009 (USDOE), CN604601344 (CNS); **TCEQ Solid Waste Registration No.** 30459; TCEQ Hazardous Waste Permit No. HW-50284

Person Completing this Form:

Name:

Address:

City, State Zip:

1. What is your overall impression of the work conducted for the Pantex Remedial Action?

2. What effect have operations of the Remedial Action had on the surrounding community since September 2018 (since the last five-year review)?

3. In the past 5 years, are you aware of any community concerns regarding the Pantex Remedial Action or its administration? If so, please provide details.

4. Are you aware of any events, incidents, or activities at the Pantex Plant that would affect the protectiveness of the Remedial Action for the surrounding community? If so, please provide details.

5. Do you feel well informed about the Remedial Action activities and progress?

6. Do you have any comments, suggestions, or recommendations regarding the Pantex Remedial Action management or operation?

Pantex Plant Remedial Action Overview

Pantex Plant initiated a Remedial Action in 2009, after completing soil and groundwater investigations, selecting remedies, and constructing remedial action systems. The Record of Decision that describes the Selected Remedy and current reports on the progress of cleanup activities can be found at https://pantex.energy.gov. As part of ongoing operation, maintenance, and reporting on the remedial action systems, Pantex is conducting a Five-Year Review.

The Five-Year Review evaluates the short-term and long-term protectiveness of the Remedial Action. The five-year review will focus on:

- Are the actions performing as designed?
- Are the data used to select the actions still valid?
- Are the actions protective of human health and the environment?

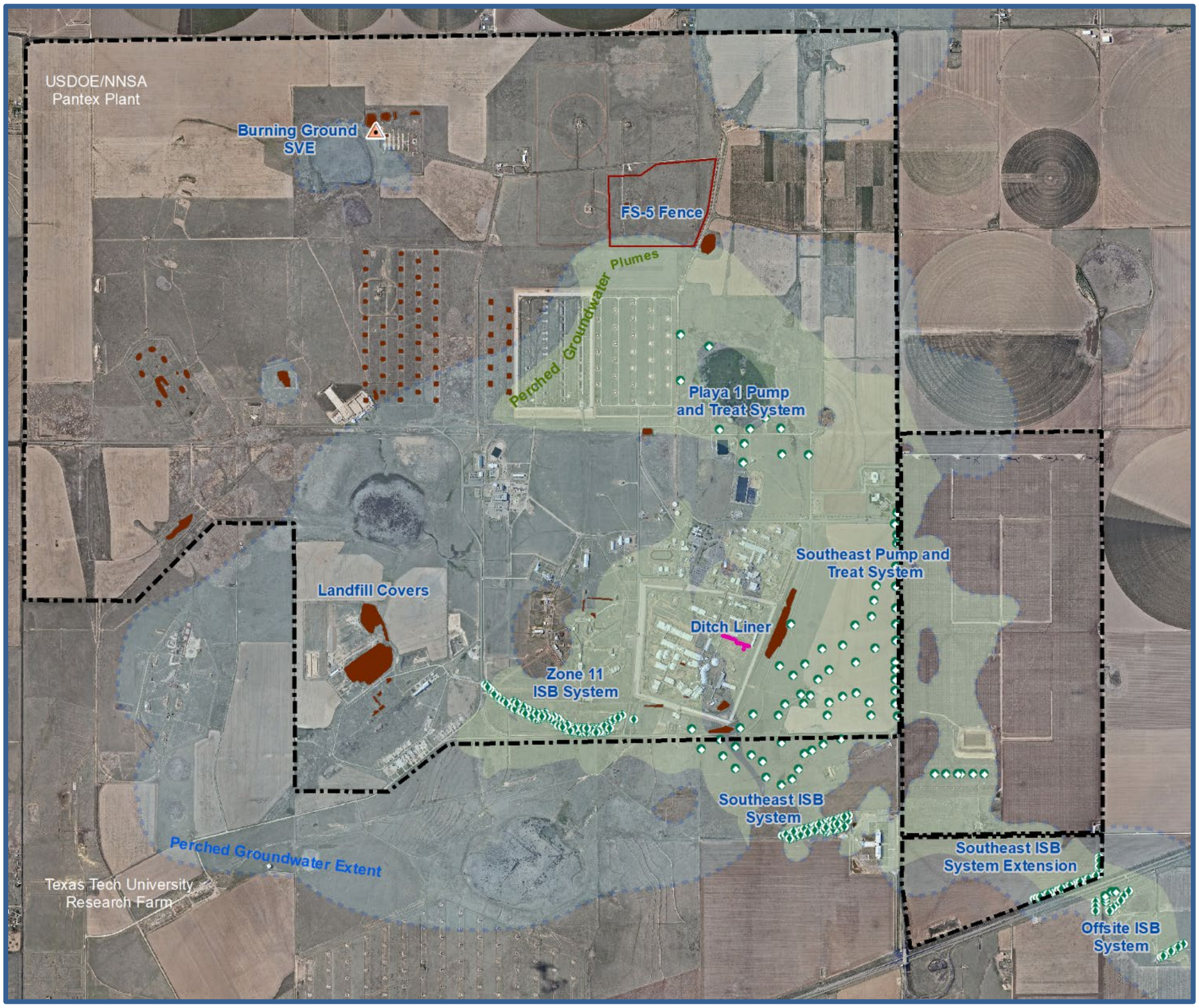
The results of the review are used to help optimize the long-term cleanup, if needed, or determine if the cleanup actions, as currently operated, will ensure long-term protectiveness of people and the environment.

This is the third five-year review to be conducted since the start of the Remedial Action. The Remedial Action at Pantex consists of the following:

- Groundwater - Pantex treats impacted perched groundwater using two pump and treat systems and four *in situ* bioremediation systems to remove impacted water and contamination from the perched groundwater and to protect the underlying drinking water aquifer. Pantex controls use of the affected perched groundwater to prevent use of untreated water. Pantex also conducts a comprehensive monitoring program to evaluate the effectiveness of the groundwater remedial actions and to monitor the drinking water aquifer.

- Soils – Pantex has installed soil covers, liners, and other controls to isolate workers from contact with soil contaminants and to prevent migration of those contaminants to groundwater. Pantex has placed controls on the impacted soil areas to allow only industrial use of the areas. A soil vapor extraction (SVE) system has been installed to remove solvents in deep soils to prevent migration of those solvents to groundwater. Pantex also conducts a program to monitor the effectiveness of the SVE system and also maintains and monitors the soil covers, liners, and controls (such as fencing and signs) to ensure the continued effectiveness of the Remedial Action.

Additional information on the Remedial Actions can be found at https://pantex.energy.gov, select "Mission," then "Environment," then "Environmental Cleanup Documents." Several fact sheets have been developed to provide information on the groundwater cleanup and can be viewed on the website. The cleanup actions at Pantex are depicted in the following map.



Environmental Cleanup Actions at Pantex

Pantex Plant Remedial Action Interview Questions
For the Third Five-Year Review

Site Name: Pantex Plant

EPA ID No. TX 4890110527, RN100210756 (Pantex Plant), CN600125009 (USDOE), CN600125009 (USDOE), CN604601344 (CNS); **TCEQ Solid Waste Registration No.** 30459; TCEQ Hazardous Waste Permit No. HW-50284

Person Completing this Form:

Name: Title:

Address: Organization:

City, State Zip:

1. What is your overall impression of the work conducted for the Pantex Remedial Action?

2. What effect have operations of the Remedial Action had on the surrounding community since September 2018 (since the last five-year review)?

3. In the past 5 years, are you aware of any community concerns regarding the Pantex Remedial Action or its administration? If so, please provide details.

4. Have there been any complaints, violations, or other incidents related to the Pantex Remedial Action requiring a response by your office? If so, please give details of the events and results of the responses.

5. Has there been routine communications or activities (site visits, inspections, reporting activities, attending public meetings, etc.) conducted by your office regarding the Pantex Remedial Action? If so, please give purpose and results.

6. Do you feel well informed about the Remedial Action activities and progress?

7. Do you have any comments, suggestions, or recommendations regarding the Pantex Remedial Action management or operation?

Attachment 5

SWMU Status and Response Action Tables for the Third Five-Year Review

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List of Tables

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Table 1. SWMU Status Table for Pantex Plant

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
AOC 4	Asbestos Installation (Plant-wide)	Admin Closure	2003	N	N	N	N
AOC 9	Site-Wide, Underground Storage Tanks	Admin Closure	2003	N	N	N	N
SWMU 100	Waste Accumulation Area, (Bldg 12-42)	Admin Closure	2003	N	N	N	N
SWMU 101	Waste Accumulation Area, Bldg 12-59	Admin Closure	2003	D&D	N	N	N
SWMU 102	Bldg 12-68 Batch Master, Northeast Corner	Admin Closure	1997, 2003	N	N	N	N
SWMU 104	Waste Accumulation Area, (Bldg 12-82)	Admin Closure	2003	N	N	N	N
SWMU 105	Waste Accumulation Area, (Bldg 12-84)	Admin Closure	2003	N	N	N	N
SWMU 107	Bldg 16-5, Flammable Liquid Storage	Admin Closure	2003	N	N	N	N
SWMU 111	Bldg 11-36 Solvent Tanks	Admin Closure	2001	N	N	N	N
SWMU 112	Bldg 11-36 Solvent Tanks	Admin Closure	2001	N	N	N	N
SWMU 114	Bldg 11-36 Scrubber System	Admin Closure	2001	D&D	N	N	N
SWMU 115	Bldg 11-36 Carbon Filter	Admin Closure	2001	D&D	N	N	N
SWMU 116	Bldg 11-36 Sludge Filters	Admin Closure	2001	D&D	N	N	N
SWMU 124	Bldg 11-50 Waste water Treatment System	Admin Closure	2001	N	N	N	N
SWMU 125	Bldg 12-43 HE Contaminated Charcoal Boxes	Admin Closure	2001	N	N	N	N
SWMU 126	Miscellaneous HE Contaminated Waste Dumpsters	Admin Closure	2001	N	N	N	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 127	Miscellaneous Non-hazardous Waste Dumpsters	Admin Closure	2001	N	N	N	N
SWMU 128	Portable HE Waste water Tanks	Admin Closure	2001	N	N	N	N
SWMU 129a	HE Contaminated Sludge Containers, Bldg 11-44	Admin Closure	2001	N	N	N	N
SWMU 129b	HE Contaminated Sludge Containers Bldg 12-43	Admin Closure	2001	N	N	N	N
SWMU 131	Portable Waste Oil Storage Tanks (Bldg 12-35)	Admin Closure	2001	N	N	N	N
SWMU 132	Vacuum Guzzlers	Admin Closure	2001	N	N	N	N
SWMU 134	Bldg 11-29 Silver Recovery	Admin Closure	2001	N	N	N	N
SWMU 137	Bldg 12-41, Paint Shop Waste water Tank	Admin Closure	2003	N	N	N	N
SWMU 138	Zone 12 Paint Shop Sandblaster Collection Cone	Admin Closure	2001	N	N	N	N
SWMU 141	Classified Waste Incinerator	Admin Closure	2001	N	N	N	N
SWMU 142	Miscellaneous Hood and Filter Systems, 24 Bldgs	Admin Closure	2001	N	N	N	N
SWMU 59	Landfill East of Pad 11-13 (Duplicate of SVS 5)	Admin Closure	2003	N	N	N	N
SWMU 62	Landfill 11	Admin Closure	2004	N	N	N	N
SWMU 65	Landfill 14 (Duplicate of SVS 6)	Admin Closure	2003	N	N	N	N
SWMU 76	Firing Site 18	Admin Closure	2001	N	N	N	N
SWMU 77	Firing Site 23, Filter/Exhaust System	Admin Closure	9/19/2001	N	N	N	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 83	Bldg 4-8, Container Storage Bldg, Asbestos Staging Area	Admin Closure	2001	N	N	N	N
SWMU 85	MOCA Waste Accumulation Area, Bldg 12-16	Admin Closure	2001	N	N	N	N
SWMU 88	11-41 Compressor Bldg Waste Accumulation	Admin Closure	2003	N	N	N	N
SWMU 89	Waste Accumulation Area, Bldg 12-2 North Hall	Admin Closure	2003	N	N	N	N
SWMU 90	Waste Accumulation Area, Bldg 12-9	Admin Closure	2003	N	N	N	N
SWMU 91	Waste Accumulation Area, Bldg 12-9 Solvent Storage Shed	Admin Closure	2003	N	N	N	N
SWMU 92	Waste Accumulation Area, Bldg 12-9 (outside)	Admin Closure	2003	N	N	N	N
SWMU 93	Waste Accumulation Area, Bldg 12-111 Paint Shop	Admin Closure	2003	N	N	N	N
SWMU 94	Waste Accumulation Area, Bldg 12-R-13 (outside)	Admin Closure	2003	N	N	N	N
SWMU 95	Waste Accumulation Area, Bldg 12-18 (outside)	Admin Closure	2003	N	N	N	N
SWMU 96	Waste Accumulation Area, Bldg 12-21	Admin Closure	2001	N	N	N	N
SWMU 98	Bldg 12-38 Solvent Storage	Admin Closure	2003	N	N	N	N
SWMU 99	Waste Accumulation Area, Bldg 12-41	Admin Closure	2003	N	N	N	N
Unassigned	Unlined Landfill/Landfill 10 North of Firing Site 1	Admin Closure	2004	N	N	N	N
Permitted Unit 53	Igloo 4-72 Storage	Active		N	N	N	N
SVS 4	Old Pistol Range	Active		N	N	N	N
SWMU 28	Active Burn Tray	Active		NA	N	N	N
SWMU 29	Active Burn Tray	Active		NA	N	N	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 30	Active Burn Tray	Active		NA	N	N	N
SWMU 31	Active Burn Tray	Active		NA	N	N	N
SWMU 32	Active Burn Tray	Active		NA	N	N	N
SWMU 33	Active Burn Tray	Active		NA	N	N	N
SWMU 34	Active Burn Tray	Active		NA	N	N	N
SWMU 35	Active Burn Tray	Active		NA	N	N	N
SWMU 36	Active Burn Tray	Active		NA	N	N	N
SWMU 69	Firing Site 4	Inactive		N	N	N	N
SWMU 72	Firing Site 10	Active		N	N	N	N
SWMU 74	Firing Site 21	Active		N	N	N	N
SWMU 75	Firing Site 22	Active		N	N	N	N
SWMU 78	Firing Site 24, Concrete Sump	Active		N	N	N	N
AOC 1	Transformer Leak (Bldg 11-14A)	3		Excavation	Y	Y	N
AOC 10a	Bldg 12-43A Pesticide Rinse Area	3		Excavation	Y	Y	N
AOC 10b	Bldg 12-51 Pesticide Rinse Area	3		N	Y	Y	N
AOC 11	Fire Training Area Burn Pits	3		Excavation	Y	Y	N
AOC 12	Paint Shop/ Solvent Pit (Bldg 12-5D)	3		N	Y	Y	N
AOC 13a	Former Cooling Tower in Zone 12 (Pad)	3		Excavation	Y	Y	N
AOC 13b	Former Cooling Tower in Zone 12 (Piping/Soil)	3		Excavation	Y	Y	N
AOC 14	Battery Storage Area (Bldg 12-18)	3		N	Y	Y	N
AOC 15	DDT Release (Bldg 12-35)	3		Excavation	Y	Y	N
AOC 3a	Former Boiler House Areas	3		N	Y	Y	N
AOC 3b	Zone 11 Former Boiler House Areas	3		N	Y	Y	N
AOC 5	Electrical Equipment Bone Yard Near Bldg 12-5	3		N	Y	Y	N
AOC 7a	Bldg 11-36 Sulfuric Acid Spills	3		N	Y	Y	N
AOC 7c	Bldg 12-64 Sulfuric Acid Spills	3		Excavation	Y	Y	N
AOC 8a	Pad 11-12 Solvent Leaks	3		N	Y	Y	N
AOC 8b	Pad 11-13 Solvent Leaks	3		N	Y	Y	N
AOC 8c	Bldg 11-17 Solvent Leaks	3		N	Y	Y	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
AOC 8d	Pad 11-22 Solvent Leaks	3		N	Y	Y	N
AOC 8e	Bldg 11-36 Solvent Leaks	3		N	Y	Y	N
SVS 2	Parallel Depressions Bldg 11-26	3		N	Y	Y	N
SVS 3 (SWMU 67)	Carbon Black Burial Area near Bldg 10-7	3		N	Y	Y	N
SVS 5	Landfill East of Pad 11-13	3		N	Y	Y	Y
SVS 6	Unnumbered Zone 7 Landfills	3		N	Y	Y	Y
SVS 7a&b	Magazine Demolition Debris Landfills (Zones 4 & 5)	3		N	Y	Y	Y
SVS 8	Abandoned Zone 10 Landfill	3		Excavation	Y	Y	Y
SWMU 1	Drainage Ditch (Bldg 12-17)	3		Excavation	Y	Y	N
SWMU 10	Pantex Lake	3		N	Y	Y	N
SWMU 103	Former Battery Storage Area, (Bldg 12-81)	3		N	Y	Y	N
SWMU 113	Overflows from Bldg 11-36 Collection System/Sump	3		D&D /	Y	Y	N
SWMU 117	High Explosives Settling Tank	3		D&D / Excavation	Y	Y	N
SWMU 118	Equalization Basin	3		D&D / Excavation	Y	Y	N
SWMU 119a	High Explosives Filters	3		D&D	Y	Y	N
SWMU 119b	High Explosives Filters	3		D&D	Y	Y	N
SWMU 12	Drainage Ditch Near Former 11-14 Pond	3		Excavation	Y	Y	N
SWMU 120a	Carbon Filters	3		D&D	Y	Y	N
SWMU 120b	Carbon Filters	3		D&D	Y	Y	N
SWMU 121	High Explosives Settling Tank	3		D&D / Excavation	Y	Y	N
SWMU 122a	Equalization Basin	3		D&D / Excavation	Y	Y	N
SWMU 122b	Bldg 12-24N & Bldg 12-43 Upland Soil	3		Excavation / In Situ Treatment	Y	Y	N
SWMU 123	Concrete Sump & Waste water Treatment Unit	3		D&D	Y	Y	N
SWMU 13	Former Solar Evaporation Pond (Bldg 11-51)	3		N	Y	Y	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 135	Leaching Bed (Bldg 12-44E)	3		N	Y	Y	N
SWMU 136	Subsurface Leaching Bed (Bldg 12-59)	3		D&D	Y	Y	N
SWMU 14*	Explosive Burn Pad 1 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 143a	Former Waste Drum Storage Areas (Bldg 10-9)	3		N	Y	Y	N
SWMU 143b	Former Waste Drum Storage Areas (Bldg 10-7)	3		N	Y	Y	N
SWMU 144	Zone 10 TNT Settling Pit (Bldg 10-13)	3		Excavation	Y	Y	N
SWMU 145	Zone 10 TNT Settling Pit (Bldg 10-17)	3		Excavation	Y	Y	N
SWMU 146	Zone 10 TNT Settling Pit (Bldg 10-26)	3		Excavation	Y	Y	N
SWMU 147	Bldg 11-13 TNT Settling Pit	3		Excavation	Y	Y	N
SWMU 148	Bldg 11-17 TNT Settling Pits	3		Excavation	Y	Y	N
SWMU 149	Bldg 11-26 TNT Settling Pit	3		N	Y	Y	N
SWMU 15*	Explosive Burn Pad 2 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 150	Bldg 11-12 TNT Settling Pit	3		Excavation	Y	Y	N
SWMU 16*	Explosive Burn Pad 3 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 17*	Explosive Burn Pad 4 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 18*	Explosive Burn Pad 5 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 19*	Explosive Burn Pad 6 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 2	Drainage Ditch (Bldg 12-43)	3		Ditch Lining	Y	Y	Y
SWMU 20*	Explosive Burn Pad 7 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 21*	Explosive Burn Pad 7A (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 22*	Explosive Burn Pad 8 (including ash disposal trench)	3		Soil Cover	Y	Y	Y

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 23*	Explosive Burn Pad 9 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 24*	Explosive Burn Pad 10 (including ash disposal trench)	3		Soil Cover	Y	Y	Y
SWMU 25*	Explosive Burn Pad 11 (Including Wash Rack)	3		Soil Cover	Y	Y	N
SWMU 26*	Explosive Burn Pad 12	3		Soil Cover	Y	Y	N
SWMU 27*	Explosive Burn Pad 13	3		Excavation	Y	Y	N
SWMU 3	Drainage Ditch (Bldg 11-44)	3		Excavation	Y	Y	N
SWMU 37	Burning Ground Landfill 1	3		Engineered Cover	Y	Y	Y
SWMU 38	Burning Ground Landfill 2	3		Engineered Cover	Y	Y	Y
SWMU 39	Burning Ground Landfill 3	3		Engineered Cover	Y	Y	Y
SWMU 4	Drainage Ditch (Bldg 11-50)	3		N	Y	Y	N
SWMU 40	Burning Ground Landfill 4	3		Engineered Cover	Y	Y	Y
SWMU 41	Burning Ground Landfill 5	3		Engineered Cover	Y	Y	Y
SWMU 42	Burning Ground Landfill 6	3		Engineered Cover	Y	Y	Y
SWMU 43	Burning Ground Landfill 7	3		Engineered Cover	Y	Y	Y
SWMU 44	Burning Ground Landfill 8	3		Engineered Cover	Y	Y	Y
SWMU 45	Explosive Burn Cage	3		D&D / Excavation	Y	Y	N
SWMU 46	Explosive Burn Cage	3		D&D	Y	Y	N
SWMU 47	Chemical Burn / Evaporation Pits	3		SVE System	Y	Y	N
SWMU 48	Burning Ground Solvent Evap. Pans	3		D&D	Y	Y	N
SWMU 49	Burning Ground Solvent Evap. Pans	3		D&D	Y	Y	N
SWMU 50	Burning Ground Solvent Evap. Pans	3		D&D	Y	Y	N
SWMU 5-01a	Drainage Ditch(es) (Bldg 12-5)	3		Excavation	Y	Y	N
SWMU 5-01b	Drainage Ditch(es) (Bldg 12-5B)	3		Excavation	Y	Y	N
SWMU 5-02a	Drainage Ditch (Bldg 12-51)	3		N	Y	Y	N
SWMU 5-02b	Drainage Ditch (Bldg 12-67)	3		Excavation	Y	Y	N
SWMU 5-02c	Drainage Ditch (Bldg 12-110)	3		N	Y	Y	N
SWMU 5-04a	Bldg 12-19 Drainage Ditches	3		Excavation	Y	Y	N
SWMU 5-04b	Bldg 12-73 Drainage Ditches	3		Excavation	Y	Y	N
SWMU 5-05	Drainage Ditch (Bldgs 12-21 & 12-24)	3		Ditch Lining	Y	Y	Y

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 5-06a	Drainage Ditch (Bldg 12-44E)	3		Excavation	Y	Y	N
SWMU 5-06b	Drainage Ditch (Bldg 12-81)	3		Excavation	Y	Y	N
SWMU 5-07	Bldg 12-41 Drainage Ditch	3		Excavation	Y	Y	N
SWMU 5-08	Drainage Ditch (Bldg 11-36)	3		Excavation	Y	Y	N
SWMU 5-09a	Drainage Ditch (Bldg 11-17)	3		N	Y	Y	N
SWMU 5-09b	Drainage Ditch (Bldg 11-20)	3		N	Y	Y	N
SWMU 51	Burning Ground Solvent Evap. Pans	3		D&D	Y	Y	N
SWMU 5-11	Main Perimeter Ditch	3		N	Y	Y	N
SWMU 5-12a	Main Perimeter Ditch	3		Excavation	Y	Y	N
SWMU 5-12b	Perimeter Drainage Ditch from Zone 12 to SWMU 5-15	3		N	Y	Y	N
SWMU 5-13a,b,c	Drainage Ditches to Playa 1	3		Excavation	Y	Y	N
SWMU 5-15 a&b	Drainage Ditch to Playa 4	3		N	Y	Y	N
SWMU 52	Burn Racks and Flashing Pits	3		D&D / Excavation	Y	Y	N
SWMU 54	Landfill 3	3		Excavation/ Engineered Cover	Y	Y	Y
SWMU 55	Landfill 4	3		N	Y	Y	Y
SWMU 56	Landfill 5	3		N	Y	Y	Y
SWMU 57	Landfill 6	3		Excavation	Y	Y	Y
SWMU 58	Landfill 7	3		N	Y	Y	Y
SWMU 6	Playa 1	3		N	Y	Y	N
SWMU 60	Landfill 9	3		N	Y	Y	Y
SWMU 61	Landfill 10	3		N	Y	Y	Y
SWMU 64	Landfill 13	3		Administrative Soil Cover	Y	Y	Y
SWMU 66	Landfill 15	3		N	Y	Y	Y
SWMU 68a	Original Landfill	3		N	Y	Y	Y
SWMU 68b	Landfill 1	3		Administrative Soil Cover	Y	Y	Y
SWMU 68c	Landfill 2	3		Administrative Soil Cover	Y	Y	Y
SWMU 68d	Sanitary Landfill	3		N	Y	Y	Y

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 7	Playa 2	3		N	Y	Y	N
SWMU 8	Playa 3	3		N	Y	Y	N
SWMU 82	Nuclear Weapon Accident Residue Storage	3		Excavation	Y	Y	N
SWMU 84	Scrap, Salvage, and Storage Yard (Bldg 10-9)	3		Excavation	Y	Y	N
SWMU 86	11-14 Solvent Storage Shed	3		N	Y	Y	N
SWMU 87	Bldg 11-20 Solvent Storage Shed	3		N	Y	Y	N
SWMU 9	Playa 4	3		N	Y	Y	N
Unassigned	Demonstration Facilities	3		Excavation	Y	Y	N
Unassigned	Former 11-15 Pond	3		N	Y	Y	N
Unassigned	Former Leaching Bed North of Bldg 11-50 and West of Bldg 11-36	3		Excavation	Y	Y	N
Unassigned	Concrete Sump (near Bldg 12-5B)	3		N	Y	Y	N
Unassigned AOC	Zone 10 Landfills West and Southwest of SWMU 84 Scrap and Salvage Yard	3		N	Y	Y	Y
Unassigned SWMU	Zone 10 Berms	3		N	Y	Y	N
Unassigned SWMU	Evaporation Pit East of Bay 3 (Bldg 11-20)	3		Excavation	Y	Y	N
Unassigned SWMU	Evaporation Pit South of Bay 11/West of Bay 6 (Bldg 11-20)	3		Backfill/Cover	Y	Y	N
Unassigned SWMU	SWMU Capacitor Bank Rupture	3		N	Y	Y	N
AOC 7b	Bldg 12-4 Sulfuric Acid Spill	2	2004	N	Y	N	N
Permitted Unit 1	Container Storage 11-7N Pad	2	2005	N	Y	N	N
SVS 1	Denuded Area near Playa 1	2	2005	N	Y	N	N
SWMU 106	Waste Accumulation Site at Bldg 16-1	2	2005	Excavation	Y	N	N
SWMU 109	Concrete Sump (Bldg 12-68)	2	2004	Sump removal/Excavation	Y	N	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 11	Surface Impoundment in Zone 5 (Bldg FS-16)	2	2005	D&D	Y	N	N
SWMU 110	Bldg 12-68 Electroplating Waste Retention Basin (Moat)	2	1997	N	Y	N	N
SWMU 139	Photo Processing Leaching Bed (Bldg FS-10)	2	2005	N	Y	N	N
SWMU 140	Old Sewage Treatment Plant/Sludge Beds	2	2005	D&D / Excavation	Y	N	N
SWMU 5-03a	Drainage Ditches (Bldg12-68)	2	2004	Excavation	Y	N	N
SWMU 5-03b	Drainage Ditches (Bldg 12-18)	2	2004	N	Y	N	N
SWMU 5-03c	Drainage Ditches (Bldg 12-9)	2	2004	N	Y	N	N
SWMU 5-03d	Drainage Ditch (Bldg 12-10)	2	2004	N	Y	N	N
SWMU 5-10	Drainage Ditches near the Old Sewage Treatment Plant	2	2005	Excavation	Y	N	N
SWMU 5-14	Drainage Ditch from Zone 11 to Playa 2	2	2005	N	Y	N	N
SWMU 53	Temporary High Explosives Burning Ground	2	2005	Excavation	Y	N	N
SWMU 63	Landfill 12	2	2005	Administrative Soil Cover	Y	N	Y
SWMU 70	Firing Site 5	2	1999	D&D / Excavation, Fence	Y	N	Y
SWMU 71	Firing Site 6	2	2000	N	Y	N	N
SWMU 73	Firing Site 15	2	2000	N	Y	N	N
SWMU 97	Waste Accumulation Area, Bldg 12-34	2	1999	N	Y	N	N
Unassigned	Dumpster Area near FS-11	2	2005	N	Y	N	N
Unassigned AOC	Bldg 12-1 Laundry Sump	2	2004	Decontamination	Y	N	N
Unassigned SWMU	FS-22 Container Gun Barrel	2	1999	D&D	Y	N	N
Unassigned SWMU	11-14 Hypalon Pond and Waste water Line	2	1995	Backfill/Cover	Y	N	N
AOC 2	Main Electrical Substation (4-28)	1	1993	N	N	N	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
AOC 6a	Gasoline Leaks at Bldgs 12-35	1	1999	Tank Removal / Excavation	N	N	N
AOC 6b	Gasoline Leak at Bldg 16-1	1	1999	N	N	N	N
Permitted Unit 10	Container Storage Area (Conex WM7)	1	2001	N	N	N	N
Permitted Unit 11	Container Storage Area (Conex WM8)	1	2001	N	N	N	N
Permitted Unit 36	Bldgs 11-9 Tank	1	1999	N	N	N	N
Permitted Unit 37	Bldg 11-9 Tank	1	1999	N	N	N	N
Permitted Unit 38	Bldg 11-15a Tank	1	1999	N	N	N	N
Permitted Unit 39	Bldg 11-15a Tank	1	1999	N	N	N	N
Permitted Unit 40	Bldg 11-9 Container Storage Area	1	2002	D&D	N	N	N
Permitted Unit 46	Container Storage Area (Conex WM1-A)	1	1998	N	N	N	N
Permitted Unit 47	Container Storage Area (Conex WM1-B)	1	1998	N	N	N	N
Permitted Unit 48	Container Storage Area (Conex WM3-A)	1	1998	N	N	N	N
Permitted Unit 49	Container Storage Area (Conex WM5-A)	1	1998	N	N	N	N
Permitted Unit 50	Container Storage Area (Conex WM5-B)	1	1998	N	N	N	N
Permitted Unit 52	Igloo 4-46 Storage	1	1998	N	N	N	N
Permitted Unit 54	Igloo 4-74 Storage	1	1998	N	N	N	N
Permitted Unit 8	Container Storage Area (Conex WM5)	1	2001	N	N	N	N
Permitted Unit 9	Container Storage Area (Conex WM6)	1	2001	N	N	N	N
SWMU 108	Bldg 12-68 Batch Master	1	1997	D&D	N	N	N
SWMU 130	Portable Waste Solvent Tanks	1	2001	Excavation	N	N	N
SWMU 133	UST #30, Waste Oil Tank at Bldg 16-1	1	1999	N	N	N	N
SWMU 79a	11-7A (Unit 41) Container	1	2005	N	N	N	N
SWMU 79b	11-7B Pad (Unit 42) Container	1	2005	N	N	N	N
SWMU 80	Container Storage Area Conex 1 (Permitted Unit 4) in Zone 4	1	2000	N	N	N	N
SWMU 80	Container Storage Area Conex 2 (Permitted Unit 5) in Zone 4	1	2000	N	N	N	N

Table 1. SWMU Status Table for Pantex Plant (continued)

Corrective/ Remedial Action Release Unit #	Corrective/Remedial Action Unit Description	RRS Closure	Closure Date	ICM/ Remedial Action	Institutional Control Required	LTM Groundwater Required?	Inspection/ Maintenance Required?
SWMU 80	Container Storage Area Conex 3 (Permitted Unit 6) in Zone 4	1	2000	N	N	N	N
SWMU 80	Container Storage Area Conex 4 (Permitted Unit 7) in Zone 4	1	2000	N	N	N	N
SWMU 81	Mixed Waste Storage, Magazine 4-19	1	1993	N	N	N	N
Unassigned	UST #9 Bldg 12-17E	1	2004	Tank Removal / Excavation	N	N	N
Unassigned	UST #7 Bldg 12-5B	1	1999	Tank Removal / Excavation	N	N	N
Unassigned	UST #38 Bldg 12-98	1	1999	Tank Removal / Excavation	N	N	N
Unassigned	UST #39 North of Bldg 12-84A	1	1999	Tank Removal / Excavation	N	N	N

*SWMUs 14-27 at the Burning Ground consist of old burn pads that were carried through investigation and cleanup. Also included with those burn pads is an ash disposal trench that resulted from the disposal of ash from the burn pads. The final remedy for SWMUs 14-27 was a soil cover over the trench that must be inspected and maintained as necessary.

Administrative Closure – These sites were identified as potential release sites as part of the RCRA Facility Assessment. No evidence of release could be found upon further investigation, so these sites were not considered as a solid waste management unit and were closed.

RRS 1 – The sites were investigated and determined that all wastes and media were within background concentrations or below the PQL. These sites were closed with no further controls required.

RRS 2 – All wastes and contaminated media were remediated to health-based cleanup levels. Additionally, an ecological risk evaluation determined these sites posed no risk to the environment. These sites do not require post-closure care; however, deed recordation of the contaminated area was completed and the sites were restricted to industrial use.

RRS 3 – These sites required a human health and ecological risk assessment to determine the areas that required remedial action. All sites required deed recordation of the contamination, restriction of property use to industrial, and appropriate institutional controls to prevent contaminated groundwater usage and cross-contamination from perched groundwater to the drinking water aquifer. Some of these sites also require post-closure care such as maintenance of soil covers, fencing, and ditch liners.

Active – These sites are still in use for their intended purpose. These sites will undergo a full investigation and cleanup process once the site is no longer used by Pantex.

Table 2. Response Actions for Pantex Plant

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed: Pre-HHRA	Activity Completed: Post-HHRA	Regulatory Drivers at Time of Activity: 3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	EE/CA & Action Memo	Reference Document
Burning Ground													
SWMUs 45, 46, and 52	Not Specified	D&D of Burn Cages 1 and 2; flashing pits 1, 2, and 3; and flashing pit burn trays; volume removed not specified but estimated at 50 CY based on excavation dimensions	HE, metals, SVOCs, VOCs	X				X	X	X			Jacobs 1996
Burn Rack 1	ST-BG/00-X002	280 yd^3	HE, metals	X				X	X	X			Stoller 2002B
Wash Rack	ST-BG/00-X003	448 yd^3	HE, metals	X				X	X	X			Stoller 2002B
SWMU 44	ST-BG/00-X004	290 yd^3	HE, metals	X				X	X	X			Stoller 2002B
Detonation/ Demonstration Facility #2	ST-BG/00-X005	480 yd^3	HE, metals, VOCs	X				X	X	X			Stoller 2002B
Burn Cage 1	ST-BG/00-X006	160 yd^3	HE, metals, VOCs	X				X	X	X			Stoller 2002B
Burn Pad 16	ST-BG/00-X007	224 yd^3	HE, metals	X				X	X	X			Stoller 2002B
Burn Pad 16	BG Area 1	54 yd^3	HE, metals		X						X		MKM 2006
Burn Pad 15	ST-BG/00-X008	344 yd^3	HE, metals	X				X	X	X			Stoller 2002B
Burn Pad 14	ST-BG/00-X009	595 yd^3	HE	X				X	X	X			Stoller 2002B
Burn Pad 22	ST-BG/00-X010	150 yd^3	HE, metals, VOCs	X				X	X	X			Stoller 2002B
Burn Pad 13	Not Specified	264 yd^3	Depleted U	X				X	X	X			Stoller 2002B
SWMU 47 - Solvent Evaporation Pit	Not Applicable	Soil Vapor Extraction System	VOCs	X				X	X	X			Stoller 2002B

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
SWMUs 37 - 44	Not Applicable	Engineered Soil Covers	High Explosives, metals, Depleted U, VOCs, SVOCs, Perchlorate	X							X		Stoller 2004
Former Ash Disposal Trench	Cover	40-mil HDPE Liner and compacted soil cover	HE, metals		X						X		MKM 2006
Ditches and Playas													
SWMU 82	ST-00/82-X001	84 yds^3 removed	PB	X				X	X	X			Stoller 1999a
SWMU 5/13a	Hot Spot 2029	Hot Spot removal 96 yd^3	pesticides, PCBs, PB	X		X		X	X	X			Stoller 1998a
SWMU 5/13a	Hot Spot 2030	Hot Spot removal 69 yd^3	pesticides, PCBs	X		X		X	X	X			Stoller 1998a
SWMU 5/13a	Hot Spot 2031	Hot Spot removal 53 yd^3	pesticides, PCBs, PB	X		X		X	X	X			Stoller 1998a
OSTP, SWMU 5/10, SWMU 140, Tailwater Pit	Not Applicable	Decommissioning and demolition of facility	metals	X				X	X	X			ETAS 1999a MKM 2003
Landfill 1	Administrative Cover	7,352 yd^3 fill and 3,077 yd^3 top soil added	metals, pesticides, PCBs	X				X	X	X			Aguirre 1997 USACE/ Jacobs 1996b
Landfill 2	Administrative Cover	2,173 yd^3 fill and 982 yd^3 top soil added	SVOCs, VOCs	X				X	X	X			Aguirre 1997 USACE/ Jacobs 1996b
Zone 10													
SWMU 145	ST-A1/45-2032	15 yd^3 removed	CD	X				X	X	X			Stoller 2003b

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
SWMU 84	ST-AC/84-2027	40 yd^3 removed	CR	X				X	X	X			Stoller 2003b
SWMU 84	ST-AC/84-2028	30 yd^3 removed	BZBF	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X001	437 yd^3 removed	DNT2A, DNT4A, TNB135, and TNT	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X002	150 yd^3 removed	DNT2A, DNT4A, and TNB135	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X003	60 yd^3 removed	PB, TNB135, and TNT	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X004	19 yd^3 removed	NI	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X007	61 yd^3 removed	CD	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X008	750 yd^3 removed	HE	X				X	X	X			Stoller 2003b
SWMU 144	ST-01/44-X009	8 yd^3 removed	CD	X				X	X	X			Stoller 2003b
SWMU 145	ST-01/45-X001	631 yd^3 removed	TNB135 and TNT	X				X	X	X			Stoller 2003b
SWMU 145	ST-01/45-X002	43 yd^3 removed	NI and PB	X				X	X	X			Stoller 2003b
SWMU 145	ST-01/45-X003	44 yd^3 removed	CD	X				X	X	X			Stoller 2003b
SWMU 146	ST-01/46-X001	91 yd^3 removed	CU	X				X	X	X			Stoller 2003b
SWMU 146	ST-01/46-X002	153 yd^3 removed	TNT	X				X	X	X			Stoller 2003b
SVS 8	Excavation 1	60 yd^3 removed	SVOCs	X				X	X	X			Stoller 2003b
SWMU 146	Excavation 2	30 yd^3 removed	SVOCs	X				X	X	X			Stoller 2003b
SWMU 146	Excavation 3	30 yd^3 removed	SVOCs	X				X	X	X			Stoller 2003b

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
Zone 11													
Unassigned leaching bed	11-36 Leaching Bed	750 yd^3 removed	HG	X		X		X	X				Aguirre/ Weston 1996
SWMU 113	N/A	Zone 11 SVE	VOCs		X						X		Shaw 2004
SWMU117	Zone 11 Area 3	11 yd^3	BZAP, DBAHA		x						X		MKM 2006
SWMU 118	Zoine 11 Areas 1 & 2	57 yd^3	BZAP, DBAHA		x						X		MKM 2006
SWMU 118	ST-01/18-X001	75 yd^3 removed	CU, PB	X		X		X	X	X			Stoller 1998c
SWMU 118	ST-01/18-X002	83 yd^3 removed	HMX	X		X		X	X	X			Stoller 1998c
SWMU 118	ST-01/18-X004	30 yd^3 removed	HMX	X		X		X	X	X			Stoller 1998c
SWMU 118	ST-01/18-X005	67 yd^3 removed	HMX	X		X		X	X	X			Stoller 1998c
SWMU 147	ST-01/47-X001	95 yd^3 removed	TNT, DNT	X				X	X	X			Stoller 1998c
SWMU 147	ST-01/47-X002	117 yd^3 removed	TNT, DNT	X				X	X	X			Stoller 1998c
SWMU 147	ST-01/47-X003	228 yd^3 removed	TNT, TNB135, DNT2A, DNT4A	X				X	X	X			Stoller 1998c
SWMU 147	ST-01/47-X004	45 yd^3 removed	DNT2A, DNT4A, TNT	X				X	X	X			Stoller 1999a
SWMU 147	ST-01/47-X005	62 yd^3 removed	TNT	X				X	X	X			Stoller 1999a
SWMU 148	ST-01/48-X001	75 yd^3 removed	TNT	X				X	X	X			Stoller 1998c
SWMU 148	ST-01/48-X002	449 yd^3 removed	HG	X				X	X	X			Stoller 1998c
SWMU 150	ST-01/50-X001	108 yd^3 removed	HG	X				X	X	X			Stoller 1999a

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA & Action Memo	Reference Document
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)		
SWMU 150	ST-01/50-X002	207 yd^3 removed	HG	X				X	X	X			Stoller 1999a
SWMU 5/8	SWMU 5/8-2022	180 yd^3 removed	CU	X				X	X	X			Stoller 1998a
SWMU 3	SWMU 3-2005 SWMU 3-2006	Combined Total 2,300 yd^3	High Explosives, metals, PCBs	X		X		X	X	X			Stoller 1998a
AOC 1	Not Specified	See SWMU 3	See SWMU 3	X				X	X	X			Stoller 1998a
SWMU 12	SWMU 12-2007	28 yd^3 removed	SB	X		X		X	X	X			Stoller 1998a
SWMU 12	SWMU 12-2008	67 yd^3 removed	SB, PCBs	X		X		X	X	X			Stoller 1998a
SWMU 12	SWMU 12-2009	159 yd^3 removed	SB, PCBs	X		X		X	X	X			Stoller 1998a
SWMU 12	SWMU 12-2010	32 yd^3 removed	PCBs	X		X		X	X	X			Stoller 1998a
SWMU 12	SWMU 12-2011	78 yd^3 removed	PCBs	X		X		X	X	X			Stoller 1998a
Unassigned evaporation pits	ST-1120-0018	11.5 yd^3 removed	HMX	X				X	X	X			BWXT 2002
11-36 (SWMU 113)	11-36	Sump removal	VOCs	X		X		X	X		X		Part of facility D&D, 2003
11-36 (SWMU 113)	11-36	SVE	VOCs	X							X		SVE, 2004
Zone 12 – WMG 5													
AOC 7c	A	5.5 yd^3 removed	BZAP	X				X	X	X			Stoller 2003c
AOC 7c	B	7.5 yd^3 removed	BZAP	X				X	X	X			Stoller 2003c
SWMU 5/6	D	15 yd^3 removed	BZAP	X				X	X	X			Stoller 2003c

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
SWMU 5/6	E	7.5 yd^3 removed	BZAP	X				X	X	X			Stoller 2003c
SWMU 5/6	F	7.5 yd^3 removed	BZAP	X				X	X	X			Stoller 2003c
SWMU 57	G	8 yd^3 removed	BZAP	X				X	X	X			Stoller 2003c
UST No. 38	Not Specified	yd^3 removed not specified*	diesel-contaminated soil	X									M&H 1991a
UST No. 39	Not Specified	yd^3 removed not specified*	diesel-contaminated soil	X									M&H 1991b
Zone 12 – WMG 6/7													
AOC 10a	X001, X002	870 yd^3 removed**	HE, pesticides	X				X	X	X			Stoller 1998c
AOC 13	Former Cooling Tower	Ancillary piping and 690 yd^3 removed	HE, metals, VOCs	X		X		X	X	X			Stoller 1999b
SWMU 1	Not Specified	375 yd^3 removed	metals, SVOCs	X		X		X	X	X			Stoller 1998a
SWMU 1	Zone 12 Area 11	8 yd^3 removed	BZAP, DBAHA		X						X		MKM 2006
SWMU 5/4	Zone 12 Areas 8, 9, and 10	33 yd^3 removed	BZAP, DBAHA		X						X		MKM 2006
SWMU 5/7	Hot Spot 2001	300 yd^3 removed	CD, CR, PB	X				X	X	X			Stoller 1998a
SWMU 5/7	Hot Spot 2002	225 yd^3 removed	CD, CR, PB	X				X	X	X			Stoller 1998a
SWMU 5/7	Hot Spot 2003	240 yd^3 removed	CD, CR, PB	X				X	X	X			Stoller 1999b
SWMU 5/7	Hot Spot 2004	165 yd^3 removed	CD, PB	X				X	X	X			Stoller 1999b
SWMU 54 (Landfill 3)	Hot Spot A, B, C1, C2, D1, D2	6,036 (estimated yd^3 removed based on weight reported)	RDX, HMX, TNT	X				X	X	X			Recon 2001

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
SWMU 121, 122a	Cone Settling Tank, Equalization Basin	Process equipment 870 yd^3 removed**	HE, pesticides	X		X		X	X	X			Jacobs 1993 Stoller 1998c
SWMU 122b	Zone 12 Areas 1 through 7	2,383 yd^3	HE		X						X		MKM 2006
SWMU 123	12-43 sump	Process equipment 18' x 10' x 9'	HE	X		X		X	X	X			Stoller 1998d
SWMU 2	Ditch liner	Ditch liner	HE, PAHs	X						X			Stoller 2004
SWMU 5/5	Ditch liner	Ditch liner	HE, PAHs	X						X			Stoller 2004
Zone 12 – WMG 8													
SWMU 5/3	Hot Spot 2012	28 yd^3 removed	CR, PB	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2013	50 yd^3 removed	PB	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2014	50 yd^3 removed	PB	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2015	630 yd^3 removed	CD, CR, CU, HG, PB	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2016	50 yd^3 removed	HG	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2017	580 yd^3 removed	BA	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2018	690 yd^3 removed	BA, HG	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2019	50 yd^3 removed	CD	X		X		X	X	X			Stoller 1998a
SWMU 5/3	Hot Spot 2020	32 yd^3 removed	BA	X		X		X	X	X			Stoller 1998a

Table 2. Response Actions for Pantex Plant (continued)

				Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
SWMU 5/3	Hot Spot 2021	40 yd^3 removed	CD	X		X		X	X	X			Stoller 1998a
SWMU 109	Sump removal	yd^3 removed not specified	metals	X		X		X	X				USACE 1995
Zone 12 – WMG 9													
SWMU 5/2	Hot Spot 2026	930 yd^3 removed	metals, PCBs, pesticides	X				X	X	X			Stoller 1998a
SWMU 5/2	Hot Spot G	7.5 yd^3 removed	CHLORDANE, DIELDRIN, HEPT-EPOX, ENDRIN	X				X	X	X			Stoller 2003c
Zone 12 – WMG 10													
AOC 15	ST-AC15-2023	20 yd^3 removed	PCBs	X				X	X	X			Aguirre/ Weston 1996
12-35	UST	UST removed	gasoline	X									USACE/ Wood-ward Clyde 1994a
AOC 15	ST-AC15-2024	20 yd^3 removed	PCBs	X				X	X	X			Aguirre/ Weston 1996
AOC 15	ST-AC15-2025	20 yd^3 removed	PCBs	X				X	X	X			Aguirre/ Weston 1996
AOC 15	Hot Spot A	10.5 yd^3 removed	BIS2EHP, BZAA, BZAP, BZBF, BZKF, INP123	X				X	X	X			Stoller 2003c
SWMU 5/1	Hot Spot B	33 yd^3 removed	BZAA, BZAP, BZBF, BZKF, INP123, CD, CR	X				X	X	X			Stoller 2003c

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
SWMU 5/1	Hot Spot C	17 yd^3 removed	BZAA, BZAP, BZBF, BZKF, INP123, CD, CR, PB, SB, SR, ALDRIN, DDT, HEPT-EPOX, DIELDRIN	X				X	X	X			Stoller 2003c
SWMU 5/1	Hot Spot	32 yd^3 removed	BZAA, BZAP, BZBF, BZKF, INP123, CHRYSENE, CD, CR, PB	X				X	X	X			Stoller 2003c
SWMU 5/1	Hot Spot E	16 yd^3 removed	BZAA, BZAP, BZBF, BZKF, INP123, CD, PB, DBAHA, SR, HG	X				X	X	X			Stoller 2003c
SWMU 5/1	2186/3023	yd^3 removed not specified	PCBs	X				X	X	X			Aguirre/ Weston 1996
UST No. 7	Not Specified	yd^3 removed not specified	petroleum-contaminated soil	X			X						USACE/ Woodward Clyde 1994a
Other Zone 12 Sites													
UST No. 9	Not Specified	yd^3 removed not specified*	diesel-contaminated soil	X									M&H 1991c
12-59	12-59 sump	Sump Removal		X				X	X	X			Stoller 2003c
FTA Burn Pits													
AOC 11	FTA Burn Pits	Soil removed from burn pit	Metals	X			X	X	X				Stoller 2002
Independent Sites													
Landfill 12	Administrative Cover	941 yd^3 fill and 438 yd^3 top soil added	metals, SVOCs	X				X	X	X			Stoller 2004a
Landfill 13	Administrative Cover	3,125yd^3 fill and 1,090 yd^3 top soil added	metals, pesticides, SVOCs, VOCs	X				X	X	X			Stoller 2004a

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
Landfill 13	Landfill 13 Area	46 yd^3	PAHs		X						X		MKM 2006
FS-5	D&D and Soil Removal	Facility removed; 1,777 yd^3 removed of soils impacted with depleted uranium	Depleted U	X				X	X	X			Stoller 1998b
FS-16	Hypalon Pond	Pond removed		X			X	X	X				Stoller 2004a
Perched Groundwater													
Southeast Pump and Treat System	N/A	Extraction wells, injections wells, treatment units, Conveyance line to subsurface irrigation	Perched groundwater COCs - primarily RDX and Hexavalent Chromium	X			X	X	X	X	X		Treatability Study (4 EWs, 1IW), 1995; expansion (12 EWs), 1996; expansion (4 EWs), 1998; major expansion (30 EWs & 7 IWs), 2000; expansion (15 EWs, 1 IW), 2007.
Playa 1 Pump and Treat System	N/A	Extraction wells, treatment units, Conveyance line to subsurface irrigation	Perched Groundwater COCs - primarily RDX		X							EE/CA NOA - 3/29/07 Action Memo - 6/28/07	

Table 2. Response Actions for Pantex Plant (continued)

Site	Excavation Number	Excavated Soil Volume/ Activity Description	COPCs	Activity Completed		Regulatory Drivers at Time of Activity						EE/CA &	Reference
				Pre-HHRA	Post-HHRA	3008 (h)	HW-50284 (1991)	NPL (5/31/94)	MOA (12/21/94)	HW-50284 (1996)	CP-50284 (10/21/03)	Action Memo	Document
Southeast In Situ Bioremediation System	N/A	Injection wells, Amendment Conveyance lines, Injection equipment	Perched Groundwater - primarily RDX and Hexavalent Chromium		X							EE/CA NOA - 5/3/07 Action Memo - 6/28/07	
Southeast In Situ Bioremediation System Extension	N/A	Injection wells, Amendment Conveyance lines, Injection Equipment	Perched Groundwater – Primarily RDX		X								
Offsite In Situ Bioremediation System	N/A	Injection wells, Recovery wells, Conveyance line to injection pads, Amendment Conveyance lines, Injection equipment	Perched Groundwater – Primarily RDX		X								
Zone 11 In Situ Bioremediation System	N/A	Injection wells, Amendment Conveyance lines, Injection equipment	Perched Groundwater COCs - primarily TCE and Perchlorate		X								
Long-Term Groundwater Monitoring System	N/A	Monitoring Wells	Perched Groundwater COCs	X	X						X		

COPCs – Contaminants of potential concern
HW-50284 – Hazardous Waste Permit 50284
MOA – Memorandum of Agreement
EE/CA – Engineering evaluation/Cost analysis
WMG – Waste Management Group
HHRA – Human health risk assessment
NPL – National priorities list
CP-50284 – Compliance Plan 50284

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Attachment 6

Data Used in the Third Five-Year Review
(Electronic Files)

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Attachment 7

Remedial Action Effectiveness Report Pantex Third Five-Year Review

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1 Remedial Action Effectiveness Report

HGL was contracted to evaluate operational information and perched groundwater data for the Third Five-Year Review. HGL conducted the evaluation between October 2022 and January 2023 and prepared a report, titled *Remedial Action Effectiveness Report, CERCLA Third Five-Year Review Pantex Plant, Amarillo, Texas*. This report is provided under separate cover and serves as part of the supporting basis for the overall evaluation of the Selected Remedy for the Pantex Plant. Results and conclusions derived from the evaluation were incorporated into this Five-Year Review Report.

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REMEDIAL ACTION PERFORMANCE AND EFFECTIVENESS REPORT

CERCLA THIRD FIVE-YEAR REVIEW

PANTEX PLANT
CARSON COUNTY, TEXAS

Prepared for:

Consolidated Nuclear Security, L.L.C.
Pantex Plant
P.O. Box 30020
Amarillo, Texas 79120
For U.S. Department of Energy/National Nuclear Security Administration

Final
August 2023

HGL

Restoring the Environment.
Protecting Our Future.

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REMEDIAL ACTION PERFORMANCE AND EFFECTIVENESS REPORT

CERCLA THIRD FIVE-YEAR REVIEW

PANTEX PLANT
CARSON COUNTY, TEXAS

Prepared for:

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August 2023

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EXECUTIVE SUMMARY

The Pantex Plant is an active industrial facility located approximately 17 miles northeast of Amarillo in Carson County, Texas. The facility lies within the boundaries of U.S. Environmental Protection Agency (EPA) Region 6. The Pantex Plant is managed as a government-owned, contractor-operated facility. The Plant is operated by Consolidated Nuclear Security, L.L.C. (CNS), and its activities are overseen by the U.S. Department of Energy/National Nuclear Security Administration (USDOE/NNSA). The primary mission of the facility is to assemble, disassemble, and evaluate nuclear weapons from the U.S. stockpile; to develop, fabricate, and test explosives and explosive components; and to provide secure storage for weapons and explosives handled.

The Pantex Plant Site (Site) was proposed for addition to the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1991 and was formally listed in 1994. Under CERCLA, remedial actions that result in any hazardous substances remaining at the site, preventing unlimited use and unrestricted exposure (UU/UE), must be reviewed every 5 years to ensure that conditions are protective of human health and the environment. The requirements for a Five-Year Review (FYR) include review of the efficacy of all remedies selected in the Record of Decision (ROD).

The goal of this remedial action and effectiveness report is to formally and independently evaluate the implementation and performance of the Pantex Plant Selected Remedies and to provide, in this report, recommendations to optimize remedy efficacy going forward.

The objectives of this report are to determine if remedies are functioning as intended by the decision documents and design specifications (remedy performance) and to identify what, if any, corrective measures are recommended to address deficiencies in the function of the remedies (remedy efficacy). Remedy reviews provided in this report will be used to address the question of short- and long-term protectiveness of the Selected Remedies in the third FYR Report. A secondary objective of the report is to provide recommendations to improve the long-term performance or reduce life-cycle costs of the Selected Remedies.

In the following report, the Selected Remedies in the ROD have been evaluated by reviewing remedy operation, reviewing media-specific data, and comparing remedy performance to expected conditions in the design and decision documents.

ES-1 SITE DESCRIPTION

The Pantex Plant main area of operations is bounded on the north by Farm to Market Road (FM) 293, on the east by FM 2373, and on the west by FM 683. In total, USDOE/NNSA owns 17,559 acres including the main plant area and adjacent property. The USDOE/NNSA-owned main property used for core operations encompasses approximately 9,100 acres. Industrial operations occur on approximately 2,000 acres in the central portion of the Pantex Plant, with the remaining area of the main property managed to support and secure the industrial operations.

USDOE/NNSA has purchased property east of the main facility along FM 2373 south to Highway 60 to control access to and remediate affected perched groundwater. Property south of Highway 60 was leased by USDOE/NNSA to remediate affected perched groundwater and prevent continued contaminant migration to the southeast. USDOE/NNSA also owns Pantex Lake, which is 2.5 miles northeast of the Plant boundary.

Formal environmental investigations began in 1988 with a *Resource Conservation and Recovery Act (RCRA) Facility Assessment* of the Pantex Plant. The Pantex Plant was formally listed on the NPL in 1994. The facility is, therefore, subject to the provisions of CERCLA in addition to RCRA and State of Texas Risk Reduction Rule requirements.

A Corrective Measure Study (CMS)/Feasibility Study (FS) was completed in 2007 and conditionally approved by the Texas Commission on Environmental Quality (TCEQ) and EPA in 2008. The Pantex sitewide ROD was finalized in September 2008, which is the triggering event for the FYR schedule. Remedy construction was completed in June 2009. The first FYR was signed by NNSA in August 2013, the second FYR was signed by NNSA in August 2018, and the third FYR is anticipated to be completed by August 2023 with concurrence by TCEQ and EPA in September 2023.

ES-2 CONCEPTUAL SITE MODEL

The Pantex Plant lies on the High Plains portion of the Great Plains Physiographic Province in the Texas Panhandle. The area is a flat plateau with topographic elevations across the site ranging between 3,501 feet (ft) above mean sea level (amsl) to 3,595 ft amsl. A distinguishing feature of the surface of the plain is the presence of numerous shallow circular basins called playas. Playas are ephemerally moist depressions that are the location of much of the recharge to groundwater in the region. The hydrostratigraphy below the Pantex Plant consists of the Blackwater Draw Formation underlain by the Ogallala Formation. Within the Ogallala Formation are an upper perched groundwater unit overlying the Ogallala Aquifer. Permeable units within the Ogallala are composed of coarse-grained fluvial sequences including channel sands and gravels overlain by finer overbank deposits.

The perched groundwater unit is present between about 215 and 300 ft below ground surface (bgs) and is underlain by a fine-grained zone (FGZ). The FGZ is composed of silts and clays and separates the upper perched zone from the lower Ogallala Formation. Below the FGZ is an unsaturated zone of variable thickness. The Ogallala Aquifer is present between about 400 to 500 ft bgs and is the primary source of drinking water for the city of Amarillo, Texas. Saturated thickness in the Ogallala Aquifer increases from south to north beneath Pantex Plant, and groundwater flow directions in the aquifer are to the north-northeast.

Because of mounding in the main perched unit near Playa 1 and the topography of the FGZ, groundwater flow tends to be radial away from Playa 1, with the surface sloping to the southeast, south, and east. The thickness of the perched unit varies between a maximum of about 60 ft under Playa 1 to trace levels of saturation at the edges. Smaller, isolated areas of perched groundwater are present under other playas at the Plant.

The primary source of contaminants of concern (COCs) in groundwater at the Pantex Plant was the infiltration of historical wastewater discharges through areas of focused recharge to the vadose zone and perched groundwater unit. Historically, effluent from industrial processes, sanitary wastewater, cooling water discharge, and stormwater runoff were released to unlined ditches and directed to playas.

Primary COCs affecting the perched unit include trichloroethene (TCE), perchlorate, hexavalent chromium [Cr (VI)], the high explosives (HE) RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) and trinitrotoluene (TNT), and their degradation products such as 4-amino-2,6-dinitrotoluene (DNT4A).

Groundwater analyses indicate that several contaminants are present at levels above EPA Maximum Contaminant Levels (MCLs) or Texas Medium Specific Concentrations (MSCs) in perched groundwater. The 2008 ROD identified MCLs and MSCs (referred to collectively as groundwater protection standards [GWPS]) as the primary remedial standards for the COCs in groundwater.

ES-3 REMEDIAL ACTION OBJECTIVES

The remedial action objectives (RAOs) for the Selected Remedy as defined in the 2008 ROD are summarized below by affected media.

RAOs for soil:

- Reduce the exposure risk to on-site industrial and construction/excavation workers through removal, treatment, or prevention of contact with COCs in soil.
- Reduce potential impact to perched groundwater and the Ogallala Aquifer through source abatement and stabilization/control measures in the vadose zone.

RAOs for groundwater:

- Reduce the risk of exposure to perched groundwater through prevention of human or ecological contact.
- Achieve cleanup standards for all COCs.
- Prevent growth of the perched groundwater contaminant plumes.
- Prevent contaminants from exceeding cleanup standards in the Ogallala Aquifer.

ES-4 SELECTED REMEDY

The Selected Remedies for soils containing contaminants at concentrations that do not allow for UU/UE are the following:

- Presumptive Remedy of soil vapor extraction (SVE) and institutional controls (ICs) for Solid Waste Management Unit (SWMU) 47 at the Burning Ground (BG);

- Protective covers for the BG Former Ash Disposal Trench (SWMUs 14 through 24), the former operational area of Firing Site 5 (SWMU 70), and Pantex Plant landfills (consisting of 29 landfills and disposal areas);
- Ditch liners for Zone 12 ditches (SWMU 2 and SWMU 5-05); and
- ICs for the following select sites: Limited Action Soil Units, Burn Pads 11 through 13 (SWMUs 25, 26 and 27), and the Main Perimeter Ditch (SWMU 5/12a).

The Selected Remedy components for the area southeast of the main industrial zone and downgradient of Zone 11 perched groundwater are the following:

- Two pump and treat (P&T) systems, the Southeast Pump and Treat System (SEPTS) and the Playa 1 Pump and Treat System (P1PTS), to treat perched groundwater and to control migration to the southeast perched unit;
- Four in situ bioremediation (ISB) systems, the Southeast ISB (SEISB), the SEISB Extension, the Offsite ISB, and the Zone 11 ISB, to treat HE contaminants (and Cr [VI]) for the southeast area perched groundwater and TCE and perchlorate contaminants for the Zone 11 perched groundwater through the injection of carbon substrate amendments to promote COC degradation and reduction; and
- ICs to prevent exposure to contaminants and cross-contamination to the regional (Lower) Ogallala Aquifer for both the Southeast Area and Zone 11.

The objectives of remedies selected for perched groundwater in the ROD and amended in the 2022 Explanation of Significant Differences (ESD) are the following:

- Operation of the SEPTS to stabilize migration of the plume and treat groundwater in the perched unit;
- Operation of the P1PTS to reduce mounding of perched groundwater under Playa 1;
- Continued operation of the SEISB, SEISB Extension, and Offsite ISB to treat HEs southeast of Zone 12 and to prevent further migration of HEs off site, and continued operation of the Zone 11 ISB to treat TCE and perchlorate downgradient of Zone 11; and
- ICs to prevent exposure to contaminants in the soils and perched groundwater/cross-contamination to the Ogallala Aquifer.

ES-5 REMEDY PERFORMANCE EVALUATION

The following summarizes the remedy performance and efficacy evaluations for each of the Selected Remedies.

ES-5.1 Soil Remedies

ES-5.1.1 Landfills and Soil Covers

Performance assessments indicate that landfill covers are constructed and maintained as intended by the decision documents. Findings from the data and documents reviewed as well as from the

FYR site Inspection, conducted in September 2022 by CNS, EPA, TCEQ, and HGL personnel, indicate that the landfill and soil cover remedies are effective and protective in both the short and long term.

- Maintenance of the soil covers using low-permeability soils is effective at preventing Site workers from contacting COCs via the soil-to-air ingestion pathway.
- ICs implemented for the Site including work protocols, signage, defined roles and responsibilities of managers, and controlled access are effective at preventing worker exposure to COCs via the soil-to-air inhalation pathway. Long-term efficacy of the landfill and soil cover remedy is maintained by ICs including deed and property transfer restrictions.
- ICs and O&M protocols prevent discharging water to the surface of landfills and soil covers, limiting potential leaching of contaminants to groundwater.
- Maintenance of landfill and soil covers with appropriate slopes and surface grading promote positive drainage of precipitation away from covers, preventing degradation of the remedy and potential leaching of contaminants to groundwater.
- O&M protocols for landfill and soil covers are effective at preventing degradation of the remedy. Effective O&M practices include annual visual inspection and light detection and ranging data (LiDAR) analysis every 5 years followed by corrective measures to shore slopes, reestablish vegetation, and plug holes and settlement voids, when detected.
- Installation of Closure Turf™ on SWMU 68b and SWMU 68c has stabilized the soil cover to mitigate loss of vegetation due to drought.
- Long-term monitoring (LTM) of perched and Ogallala Aquifer wells is effective at detecting potential leaching of contamination to groundwater. LTM data indicate that the landfill covers are effective at limiting leaching of contaminants.

Issues and Recommendations

- Some areas with landfill soil cover deficiencies were identified during the 2022 evaluation. These include areas of erosion, reduced vegetation, animal burrows, and settling of landfill debris and stormwater infrastructure. Pantex will address these deficiencies using a combination of internal and contracted resources to restore the function of the covers.
- If extreme weather conditions prevent revegetation of covers, then additional use of Closure Turf™ may be considered to stabilize selected soil covers. No additional recommendations have been developed for improving the long-term efficacy of the landfill and soil cover remedy.

ES-5.1.2 Burning Ground Soil Vapor Extraction System

Performance assessments indicate that the BG SVE is constructed as intended in the design and decision documents. The BG SVE is effective at reducing on-site worker exposure and limiting potential leaching of COCs to groundwater by extracting and destroying volatile organic contaminants (VOCs) from the subsurface. Since its initial design, the SVE system has been modified several times to account for decreasing source area mass from a continuously operating system with 28 vapor extraction wells (EWs) to an intermittently (pulsed) operating system with a single vapor EW connected to six inactive wells to facilitate ambient air/oxygen transport. Findings from the data and documents reviewed as well as from the site visit indicate that the BG SVE remedy is effective and protective in both the short and long term.

- The SVE remedy is removing and destroying VOC contamination. Over 2,000 pounds (lbs) of contaminant mass has been removed over the FYR period.
- The SVE system is efficient at removing contaminant mass. The rate of mass removal has been decreasing for several years, supporting the conclusion of abatement of a recoverable source.
- LTM data indicate that the SVE system has reduced impacts to the perched groundwater aquifer and prevented impacts to the Ogallala Aquifer.
- Modification of six inactive SVE wells to facilitate oxygen transport to the subsurface has enhanced toluene biodegradation and total VOC mass removal.

Issues and Recommendations

- SVE system mass removal has declined to a point where the system consists of a single well, operating in pulsed mode. Sampling results from other SVE system wells and groundwater monitoring wells indicate that perched groundwater and the Ogallala Aquifer are nondetect for BG COCs.
- The recommendations for the current FYR are to request a modification of the current operating permit to terminate BG SVE system operations, to attempt continuation of pulsed system operation using the aging equipment currently in place until regulatory approval to terminate the system is obtained, and to continue the groundwater sampling program at wells PTX01-1001, PTX01-1010, and PTX01-1011 to obtain data to support SVE system shutdown.
- No additional issues have been identified or recommendations developed for improving long-term efficacy of the BG SVE remedy.

ES-5.1.3 Zone 12 Ditch Liner

Performance assessments indicate the SWMUs 2 and 5-05 Ditch Liner is performing as intended in the design and decision documents. The Ditch Liner is effective at preventing on-site worker exposure and limiting potential leaching of COCs to groundwater. Findings from the data and documents reviewed as well as from the site visit indicate that the Ditch Liner remedy is effective and protective in both the short and long term.

- The Ditch Liner, in combination with ICs, effectively limits exposure of on-site workers to residual subsurface soil contamination.
- LTM data for the perched groundwater unit indicates that the Ditch Liner, along with other remedial actions, has effectively limited leaching of contaminants remaining in the vadose to groundwater in the Zone 12 area.

- Replacement and repair of the Ditch Liner in 2017 improved the integrity and stability of the liner.
- The Zone 12 Ditch Liner will continue to be effective and protective as long as routine O&M continues. O&M protocols are documented in manuals and reported in annual reports. ICs established for the Site ensure that O&M will continue until soil attains UU/UE status.

Issues and Recommendations

- Tears were observed in the Ditch Liner during the 2021 inspection, and sedimentation and erosion of the anchor trench continue to be an issue.
- Repairs should be performed to remedy the tears in the Ditch Liner and to address sedimentation and erosion of the anchor trench to ensure remedy effectiveness.
- No additional recommendations have been developed for improving the long-term efficacy of the Ditch Liner remedy.

ES-5.2 Perched Groundwater Remedies

ES-5.2.1 Playa 1 Pump and Treat System

Performance assessments indicate the P1PTS did not operate as intended in the design and decision documents during the current FYR period because operations were reduced to accommodate an irrigation system failure. The P1PTS has been effective at reducing concentrations of COCs in perched groundwater, stabilizing and containing the slow migration of plumes to the southeast and reducing the volume and elevation of groundwater upgradient of the SEPTS; however, during the current FYR period, both COC concentrations and groundwater elevations increased near the P1PTS. Findings from the data and documents reviewed as well as from the site visit indicate that the P1PTS remedy, when operated as designed, is effective and protective in both the short and long term.

- When operational, the P1PTS is effective at removing groundwater and contamination with about 470 million gallons of groundwater and over 300 lbs of contaminant mass removed during the previous FYR period and 180 million gallons of groundwater and 80 lbs of contaminant mass removed during the current FYR period (the P1PTS was not operating 58.5% of the time during the current FYR period compared to just 12.6% of the time during the second FYR period).
- LTM data show several statistically *stable* trends and low concentrations of COCs near Playa 1, indicating that the P1PTS has effectively reduced concentrations in the Playa 1 area.
- A new center-pivot irrigation system is being installed east of FM 2373. The new irrigation system will allow the P1PTS to operate at its design capacity again.
- Optimization of P1PTS operation was completed (per recommendation from Second FYR) to maximize both water and mass removal through adjustment of individual well extraction rates and potential inclusion of new EWs.

Issues and Recommendations

- Groundwater hydrographs from LTM wells in the P1PTS area indicate statistically *increasing* elevations, likely resulting from limited operation of the P1PTS during the FYR period and increased discharges of treated water to Playa 1.[1]
- Wells where concentrations (notably RDX) are *increasing* indicate that residual mass in the vadose may be migrating to groundwater and/or the water table has risen to remobilize COCs in the vadose zone. Notable *increasing* RDX trends are in PTX06-1050, where P1PTS capture is not likely.
- Continued operation of the P1PTS system at design levels without discharge of treated water to Playa 1 will result in perched groundwater levels declining at rates consistent with those observed between 2009 and 2015. Groundwater levels observed in 2015 will be re-established in approximately 6 years (2029).
- Additional perched zone monitoring wells north of Playa 1 are not currently recommended, but may be beneficial if RDX concentrations remain elevated or increase during the next FYR period. This area currently has relatively high RDX concentrations and few monitoring wells. This includes areas south and east of PTX06-1050 and to the northwest and southeast of OW-WR-38. Although there are relatively few perched groundwater monitoring wells in this area, areas north of Playa 1 are bounded by dry wells that define the extent of perched groundwater. Based on RDX concentration trends during the next FYR period, the potential need for expanded groundwater extraction in areas north of Playa 1 could be considered, as recommended with new potential wells in the *Pump and Treat Optimization Report*.
- Influent and effluent water from the P1PTS should be sampled for per- and polyfluoroalkyl substances (PFAS). If present, disposal of treatment media will need to be reassessed, and historical discharge locations of treated water should be evaluated.
- Playa 1 will always be an area of focused groundwater recharge from precipitation to the underlying perched groundwater such that the P1PTS could operate in perpetuity. Therefore, an evaluation to determine when the system pumping rates can be reduced, while considering the SEPTS operation and RAOs is recommended.

ES-5.2.2 Southeast Pump and Treat System

Performance assessments indicate that the SEPTS is performing as intended by the design and decision documents. The SEPTS is effective at reducing concentrations of COCs in perched groundwater, reducing total contaminant mass and stabilizing the slow migration of plumes in areas where saturated thickness is above 15 ft. The remedy is effective at reducing the volume, elevation, and extent of perched groundwater. However, the SEPTS is less effective at controlling the migration of the plume through areas of low saturated thickness to the southeast, and there are areas where COCs were beyond the influence of the SEPTS when the system was installed. Findings from the data and documents reviewed as well as from the site visit indicate that the SEPTS remedy is largely effective in the short term.

[1] Statistically determined trends are identified in *italics* in contrast to visually identified trends.

- Groundwater hydrographs from LTM wells in the SEPTS area indicate statistically *decreasing* elevations, indicating that the SEPTS is effective at reducing head and flow through the perched aquifer system. The extent of saturation to the east and in the area of the SEISB is *stable* to *decreasing*.
- The SEPTS operated approximately 84% of the time during the third FYR period removing over 2,300 lbs of contaminant mass and 478 million gallons of perched groundwater. This was similar to the second FYR period when the SEPTS operated approximately 81% of the time, but with 32% less mass removed (3,400 lbs of contaminant mass removed during the second FYR period) and 15% less perched groundwater removed (585 million gallons of perched groundwater removed during the second FYR period). LTM data indicate several statistically *decreasing* or *stable* to low concentrations of COCs in the SEPTS, indicating that mass removal is effectively reducing or stabilizing concentrations, particularly in the area east of Zone 12. The center of mass for the plumes, located just east of FM 2373, is largely stable. Total, center, and spread of mass estimates indicate that the plumes are stabilizing to the east but are migrating to the southeast lobe, where saturated thickness is low and P&T is less effective.
- The margins of the perched groundwater unit near the SEISB are drying, and saturated thickness in this area and east of FM 2373 appear to be declining. These observations support the conclusion that the SEPTS is effectively reducing saturation in this area.
- Perchlorate treatment was added to the SEPTS in 2022 to address that Zone 11 perchlorate plume, which has been drawn into western SEPTS EWs by declining water levels in the SEPTS area.
- Optimization of SEPTS operation was completed (per recommendation from previous FYR review) to maximize mass removal through adjustment of individual well extraction rates and potential inclusion of new EWs.

Issues and Recommendations

- Site data indicate that the SEPTS is not controlling the spread of the HE plumes in the minimally saturated area east of FM 2373 and north of Highway 60. HE plumes in these areas are beyond the SEPTS capture zone. Perched groundwater in this area has a saturated thickness below 15 ft, which is not conducive to treatment by the P&T system. Groundwater concentrations above GWPS in this area are intercepted by the SEISB Extension and Offsite ISB systems.
- Areas of impacted perched groundwater, including areas upgradient of the SEPTS, are inaccessible due to access restrictions associated with Plant operations. These areas of impacted groundwater will continue to migrate towards the SEPTS and will require continued operations of the SEPTS.
- Continue to monitor 1,4-dioxane in the SEPTS to verify that influent concentrations do not follow similar patterns to perchlorate. Currently, the SEPTS does not have treatment in place to remove 1,4-dioxane.

- As water levels decline in SEPTS EWs, extraction at target rates will become difficult to maintain. Some EWs are already cycling on and off as a result of limited saturated thickness. Operational goals for the EWs should be modified/clarified to address saturated thicknesses reaching a minimum operational level for extraction.
- Operation of existing SEPTS EWs should be prioritized based on the findings of the *Pump and Treat Optimization Study* to more efficiently remove contaminant mass and perched groundwater.
- Influent and effluent water from the SEPTS should be sampled for PFAS. If present, disposal of treatment media will need to be reassessed, and historical discharge locations of treated water should be evaluated.

ES-5.2.3 Southeast In Situ Bioremediation System

Performance assessments indicate that the SEISB is performing as intended by the design and decision documents. The SEISB system is effective at attaining GWPS in groundwater downgradient of the SEISB injection wells and preventing the migration of COCs laterally and vertically. Findings from the data and documents reviewed as well as from the site visit indicate that the SEISB remedy is effective and protective in the short term.

- All but one of the remedy performance monitoring wells in the SEISB shows concentrations of COCs below GWPS.
- Geochemical data indicate that the in situ amendments are generating anaerobic conditions conducive to contaminant destruction. Transient generation of RDX degradation by-products indicates that RDX is degrading.
- The margins of the perched groundwater unit near the SEISB are drying, and saturated thickness in the area is declining. Reductions in groundwater elevation are likely the result of extraction by the SEPTS.

Issues and Recommendations

- Investigate the vicinity of PTX06-1153 to determine the reason for the persistent RDX contamination at the well (assess presence of interpolated ridge in top of FGZ between SEISB and PTX06-1153; assess potential leakage into FGZ through water balance calculations using analytical calculations or the existing numerical model [HGL, 2021a]). Use the data to evaluate whether the SEISB should be expanded or an alternate remedy implemented to remediate the contamination at PTX06-1153.
- Groundwater data upgradient of the SEISB is not currently available. Monitoring wells used previously to provide upgradient influent concentrations have gone dry as a result of the SEPTS operation, and new monitoring wells installed in this area have also been dry. Influent data would be useful for reliably determining the extent of contaminant removal by the SEISB and the need for additional amendment injection. However, continued exploration upgradient of the SEISB system may not be an efficient use of resources.
- If water is present, collect samples from PTX06-1122 and PTX06-1119 to assess contaminant by-pass around the SEISB.

- Use upgradient data (if available) and geochemical data from the ISB injection wells, such as changes in TOC concentration, to identify the timing of future amendment injection events.
- Continue to monitor PTX06-1045 to assess the RDX contamination at this location, but do not identify this well as a performance monitoring well for the SEISB. As discussed in Section 4.3.3.1, PTX06-1045 may have been hydraulically connected to the vicinity of the SEISB during design of the SEISB, but this connection was lost when the perched unit desaturated at/near the well. The connection does not appear to have been re-established with the recent re-saturation of perched water in the well's vicinity.
- LTM data for the Ogallala Aquifer indicate increasing concentration trends in PTX06-1056, with a recent detection of DNT4A above the GWPS. PTX06-1056 is just downgradient of the location where previous modeling predicted migration to the Ogallala Aquifer could occur. Investigate the Ogallala Aquifer saturation and water quality in the area upgradient of PTX06-1056. Continue monitoring downgradient Ogallala Aquifer monitoring wells.

ES-5.2.4 Southeast In Situ Bioremediation Extension System

Performance assessments indicate that the SEISB Extension is performing as intended by the design and decision documents. The SEISB Extension is effective in degrading RDX, but concentrations in the downgradient monitoring wells have not begun to attenuate. Based on seepage velocity estimates, it is expected that treated groundwater from the SEISB Extension will not reach the downgradient monitoring wells until between 2022 and 2027. Findings from the data and documents reviewed as well as from the site visit indicate that the SEISB Extension remedy is effective and protective in the short term.

- Geochemical data indicate that the in situ amendments are generating anaerobic conditions conducive to contaminant destruction. Transient generation of RDX degradation by-products indicates that RDX is degrading.
- Downgradient monitoring wells indicate *stable* to *increasing* statistical trends, indicating that the effects of treatment are not being observed downgradient yet.

Issues and Recommendations

- Although most pH measurements were within the optimal range for biodegradation, several readings were below the optimal range. Recommend periodically measuring pH in injection wells to assess the need for adding a buffering agent, such as sodium bicarbonate, to the amendment solutions.
- Since the first injection event in 2019, most TOC detections have been greater than 100 mg/L. The consistently elevated TOC concentrations suggest that the time between amendment injection events can be lengthened. Recommend increasing the duration until the next amendment injection event to provide data to evaluate decreasing the amendment injection frequency.
- Baseline data for PTX06-ISB301 through PTX06-ISB304 and recent data for upgradient monitoring well PTX06-1182 suggest that influent RDX concentrations to the

southwestern end of the SEISB Extension are less than the cleanup goal. Recommend not applying carbon substrate to injections wells PTX06-ISB301 through PTX06-ISB304 during the next amendment injection event and using future data from PTX06-ISB302 to assess the need to treat these wells.

- To provide data that will allow for more immediate evaluation of the SEISB Extension's downgradient performance, consider installing monitoring wells within 200 ft of the injection wells, if possible, recognizing access constraints posed by the railroad and Highway 60 rights-of-way.

ES-5.2.5 Offsite In Situ Bioremediation System

The offsite ISB system has been partially installed with installation of remaining components planned to occur in 2023-2025, as appropriate. One injection event has occurred in the system. Due to the recency of the initial injection event, the Offsite ISB's performance with respect to COC degradation was not evaluated. Hydraulically, PTX06-ISB401 through PTX06-ISB410 appeared to perform well, as each well received the target volume of amendment solution.

ES-5.2.6 Zone 11 In Situ Bioremediation System

Performance assessments indicate that the Zone 11 ISB is performing largely as intended by the design and decision documents. The Zone 11 ISB is effective at attaining GWPS in groundwater downgradient of the injections for perchlorate with some possible movement of perchlorate past the treatment zone on the east side of the ISB system. The remedy, as currently implemented, is somewhat less effective at treating TCE with varying degrees of effectiveness along the length of the ISB system. The varying effectiveness of the Zone 11 ISB system along its length may be influenced by injections being stopped prior to target volumes being reached because of slow amendment injection. Findings from the data and documents reviewed as well as from the site visit indicate that the Zone 11 ISB remedy is partially effective and fully protective in the short term.

- The eastern side of the Zone 11 ISB, where perchlorate is dominant, is somewhat effective at eliminating and controlling the spread of perchlorate, but TCE concentrations in this area were *increasing* in the third FYR period.
- The central portion of the Zone 11 ISB demonstrates mixed results, with some performance monitoring wells showing *decreasing* concentrations and concentrations below GWPS. Other data indicate that reduction of TCE has been less complete. Overall, TCE concentrations are *stable* to *decreasing*, indicating that the remedy is effective at controlling plume migration, but degradation may be stalling at the generation of cis-1,2-DCE.
- The expansions of the western portion of the Zone 11 ISB in 2014 and 2019/2020 have been effective in controlling and delineating the extent of TCE contamination in the area.
- Perched groundwater flow patterns and perchlorate data northeast of the Zone 11 ISB indicates that perchlorate continues to migrate eastward to the north of the Zone 11 ISB system and is now captured and treated by the SEPTS.
- The Zone 11 ISB remedy does not address 1,4-dioxane, which is emanating from Zone 11.

- It is expected that injection wells installed in 2021 will reduce the TCE contamination migrating downgradient from the east side of the ISB system, but efficacy could not be determined for the current FYR period. Amendment was first applied through these wells in fall 2021. PTX06-1209 and PTX06-1210 were added as treatment zone monitoring (TZM) wells to support determination of amendment injection frequency and evaluation of injection well performance.

Issues and Recommendations

- Review amendment injection volumes to confirm that they are sufficient to distribute amendment away from the injection wells.
- Consider addition of a buffering agent to the amendment solutions to increase pH in the injection wells and counter future acid production by microorganisms.
- Consider pilot-testing injection of PlumeStop™ with the carbon substrate amendment to determine if the adsorption provided by PlumeStop™ would improve treatment efficiency. The limited radius of influence of PlumeStop™ injections may create technical limitations on its implementation in the Zone 11 ISB system.
- Install a performance monitoring well downgradient of injection wells PTX06-ISB132 through PTX06-ISB137 to provide spatial coverage along this section of the ISB system.
- During recent injection events, multiple wells received less than the target volume of amendment solution due to low flow rates, and the average flow rate for many wells was approximately 5 gpm or less. With such low flow rates, it can take many days to administer the target injection volume to a given well and the duration of each field event is lengthened. Consider the options to improve in situ treatment such as:
    - Testing existing injection wells to serve as recirculation wells to enhance amendment distribution; and
    - Testing alternative well maintenance approaches, such as sequential application of different chemical agents, longer purge times, or a heated water maintenance approach.
- Prepare groundwater potentiometric contours localized to the Zone 11 ISB and at a smaller interval (e.g., 1-ft) than the 5-ft interval currently used to allow a more precise evaluation of potential changes in groundwater flow direction due to SEPTS operation.
- Site access restrictions limit/prevent remediation of contaminant sources upgradient of the Zone 11 ISB, which will require continued operation of the system until the sources are depleted.

ES-5.3 Monitoring

Additional perched groundwater contaminants identified in the first, second, and third FYRs requiring continued monitoring are as follows:

- Metals solubilized as a result of both ISB treatment zones (arsenic, barium, and manganese),
- Cadmium beneath Zone 12 South (WMG 6/7),
- Hexavalent chromium near Zone 11 ISB,
- 1,4-Dioxane near Zone 11 and the Zone 11 ISB, and
- Solvent degradation products cis-1,2-DCE and 1,1-DCE identified above MCLs.

In addition, a sampling plan to characterize PFAS in site groundwater should be developed and implemented in accordance with the USDOE *PFAS Strategic Roadmap* (USDOE, 2022).

ES-5.4 Institutional Controls and Monitoring

Performance assessments indicate that the ICs implemented at the Site are performing as intended by the design and decision documents. ICs are highly effective at limiting human contact with affected media remaining on site.

Findings from the data and documents reviewed as well as from the September 2022 Site Inspection indicate that the ICs are effective and protective in both the short and long term.

- The Site Administrative Record and the Pantex Plant website include all decision documents, site investigation reports, risk assessments, and remedy design and performance reports and support the objective of disseminating information on hazards, access restrictions, remedy components, and mitigation efforts.
- Deed restrictions on affected property are recorded with the Carson County clerk. Deed restrictions effectively document the location, property use restrictions, and hazards present on affected parcels.
- Deed restrictions effectively prohibit the development and use of restricted parcels for residential buildings, housing, elementary and secondary schools, childcare facilities, and playgrounds.
- Deed restrictions on property overlying affected perched groundwater effectively prohibit drilling into the perched and FGZ strata and use of extracted groundwater for purposes other than corrective action.
- Signage, fencing and access restrictions, including security restrictions, effectively eliminate unintentional or uncontrolled access to affected media. These ICs effectively control access to those properties that pose a health risk to construction/excavation workers.
- Remedy O&M protocols and inspection logs protect remedies and remedy components from degradation or accidental damage.

- Documentation of Site management roles and responsibilities identifies protocols for conducting and overseeing construction or excavation work at the Site.
- Site documentation of management roles and responsibilities effectively articulates work protocols for maintaining the integrity of remedies and remedial components and for managing the transfer of restricted parcels or changes in their use.
- Deed restrictions provide long-term efficacy by identifying and limiting exposure to residual contamination as they limit property use, prohibit drilling and use of perched aquifer water, and require USDOE/NNSA maintenance of remedies until media attain UU/UE status.
- Deed restrictions are effective at long-term limitation of the use of restricted properties. Although the USDOE/NNSA may transfer these procedural responsibilities to another party by contract, property transfer agreement, or other means, the USDOE/NNSA retains ultimate responsibility for the integrity and protectiveness of the Selected Remedy.
- Deed restrictions were added for two properties located southeast of the Pantex Plant property and south of Highway 60 during the third FYR period to prohibit drilling into the perched and FGZ strata and use of extracted groundwater for purposes other than corrective action.

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TABLE OF CONTENTS

Page

TABLE OF CONTENTS (continued)

Page

TABLE OF CONTENTS (continued)

Page

TABLE OF CONTENTS (continued)

Page

LIST OF TABLES

LIST OF FIGURES

Page

LIST OF FIGURES (continued)

Page

LIST OF FIGURES (continued)

Page

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
m	meter
mg/L	milligrams per liter
mV	millivolt
scfm	standard cubic feet per minute
AEC	Atomic Energy Commission
amsl	above mean sea level
AOC	area of concern
BG	Burning Ground
bgs	below ground surface
BWD	Blackwater Draw
CATOX	catalytic oxidation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cis-1,2-DCE	cis-1,2-dichloroethene
CMS	Corrective Measure Study
CNS	Consolidated Nuclear Security, L.L.C.
COC	contaminant of concern
Cr (VI)	hexavalent chromium
CSM	conceptual site model
DNT2A	2-amino-4,6-dinitrotoluene
DNT4A	4-amino-2,6-dinitrotoluene
DNX	hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
DO	dissolved oxygen
DOC	dissolved organic carbon
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
EVO	emulsified vegetable oil
EW	extraction well
FGZ	fine-grained zone
FM	Farm to Market Road
FS	Feasibility Study
ft	feet
FYR	Five-Year Review
GAC	granular activated carbon
gal/yr	gallons per year

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

GIS	geographic information system
gpd	gallons per day
gpm	gallons per minute
GWPS	groundwater protection standard
GW-Res	TCEQ Standard No. 2 Groundwater MSC for Residential Use
HA	Health Advisory
HCl	hydrochloric acid
HDPE	high-density polyethylene
HE	high explosive
HGL	HydroGeoLogic, Inc.
HMX	high melting explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
HSU	hydrostratigraphic unit
HVAC	heating, ventilation, and air conditioning
IAG	Interagency Agreement
IC	institutional control
ICM	interim corrective measure
ISB	in situ bioremediation
ISPM	in situ performance monitoring
LGUCIP	Land and Groundwater Use Controls Implementation Plan
LiDAR	Light Detection and Ranging Data
LTM	long-term monitoring
LTMO	Long-Term Monitoring Optimization
LUC	land use control
MCL	Maximum Contaminant Level
MK	Mann-Kendall
MNX	hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
MSC	Medium Specific Concentration
N/A	Not Analyzed/Not Applicable
N/S	Not Sampled
NC	Non-carcinogenic
NNSA	National Nuclear Security Administration
NPL	National Priorities List
O&M	operation and maintenance
ORP	oxidation reduction potential
P&T	pump and treat
P1PTS	Playa 1 Pump and Treat System
PCA	1,1,2,2-tetrachloroethane

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

PCE	tetrachloroethene
PQL	practical quantitation limit
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RDX	Research Department Explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine)
RFI	RCRA Facility Investigation
ROD	Record of Decision
RRR	Risk Reduction Rules
SARA	Superfund Amendments and Reauthorization Act
SCADA	Supervisory Control and Data Acquisition
SEISB	Southeast In Situ Bioremediation
SEP	Solvent Evaporation Pit
SEPTS	Southeast Pump and Treat System
Site	Pantex Plant
SVE	soil vapor extraction
SVS	Supplemental Verification Site
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
THF	tetrahydrofuran
TNT	trinitrotoluene
TNX	hexahydro-1,3,5-trinitroso-1,3,5-triazine
TOC	total organic carbon
TTU	Texas Tech University
TZM	treatment zone monitoring
UM	uncertainty management
USDOE	U.S. Department of Energy
UU/UE	unlimited use and unrestricted exposure
VC	vinyl chloride
VFA	volatile fatty acid
VFD	variable frequency drive
VOC	volatile organic compound
WMG	waste management group
WWTF	wastewater treatment facility

REMEDIAL ACTION PERFORMANCE AND EFFECTIVENESS REPORT
CERCLA THIRD FIVE-YEAR REVIEW
PANTEX PLANT
CARSON COUNTY, TEXAS

1.0 OBJECTIVES AND METHODS

The Pantex Plant Site (Site) was proposed for addition to the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1991 and was formally listed in 1994. Under Section 121 of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), remedial actions that result in any hazardous substances, pollutants, or contaminants remaining at the site, preventing unlimited use and unrestricted exposure (UU/UE), must be reviewed every 5 years to ensure protection of human health and the environment. The requirements for a Five-Year Review (FYR) include reviewing the efficacy of all remedies selected in the Record of Decision (ROD).

The Pantex Plant is currently managed as a U.S. Government-owned, contractor-operated facility. The Pantex Plant is operated by Consolidated Nuclear Security, L.L.C. (CNS), and its activities are overseen by the U.S. Department of Energy/National Nuclear Security Administration (USDOE/NNSA). As the prime contractor, CNS, also directs environmental activities, including investigation, construction, and remedial system operation and maintenance (O&M) activities. Consistent with Executive Order 12580, federal agencies are responsible for ensuring that FYRs are conducted at federal facilities regulated under CERCLA. Roles and responsibilities of the U.S. Environmental Protection Agency (EPA), TCEQ, and USDOE/NNSA pertaining to remedial action oversight at the Pantex Plant are detailed in the Interagency Agreement (IAG) executed in 2008 (IAG, 2008).

The triggering action initiating the FYR cycle was the publication of the Pantex Plant ROD in September 2008. The first FYR report for the Pantex Plant was produced in 2013 and summarized remedial action between 2008 and 2012. The second FYR report was produced in 2018 and summarized remedial action between 2012 and 2017. This third FYR report reviews the performance of remedial systems between 2017 and 2022 and provides an independent analysis of the performance, efficacy, and maintenance of remedies selected in the Pantex Plant ROD (B&W Pantex, 2008). The report is provided to support the Third FYR by assessing the protectiveness of the Selected Remedies during the third FYR period and ensuring their efficacy going forward.

Documents and data sources used in the analysis are listed in **Appendix A**.

1.1 OBJECTIVES OF THE REVIEW

A review of the Pantex Plant remedy performance and effectiveness was conducted to support the third FYR. The review was conducted according to EPA guidance including *Comprehensive Five-Year Review Guidance* (EPA, 2001); *Clarifying the Use of Protectiveness Determinations of Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews* (EPA, 2012), *Five-Year Review Recommended Template* (EPA, 2016) and *Recommended*

Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance" (EPA, 2011). EPA guidance for conducting FYRs identifies the purpose of the FYR as evaluating "the implementation and performance of a remedy in order to determine if the remedy is or will be protective of human health and the environment" (EPA, 2001).

The goal of the FYR is to formally and independently evaluate the implementation and performance of the Selected Remedies and to provide recommendations to optimize remedy efficacy going forward.

The objectives of this Remedial Action Performance and Effectiveness Report are to determine if remedies are functioning as intended by the decision documents and design specifications (remedy performance) and to identify what, if any, corrective measures are required to address deficiencies in the function of the remedy (remedy efficacy). Remedy reviews provided in this report will be used to address the question of short- and long-term protectiveness of the Selected Remedies in the third FYR. A secondary objective of the report is to provide recommendations to improve the long-term performance or reduce life-cycle costs of the Selected Remedies.

1.2 METHODS

For the FYR, the Selected Remedies as articulated in the ROD were evaluated by reviewing remedy operational and media-specific data and comparing performance to expected conditions in the original design and decision documents.

Remedies have been grouped by those addressing primarily soil or groundwater. Soil remedy components include the soil and landfill covers, ditch liners, and a soil vapor extraction (SVE) system. Groundwater remedies implemented in the perched groundwater unit include groundwater extraction and treatment (pump and treat [P&T]) systems and in situ amendments to promote biodegradation and chemical transformation (in situ bioremediation [ISB]). Monitoring of groundwater in the perched aquifer as well as the Ogallala Aquifer are part of the long-term monitoring (LTM) remedy. Institutional controls (ICs) have been implemented for both soil and groundwater to prevent human contact with media affected above risk-based standards.

Remedies were evaluated as follows:

- A *remedy performance assessment* is intended to evaluate specific engineered or constructed components of active remedies. O&M records are reviewed to evaluate factors such as operational time and contaminant removal and to confirm that the remedy is constructed and operated as designed. Remedy performance assessments can provide information to optimize the engineered or operational components of the active remedy.
- *Remedy efficacy assessments* review the effect of the remedy on target media in the vicinity and downgradient of the remedy. Remedy efficacy assessments evaluate the reduction of contaminant concentrations or toxicity in target media and progress toward long-term remedial goals.
- *Remedy optimization* recommendations are derived from remedial performance and efficacy assessments and identify opportunities to improve the function of Selected Remedies or to pursue alternative remedies.

The method for evaluating remedy performance and effectiveness included a review of Site decision documents to identify the historical regulatory framework, the conceptual site model (CSM), remedial action goals, remedy design, and O&M protocols. Site monitoring and operational data were reviewed to identify trends in contaminant concentrations and the efficacy of remedial components.

CNS provided data and documents to evaluate the performance and efficacy of Selected Remedies. In addition, a site visit and landfill inspection were conducted by members of the HydroGeoLogic, Inc. (HGL) project team to view the installed Site- and media-specific remedies. Documentation of the site visit is in **Attachment 3** of the third FYR report. Sources of information for the remedy evaluations include the following:

- *Historical and recent Site documents* including decision documents (e.g., ROD, Corrective Measure Study [CMS], and previous FYR reports), remedy design and construction documents, remedial work plans, O&M manuals and reports, contingency plans, and annual remedy progress reports.
- *Geographic information system (GIS) electronic files* showing property boundaries, locations of remedial components, monitoring wells, perched groundwater extent and elevation contours, contaminant plume outlines, IC boundaries, and Light Detection and Ranging (LiDAR) data files.
- *Historical and recent media sampling data* including groundwater elevations and hydrographs as well as contaminant concentrations, field and geochemical parameters in the perched groundwater, and contaminant concentrations in soil.
- *Active remedy performance data* including influent and effluent concentrations, component operational time, and contaminant mass removal.
- A *site inspection and discussions with regulators and operators* were performed by members of the HGL project team who visited the Pantex Plant from September 27 through 29, 2023, to tour the remedies and discuss remedy performance with CNS personnel and regulators.

1.3 REPORT ORGANIZATION

This report is organized as follows:

- **Section 1** presents the background, objectives, and methods used in the remedy review.
- **Section 2** describes the industrial background and CSM for the Pantex Plant including hydrogeology, remedies, and regulatory framework.
- **Section 3** discusses and evaluates Selected Remedies for Site soils.
- **Section 4** discusses and evaluates Selected Remedies for the perched groundwater.
- **Section 5** discusses and evaluates ICs, including deed restrictions, as well as guidance and policy for preventing contact with affected soil and groundwater.

- **Section 6** summarizes the Site groundwater monitoring program.
- **Section 7** summarizes the efficacy of Selected Remedies relative to remedial action objectives (RAOs).

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

The Site is located approximately 17 miles northeast of Amarillo in Carson County, Texas, and lies within EPA Region 6. The primary mission of the Pantex Plant is to assemble, disassemble, and evaluate nuclear weapons from the U.S. stockpile; to develop, fabricate, and test explosives and explosive components; and to provide secure storage for material from the above activities.

The Pantex Plant main area of operations is bounded on the north by Farm to Market Road (FM) 293, on the east by FM 2373, and on the west by FM 683. In total, USDOE/NNSA owns 17,559 acres including the main Plant area and adjacent property. The USDOE/NNSA-owned main property used for core operations covers 9,100 acres. Industrial operations occur on approximately 2,000 acres in the central portion of the Pantex Plant. The remaining 7,100 acres of the main property are managed to support and secure the industrial operations.

In 2008, approximately 1,526 acres east of FM 2373 were purchased to provide better access and control of perched groundwater areas included in the remedial action (**Figure 2.1**). In addition, USDOE/NNSA purchased property east of the main Plant along FM 2373 to control access to and remediate affected groundwater in the perched groundwater unit. USDOE/NNSA also owns Pantex Lake, which is 2.5 miles northeast of the Plant boundary.

Pantex Plant operations began in 1942 under the Army Ordnance Corps, manufacturing conventional munitions and high explosives (HE) such as trinitrotoluene (TNT). The Plant was briefly deactivated at the end of the World War II, and the property was sold to Texas Tech University (TTU). In 1951, the Site was reclaimed for use by the Atomic Energy Commission (AEC) to produce both nuclear weapons and HE compounds. Radioactive materials have not been manufactured at the facility, but components containing radioactive materials are managed at the site. Compounds such as TNT, High Melting Explosive (HMX, octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), and Research Department Explosive (RDX, hexahydro-1,3,5-trinitro-1,3,5-triazine) have been manufactured, tested, and disposed of at the site.

In 1988, EPA conducted a *Resource Conservation and Recovery Act (RCRA) Facility Assessment* of the Pantex Plant and identified Solid Waste Management Units (SWMUs), Supplemental Verification Sites (SVS), and Areas of Concern (AOCs) containing environmental media possibly subject to interim corrective measures (ICMs). The RCRA Facility Investigation (RFI) identified operational areas at the site and groupings of corrective action units in common watersheds termed waste management groups (WMGs). The Pantex Plant was formally listed on the NPL in 1994. The Pantex Plant is, therefore, subject to the provisions of CERCLA in addition to RCRA and State of Texas Risk Reduction Rules (RRR) requirements.

A CMS/Feasibility Study (FS) was completed in 2007 and conditionally approved by the Texas Commission on Environmental Quality (TCEQ) and EPA in 2008. The Pantex sitewide ROD was finalized in September 2008. The CMS/FS and ROD outline interim corrective and stabilization measures and remedies selected to address affected Site media. Many interim remedial actions were implemented before 2008 and were included as Selected Remedies in the ROD.

A chronology of key remedial action events is presented in **Table 2.1**.

Table 2.1
Pantex Site Chronology

Date	Action
1942	Army Ordnance Corps Pantex Plant begins operations.
1951	Plant Site is transferred to AEC.
1980s	DOE Environmental Management (EM) initiates Environmental Restoration Project.
1988	RCRA facility investigation is conducted.
1991	EPA and TCEQ issue RCRA Hazardous Waste Permit to Pantex Plant; Pantex Plant is proposed for addition to the NPL.
1994	Pantex Plant is listed on the NPL.
1995	Southeast Pump and Treat System (SEPTS) pilot system is installed
1999-2005	Remedial Investigation/FS is approved.
1999-2000	SEPTS is expanded from pilot installation.
2000	USDOE/NNSA succeeds DOE EM as lead federal agency.
2004	Pantex Plant groundwater modeling report is completed.
2007	SEPTS is expanded.
2007-2008	CMS/FS is completed and Proposed Plan is issued for public review and comment.
2008	ROD is signed (benchmark for FYR schedule), IAG is executed, and SEISB System and Playa 1 Pump and Treat System (P1PTS) are installed.
2009	LTM design and SAP are completed, and Zone 11 In Situ Bioremediation (Zone 11 ISB) is installed.
2010	All remedial design and construction is approved.
2013	First FYR and LTMO review are completed.
2014	LTM design and SAP updated.
2017	LTMO review is completed.
2017-2018	SEISB Extension is installed, and SEPTS is expanded.
2018	Second FYR is completed. Perched groundwater contamination confirmed beneath neighboring landowner properties southeast of Pantex property.
2019	Zone 11 ISB Extension is installed and LTM design and SAP are updated.
2020	Phase 1 and Phase 2 Offsite ISB and Extraction System components are installed.
2021	Perched groundwater CSM and numerical groundwater model are updated; Southeast offsite remediation system is updated; and P&T system is optimized. Expansion of Zone 11 ISB occurs.

2.2 CONCEPTUAL SITE MODEL

2.2.1 Geology and Hydrogeology

The Pantex Plant lies on the High Plains portion of the Great Plains Physiographic Province in the Texas Panhandle. The area, known as the Llano Estacado, is a broad, flat plateau with topographic elevations across the site ranging between 3,501 feet (ft) above mean sea level (amsl) to 3,595 ft amsl. A distinguishing feature of the area is the presence of numerous shallow circular basins called *playas* (**Figure 2.1**). Playas are ephemerally moist depressions that are the location of much of the recharge to groundwater in the region. When inundated, the playas form shallow lakes and wetlands, contributing to animal and plant diversity in the region. The average topographic slope across the Plant area is approximately 0.006 ft, and most Plant surface water tends to drain to the on-site playas.

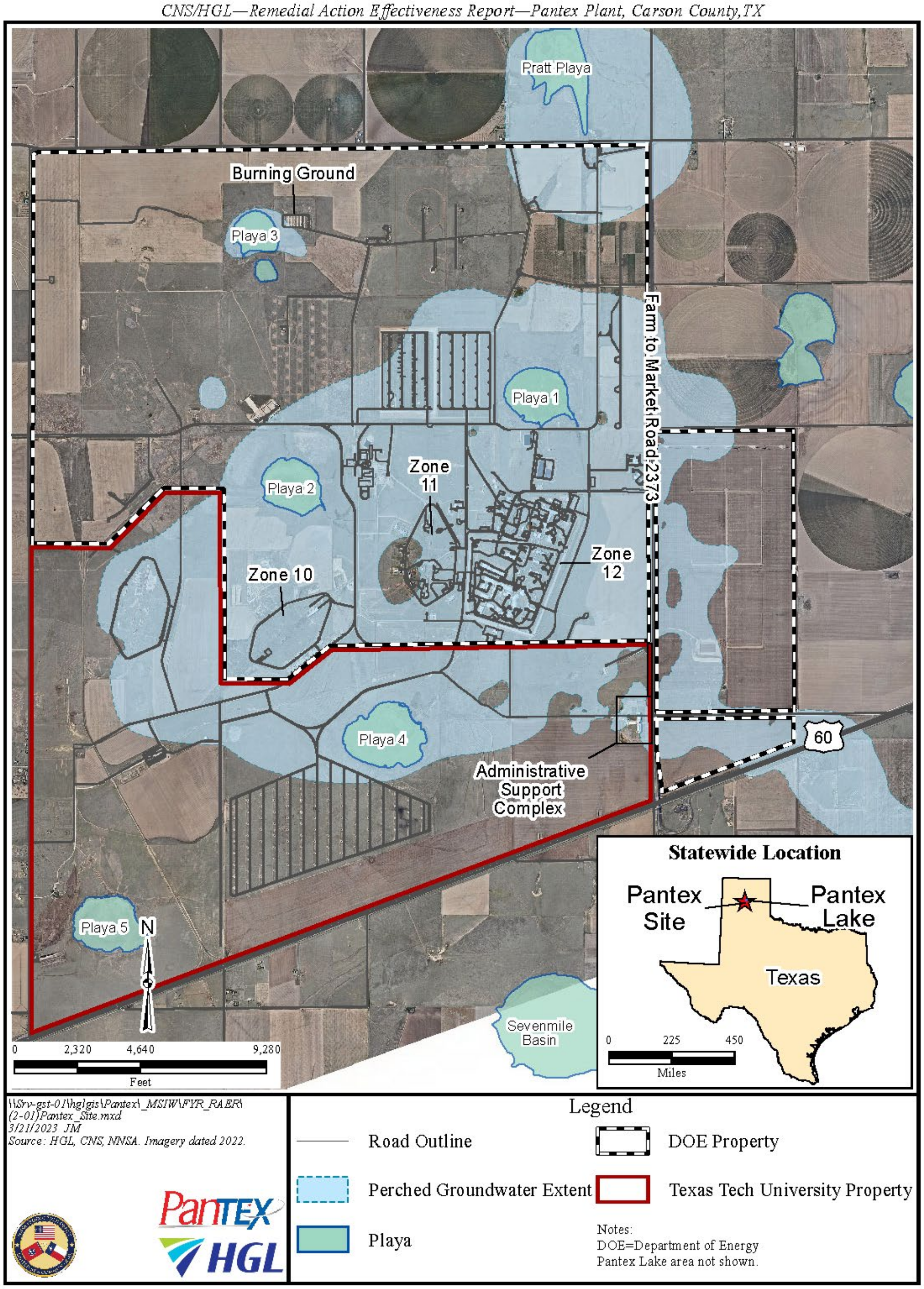

Figure 2.1 Pantex Plant Area.

Drainage ditches transport stormwater runoff from developed areas and, historically, transported industrial wastewater discharges to the playas, which are the terminal points for all Site surface water drainage. Historical wastewater discharges to the ditches, and ultimately the playas, are the primary transport pathways for contaminants of concern (COCs) present in perched groundwater. All industrial discharges to ditches were terminated in the late 1980s. Currently, wastewater is treated and disposed of through the on-Site wastewater treatment facility (WWTF). Playa 1 received the majority of the Plant's wastewater discharge before the 1980s. Surface water in the playas is not used on Site for Plant processes. Playas constitute ecological habitat at the Pantex Plant.

The hydrostratigraphy below the Pantex Plant is summarized in **Table 2.2** and illustrated on **Figure 2.2**. The uppermost hydrostratigraphic unit (HSU) at the Pantex Plant is the Blackwater Draw (BWD). The BWD extends up to 90 ft below ground surface (bgs) at the Site and is typically unsaturated. The unit consists of silts and sands and an approximately 20-ft-thick lower unit composed of silty sand and caliche. The playas are depressions in the BWD.

The Ogallala Formation underlies the BWD. A caprock caliche layer generally defines the top of the Ogallala Formation, but is not continuous across the entire Pantex Plant and is thinner or absent beneath the playas allowing focused recharge to perched groundwater. The caprock, where present, consists of a hard, dense, and finely crystalline caliche. Below the caprock caliche, the Ogallala Formation consists of upper and lower permeable units separated by the FGZ. The permeable units are composed of coarse-grained fluvial sequences including channel sands and gravels overlain by finer overbank deposits.

Figure 2.3 provides a three-dimensional representation of the primary HSUs at Pantex Plant developed from boring logs and surface topography data. It shows a perspective view through the Pantex Plant from Playa 4 to Playa 1. **Figure 2.3** illustrates the BWD Formation at the surface underlain by the caprock caliche, upper Ogallala, FGZ, lower Ogallala, and underlying Dockum/red beds. Perched groundwater occurs in discontinuous units above and within the FGZ. Ogallala Aquifer groundwater occurs beneath the FGZ, except south of the Plant where the Ogallala water table extends into and above the FGZ. **Figure 2.3** also illustrates the substantial increase in lower Ogallala sediment thickness from south-to-north beneath the Plant.

Perched groundwater is found in three main areas under the Pantex Plant. The largest area of perched groundwater is associated with recharge from Playas 1, 2, and 4 and below drainage ditches associated with industrial Zones 11 and 12 (**Figure 2.4**). Smaller areas of perched groundwater area located below Playa 3 and in the northeast corner of the Site associated with Pratt Playa. Groundwater remedial actions at the Site have been implemented for the main perched groundwater unit, and references to perched groundwater in the following report refer to the main perched water body, unless otherwise noted.

Table 2.2
Pantex Plant Hydrostratigraphic Units

Name	Elevation and Thickness	Description
Blackwater Draw Formation		
BDF	Surface at 3,575 to 3,500 ft amsl (~ 90 ft thick)	Unsaturated silts and sands, lower 20 ft interval of silty sand and caliche
Ogallala Formation		
• Caprock Caliche	Surface at ~3,500 to 3,415 ft amsl (0 to >40 ft thick). Sometimes absent, particularly underneath playas	Hard, dense and finely crystalline caliche
• Upper Ogallala	Surface at 3,495 to 3,405 ft amsl (145 to 250 ft thick)	Fine to medium sand, sands with clays and gravel
• Perched Groundwater Unit	Perched groundwater between 3,305 and 3,205 ft amsl (215 and 280 ft bgs, 0 to 60 ft saturated thickness)	Fine to medium sand, saturated sands with clays and gravel
• Fine-Grained Zone (FGZ)	Surface at 3,300 to 3,190 ft amsl with variable thickness (<5 to 150 ft thick)	Silts and clays, separate upper from lower Ogallala
• Lower Ogallala Vadose Zone	Surface at 3,300 to 3,190 ft amsl with variable thickness (45 to 300 ft thick)	Coarse-grained fluvial, channel sands and gravels
• Lower Ogallala Saturated Zone (Ogallala Aquifer)	Surface at 3,215 to 3,030 ft amsl (350 to 520 ft bgs, 1 to 400 ft saturated thickness)	Saturated coarse-grained sands, gravel, drinking water supply for Amarillo, irrigation water supply
Red Beds		
• Red Beds / Dockum Group	Surface at 3,180 ft amsl dipping to 2,870 ft amsl	Siltstone, confining layer

Elevations are approximate from reports (B&W Pantex, 2004 and HGL, 2021a) and 2020 hydrographs.

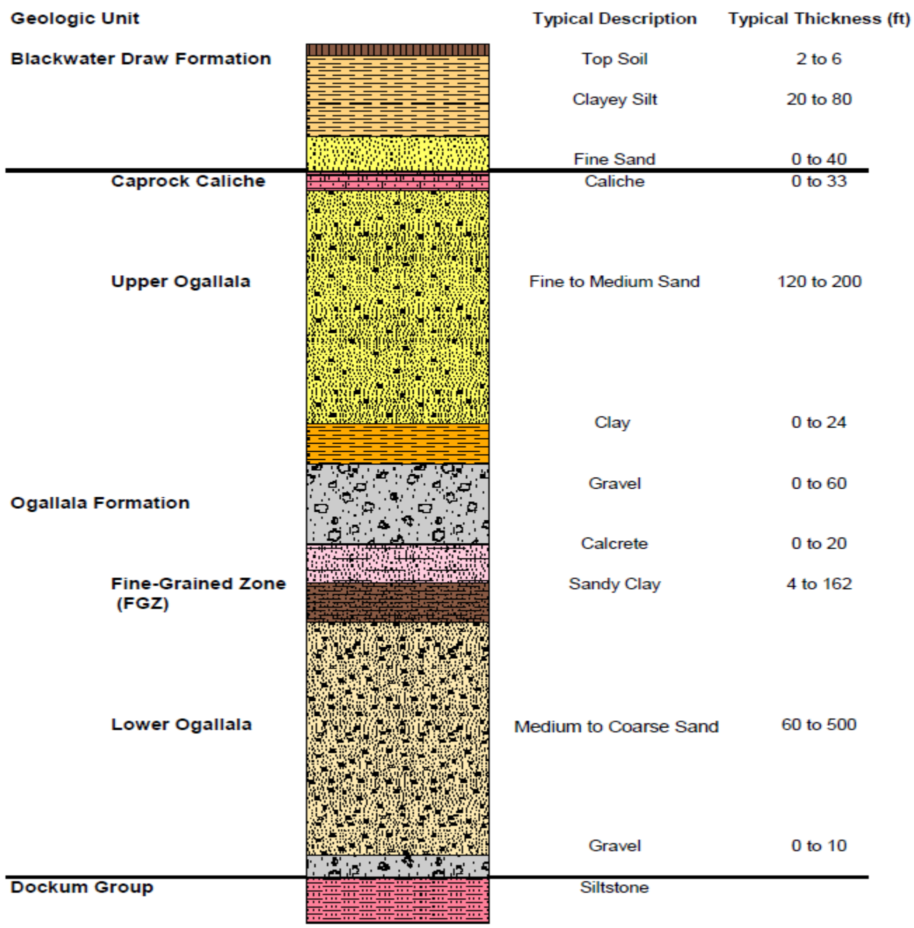

Figure 2.2 Generalized Stratigraphy below the Pantex Plant.
[Figure excerpted from Subsurface Modeling Report (B&W Pantex, 2004)]

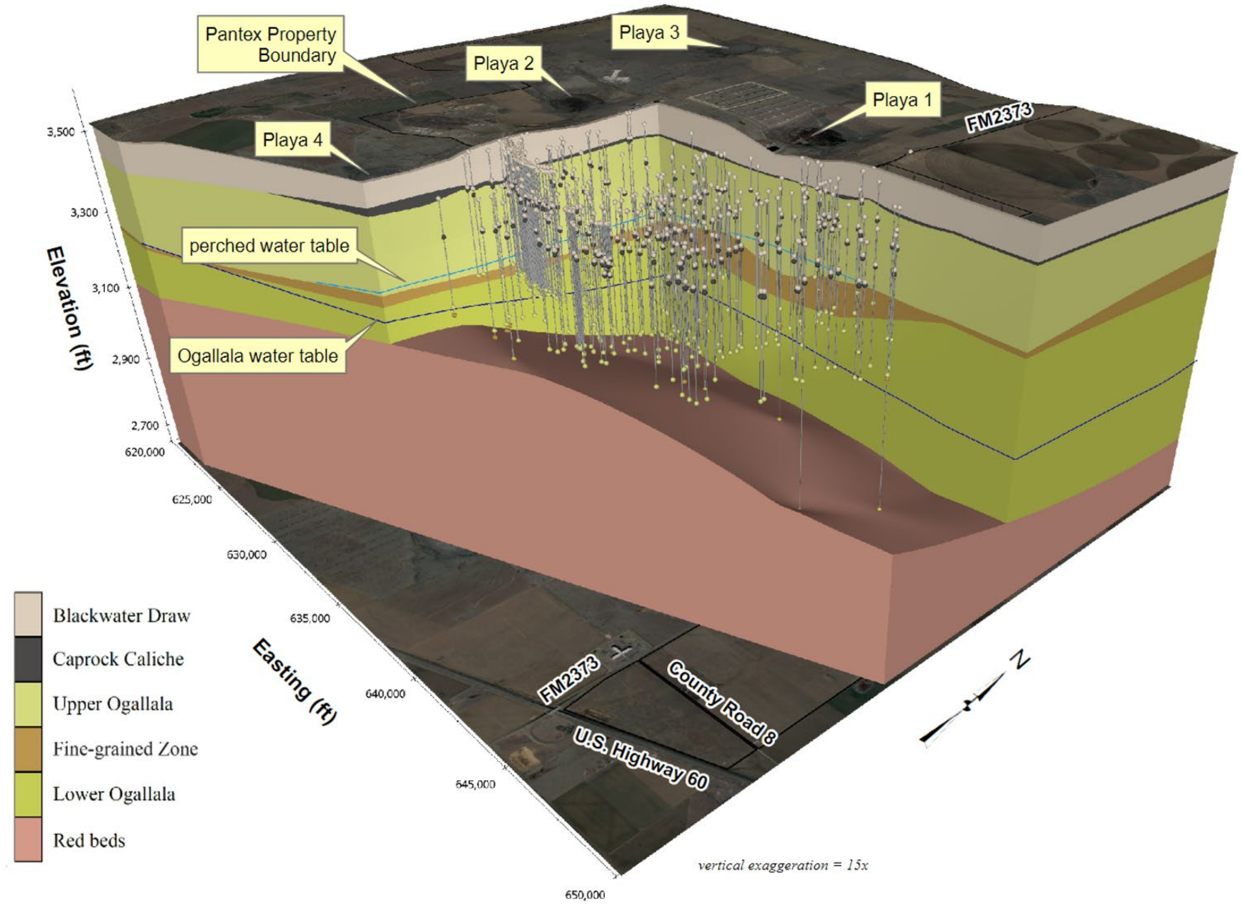

Figure 2.3 Pantex Site Stratigraphy 3-Dimensional View.
Rendering is looking northwest. Stratigraphy is based on drilling data provided by CNS (2022), figure from (HGL, 2022a).

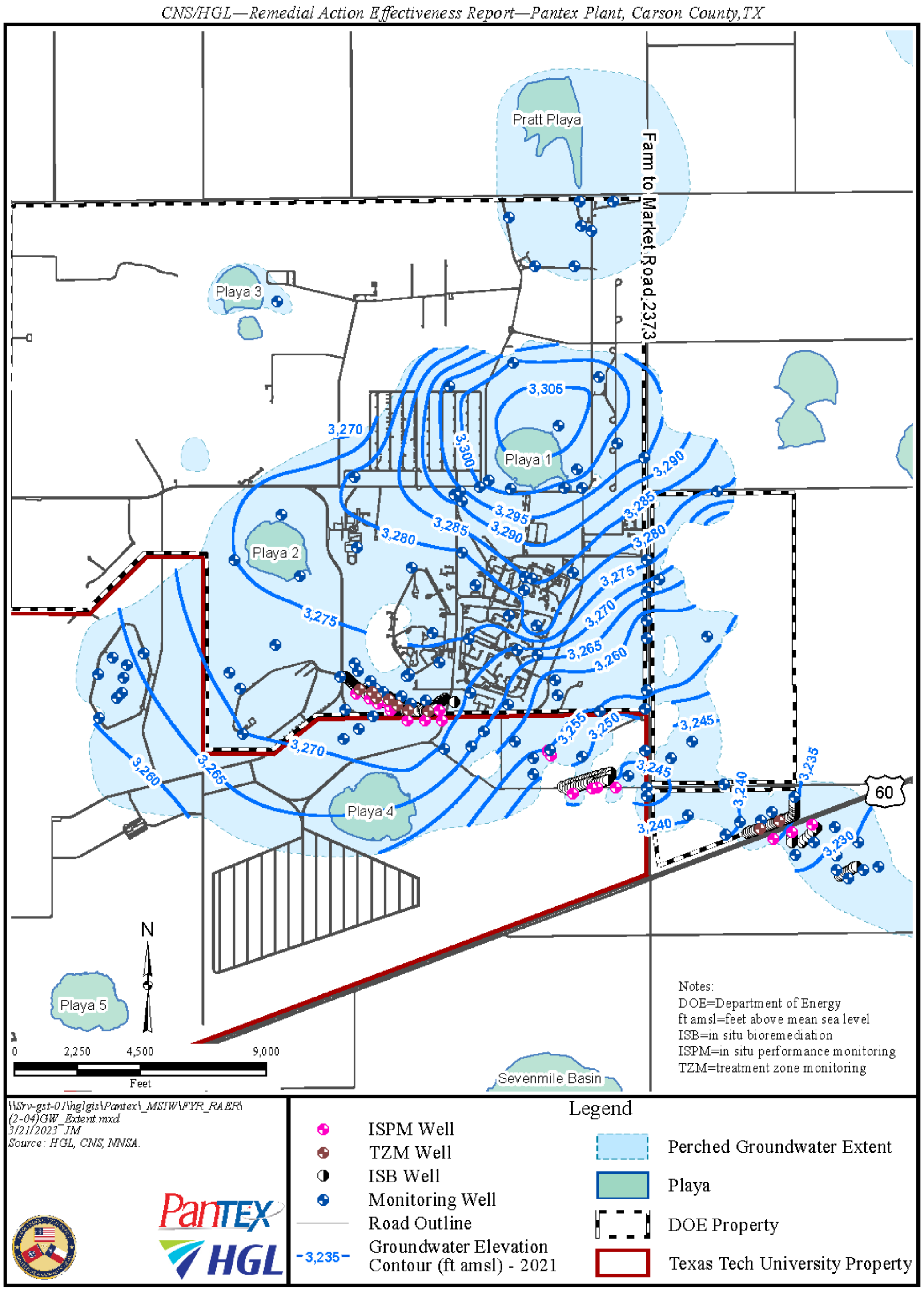

Figure 2.4 Perched Groundwater Extent and Elevations.
(Elevation data from CNS, 2022a).

Perched groundwater elevation is highest under Playa 1 (about 3,305 ft amsl) with radial flow to the north and to the south beneath Zones 11 and 12, pinching out on the TTU property to the south and off site to the east with a channel of perched groundwater to the southeast (**Figure 2.4**).

The perched groundwater unit meets the yield and water quality criteria to be considered a potential drinking water source in the state of Texas. However, no water supply wells are drilled into the unit for either drinking water or industrial water supply on Site. Public drinking water supply wells in the vicinity are drilled into the Ogallala Aquifer, except for one perched groundwater well on off-site property northeast of Pantex near Pratt Playa. The perched groundwater does not discharge to surface water bodies, and hydraulic connection with the Ogallala Aquifer is limited by the FGZ.

The saturated thickness of perched groundwater varies spatially and over time with a historical maximum of 70 ft beneath Playa 1 to 0 ft at the extreme edges of the unit. Depth to groundwater varies from about 215 ft near Playa 1 to approximately 280 ft southeast of Highway 60 and 300 ft in the southwest area under TTU property. The distribution of saturation, and to a large extent, the distribution of the contaminant plumes is determined by the topology of the FGZ.

Because of mounding near Playa 1 and the topography of the FGZ, groundwater flow in the main perched unit tends to be radial from the Playa 1 area, with the water table surface sloping to the southeast, south, and east of Zone 12 and sloping to the southwest west of Zone 11. The upper surface of the FGZ varies in relief beneath Pantex Plant (**Figure 2.5**). Much of this relief is caused by the representation of several interbedded clay lenses as a single HSU. The number and location of the clay lenses drives the topography of the upper surface of the FGZ. A channel in the FGZ corresponds with perched saturation extending to the southeast.

In cores collected from two borings at Pantex Plant (Gustavson, 1994) observed two to four fining upward sequences of laminated silt and fine sand capped by laminated to massive clays several ft thick. Thicker sequences of clay within the FGZ have been observed during drilling of investigative borings and monitoring wells at the site. The FGZ sediments are thought to have been deposited under ephemeral pond conditions. The sediments immediately above the FGZ were deposited under fluvial conditions, with the source area to the west. The change in depositional setting from ephemeral pond (for FGZ sediments) to fluvial (for sediments occurring immediately above the FGZ) is significant. The upper surface of the FGZ may represent an erosional unconformity. As such, erosion/removal of one or more of the interbedded clay lenses followed by deposition of coarser sands and gravels provides an explanation for at least some of the observed variability in the FGZ surface.

A depression in the FGZ surface occurs beneath and to the north and south of Playa 1 (**Figure 2.5**). This depression is flanked to the east and west by structural highs. Other depressions occur below and north of Zone 10 and through the southern portion of Zones 11 and 12 and east toward the Plant boundary. These depressions underlie the thickest sections of the saturated sediments forming the perched aquifer. Sediments directly above the depressions are generally coarse-grained sands and gravels and have been interpreted as paleochannels in the FGZ surface (ANL and BMI, 1995). These depressions may represent areas where the uppermost fining-upward sequences have been removed through erosion or were not evident as a result of a facies change.

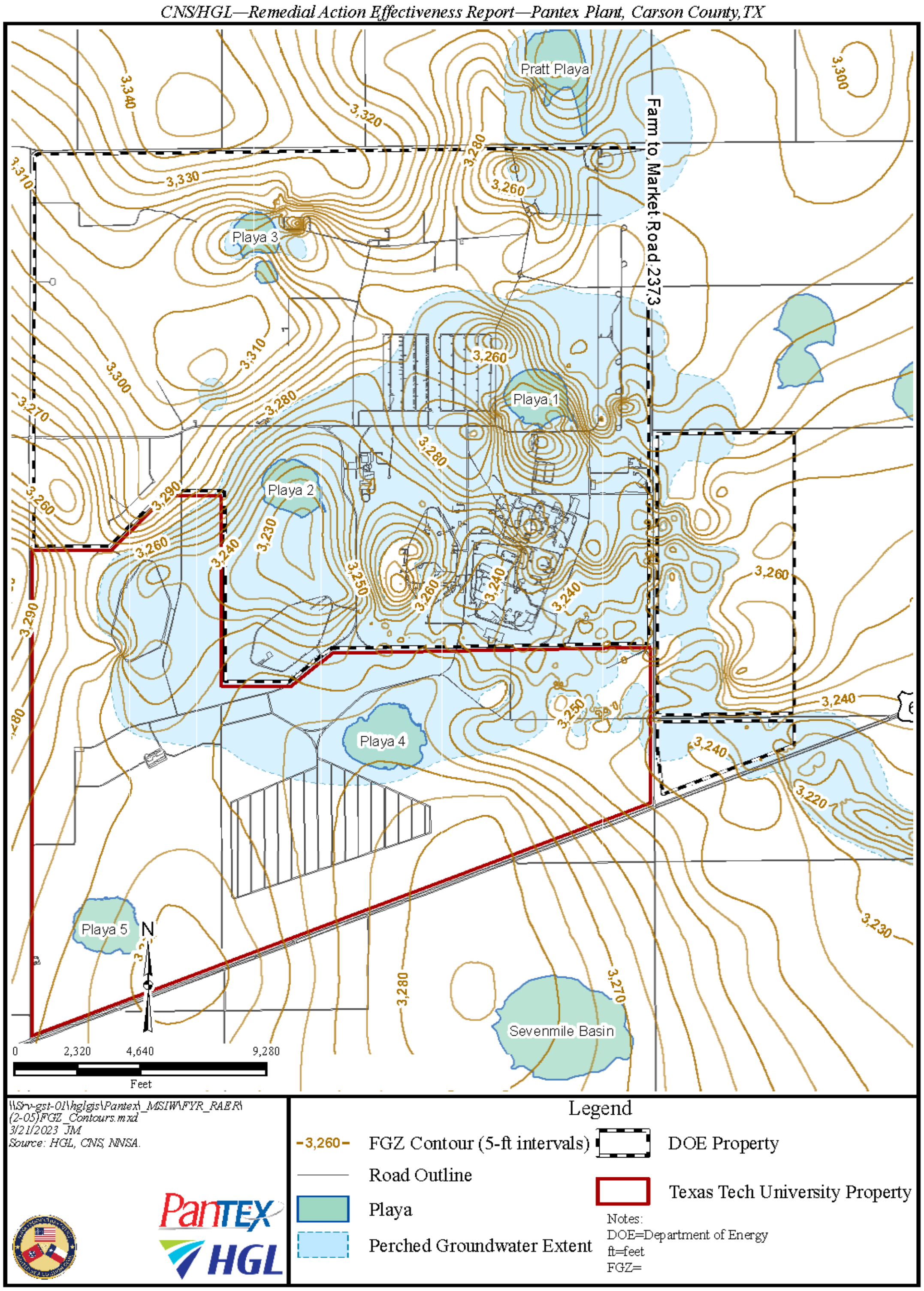

Figure 2.5 Top of Fine-Grained Zone Elevation.
(Contour data from HGL, 2022a)

Lithologic logs indicate two areas where the FGZ is more difficult to identify because of increased silt and sand content. One such area occurs south of Zone 12 on TTU property and extends east beyond FM 2373. The second such area occurs east of Playa 1 and extends to the north along FM 2373, nearly to the northern Plant boundary. The apparent decrease in clay content within these areas may allow leakage to the underlying Lower Ogallala Formation sediments, thereby controlling the southern and eastern lateral extent of the perched aquifer in these areas. The area of perched groundwater furthest southeast appears to be following a paleochannel within the FGZ surface.

Based on the available data, the FGZ ranges in thickness from approximately 9 to 157 ft with an average thickness of about 51 ft. Areas underlying Pantex Plant where the thickness of the FGZ generally exceeds 100 ft occur beneath and adjacent to Playa 1. FGZ thickness decreases to the west near Playa 2 and southeast of Zone 12. The surface topology of the FGZ is presented on **Figure 2.5**. The FGZ tends to isolate perched water from deeper strata; however, the FGZ becomes coarser, thinner, and more permeable in areas to the south and east of the main Plant.

The Lower Ogallala Saturated Zone (Ogallala Aquifer) is encountered at depths of 350 to 520 ft bgs beneath the Pantex Plant. An unsaturated zone with an average of 110 ft in thickness is present between the FGZ and the saturated portion of the Lower Ogallala. The saturated thickness of the Ogallala Aquifer varies from less than 30 ft to over 400 ft. Groundwater flow direction in the Ogallala Aquifer is to the northeast (**Figure 2.6**).

The Ogallala Aquifer is the principal municipal water supply for the city of Amarillo. The city operates a municipal water supply field north of the Pantex Plant. The aquifer has, historically, provided potable and industrial water for the Pantex Plant as well as agricultural water for the surrounding properties. Removal of water from the Ogallala Aquifer for municipal, industrial, and large-scale agricultural uses has reduced the saturated thickness in the region.

COCs associated with Plant industrial activities have not been detected in the Ogallala Aquifer above remedial action levels. No active remedies have been selected for the Ogallala Aquifer; however, the unit is monitored for Site-associated analytes under the uncertainty management (UM)/early detection LTM program (B&W Pantex, 2014). The Ogallala Aquifer is also monitored for groundwater surface elevations. Groundwater elevations and monitoring locations in the Ogallala Aquifer are shown on **Figure 2.6**.

CNS/HGL Remedial Action Efficacy Report Pantex Plant, Carson County,TX

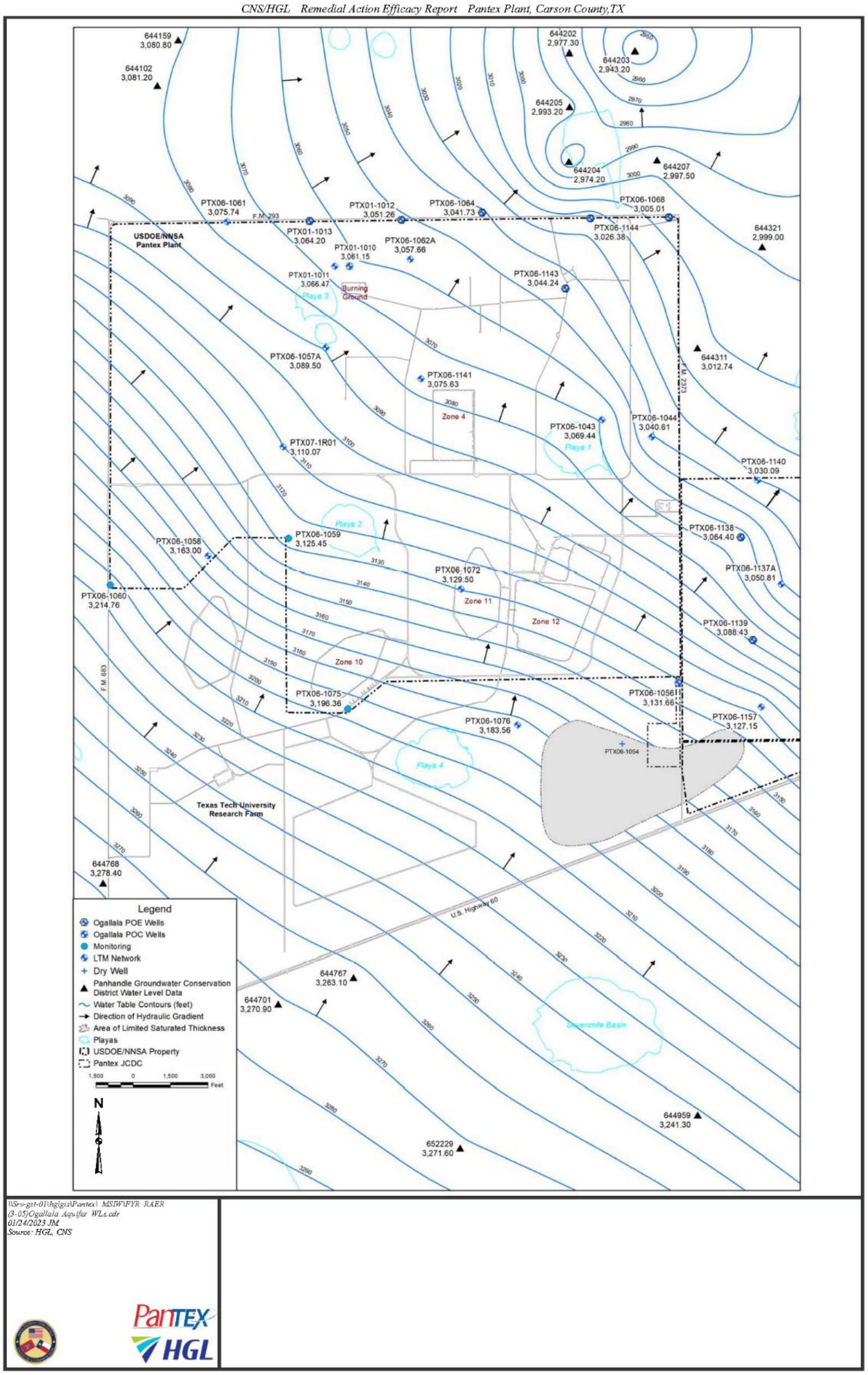

Figure 2.6 Ogallala Aquifer Water Level Elevations.
(December 2021 elevation data from CNS, 2022a)

2.2.2 Historical Release Areas

The primary sources of COCs at the Pantex Plant arose from industrial activities related to the manufacture and maintenance of munitions and weapons. Primary fate pathways include past discharges of wastewater that infiltrated through areas of focused recharge to the vadose zone and perched groundwater unit; discharges to soil from testing, treating, and sanitizing HE material; and infiltration through areas where land disposal of waste occurred.

Major historical industrial operational areas are Zones 10, 11, and 12 (see **Figure 2.1**) in the central portion of the Pantex Plant and the Burning Ground (BG) to the northwest. Historically, effluent from industrial processes, sanitary wastewater, cooling water discharges, and stormwater runoff were released to unlined ditches and directed to Playas 1, 2, and 4, with the majority of releases to Playa 1. Subsequent infiltration at Playa 1 resulted in numerous co-mingled plumes and an artificially expanded perched groundwater unit under Playa 1 and in areas southwest and southeast of the main industrial zones.

All wastewaters are currently directed to the sanitary sewer system and to the Pantex Plant WWTF. All treated wastewater, including extracted groundwater, was previously directed to an agricultural subsurface irrigation system to the greatest extent possible. Breaks in the subsurface irrigation system during the current FYR period resulted in the design and construction of an irrigation system east of FM 2373 to discharge treated water through five center-pivots. The center-pivot system is expected to begin operation in Summer 2023. Treated groundwater is also used as make up water for the in situ treatment, has been injected into the perched groundwater unit or discharged to Playa 1 when the irrigation system capacity is exceeded or unavailable.

Zone 12

Historically, industrial wastewater generated in Zone 12 was discharged to the eastern ditches running to Playa 1. Industrial operations in Zone 12 included the development, testing, and manufacture of HE components. Wastewater discharges from Zone 12 varied between 200,000 and 300,000 gallons per day (gpd). Discharges originating in Zone 12 infiltrated along the unlined ditches discharging to Playa 1, including the SWMU 5-05, SWMU-2, and SWMU 5-12a ditches. Wastewater discharge and infiltration in the Playa 1 area ultimately resulted in groundwater mounding under Playa 1 and expansion of the main perched groundwater unit to the east and southeast of Zone 12. This mounding under Playa 1 causes plumes with contaminant levels above drinking water standards to migrate north, east, and in conjunction with infiltration beneath he unlined ditches, to the southeast of Zone 12. Higher groundwater mounding beneath Playa 1 causes COCs to move faster and farther from Playa 1. Contamination is present in the perched groundwater unit to the extent of saturation to the north and east. The main axis of contamination extends from northwest to southeast in a narrow strip of perched saturation formed by a channel within the FGZ. Contamination remaining in the vadose zone in areas of historical recharge may represent a continuing low-level, long-term source of contamination to perched groundwater.

Contaminants in wastewater from Zone 12 included RDX, TNT, and other HEs; hexavalent chromium (Cr [VI]) from cooling waters; and some chlorinated volatile organic compounds (VOCs). TNT is photo-reactive, preferentially decaying to the products 2-amino-4,6-

dinitrotoluene (DNT2A) and 4-amino-2,6-dinitrotoluene (DNT4A) and causing the characteristic colored "red water" discharge historically observed in Site surface water.

RDX degrades to TNX, MNX, and DNX under natural anaerobic conditions and under conditions stimulated by the ISB remedies. These degradation products, which are often short-lived, are monitored for remedy effectiveness and natural attenuation assessment rather than as priority risk drivers. RDX and degradation products of RDX and TNT are the priority COCs originating from Zone 12 and define the extent of affected groundwater in the southeast. Cr (VI) is found in limited areas in the Southeast Sector, with most of the mass occurring directly south of Zone 12.

Zone 11

Industrial operations in Zone 11 were diverse, consisting of quality assurance testing and machining operations that included cleaning of components with chlorinated solvents. Discharges from Zone 11 also infiltrated along ditches to the north and to Playa 1, resulting in linear sources extending north to Playa 1. Chemical constituents associated with Zone 11 include chlorinated solvents such as trichloroethene (TCE), perchlorate, and Cr (VI). The groundwater flow from Zone 11 is predominantly to the south-southwest, where the TCE and perchlorate plumes are located. 1,4-Dioxane is also associated with releases from Zone 11.

A groundwater flow divide has historically been located between Zone 11/ Zone 12, under native flow conditions, extending from Playa 1 and Playa 4. The center of the flow divide appears to be moving to the west under the influence of the SEPTS (HGL, 2021a). COCs historically associated with Zone 11 such as perchlorate and Cr (VI) are migrating southeast, under the influence of the SEPTS in some locations. The TCE plume originating in Zone 11 is located farther to the south-southwest of Zone 11 than the perchlorate and Cr (VI) plumes, and it has not been influenced as much by the SEPTS operation.

Burning Ground, Zone 10, and Firing Sites

The BG area and Firing Sites are northwest of the main Zone 11 and Zone 12 industrial areas and west of Playa 1. The BG and Firing Sites consist of about 489 acres. The BG is an active operation area used for thermal treatment of HEs. Historical activities associated with SWMU 47, the Solvent Evaporation Pit (SEP), and landfills comprising SWMU 37 through 44 have resulted in some releases to shallow and deep soils. Site investigations conducted through 2001 identified 13 VOCs as COCs in BG shallow and subsurface soil including TCE, toluene, Freon 113, and acetone. Of the COCs identified, toluene is the most prevalent. Selected Remedies for the BG include an SVE system to remove VOCs from soil, soil covers for affected surface soils, and ICs. The BG has a small and, apparently, isolated perched groundwater unit associated with Playa 3. Perched groundwater below the BG has limited detections of chlorinated VOCs and some HEs.

Most of the area north of Playa 1 did not have known industrial operations and sources of contamination have not been identified. An isolated perched groundwater unit is present in the northeast corner of the main property near and associated with Pratt Playa. A historical wastewater treatment facility was in the area, and concentrations of residual contamination below cleanup goals from the facility have been found in perched groundwater. Monitoring wells near Pantex Lake, north of Zones 11 and 12 and north of Playa 1, do not indicate consistent or high concentrations of Site COCs. Elevated selenium and nitrate levels found in perched groundwater in the Pantex Lake area are associated with historical agricultural operations and are not Site-related. While the area of Pantex Lake is included in LTM, there are no active remedies in this location.

Zone 10, west of the main industrial area and downgradient of Zone 11, has several landfill remedies for historical and active land disposal units. Zone 10 has had limited historical releases, and constituents in this area are not distinct from plumes emanating from Zone 11.

2.2.3 Contaminants of Concern

The primary COCs identified in the ROD for soils were RDX, TNT, 238U (a radioisotope of depleted uranium), and polycyclic aromatic hydrocarbons. Toluene and other VOCS are present in subsurface vadose soils below the BG.

Groundwater analyses indicate that several contaminants have been found above EPA Maximum Contaminant Levels (MCLs) or Texas Medium Specific Concentrations (MSCs) in perched groundwater. The 2008 ROD identified MCLs and MSCs (referred to collectively as groundwater protection standards [GWPS]) as the primary remedial standards for the Site contaminants. Chemical contaminants and standards identified in decision documents are listed in **Table 2.3** along with the maximum concentration results from groundwater analyses between 2017 and 2021 and from 2012 through 2016.

Boron concentrations in the perched unit are below drinking water standards and are protective for human consumption. However, the concentrations of boron present in some areas of the perched aquifer are harmful to crops, posing potential problems for beneficial reuse through agricultural application of treated wastewater. For this reason, boron is removed in the groundwater extraction treatment systems before discharge. The treatment standard for boron in water beneficially applied for agriculture is 600 micrograms per liter (μg/L). The Site-specific background level of boron is 192 μg/L.

In addition to the COCs identified in the ROD, chemical constituents of interest include the degradation products of chlorinated ethenes such as TCE including cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride (VC), and 1,1-dichloroethene.

Table 2.3
Soil and Groundwater Remedial Goals

Chemical Contaminant of Concern	Standard	Basis of Standard	Maximum Concentration 2017–2021	Maximum Concentration 2012–2016
Soil	**mg/Kg**			
RDX	26	Cancer endpoint construction/excavation worker	N/S	N/S
2,4,6-Trinitrotoluene	71		N/S	N/S
^{238} Uranium	1.4		N/S	N/S
Perched Groundwater	**µg/L**			
1,3,5-Trinitrobenzene	220	GW-Res NC Adj	526	1,260*
1,2-Dichloroethane	5	MCL	77.3	50.8
1,3-Dinitrobenzene	3.7[a]	GW RES C	0.091	0.093
1,4-Dioxane	7.7	GW RES C	70.3	77
2,4-Dinitrotoluene	1	PQL	5.39	18*
2,6-Dinitrotoluene	1	PQL	1.29	1.9
DNT2A	1.2 (6.1[a])	GW Res NC Adj	6.8	23.4
DNT4A	1.2 (6.1[a])	GW Res NC Adj	48.5	37.3
Boron	7300* (192)	†GW-Res NC	2,710	1,900*
Chloroform	80	MCL for Trihalomethanes	91.4	46.2
Cr (VI)	100	MCL	2,301.91	6,031
Chromium, Total	100	MCL	2,780	6,840
HMX	360	EPA Lifetime HA for HMX	396	530*
Perchlorate	15	EPA Lifetime HA	724	1,290
RDX	2	EPA Lifetime HA	2,850	3,850
Tetrachloroethene	5	MCL	21.8	20.1
2,4,6-Trinitrotoluene	3.6	GW-Res NC Adj	77.4	89*
TCE	5	MCL	1,500	500
Additional Constituents of Interest in Groundwater	**Standard**	**Basis of Standard**	**Maximum Concentration 2017–2021**	**Maximum Concentration 2012–2016**
Arsenic	12	Background	620**	430**
Barium	2,000	MCL	21,000	21,000
Cadmium	5	MCL	0.327	0.0116
Manganese	1,715.5	Background	99,000**	26,000
cis-1,2-DCE	70	MCL	390	490
Vinyl chloride	2	MCL	68	3.5
Hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine	2	EPA Lifetime HA for RDX	33.6	24*
Hexahydro-1-Nitroso-3,5-Dinitro-1,3,5-Triazine	2	EPA Lifetime HA for RDX	26.2	145
Hexahydro-1,3,5-Trinitroso-1,3,5-Triazine	2	EPA Lifetime HA for RDX	217	333

All groundwater concentrations are in micrograms per liter (µg/L).
Contaminants of Concern were identified in the ROD and were assigned remedial goals. Constituents of Interest were not identified in the ROD, but they are monitored as by-products or degradation products of remedial actions.
[a] ROD identified values for these contaminants were adjusted below the calculated MSC because they target the same organs from a cumulative risk perspective.
N/S = Not sampled N/A = Data not analyzed *Sample from extraction well **Sample from ISB well.
GW-Res – TCEQ Standard No. 2 Groundwater MSC for Residential Use; Adj = risk adjusted for multiple COCs
MCL – EPA Maximum Contaminant Level PQL – Practical Quantitation Limit
C – Carcinogenic NC – Noncarcinogenic HA – Health Advisory
† Boron exceeds background, posing a potential threat to agricultural products when treated groundwater is used for irrigation. While not a COC, the background concentration of 192 µg/L has been assigned as the treatment goal for Boron.

2.3 REGULATORY FRAMEWORK

In 2008, an IAG went into effect between EPA, USDOE/NNSA, and TCEQ, setting forth the roles and responsibilities of each of the agencies for performance and oversight of remedial activities. The IAG is a binding agreement between the parties that outlines procedures to ensure that remediation is accomplished pursuant to requirements under CERCLA and related statutes. USDOE/NNSA is the lead federal agency to investigate, assess, plan, and remediate affected media at the Pantex Plant. TCEQ and EPA share oversight of remedial requirements under a 1994 Memorandum of Agreement and the IAG. All nonradiological environmental restoration activities under both state and federally authorized programs at the Pantex Plant are conducted under the State of Texas RRR (30 TAC §335 Subchapter S, 1993).

The Pantex Plant is permitted as a hazardous waste facility under RCRA and regulated under CERCLA as well as the state of Texas RRR.

2.4 REMEDIAL ACTION OBJECTIVES

The RAOs for the Selected Remedies defined in the 2008 ROD are summarized below by affected media. The ROD has not been modified by either a ROD amendment or by an Explanation of Significant Difference (ESD) since its issuance in 2008.

RAOs for soil are as follows:

- Reduce the exposure risk to on-site industrial and construction/excavation workers through removal, treatment, or prevention of contact with COCs in soil; and
- Reduce potential impact to perched groundwater and the Ogallala Aquifer through source abatement and stabilization/control measures in the vadose zone.

RAOs for groundwater are as follows:

- Reduce the risk of exposure to perched groundwater through prevention of human or ecological contact;
- Achieve cleanup standards for all COCs;
- Prevent growth of the perched groundwater contaminant plumes; and
- Prevent contaminants from exceeding cleanup standards in the Ogallala Aquifer.

2.5 SELECTED REMEDIES

The 2008 ROD details the Selected Remedies for the Pantex Plant groundwater and subsurface soil. The locations of selected active remedies and SWMUs are illustrated on **Figure 2.7** and listed in **Table 2.4**. Several interim remedies were implemented before the ROD was published, including excavation and disposal of affected surface soils and sediment, closure of soil units under the Texas RRR, and initial construction of the SEPTS. Many of the interim remedies were included as presumptive remedies in the final ROD.

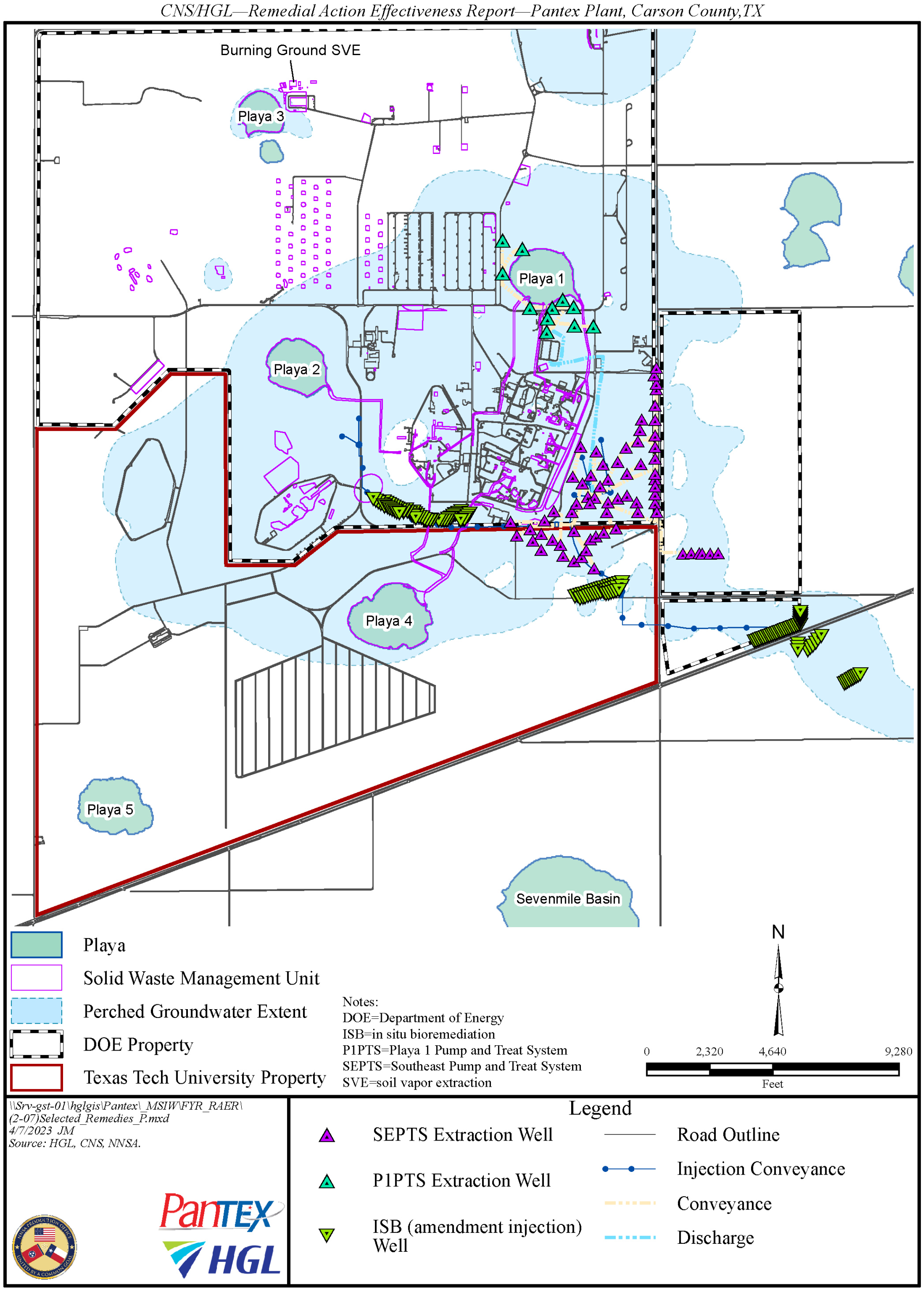

Figure 2.7 Pantex Plant Selected Remedies.

Table 2.4
Selected Remedies

Location	Remedy	Goal	Contingency
Soil/ Burning Ground	Containment soil covers, SVE, landfill covers and maintenance; ICs to limit access and control work	Reduce the potential for exposure of industrial or construction workers to affected media	None identified.
Zone 12 Ditch	Anchored liner; ICs to limit access and control work	Prevent leaching of surface water through affected soils	None identified.
GW/Playa 1	P1PTS – GW Extraction and Treatment – GAC and Boron Ion Exchange; effluent to industrial supply or irrigation system; ICs to limit drilling and use	Reduce GW elevation and head causing downgradient movement; reduce mass of RDX, other HEs, and boron	Add extraction wells and expand treatment.
GW/ Southeast	SEPTS – GW Extraction and Treatment Effluent –GAC, Cr, and Boron Ion Exchange; effluent to industrial supply, irrigation system or re-injection; ICs to limit drilling and use	Reduce GW elevation and mass of RDX and other HEs, VOCs, and Cr (VI)	Expand P1PTS, improve irrigation system or find alternatives for disposal of treated water; add perchlorate treatment unit; re-grade ditch.
GW/ Southeast and Southeast Offsite	ISB – Injection of carbon and nutrients to create reducing conditions; ICs to limit drilling and use	Create conditions supporting biological reduction of RDX	Change formulation for amendment; add more injection points; conduct maintenance for biofouling.
GW/ Zone 11	ISB – Injection of carbon and nutrients to create reducing conditions; ICs to limit drilling and use	Create conditions supporting biological reduction of TCE (VOCs) and perchlorate	Change formulation for amendment; add more injection points; conduct maintenance for biofouling.
Soil and GW/ Sitewide	ICs	Prevent human and ecological exposure and potential cross-contamination	Add deed notices, policies or signage as required.

SVE – soil vapor extraction
IC – institutional control
P1PTS – Playa 1 Pump and Treat System
HE – High Explosive
VOC – volatile organic compound
GAC – granular activated carbon
GW – groundwater

The Selected Remedy for soils containing contaminants at concentrations that do not allow for UU/UE is as follows:

- Presumptive Remedy of SVE and ICs for SWMU 47 at the BG;
- Protective covers for the BG Former Ash Disposal Trench (SWMUs 14 to 24), the former operational area of Firing Site 5 (SWMU 70), and Pantex Plant landfills (consisting of 29 units);
- Ditch Liners for Zone 12 ditches (SWMU 2 and SWMU 5/5); and
- ICs for select sites (Limited Action Soil Units, Burn Pads 11 through 13 (SWMUs 25, 26, and 27), and the Main Perimeter Ditch (SWMU 5/12a)).

The remedial systems for perched groundwater are as follows:

- Construction and operation of two P&T systems, the SEPTS and the P1PTS, to remove contaminant mass and control migration of plumes in the southeast perched unit;
- Use of ISB systems to treat HE contaminants (and Cr [VI]) for the Southeast Area and TCE and perchlorate contaminants emanating from Zone 11; and
- Implementation of ICs to prevent exposure to contaminants and cross-contamination to the regional Ogallala Aquifer for both the Southeast Area and Zone 11.

The remedy selected for perched groundwater in the ROD is as follows:

- Operation of the SEPTS to stabilize migration of the plume and treat groundwater in the perched unit;
- Construction and operation of the P1PTS to reduce mounding of perched groundwater under Playa 1;
- Continued operation of the ISB systems to treat HE southeast of Zone 12 and downgradient of Zone 11 to treat TCE and perchlorate;
- Installation of additional ISB systems at the southeast Site boundary and across highway 60 in an off-site area to treat HE migrating off site in perched groundwater;
- Use of ICs to prevent exposure to contaminants in the soils and perched groundwater/cross-contamination to the regional Ogallala Aquifer; and
- Continuation of LTM in both the perched and Ogallala Aquifers.

3.0 SOIL REMEDIES

Remedies selected to address soil areas with residual contamination above remedial goals include protective covers, landfill covers, SVE for subsurface soils in the BG area and ditch liners east of Zone 12. ICs implemented as part of soil remedies are discussed in **Section 5.0**. Interim soil remedies, implemented before the ROD, involving excavation, demolition, and permanent off-site disposal of some soils are not reviewed in this document. Details of permanent soil removals are described in historical remedial action reports and decision documents.

RAOs addressed by the soil remedies include protection of on-site industrial workers and the prevention of impacts to groundwater through leaching of contaminants through the vadose zone.

RAOs for combined soil remedies identified in the ROD include:

- Reduce the exposure risk to on-site industrial and construction/excavation workers through removal, treatment, or prevention of contact with COCs in the soil. The design, implementation and performance of selected soil remedies are reviewed below.
- Reduce potential impact to perched groundwater and the (Lower) Ogallala Aquifer through source abatement and stabilization/control measures in the vadose zone.

3.1 LANDFILLS AND LANDFILL COVERS

The Pantex Plant includes 29 landfills and disposal areas as identified in the 2008 ROD that require soil cover maintenance. All landfills were determined to require containment as the final remedy in the ROD. The landfills are divided into two types: landfills where containment was selected as the presumptive remedy, and landfills where investigations identified risks requiring either a more robust cover or hotspot removal.

3.1.1 Remedy Description

Covers placed on the landfills at the Pantex Plant are maintained to achieve protection of industrial workers and mitigate the potential for infiltration of stormwater into the waste materials. The human health risk assessments completed for landfills generally indicated a need for placement of a barrier to break the airborne exposure pathway for surface soil. Some landfills (such as SWMUs 37 to 44) contain concentrations of HE and metals that are high enough to pose a potential for leaching to groundwater if areas conducive to infiltration are present.

Covers have been placed over the landfill units to accomplish the following RAOs as defined in the ROD (B&W Pantex, 2008), expanded in the *Maintenance Plan for Landfill Covers* (B&W Pantex, 2009a), and updated in the *Maintenance Plan for Landfill Covers* (CNS, 2017):

- Create a barrier to contaminants that would pose a risk to human health if unmitigated;
- Promote positive drainage of stormwater off and away from the soil/waste containing contaminants; and
- Reduce the likelihood of stormwater infiltration into soils/waste containing contaminants that may result in leaching of contaminants to groundwater.

The landfills are in the surficial BWD Formation consisting primarily of low-permeability silts and clays. Landfill covers have been constructed of native low-permeability soils through standard placement and compaction methods. RCRA Subtitle C caps were not considered because native materials acquired from the BWD exhibited a sufficiently low permeability to address RAOs.

The landfill and soil covers have been graded to provide positive drainage away from the facilities and landfill areas and, in some cases, mulched and seeded to promote vegetative cover. The low-permeability of the BWD soils results in limited infiltration with groundwater recharge across the site focused in depressions such as on-site ditches and playas. During operation of the landfills at the Pantex Plant, it was standard operating procedure to place 0.50 ft of daily cover, 1 ft of intermediate cover, and a 2-ft soil cover at closure.

Table 3.1 provides details for the landfills where containment was selected as the presumptive remedy. Landfill locations are illustrated on **Figure 3.1**.

Table 3.1
Containment as Landfill Presumptive Remedy

Site	Description	Interim Measure	Date	Change from Remedial Design
SVS 5: Landfill East of 11-13 Pad	This landfill contains debris from the demolition of Building 11-13	Standard landfill cover	Between 1970 and 1977	None
SVS 6: Unnumbered Zone 7 Landfills	These landfills received construction debris from the demolition of Zone 7 buildings	Standard landfill cover	1978	None
SVS 7a and 7b: Igloo Demolition Debris Landfills Zone 4 (SVS 7a) and Zone 5 (SVS 7b)	These landfills received debris from the demolition of explosive storage magazines	Standard landfill cover	1970s	None
SWMU 54: Landfill 3	This landfill contains construction debris from the demolition of Zone 12 buildings, and HE-contaminated soils removed from the SWMU 5-12 ditch	Standard landfill cover	2006	None
SWMU 56: Landfill 5	This landfill was initially used during construction of Zone 12 buildings but was later used by Pantex for disposal of waste generated at the plant.	Standard landfill cover	1959	None
SWMU 58: Landfill 7	This landfill contains concrete and related debris from the concrete batch plant	Standard landfill cover	1959	None
SWMU 60: Landfill 9	This landfill received demolition debris from Buildings 11-26 and 11-5	Standard landfill cover	1997	None
SWMU 61: Landfill 10	This landfill contains debris from the demolition of Buildings 11-12 and 11-13	Standard landfill cover	1971	None
SWMU 63: Landfill 12	This landfill contains construction debris from the demolition of the Zone 5 magazines.	Implementation of IC	NA	None
SWMU 66: Landfill 15 Demolition Debris Landfill	This landfill received construction debris from the demolition of the warehouse structures in Zone 8	Standard landfill cover	1980	None
SWMU 68a: North: Original General Purpose Sanitary Landfill	This landfill was one of four general-purpose sanitary landfills. It received general non-hazardous wastes and some construction debris from building demolition	Standard landfill cover	1952	None
SWMU 68d: Active Sanitary Landfill	This landfill received typical sanitary waste	Standard landfill cover	Mid-1980s	None
Unassigned AOC: Zone 10 Building Construction Debris Landfills	These five small landfills contain construction debris from the Zone 10 buildings	Standard landfill cover	Unknown	None

AOC – area of concern
IC – institutional control
NA – not available
SVS – supplemental verification site

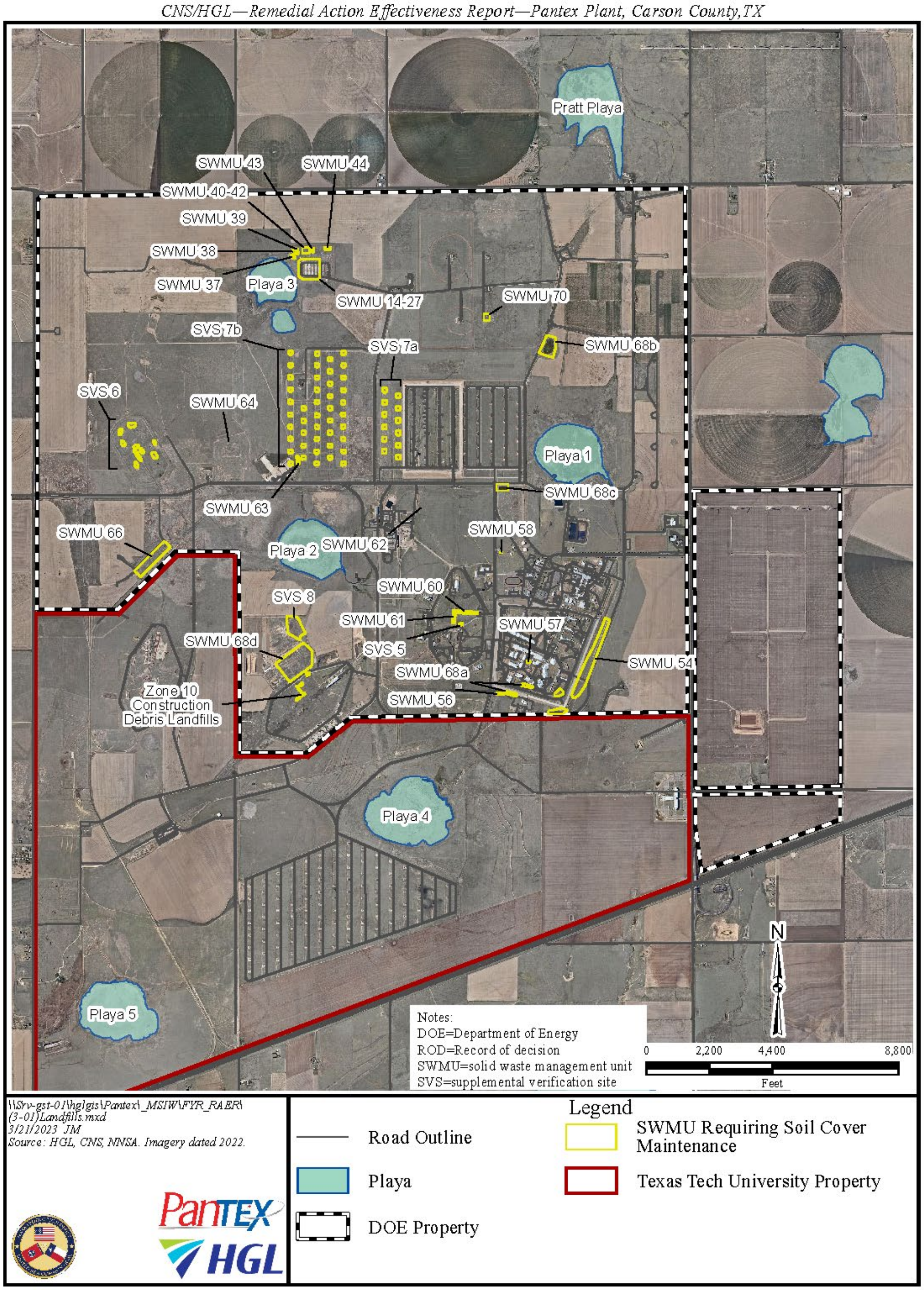

Figure 3.1 Pantex Plant Landfills.

Based on risks calculated in the various human health risk assessments for the Pantex Plant, several landfills were determined to pose a direct contact risk from soil for either industrial or construction/excavation workers. The remedy for these landfills included either hotspot removal actions or additional cover requirements. A summary of the landfills and additional actions is presented in **Table 3.2** below.

Table 3.2
Containment as Landfill Presumptive Remedy with Additional Action to Address Direct Contact Risk

Site	Description	Interim Measure	Date	Change from Remedial Design
SVS 8: Abandoned Zone 10 Landfill	This landfill was used as a construction debris landfill from the demolition of Zone 10 buildings	Standard landfill cover and hotspot removal	Late 1960s and 2002	None
SWMUs 14-24: Former Burning Ground Ash Disposal Trench	This landfill contains a mixture of ash and soil contaminated with elevated HE and barium relative to other areas of the Burning Ground	Permanent cover	2006	None
SWMU 37: Burning Ground Landfill 1	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None
SWMU 38: Burning Ground Landfill 2	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None
SWMU 39: Burning Ground Landfill 3	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None
SWMU 40: Burning Ground Landfill 4	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None
SWMU 41: Burning Ground Landfill 5	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None
SWMU 42: Burning Ground Landfill 6	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None

Table 3.2 (continued)
Containment as Landfill Presumptive Remedy with Additional Action to Address Direct Contact Risk

Site	Description	Interim Measure	Date	Change from Remedial Design
SWMU 43: Burning Ground Landfill 7	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Evapotranspiration cover	2004	None
SWMU 44: Burning Ground Landfill 8	This landfill received waste, ash and residue from the burn pads, burn trays and cages, SEPs, and pans. The landfill also contained construction debris	Hotspot removal and evapotranspiration cover	1999 and 2004	None
SWMU 55: Landfill 4	Interview records for this landfill were never confirmed through the investigation. Although debris or other waste was expected to be encountered, it was not	Not applicable	Not applicable	None
SWMU 57: Landfill 6	This landfill contains construction debris from the demolition of Zone 12 buildings	Standard landfill cover and hotspot removal	1976 and 1996	None
SWMU 64: Landfill 13	This landfill received construction debris from SWMU 71 (Firing Site 6)	Maintenance cover and hotspot removal	1997 and 2006	None
SWMU 68b: General Purpose Sanitary Landfill 1	This was a general-purpose sanitary landfill	Maintenance cover	1997	Closure Turf™ installed in 2013
SWMU 68c: General Purpose Sanitary Landfill 2	This was a general-purpose sanitary landfill	Maintenance cover	1997	Closure Turf™ installed in 2017
SWMU 70: Firing Site 5	This landfill contains decontaminated demolition debris from the former control bunker	Hotspot removal, demolition, and soil cover	1999	None

To date, two landfills (SWMU 68b and SWMU 68c) have had additional actions taken after remedy implementation. Closure Turf™ was installed at SWMUs 68b and 68c in 2013 and 2017, respectively, to address the lack of vegetation due to extreme drought conditions. At SWMU 68b, a total of 3.15 acres were covered and at SWMU 68c approximately 1 acre was covered (**Figure 3.2**). The Closure Turf™ consists of a 50-mil linear low-density polyethylene grip-net geomembrane liner installed directly over the prepared surface, Duraturf (tufted polyethylene artificial turf) installed over the geomembrane liner, and a 0.5-inch- thick sand ballast layer placed and spread evenly over the turf.

SWMUs at Pantex are marked with signs delineating the SWMU boundary and a perimeter fence was installed around the FS-5 (SWMU 70) impact area, including the landfill cover. The SWMU signs and Firing Site 5 fence must be maintained to control access to those soils, which pose a health risk to industrial and construction/excavation workers. These remedial components are part of ICs implemented to prevent unauthorized or unintentional access to soil covers. ICs are discussed in more detail in **Section 5**.

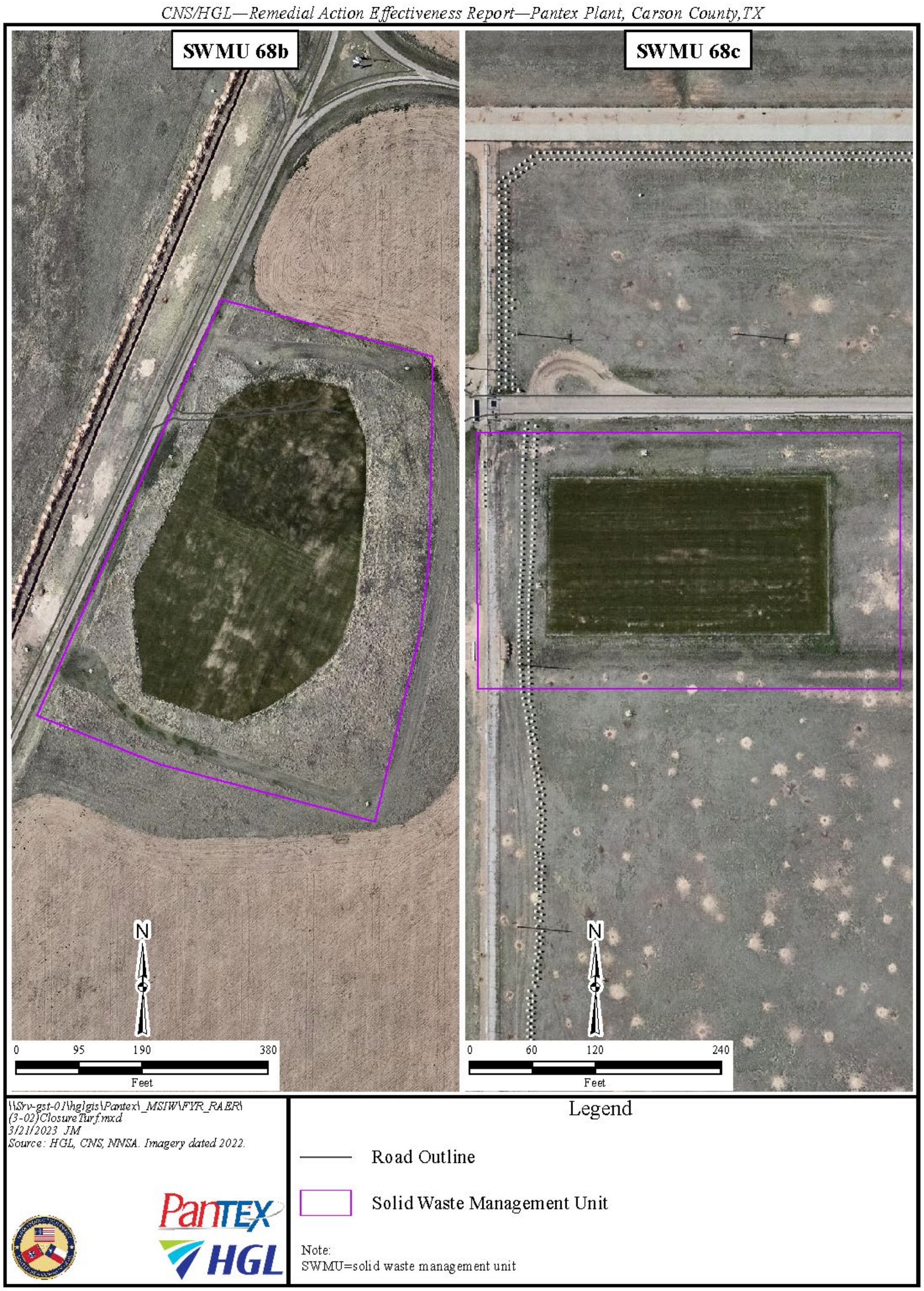

Figure 3.2 SWMU 68b and SWMU 68c Closure Turf™.

3.1.2 Operation and Maintenance

The ROD requires O&M for the landfill sites that includes visual inspections of all landfill covers annually. The inspections focus on looking for evidence of subsidence, exposed waste, and ponding water; bare spots, visible erosion, sparse or stressed vegetation, and unwanted deep-rooting vegetation; holes in the cover, prairie dogs, gophers, unstable slopes; and looking for tears in the Closure Turf™ material. The fences and signage present at the landfills are evaluated for loose or improperly set posts; sagging fencing material, gaps under fencing, or holes in fences; and faded or worn marking or missing signs.

Additionally, a LiDAR survey of each of the landfills is completed every 5 years to assess changes to the elevation and shape of the landfill covers since the prior survey. A baseline survey was conducted in 2006. Changes to the cover elevation will result in evaluation and corrective action if it is determined that less than 1.5 ft of cover material is present, or the surface has changed in a way that allows for stormwater infiltration or ponding. All instances where comparison with baseline conditions suggests a difference of greater than 0.5 ft are visually inspected to determine the cause of the difference and the need for corrective action.

The most recent LiDAR survey was completed in September 2022 and compared to the 2006 LiDAR surveys. In addition, an independent site visit was conducted in September 2022 to confirm interpretation of the LiDAR data. The LiDAR survey and site inspection indicated the following deficiencies in some landfill covers:

- Holes created by burrowing animals,
- Settlement of cover materials due to voids in construction debris,
- Erosion and exposed geotextile, and
- Culvert settlement.

Minor areas of subsidence or erosion were identified in SWMU 54, SVS 6, and SVS 8. Larger areas of subsidence were observed at SWMU 55, SWMU 56, and SWMU 68d. Specific listings of the corrective actions that are anticipated for the above-identified covers are described below in **Table 3.3**. If a landfill is not listed in **Table 3.3**, no additional maintenance is required.

Attachment 8 contains contour maps of the baseline topography of each landfill cover from 2006 and contours based on the 2022 LiDAR survey for comparison.

Table 3.3
Proposed Actions for Landfill Cover Deficiencies

Landfill	Description of Deficiency	Proposed Action
SVS 6	Possible settling and resulting exposure of landfilled debris observed on the largest capped area at south-central portion of SVS 6. Numerous large animal burrows observed northeast of the end of the drainage ditch.	Evaluate whether additional cover material and re-vegetation is required to fill in low areas. Fill holes, establish vegetation, and continue prairie dog controls.
SVS 8	Areas with sparse to no vegetative growth observed on the landfill cover. Erosion with possible ponding appears to be occurring at the culvert at the south end of the landfill.	Fill holes, establish vegetation, and monitor the culvert during rain events to determine if the culvert is functioning as designed.
Landfill 3 (SWMU 54)	Exposed geotextile that suggests cover erosion observed along the slope of the landfill. The landfill cover is kept to a short depth to maintain lines of sight for security. Erosion of the cover may have resulted from mowing activities.	Restore the landfill cover and vegetation to mitigate erosion. Reinforce mowing instructions to avoid recurrence.
Landfill 4 (SWMU 55)	Settlement in the drainage ditch at the north landfill cap.	Evaluate whether additional cover material is required to fill in low areas. Monitor the drainage ditch to determine if it is functioning as designed.
Landfill 5 (SWMU 56)	The culvert was observed to have settled due to settlement of adjacent soil.	Monitor the culvert during rain events to determine if it is functioning as designed.
SWMU 68d	Two areas of settlement on the northern portion of the cover due to voids in construction debris.	Evaluate whether additional cover material and revegetation is required to fill in the low areas.

3.1.3 Remedy Performance and Efficacy

Historically, the most significant issues identified during the landfill cover monitoring have been vegetative loss and erosion primarily caused by weather extremes, including both drought and high rainfall conditions in the Texas Panhandle. Yearly precipitation is highly variable, with total precipitation in 2011 at 7.01 inches and in 2015 at 34.63 inches, with an average of about 19.53 inches between 1950 and 2021 annually (National Weather Service, Amarillo Airport). Drought was identified as an issue limiting vegetative cover in the first FYR report.

In response to the vegetation loss, Pantex developed a phased plan for revegetation, including reseeding in 2013. The reseeding effort was evaluated annually through 2016 and has shown significant improvement in the landfill covers. In addition to reseeding, Pantex installed Closure Turf™ at SWMUs 68b and 68c in 2013 and 2017, respectively.

Based on a review of landfill decision documents, O&M records, and the LiDAR data, soil and landfill covers appear to be constructed and maintained as intended in the Decision Documents. Based on the inspections and LiDAR survey, the selected remedy of containment at the 29 Remedial Action sites are effective at maintaining cover over affected material. The landfill covers, along with ICs (**Section 5**) preventing inadvertent or intentional soil disruption are effective at addressing the RAO of preventing human contact with residual contaminants of concern (COCs).

Elevation data from the LiDAR survey and the site walk-through indicate that covers are constructed to promote positive drainage away from the structures. The limited areas of ponding or erosion are identified during the annual inspections and addressed by addition and compaction of low-permeability soils. These observations support the conclusion that the RAO of promoting positive drainage of stormwater off and away from the soil covers has been attained during the FYR period. The remedy will continue to be effective in the future if annual inspections continue and routine and non-routine maintenance is completed as issues arise.

Data from the perched groundwater collected between 2017 and 2021 is reviewed in detail in the 2022 *Long-Term Monitoring Optimization Perched Groundwater Unit Report* (HGL, 2022b). Groundwater data below landfills not affected by other sources, such as the Zone 10 landfills and the BG area, show generally low to non-detect concentrations of COCs. This data supports the conclusion that COCs are not leaching from the landfills, confirming attainment of the RAO to prevent migration of contaminants.

3.1.4 Optimization Recommendations

From remedy implementation through 2017, landfill inspections were completed quarterly and after significant rain events of more than 0.5 inches. In June 2017, Pantex published an updated *Maintenance Plan for Landfill Covers* (CNS, 2017a). The updated maintenance plan optimized the inspection schedule from quarterly and after significant rainfall events to annually.

Additionally, installation of the Closure Turf™ at SWMUs 68b and 68c should reduce the requirements for vegetation maintenance at these sites, providing additional optimization. Rainfall over the past 5 years has fluctuated but overall has been mostly normal with 2 years above average and 3 years below average, reducing the impact of drought on vegetative cover. Further optimization of landfill covers should be focused on efforts that will reduce maintenance and repairs in response to variable weather conditions, like the Closure Turf™ installation and shoring in areas prone to erosion.

LiDAR surveys conducted once every 5 years, in conjunction with the FYR schedule, are an effective way to quantitatively evaluate the condition of landfill covers and identify areas that may need maintenance.

3.2 SOIL VAPOR EXTRACTION

The BG is located within an active operational area in the northwest portion of the Pantex Plant. A portion of the BG is located over a perched groundwater unit, shown on **Figure 3.3**, that is separate from and northwest of the main perched groundwater unit. The BG SVE system was pilot tested in 2001 and was installed at full scale (28 SVE wells with a catalytic oxidation [CATOX] treatment unit) in February 2002 (**Figure 3.4**). This action was taken as a stabilization measure under the State's program to mitigate potential impact to perched groundwater from residual contaminants in soil gas in the unsaturated zone. As described in subsequent sections, system modifications were made in 2006 and 2012 to improve operational efficiency, and 27 of the original 28 SVE wells have been taken offline as contaminant concentrations in those wells have decreased.

CNS/HGL—Remedial Action Efficacy Report—Pantex Plant, Carson County, TX

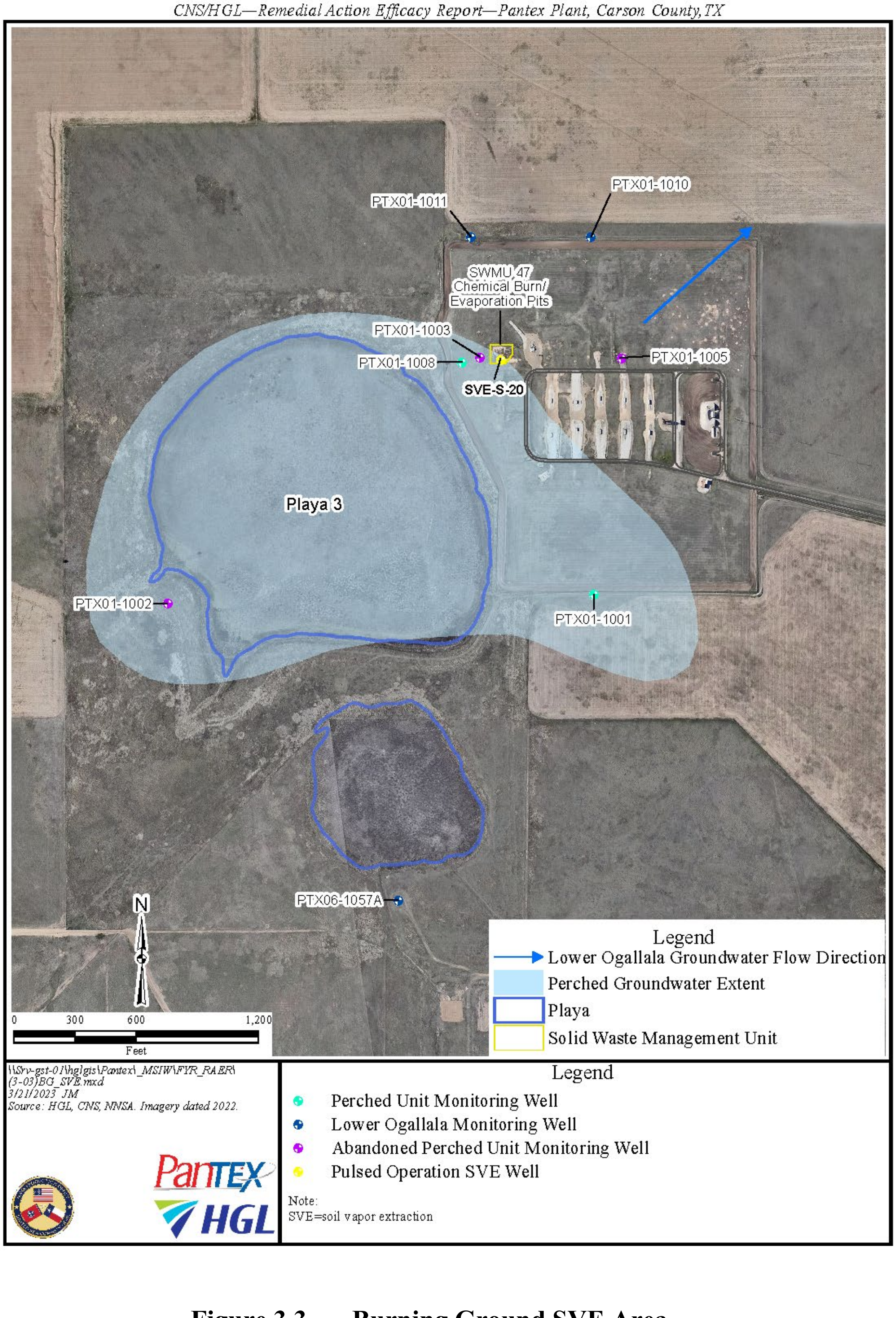

Figure 3.3 Burning Ground SVE Area.

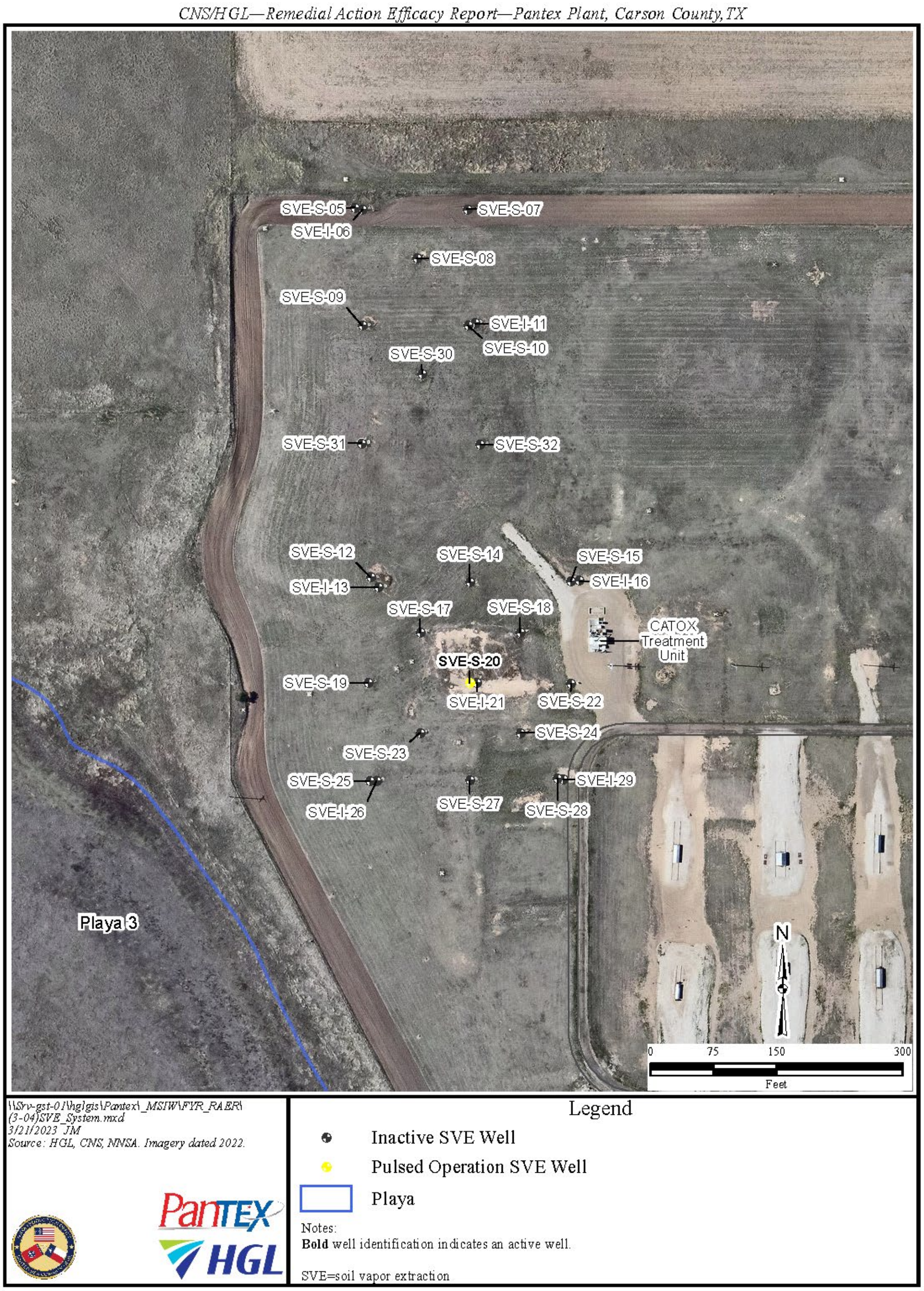

Figure 3.4 Burning Ground SVE System.

The ROD identified SVE as the Selected Remedy to address contaminated subsurface soils at the BG and to protect underlying groundwater. The extent of the perched groundwater zone is shown on **Figure 3.3**, and recent groundwater elevations in the Ogallala Aquifer are shown on **Figure 2.6**. The primary contaminants addressed by the SVE are VOCs, primarily toluene, TCE, and acetone. (BWXT Pantex, 2006). Tetrahydrofuran (THF) and 1,1,2,2-tetrachloroethane (PCA) have also been detected in most influent samples.

The performance and effectiveness of the BG SVE system is discussed below.

3.2.1 Remedy Description

The BG SVE system consists of a series of "dry" vapor extraction wells (EW) constructed to various depths within the unsaturated zone. In deep EWs, two 2-inch-diameter casings were installed in the same borehole (**Figure 3.4**). One casing was installed to a depth of approximately 150 ft bgs and screened from approximately 100 to 150 ft bgs; a second casing was completed to approximately 275 ft bgs and screened from 225 to 275 ft bgs. Shallow EWs were completed to a depth of 80 to 90 ft bgs, and a single 4-inch casing was installed; the casing was screened from 20 ft bgs to 45 ft bgs and over the bottom 40 ft of the total depth. Twenty-one shallow and seven deep EWs were constructed. The majority of the SVE wells were completed well above the perched water table.

The BG SVE system was designed initially with 28 SVE wells connected to a natural gas-fired CATOX unit that used a burner and scrubber system to remove VOCs. **Figure 3.4** illustrates the location and layout of the BG SVE system. The CATOX system operated for 40 months, with a continuing decline in VOC concentrations in the EWs. By 2005, only one well (SVE-S-20) produced soil gas with a relatively high concentration of VOCs. All other vapor EWs were capped at the manifold and taken offline. Consequently, operation of the original natural gas-fired CATOX became cost prohibitive and inefficient. The CATOX treatment unit was replaced in September 2006 with a simple GAC unit that was expected to remediate contaminated soil around SVE-S-20 at a significantly reduced operating cost compared to the CATOX unit (BWXT Pantex, 2006).

Performance data from operation of the GAC system installed in 2006, however, showed that it did not efficiently remove VOCs such as acetone and THF. Short breakthrough times resulted in high system monitoring and GAC replacement costs (Trihydro, 2012). To ensure that performance complied with the ROD and Compliance Plan No. 50284, the GAC treatment process was re-designed to use an appropriately sized electric-fired CATOX unit. The new CATOX unit was installed in 2012 and has been operational since that time. Updates to the treatment system were motivated, in part, from recommendations in the first FYR. No additional opportunities were identified to improve the performance and/or reduce costs of the soil remedy during the first FYR.

The system is designed to treat 99 percent of extracted VOCs with an air flow rate of 50 standard cubic feet per minute (scfm). Currently the system operates at about 32 scfm. In May 2017, the system was modified to include aboveground piping at six inactive shallow zone SVE EWs to allow ambient air to be drawn into the formation while simultaneously pulling air from SVE-S-20.

Shallow zone wells were modified with aboveground piping with a sampling port, a closure valve, and a goose-necked pipe top with a screened end to allow passive flux of air to the subsurface.

These modifications allowed Pantex to increase influent flow to the SVE system from 32 scfm to approximately 45 scfm (CNS, 2018). This additional air flow to the subsurface was intended to enhance extraction and biodegradation of VOCs. The modified wells were sampled for baseline conditions after modification of the wells and thereafter to evaluate the efficacy of the modifications.

3.2.2 Operation and Maintenance

Remedy construction and performance data indicate that the BG SVE remedy was constructed and operated as intended by the decision documents. Modifications to the BG SVE system have been consistent with the remedy described in the ROD. Updates to the treatment system and EWs have been conducted to improve performance and do not constitute significant changes from the Selected Remedy.

The BG SVE system operates automatically and unattended. During operational periods, the treatment system is checked at least once and occasionally twice daily, and monthly operations records are compiled. The system is not checked and operational records are not compiled when it is shutdown as a result of pulsed operations. Water vapor is captured and neutralized via a scrubber and drummed for disposal; dry air is heated (maintained at 850 °F) to burn off VOCs. Wastewater levels are observed manually, and wastewater is removed for disposal when the collection tank is nearly full. O&M manuals and job safety hazard analysis are kept on site.

There is no Supervisory Control and Data Acquisition (SCADA) system or alarms in place, but continuous monitoring of key parameters is performed, including wastewater conductivity and pH levels. Hydrochloric acid (HCl) is produced by treatment, and a caustic compound is added with water to maintain pH. The system shuts down automatically if triggered by pH level or sump water level.

Shallow vapor EW SVE-S-20 was the only well that operated during the FYR period. This well was drilled to a depth of 90.5 ft bgs and screened over all of the interval below 20 ft bgs except for the interval from 45 ft bgs to 50 ft bgs. The remainder of the SVE well network was shut down before 2013 because low or non-detect concentrations in each well demonstrated that these wells were no longer efficiently removing contaminant mass.

Overall operational time improved slightly, excluding 2021 when pulsed operation began, reaching 66 percent in the current FYR period versus 62 percent in the previous FYR period. Except for temporary shutdowns as described below, the BG SVE system operated continuously from January 2017 into October 2019. In late October 2019, the system was shut down because repairs were needed that required service from outside contractors. The system remained shut down until repairs were completed in March 2020 (CNS, 2020). During the remainder of 2020, the system was also shut down intermittently because of extreme temperatures, power outages, maintenance, repairs, and the COVID-19 pandemic, resulting in an overall run-time of approximately 49 percent (CNS, 2021). As described in the TCEQ-approved 2020 Annual Progress Report (CNS, 2021), in December 2020, the operating strategy for the system was changed from continuous operation to planned pulsing events. The change from continuous operation to pulsing was based on significant reductions in influent VOC concentrations during 2020; these reductions indicated that the residual NAPL source is depleting. During 2021, the system operated during April, July, August, and September only.

Table 3.4 presents the monthly and average annual system operating hours and indicates periods when the BG SVE system was partially or completely shut down from January 2017 to December 2021. Before converting to pulsed operation, annual system run-time ranged from 49 percent to 89 percent. During the first year of pulsed operation (2021), the system operated 21 percent of the time. The operational hours, by quarter, are shown on **Figure 3.5**. The system effectiveness regarding mass removal is discussed in **Section 3.2.3.**

Table 3.4
Operational Hours of the BG SVE System, 2017 Through 2021

Month	Hours	Month	Hours	Month	Hours	Month	Hours	Month	Hours
Jan-17	460.7	Jan-18	427.7	Jan-19	533.5	Jan-20	0.0	Jan-21	0.0
Feb-17	527.1	Feb-18	582.3	Feb-19	134.2	Feb-20	0.0	Feb-21	0.0
Mar-17	15.7	Mar-18	744.0	Mar-19	686.8	Mar-20	360.7	Mar-21	0.0
Apr-17	627.3	Apr-18	579.1	Apr-19	720.0	Apr-20	168.0	Apr-21	261.4
May-17	377.8	May-18	696.3	May-19	724.9	May-20	0.0	May-21	0.0
Jun-17	693.1	Jun-18	707.2	Jun-19	560.5	Jun-20	38.9	Jun-21	0.0
Jul-17	543.1	Jul-18	501.6	Jul-19	699.6	Jul-20	744.0	Jul-21	108.8
Aug-17	314.8	Aug-18	744.0	Aug-19	438.3	Aug-20	744.0	Aug-21	744.0
Sep-17	107.6	Sep-18	720.0	Sep-19	480.5	Sep-20	720.0	Sep-21	720.0
Oct-17	651.1	Oct-18	744.0	Oct-19	236.0	Oct-20	637.7	Oct-21	0.0
Nov-17	647.1	Nov-18	591.7	Nov-19	0.0	Nov-20	566.6	Nov-21	0.0
Dec-17	747.5	Dec-18	744.0	Dec-19	0.0	Dec-20	334.7	Dec-21	0.0
Average	**476.1**	**Average**	**648.5**	**Average**	**434.5**	**Average**	**359.6**	**Average**	**152.9**
Annual % Uptime	**65%**	**Annual % Uptime**	**89%**	**Annual % Uptime**	**60%**	**Annual % Uptime**	**49%**	**Annual % Uptime**	**21%**

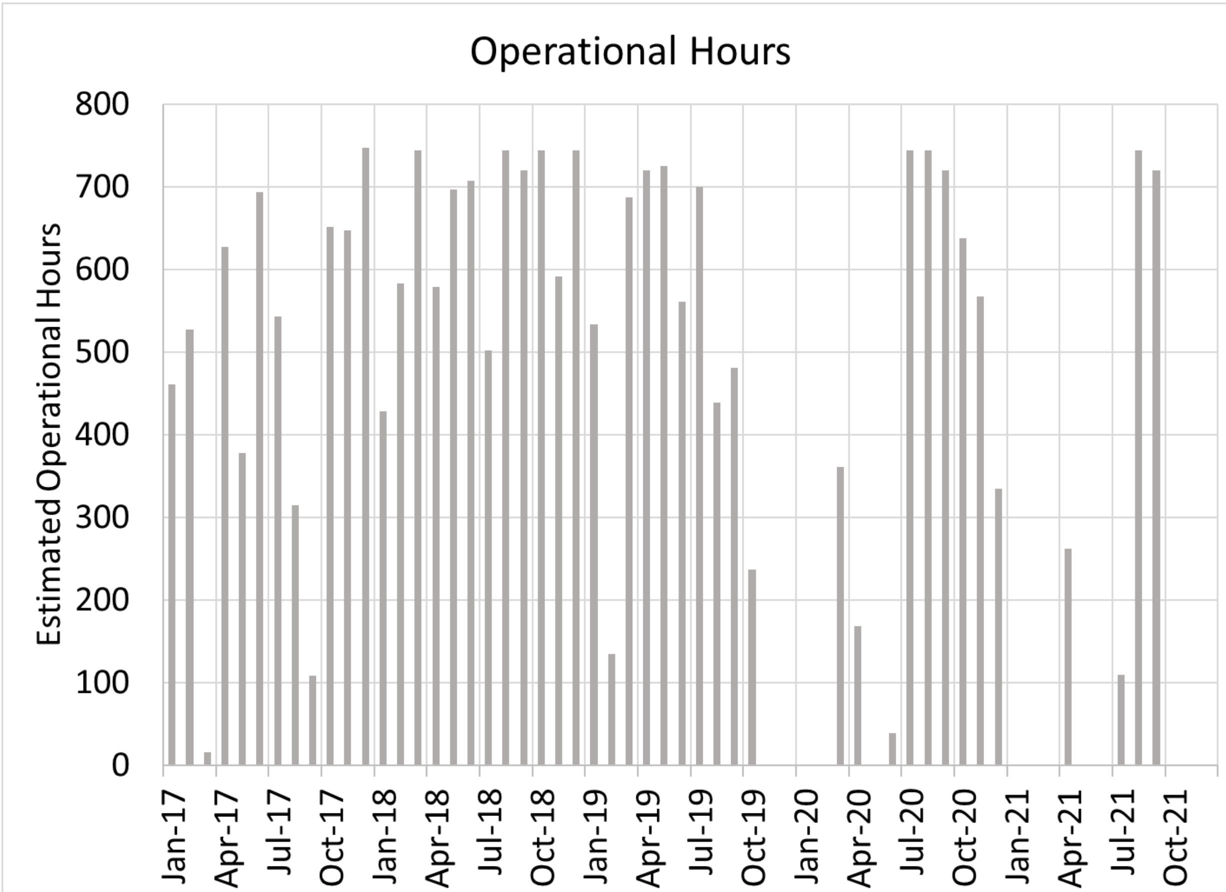

Figure 3.5 BG SVE Operational Hours, 2017 Through 2020.

3.2.3 Remedy Performance and Efficacy

Decision documents do not include quantitative goals protective of groundwater for residual soil vapor concentrations in the deep vadose zone. Concentrations of VOCs in soil gas that may trigger a transition to a passive remedy or that would indicate completion of the remedy are an area of uncertainty. Consequently, remedy performance has been evaluated by reviewing data for COC concentrations in the BG SVE system inflows, COC mass removal, and groundwater concentrations of COCs.

Inflow Concentrations and Removal Efficiency

Forty-seven soil gas samples (including 3 duplicates) were collected from EW SVE-S-20 from April 2017 to September 2021 and measured for 53 analytes, providing a total of 2,703 unique measurements. Samples were collected at irregular intervals averaging 36 days between samples but ranging from 10 to 153 days. Sample collection intervals were approximately monthly from 2017 through 2019, with extensive downtime in 2020 and 2021 that disrupted the normal sample schedule. Fourteen samples were collected from the BG SVE system effluent for the same analyses during this period; however, no effluent samples were collected after October 6, 2020. Although data after December 31, 2021, is not addressed in this FYR, it is noted that an effluent sample was collected in February 2022. Effluent samples during this FYR period were collected at approximately quarterly intervals, averaging 98 days between samples but ranging from 63 to 153 days. A total of 705 unique sample results were obtained for the BG SVE effluent.

Many analytes reported values well below detection limits and/or were not detected in any sample. **Table 3.5** shows the analytes that were detected in one or more samples and analytes that were never detected. The five main COCs, based on the magnitude and frequency of the detections in the influent of the BG SVE system, are toluene, acetone, TCE, PCA, and THF. **Table 3.6** summarizes the concentration and detection characteristics of these five contaminants.

Photoionization detector (PID) measurements of system influent and effluent were recorded weekly during operational periods to assess removal efficiency. With the exception of a single weekly measurement of 92 percent removal, all weekly measurements showed greater than 95 percent removal. The overall removal efficiency based on the PID measurements was approximately 99 percent. Removal efficiency for these analytes was also evaluated based on their measured influent and effluent concentrations. Concurrent influent and effluent samples were collected on 15 occasions during this FYR period. The average removal during the treatment process for toluene, acetone, PCA, and THF ranged from 95.3 percent to 99.4 percent. The removal percentage for TCE was more variable, ranging between 16.7 percent and 81.3 percent, with an average value of 53.4 percent.

Oxygen, carbon dioxide, carbon monoxide, ethane, ethene, and methane were added to the analytical suite in 2017 to provide data for assessing the modifications made in 2017 (see **Section 3.2.1**) to introduce additional air to the subsurface soils. Oxygen varied between 16 percent (V/V) and 20.9 percent (V/V) during the period and did not show any significant difference between periods of continuous or pulsed operation. Carbon dioxide was typically not detected but showed slight increases above the 0.5 percent (V/V) detection limit during periods of extended downtime. Carbon monoxide, ethane, ethene, and methane were not detected in any sample.

Table 3.5
Analytes Detected in the BG SVE System

Analytes Detected (33)	
1,1,1-Trichloroethane	*Dichlorodifluoromethane*
1,1,2,2-Tetrachloroethane	Ethylbenzene
1,1-Dichloroethane	Freon-113 (1,1,2-Trichloro-1,2,2-Trifluoroethane)
1,1-Dichloroethene	*Freon-114 (1,2-Dichloro-1,1,2,2-Tetrafluoroethane)*
1,2-Dibromoethane (Ethylene Dibromide)	m,p-Xylene (Sum of Isomers)
1,3-Butadiene	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)
Acetone	Methylene Chloride
Benzene	Oxygen
Bromomethane	o-Xylene (1,2-Dimethylbenzene)
Carbon Dioxide Free	Tetrachloroethene
Carbon Disulfide	Tetrahydrofuran
Carbon Tetrachloride	Toluene
Chlorobenzene	trans-1,2-Dichloroethene
Chloroethane	Trichloroethene
Chloroform	Trichlorofluoromethane
Chloromethane	Vinyl Chloride
cis-1,2-Dichloroethene	
Analytes Not Detected (20)	
1,1,2-Trichloroethane	Benzyl Chloride
1,2,4-Trichlorobenzene	Carbon Monoxide
1,2,4-Trimethylbenzene	cis-1,3-Dichloropropene
1,2-Dichlorobenzene	Ethane
1,2-Dichloroethane	Ethene (Ethylene)
1,2-Dichloropropane	Hexachlorobutadiene
1,3,5-Trimethylbenzene (Mesitylene)	Methane
1,3-Dichlorobenzene	Methyl Ethyl Ketone (2-Butanone)
1,4-Dichlorobenzene	Styrene
2-Hexanone	trans-1,3-Dichloropropene

Notes:
Italicized analytes were detected only once.

Table 3.6
Primary Contaminants Detected in BG SVE System Influent

Analyte	Number of Detections*	Concentration in PPB (V/V)		
		Average	Minimum	Maximum
Toluene	46	133,355	250	270,000
Acetone	41	29,254	510	56,000
TCE	47	6,111	300	18,000
THF	45	6,032	190	14,000
PCA	47	3,632	73	7,900

* 47 samples total, including 3 duplicates

Contaminant Inflow Concentration Trends

Measured influent concentrations for toluene, acetone, and THF suggest pronounced decreasing trends over the current FYR period, as illustrated on **Figure 3.6, Figure 3.7**, and **Figure 3.8**. Toluene showed the highest influent concentration during the FYR period. The Mann-Kendall (MK) statistical trend test was completed to provide a quantitative descriptor of influent concentration over time. MK analysis was performed using data from the 2017 through 2021 period as well as the 2013 through 2021 period (see **Table 3.7**). The MK evaluation concluded that inflow concentrations for all COCs, with the exception of PCA, exhibited a statistically significant *decreasing* trend between 2013 and 2021. Influent PCA concentrations exhibited a *stable* trend between 2013 and 2021.

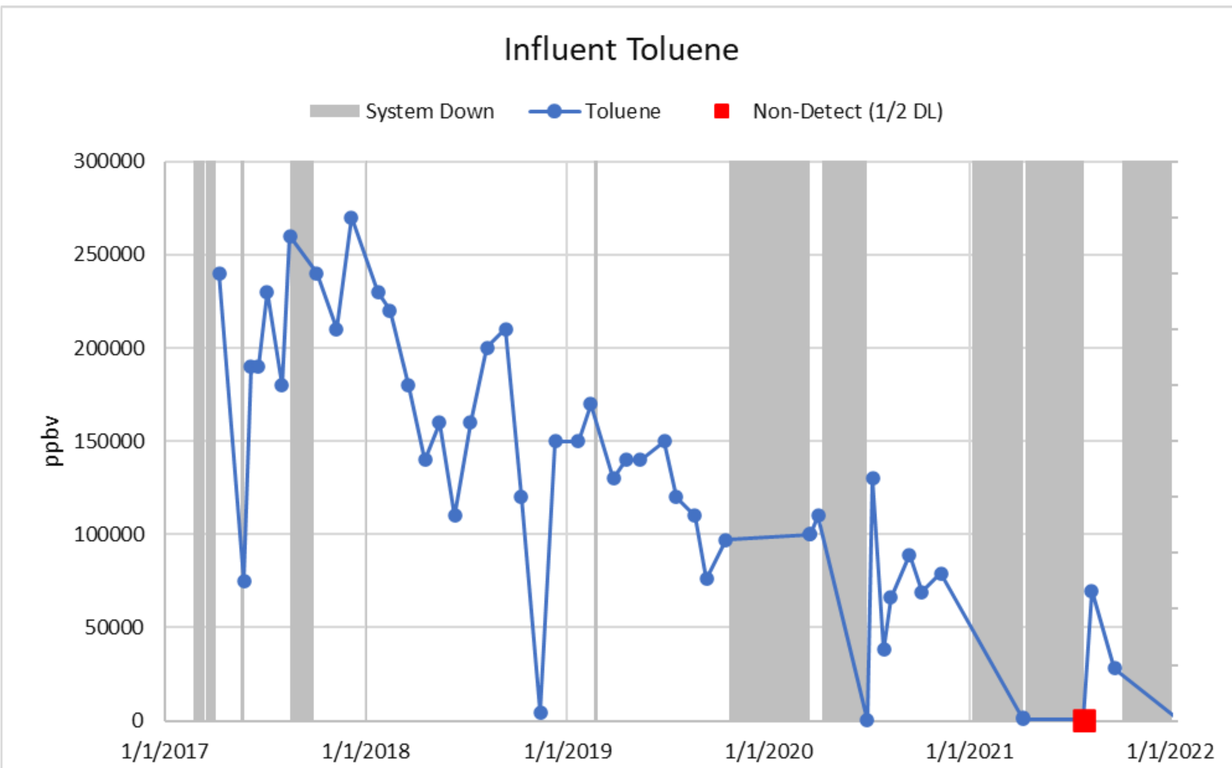

Figure 3.6 Influent Measurements versus Time for Toluene.

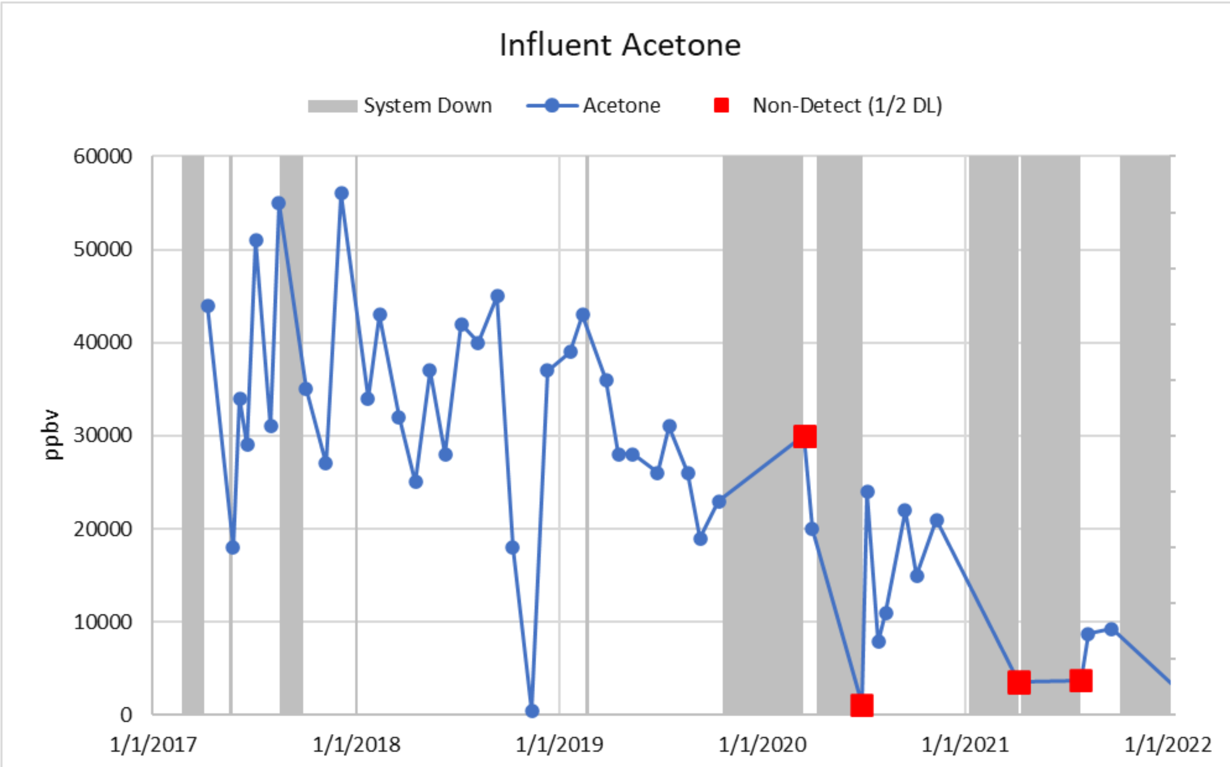

Figure 3.7 Influent Measurements versus Time for Acetone.

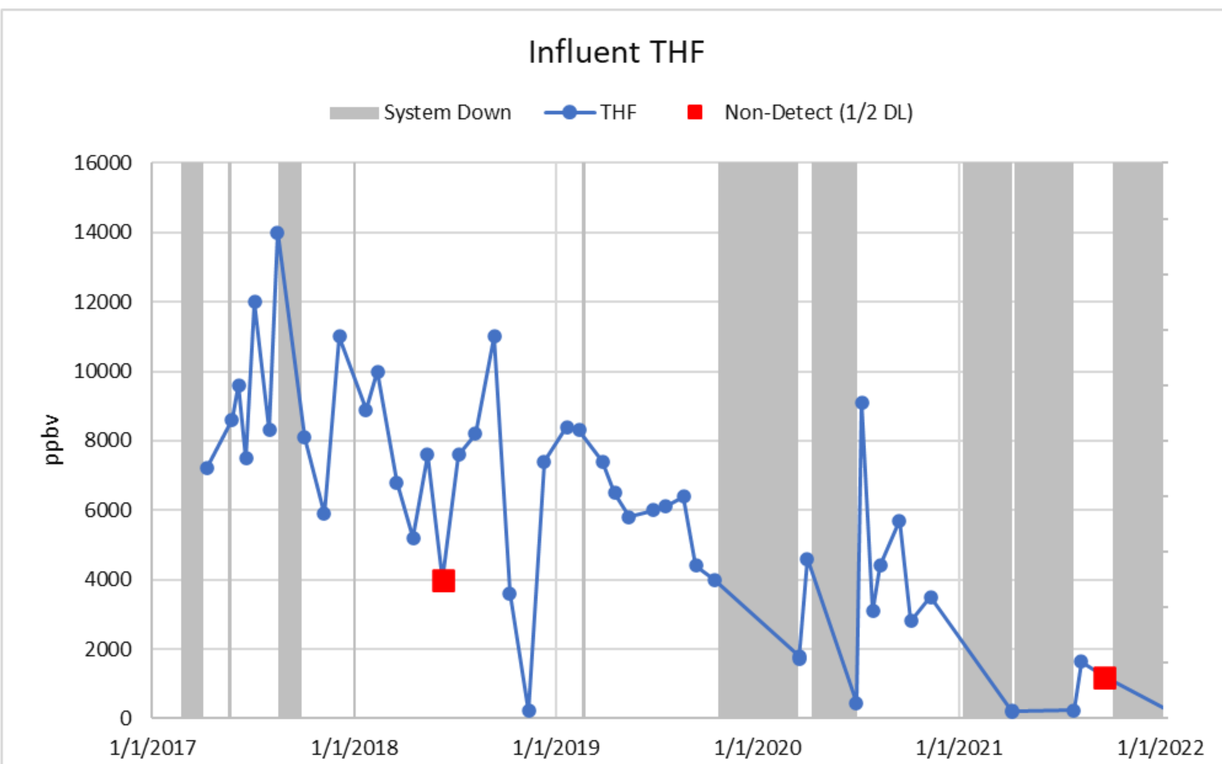

Figure 3.8 Influent Measurements versus Time for THF.

Table 3.7
Mann-Kendall SVE System Influent COC Trend Analysis

COC	2017 through 2021			2013 through 2021		
	τ	Confidence in Trend	Trend	τ	Confidence in Trend	Trend
Acetone	-0.495	99.9999%	Decreasing	-0.375	99.9980%	Decreasing
Toluene	-0.648	99.9999%	Decreasing	-0.641	99.9999%	Decreasing
TCE	-0.341	99.9214%	Decreasing	-0.439	99.9999%	Decreasing
THF	-0.552	99.9999%	Decreasing	-0.498	99.9999%	Decreasing
PCA	-0.282	99.4267%	Decreasing	0.023	20.1496%	Stable

Notes:
τ = Kendall rank correlation coefficient

Measured influent concentrations for TCE are shown on **Figure 3.9**. TCE concentrations are observed to increase more dramatically after periods of extended BG SVE system downtime. Nonetheless, TCE concentrations decrease significantly after system operation resumes and show an overall *decreasing* trend based on MK evaluation.

Influent concentrations for PCA are shown on **Figure 3.10** and show considerable short-term variations, regardless of whether the system is operating continuously or under pulsed mode. As with the other COCs, the MK evaluation and data plotted on **Figure 3.10** indicate a *decreasing* trend for the influent concentration.

The *decreasing* trends observed in the influent concentrations could be indicative of source abatement; however, the following should be noted.

- For acetone and THF, the measured influent concentration values were usually less than the detection limits.
- The operational status of the BG SVE system was irregular, and system operation was modified to pulse mode in 2020. Consequently, shutdown periods of the BG SVE system temporarily reduced the amount of contaminant removed.
- Shutdowns and subsequent startups of the BG SVE system could have caused rebounds in concentration due to desorption of mass from subsurface soils.

For the reasons above, mass removal trends of the BG SVE system were also analyzed.

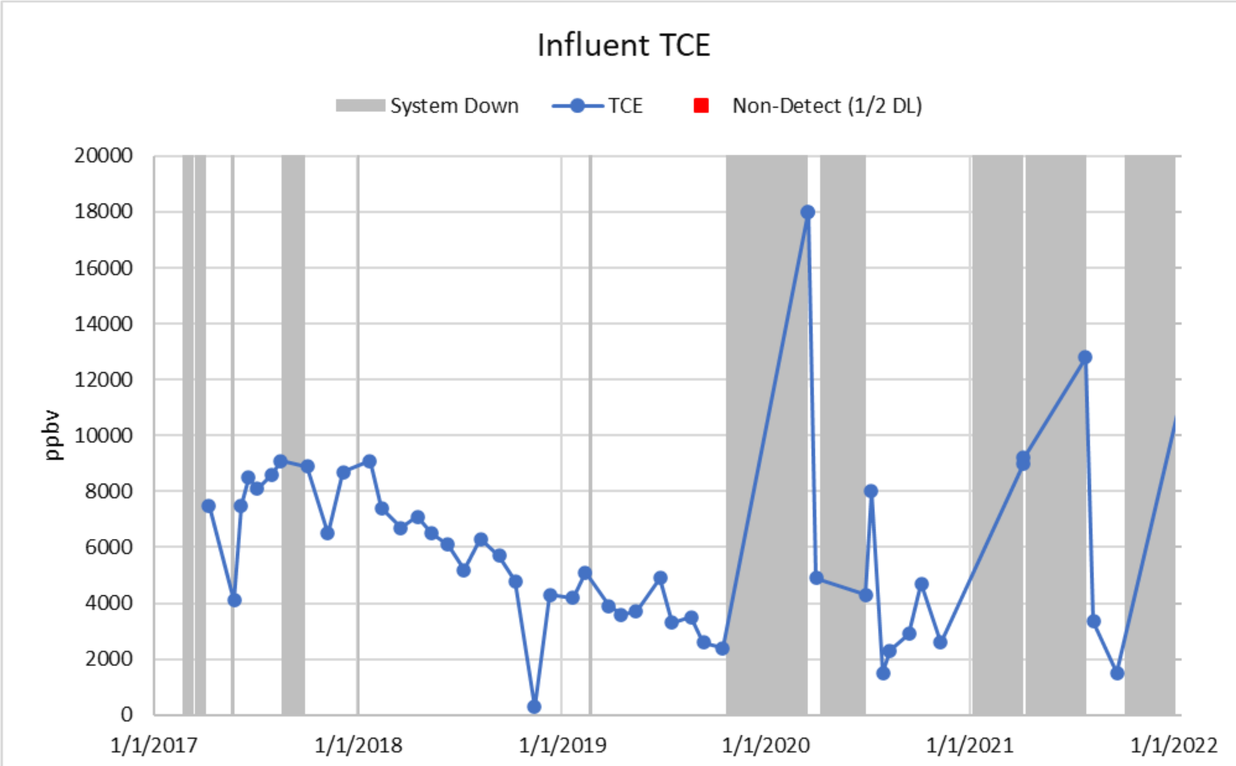

Figure 3.9 Influent Measurements versus Time for TCE.

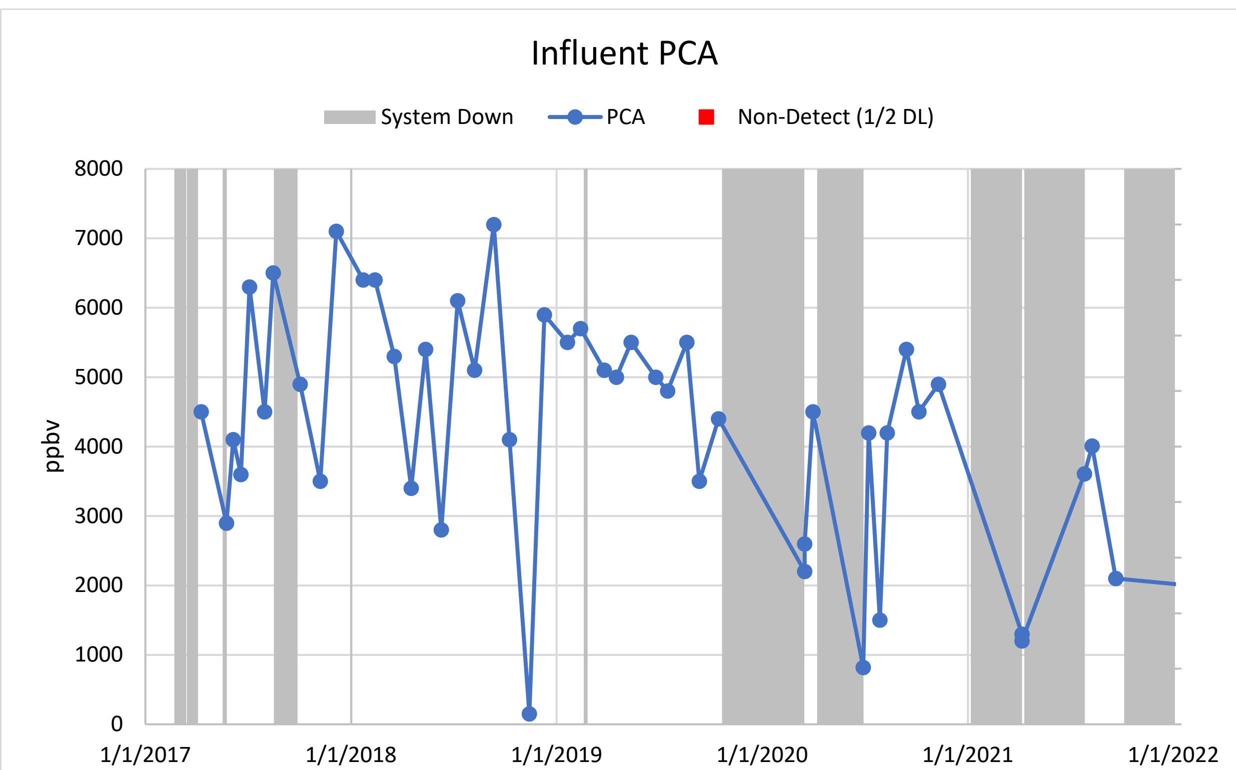

Figure 3.10 Influent Measurements versus Time for PCA.

Contaminant Mass Removal

Operational hours were tabulated as discussed in **Section 3.2.2**. The monthly operational status ranged from 0 to 24 hours a day over a given month. These estimates of operational hours were compared to the total mass of acetone, toluene, TCE, and THF removed on a quarterly basis from 2017 through 2021, and are presented on **Figure 3.11**, which shows a relation between mass removed and operational hours. **Figure 3.12** shows the contaminant mass removed per day for the quarterly measurements after normalizing the mass removed by the BG SVE system operational time. Removal efficiency (lbs/day) initially improved after system modifications in May 2017 that increased influent flow to the SVE system by drawing in ambient air from six formerly inactive shallow zone SVE EWs. **Figure 3.11** shows similar initial fluctuations in mass to those observed in the influent concentration measurements.

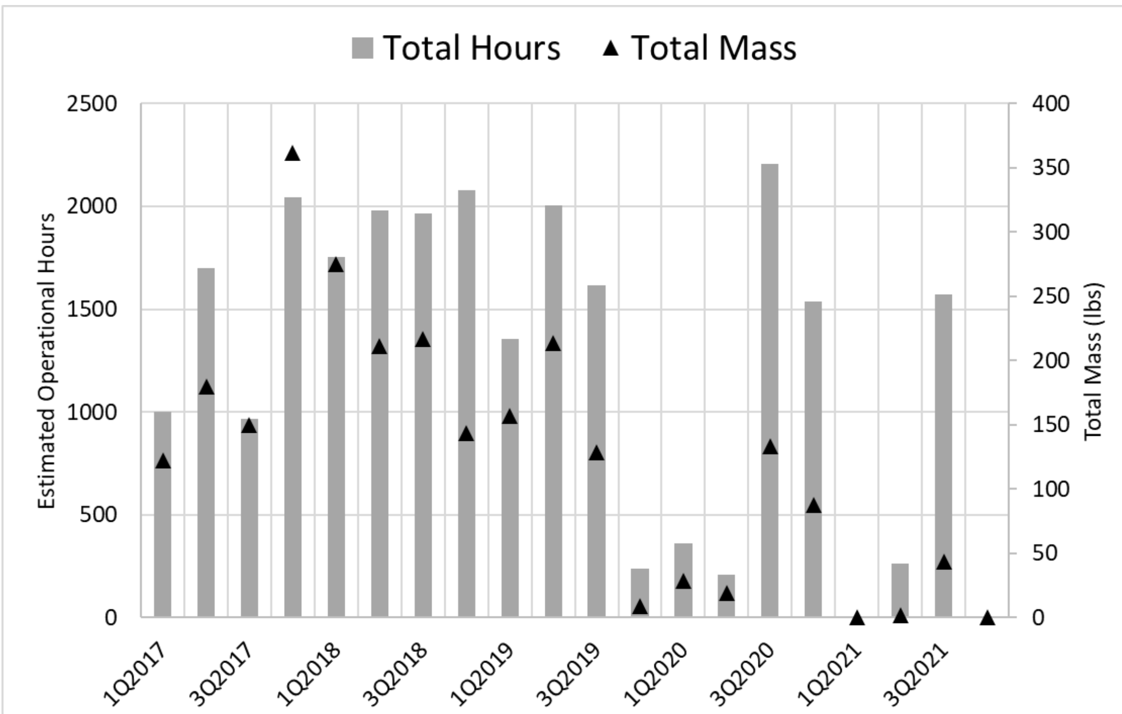

Figure 3.11 Total Operational Hours versus Total Mass Removed by Quarter, 2017 Through 2021.

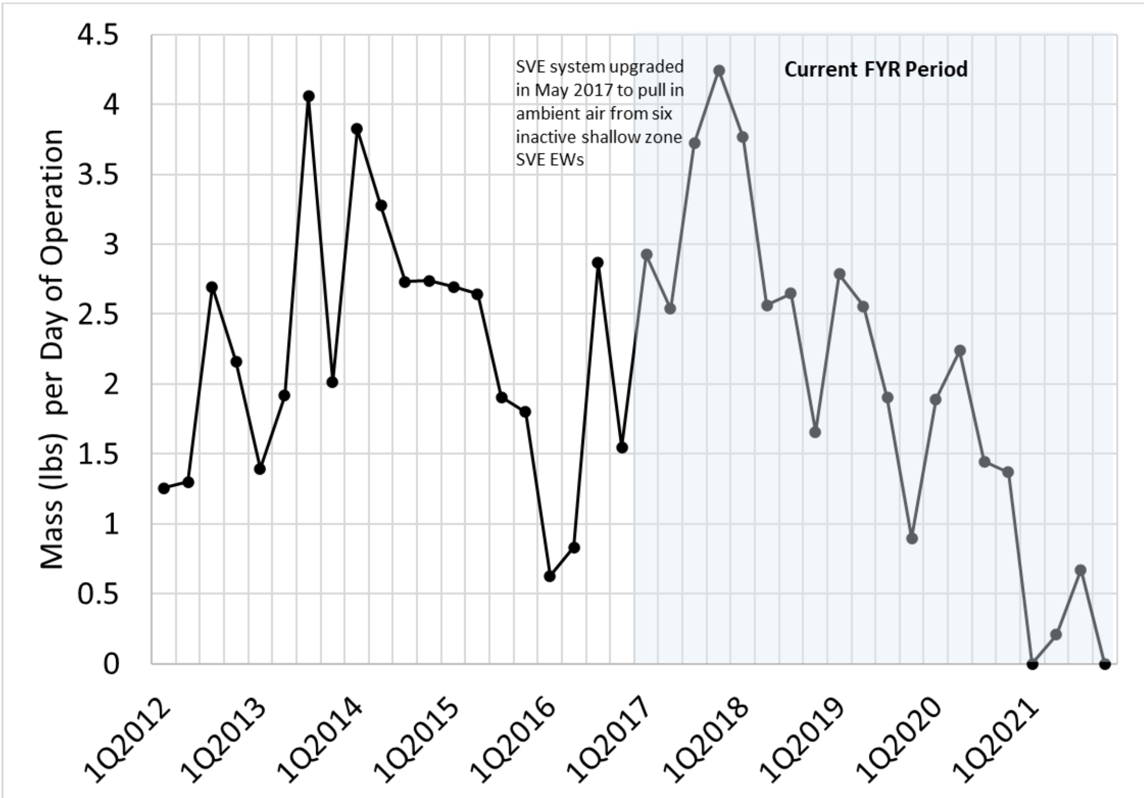

Figure 3.12 Total Mass Removal Rate per Day of Operation by Quarter, 2012 Through 2021.

During this FYR period, the mass removed per day appears to show a decreasing trend, which is supported by MK analysis. The quantitative MK evaluation (tau =-0.691 with a confidence interval of 99.9976%) concluded that the data showed a statistically significant *decreasing* trend. The efficiency of overall mass removal based on influent versus effluent concentrations for the CATOX unit was consistently between 95 and 100 percent for nearly every monthly operational report. This consistency in operational effectiveness (in contrast to the observed variability in operational hours) indicates that the CATOX unit performance is not a factor in explaining the observed trend of decreasing total mass removal. These observations indicate that residual contaminant mass is decreasing and that site remediation is progressing toward completion.

COC Concentrations in Groundwater

The first water-bearing unit below the Pantex Plant in the Ogallala Formation is a discontinuous zone of perched groundwater located at approximately 200 to 300 ft bgs and 100 to 200 ft above the Ogallala drinking water aquifer. Operation of the deep vapor EWs was suspended in 2013 because of minimal COC detections in those wells. The only operating vapor EW is screened to a depth of 90 ft bgs, indicating that residual contamination resides in BWD Formation sediments, within the shallow vadose zone, most likely at or just above the caprock caliche. In combination with the very limited recharge in this area, the vertical separation of approximately 200 ft between the shallow residual source and the perched groundwater reduces the risk of the residual NAPL or soil gas to result in perched groundwater impacts. As noted in the CSM discussion, the FGZ occurs between the perched groundwater unit and lower Ogallala Formation. The FGZ created the perched groundwater by impeding vertical migration of recharge to the underlying Ogallala Aquifer. The presence of the FGZ acts as an additional significant barrier to downward migration of contaminated water and soil vapor and results in an overall vertical separation distance of approximately 400 to 450 ft between any shallow residual source and the lower Ogallala water table. Groundwater monitoring is performed to detect COCs in both the underlying perched groundwater and the Ogallala Aquifer.

Two monitoring wells completed in the perched zone (PTX01-1001 and PTX01-1008) were sampled in the spring and fall of 2017 through 2019 and annually in the fall during 2020 and 2021; well locations are shown on **Figure 3.3**. Previously sampled perched zone well PTX01-1002 was plugged and abandoned on May 25, 2017. Of the five predominant COCs, only TCE was consistently monitored in the perched groundwater wells. TCE is persistent in the environment and has a low GWPS, and it is a good indicator of potential migration through the vadose zone. During 2017 through 2021, only samples from the October 2021 sampling event were analyzed for toluene, acetone, and PCA, and no samples were analyzed for THF.

TCE was detected in only one of the eight samples taken from PTX01-1001 and in none of the samples from PTX01-1008. The TCE detection limit in all samples (1 microgram per liter [μg/L]) is well below the corresponding GWPS (5 μg/L). The single detection of TCE, 0.35 μg/L in the May 2018 sample, is consistent with the *decreasing* trend observed at this well in the 2003 through 2017 data plot (**Figure 3.13**) and was confirmed with MK evaluation in the previous FYR (HGL and CNS, 2018). Acetone, toluene, and PCA were not detected in the October 2021 sample, with detection limits of 10 μg/L, 1 μg/L, and 1 μg/L, respectively. These detection limits are less than the corresponding GWPSs of 3,650 μg/L (acetone), 1,000 μg/L (toluene), and 4.26 μg/L (PCA).

Ogallala wells in the LTM program include PTX01-1010, PTX01-1011, and PTX06-1057A (**Figure 3.3**). LTM wells in the Ogallala Aquifer in the BG area are sampled to evaluate potential migration of COCs from the vadose zone and perched zone into the Ogallala Aquifer. Groundwater flow direction in the Ogallala Aquifer under the BG area is to the northeast (**Figure 2.6**); consequently, wells PTX01-1010 and PTX01-1011 are downgradient from the BG, and PTX06-1057A is up- and cross-gradient from the BG.

PTX01-1010 and PTX01-1011 were sampled in the winter (January or February) and summer (July or August) of 2017 through 2021. PTX06-1057A was sampled annually in the spring. As with the perched groundwater wells, all samples were analyzed for TCE. Only samples from the October 2021 sampling event were analyzed for toluene, acetone, and PCA, and no samples were analyzed for THF. The analytical detection limits were less than the corresponding GWPS in all samples. There were no detections of TCE, acetone, toluene, or PCA in any sample from any of the three Ogallala monitoring wells. These results are consistent with past sampling. TCE has not been detected in any of the 58 samples from PTX01-1010 collected from 2000 through 2021, the 42 samples collected from PTX01-1011 from 2002 through 2021, or the 29 samples from PTX06-1057A since 2001.

No analytes exceed the GWPS during the FYR. Over time, analytes measured have shown a decrease in concentration for these perched groundwater wells, indicating minimal impact to groundwater from the contaminated soil zone. These results support the finding that the BG SVE has been effective in reducing potential impacts to the perched zone.

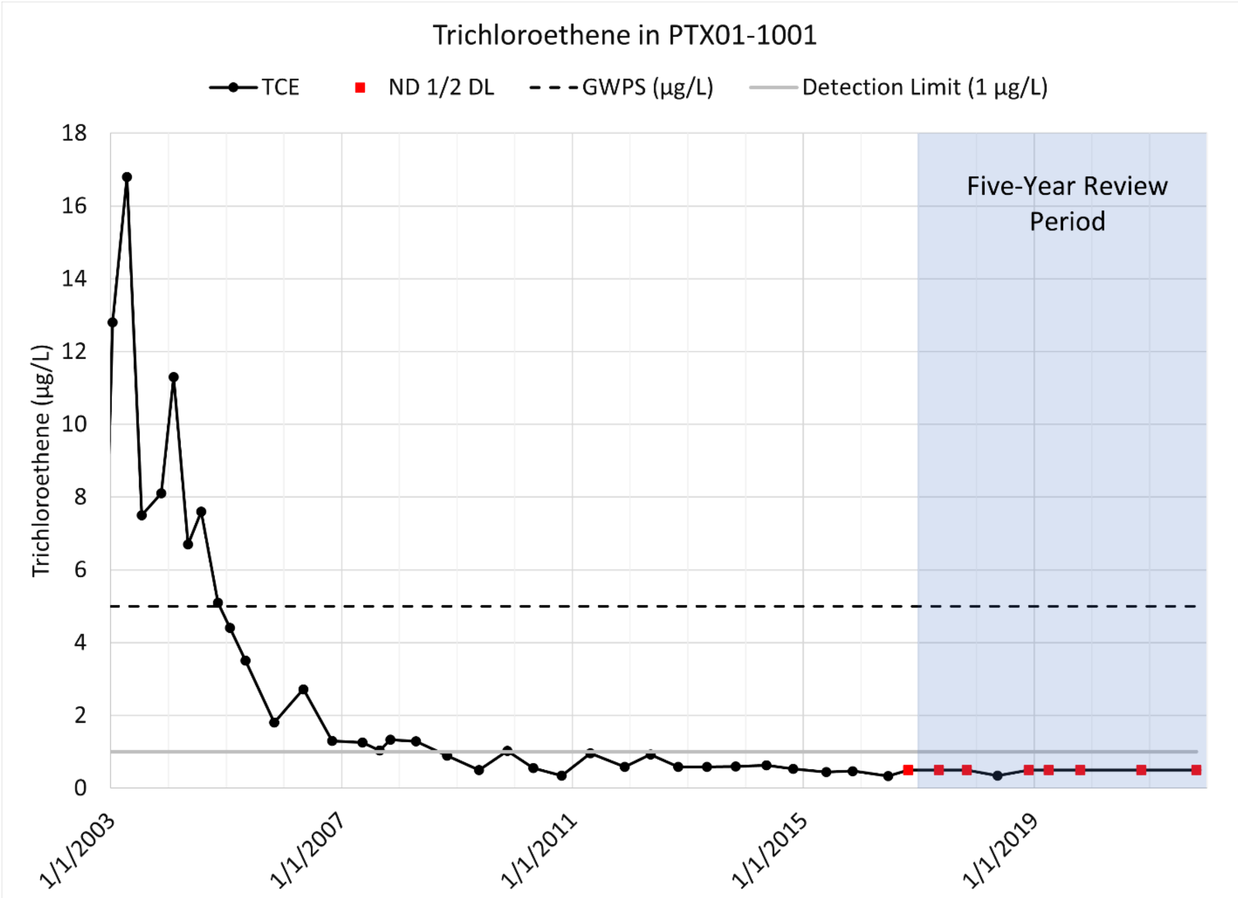

Figure 3.13 TCE in PTX01-1001.

3.2.4 Performance Summary

RAOs were established in the ROD for soils and groundwater (B&W Pantex, 2008). The RAO for surface soil identified in the ROD is as follows:

- Reduce the exposure risk from surface soil to on-site industrial and construction/excavation workers through removal, treatment, or prevention of contact with COCs in the soil.

The RAO for subsurface soil identified in the ROD is as follows:

- Reduce potential impact to perched groundwater and the Ogallala Aquifer through source abatement and stabilization/control measures in the vadose zone.

The RAOs established in the ROD for perched groundwater, listed below, are also relevant in assessing the performance of the BG SVE system:

- Reduce the risk of exposure to perched groundwater through contact prevention.

- Achieve cleanup standards for the perched groundwater COCs (i.e., restoration of the perched groundwater).
- Prevent growth of perched groundwater contaminant plumes.
- Prevent contaminants from exceeding cleanup standards in the Ogallala Aquifer

The RAOs for surface soil and groundwater have primarily been addressed through ICs as discussed in **Section 5.0**. Worker exposure to contamination in the vadose zone is controlled by access restrictions, work protocols, and warning signs in the BG area. Progress in meeting the subsurface soil and groundwater RAOs is discussed below.

Remedy Performance

The BG SVE system is functioning as intended in the ROD based on the system performance and groundwater monitoring results that show removal of soil vapor contaminant mass and compliance with groundwater cleanup targets. O&M in accordance with the established procedures will ensure continued performance of the remedy.

The decreasing trends in the influent concentrations of the predominant COCs (acetone, THF, toluene, PCA, and TCE) and the decreasing daily rate of contaminant mass removal, normalized for operational hours, have demonstrated the effectiveness of the BG SVE system in removing the COCs from subsurface soil and the vadose zone. The effectiveness of the BG SVE remedy is further demonstrated by the observed compliance with the RAOs for groundwater. The hydrologic environment in the BG area is characterized by very limited recharge and long transport distance to perched groundwater or lower Ogallala groundwater; this further reduces the risk of any remaining residual NAPL or soil gas impacting the underlying groundwater.

TCE is the only COC among the five predominant COCs observed in the SVE influent for which a cleanup goal (GWPS of 5 µg/L) is specified in the ROD (B&W Pantex, 2008). TCE has not been detected at well PTX01-1001 (**Figure 3.3**) at concentrations above the GWPS since 2005 (**Figure 3.13**). Further, TCE has remained below the detection limit of 1 µg/L or has been "non-detect" since 2012. Of the five predominant COCs in the BG SVE inflow, only TCE was included in the analytical suites for wells PTX01-1002 and PTX01-1008. Well PTX01-1002 was sampled annually from 2009 through 2016, and well PTX01-1008 was sampled semiannually from 2009 through 2019 and annually thereafter. TCE was not detected in any sample from either well.

TCE has not been detected in any sample from the two downgradient Ogallala monitoring wells since monitoring began in the early 2000s or in upgradient well PTX06-1057A. These data demonstrate that the BG SVE is maintaining compliance with the groundwater RAOs to achieve GWPS in the perched groundwater and Ogallala aquifer and to prevent expansion of the contaminated zone of perched groundwater.

Uncertainties

Several items were noted during the review of available data that could impact future remedy performance and/or operational strategy, although they do not affect current protectiveness.

1) Off-site Pumping. Groundwater elevations in the Ogallala Aquifer as reported in the annual progress reports for the Pantex remedial action program from 2017 through 2019 (CNS, 2018; 2019; 2020; 2021; 2022b) indicate that pumping from the Ogallala Aquifer just off the northeastern boundary of the Pantex site began in 2020 and continued in 2021. Groundwater elevations in the Ogallala Aquifer at Panhandle Groundwater Conservation District water level measurement points 644203 and 644204 show a drop in the piezometric surface of approximately 45 ft between December 2019 and December 2021, which contrasts to an approximately 10 ft drop between December 2017 and December 2019. These changes do not appear to have propagated to the Pantex site based on comparison of measured water levels at Ogallala Aquifer groundwater monitoring wells along the northern site boundary (PTX06-1064, -1068, and -1144) over the same time frame. In the long term, assuming that pumping in this off-site area continues or increases, the groundwater surface in the Ogallala Aquifer below the BG area may be lowered in comparison to non-pumping scenarios. If so, the increased vertical separation between the Ogallala Aquifer and the perched groundwater/vadose zone would further limit the possibility of vertical contaminant migration from the BG. This scenario would be consistent with achieving the RAOs and further enhance the protectiveness of the BG SVE remedy.

2) COC Mass Estimates. Contaminant mass influent and removal volumes were estimated from the concentrations reported by the laboratory analysis of influent and effluent samples. As shown in **Table 3.6**, influent concentrations varied across a wide range. For example, the average toluene influent concentration over this FYR period was over 130,000 ppb(v/v), while that of PCA was less than 4,000 ppb(v/v). This variation likely contributed to the elevated detection limits typically observed in the data. Nearly all analytical results for all five COCs were J-qualified. For acetone, 38 of the 41 detected concentrations were estimated values below the detection limit, and for THF, it was 36 of the 45 detections. Consequently, the calculated acetone and THF components of the COC mass estimate are subject to more uncertainty than those for toluene, TCE, and PCA. For these latter compounds, only one reported concentration value (for toluene) was less than the corresponding detection limit. In addition, virtually all results for all five COCs were J-flagged by the reviewer. This situation indicates that the calculated total contaminant mass volumes should be considered an approximate value. However, the uncertainty in the reported concentration values is most likely consistent across the sample dataset and would not bias the trend evaluation.

3) Distribution of Residual Contaminant Mass in the Vadose Zone Relative to SVE-S-20 Extraction Well Location. Extended periods of system downtime due to repairs and conversion to pulsed rather than continuous operation occurred beginning in November 2019 and continuing through 2021. Samples taken from SVE-S-20 as operations resumed (June 29, 2020, April 7, 2021, and July 27, 2021) showed that concentrations of toluene, THF, acetone, and PCA decreased on average by approximately 99, 87, 87, and 55 percent, respectively, during the idle period. Within 2 weeks of resuming operations, samples from SVE-S-20 showed that concentrations of these COCs had recovered substantially, as shown in **Table 3.8**. This data suggests that the main mass of residual contamination for these compounds is not located in the immediate vicinity of well SVE-S-20.

In contrast, the influent concentration of TCE showed relatively little change in the June 2020 sample and a nearly four-fold increase in the April 2021 sample, followed by a significant decline in concentrations as system operation resumed. This behavior suggests that that the main mass of TCE residual contamination is located in the vicinity of well SVE-S-20.

Table 3.8
Influent Concentrations After Extended System Downtime

Sample Date	Toluene	Acetone	THF	PCA	TCE
	All concentrations are in parts per billion by volume.				
10/16/2019	97,000	23,000	4,000	4,400	2,400
3/17/2020*	100,000	30,000	1,800	2,200	18,000
3/17/2020*	100,000	30,000	1,700	2,600	18,000
4/1/2020	110,000	20,000	4,600	4,500	4,900
6/29/2020	250	1,150	450	820	4,300
7/9/2020*	130,000	24,000	9,100	4,200	8,000
7/29/2020*	38,000	7,900	3,100	1,500	1,500
8/11/2020	66,000	11,000	4,400	4,200	2,300
9/14/2020	89,000	22,000	5,700	5,400	2,900
10/6/2020	69,000	15,000	2,800	4,500	4,700
11/10/2020	79,000	21,000	3,500	4,900	2,600
4/7/2021*	1,700	3,500	190	1,300	9,000
4/7/2021*	970	3,600	220	1,200	9,200
7/27/2021	500	3,755	240	3,610	12,800
8/10/2021	69,700	8,720	1,640	4,010	3,340
9/21/2021	28,300	9,280	1,200	2,100	1,500

Notes:
* duplicate sample
Shading indicates that the sample was collected after extended downtime.

4) Sample Result of November 14, 2018. The SVE-S-20 sample results for November 2018 showed reductions in the influent concentrations in the range of 93 to 97 percent for all five COCs relative to the concentrations in the samples collected before and after (October and December 2018). The system operated nearly continuously during that period, including the 7 days immediately before the November 14, 2018, sampling. This inconsistency, particularly in light of the Item 3 findings regarding concentrations of TCE versus those of the other COCs, suggests the possibility that something in the sample collection and/or laboratory analysis affected the analytical results. It may be appropriate to consider this sample as an outlier and exclude it from trend and mass evaluations.

5) TCE Mass Removal. As noted earlier, the removal efficiency for TCE averages approximately 53 percent in contrast to the 95+ percent observed for the other COCs discussed herein. If improved TCE removal efficiency is needed, consider evaluating alternative catalysts that may be more efficient at removing TCE while maintaining high removal rates for the other predominant COCs.

6) THF Concentrations in Groundwater. Although THF has been detected in most SVE influent samples (frequency and magnitude of THF concentrations are very similar to those of TCE), THF has not been included in the groundwater sampling program for the perched groundwater (well PTX01-1001) at the BG or the downgradient Ogallala groundwater wells (PTX01-1010 and PTX01-1011). Consequently, no sampling data is available to confirm that the BG SVE remedy has prevented THF from migrating to the underlying groundwater.

3.2.5 Recommendations

The declining trends observed in the BG SVE system influent concentrations and the corresponding daily mass removal rate, coupled with the groundwater sampling data that shows no evidence of migration of COCs into the perched zone or Ogallala Aquifer, indicate that the BG SVE system has met the RAOs established in the ROD. Furthermore, the data suggests that suspending operation of the SVE system and relying on passive attenuation could continue to meet RAOs while freeing up resources to address other elements of the overall environmental remediation program at Pantex. Consequently, the following recommendations are presented:

1) Request that the current operating permit be modified to terminate operation of the BG SVE system.
2) Attempt continuation of pulsed system operation using the aging equipment currently in place until regulatory approval to terminate operation of the BG SVE system is obtained.
3) Continue the groundwater sampling program at wells PTX01-1001, PTX01-1010, and PTX01-1011 to obtain data to support termination of the BG SVE system operation.

For efficiency, the request to terminate operation of the BG SVE system should be submitted along with the permit renewal application in 2023.

Since 2017, annual system operating time has steadily decreased (from 89 percent in 2018 to 21 percent in 2021) while still meeting RAOs and showing decreasing trends in COC influent concentrations. Data suggests that pulsed operation of the BG SVE system for approximately 2 consecutive months per year would continue to provide good remedial performance while awaiting regulatory approval to terminate system operation.

To provide additional data supporting the request to close the BG SVE system, it is recommended that THF be included in the annual groundwater sampling event at well PTX01-1001 in the perched zone and in the semiannual events at Ogallala wells PTX01-1010 and PTX01-1011. Given the long sampling history at these wells, modifying the sampling frequency at these wells to biennially for the perched zone and annually for the Ogallala wells could be proposed in the permit renewal process.

3.3 ZONE 12 DITCH LINER

3.3.1 Remedy Description

Zone 12 ditches received wastewater from HE-processing areas for many decades, resulting in cross-media migration of HE contaminants to the underlying perched groundwater. Containment is the selected remedy for COC-affected soils in SWMU 2 and 5-05 ditches in Zone 12, as members of WMG 6/7 (see **Figure 3.14**). Wastewater is no longer discharged to ditches and the only source of water to the ditches is precipitation runoff. Synthetic liners were placed in the SWMU 2 and 5-05 ditches as an ICM in 2004. The goal of the containment remedy is to prevent infiltration from the ditches into the underlying perched groundwater.

The ditch liner remedy was selected to address the following RAOs:

- Reduce the exposure risk to on-site industrial and construction/excavation workers, and
- Reduce potential impact to perched groundwater and the (Lower) Ogallala.

A total of five ditch sections with a total length of about 832 ft were graded and shaped for the liner installation. The liner consisted of 36-mil reinforced polypropylene geosynthetic material and was installed in sections as described in the Final ICM Design Specifications and Drawings. The edges of the liner were anchored at least 1 ft deep into the shoulders of the ditches. Details of the ditch liner design are provided in *Final ICM Design Zone 12 Interim Corrective Measures for SWMUs 2 and 5/5 Ditch Lining* (Stoller, 2004a).

As originally installed, the synthetic liners were placed in the ditches, anchored in trenches, and secured against uplift in windy conditions with river rock ballast. The original maintenance plans called for quarterly inspection of anchor trenches, liner integrity, siltation/sedimentation and vegetation in the trench, as well as the headwall attachment. Removal of sediment and silt to prevent vegetation growth was to be accomplished by pressurized wash. The ballast system resulted in sediment accumulation in the ditches. The sedimentation removal plan was determined to be ineffective, so the ballast system intended to hold the liner in place during windy conditions was replaced in 2011 with anchors. The anchor system holds the bottom layer of liner to the soils that form the base of the ditches and are covered with a seamed patch of liner material.

During a 2015 inspection, several deficiencies were observed with the liner, including tears along headwall connections, degradation of liner material, and some liner segments pulling out of anchor trenches. Due to the age and condition of the original liner, Pantex decided to place a new liner over the original liner.

Between December 2016 and March 2017, a new 45-millimeter Hypalon liner was installed over the existing SWMU 2 and 5-05 Ditch Liner. The location of the new/replacement liner is shown in **Figure 3.14**. Prior to installation of the new liner, sediment, debris, and water were removed from the SWMU 2 and 5-05 Ditch Liner areas. An anchor trench roughly 1-ft wide by 2-ft deep was excavated around nearly all sides of the liner emplacement and used to secure the liner around the outer edge of the ditch. A total of 163 Platipus anchors were installed at approximately 5-ft intervals, typically located at the bottom of the ditch to further secure the liner in place. The Platipus device consists of a flat metal anchor attached to a wire driven 2 ft vertically into the ground with a pivot set horizontally and a plastic plate tightened to the surface of the liner. The wire on the surface of the liner is then patched to create a water-tight seal.

Anchors were installed to avoid existing utilities, and 10 planned anchors were not installed in the easternmost extent of the S-shaped section of the 5-05 Ditch Liner (indicated on **Figure 3.14**) due

CNS/HGL—Remedial Action Effectiveness Report—Pantex Plant, Carson County,TX

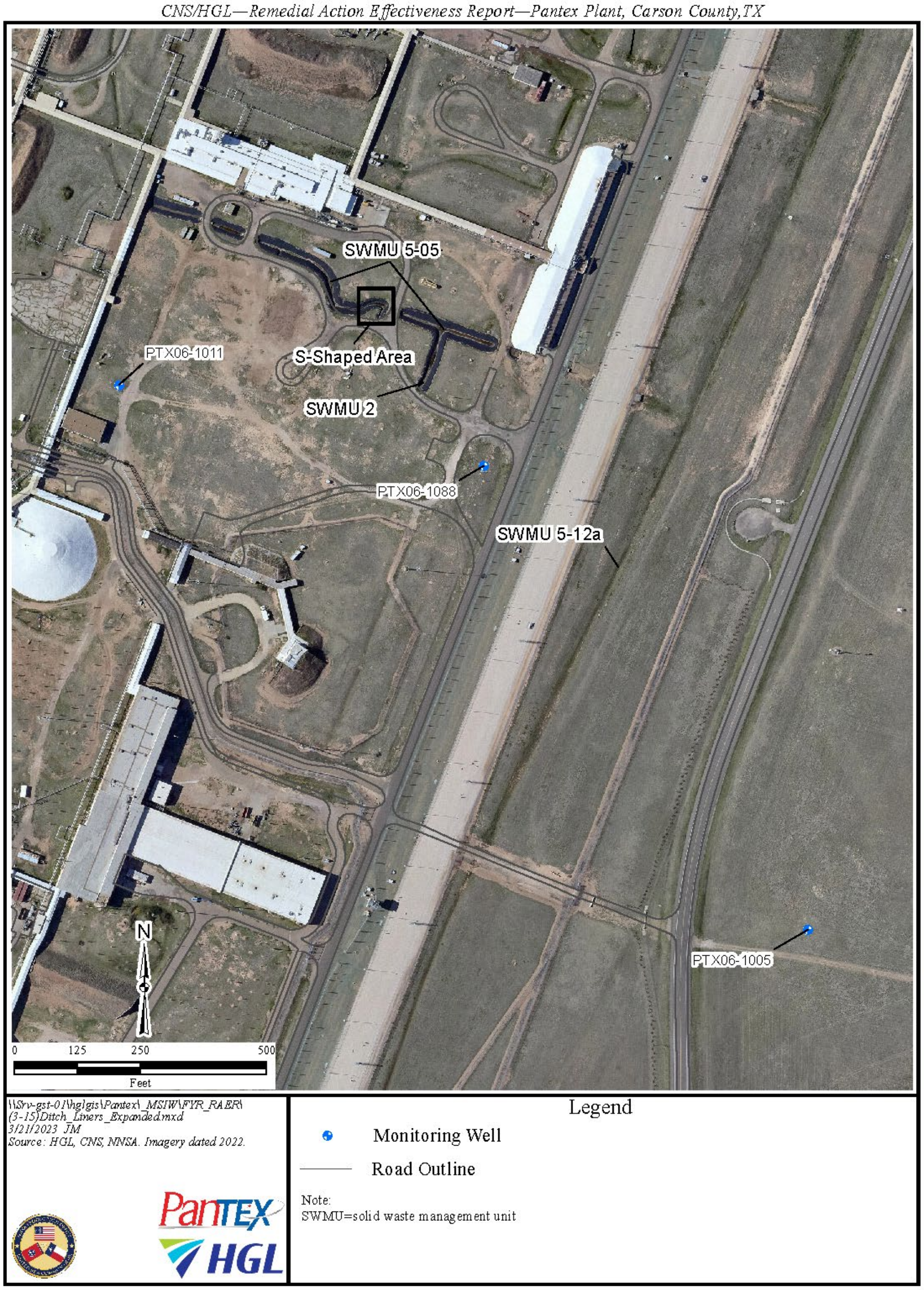

Figure 3.14 Zone 12 Ditch Liner.

to potential interference with utilities. The liner was installed in sections and physically attached and sealed to existing penetrations (e.g., culverts, pipes). The liner was attached to concrete structures including the headwalls and the Building 12-83 foundation. Seams were welded and sealed in the field. All liner welds were visually inspected and air-lance tested. The new liner installation is documented in *SWMU 2 & Ditch 5/5 – Ditch Liner Replacement Zone 12* (Trihydro, 2017).

3.3.2 Operation and Maintenance

Pantex has developed and is implementing a maintenance plan for the liner (CNS, 2017b). As part of routine maintenance, visual inspections of the liner are performed on an annual basis, following severe storm events, and after ditch cleanout. A checklist of items to examine during an inspection has been developed. An inspection conducted in 2021 indicated tears were present in the liner and sedimentation and erosion of the anchor trench continue to be an issue. Contracting is currently underway to address liner repairs, anchor trench erosion, and sedimentation on an ongoing basis. A new contract has been issued and repairs are scheduled for completion in 2023.

3.3.3 Remedy Performance and Efficacy

The original 5-05 Ditch Liner remedy has been in place since 2004. The LiDAR survey described in **Section 3.1** also indicated elevations within and around the SWMU 2 and 5-05 Ditch Liner. Elevations are shown in **Attachment 8**, **Figures C-12 and C-13**, west of Landfill 3. The elevation of ditches is below the general grade of the surrounding industrial area. An inspection conducted in 2021 indicated tears were present in the liner and sedimentation and erosion of the anchor trench continues to be an issue.

In addition to visual inspection and maintenance, one indication of remedy efficacy is concentration trends in perched groundwater in the immediate area of the remedy. Statistical concentration trends calculated using the Mann Kendall statistical trend method are presented in the 2022 LTMO Report (HGL, 2022b) in **Attachment 11** and **Attachment 9**. Perched unit monitoring wells PTX06-1011 and PTX06-1088 are within 300 ft of the ditches. Well PTX06-1005 is 1,200 ft downgradient.

For the recent 5-year period, concentration data for TCE at PTX06-1011 has been above the GWPS but the results over the last FYR period indicate a *stable* trend. Other COCs at this location are detected near to or below remedial goals. Groundwater elevations at PTX06-1011 have had a *decreasing* trend between the start of remedial activities in 2009 and 2021. Between 2017 and 2021, *no trend* was determined. Groundwater elevations continued to decrease between 2021 in 2022.

For the recent 5-year period, concentration data for Cr (VI) at PTX06-1088 indicates an *increasing* statistical trend with one detection just above the GWPS in 2019. Cr (VI) concentrations were below the GWPS in 2021. Tetrachloroethene (PCE) concentrations at this well have fluctuated above and below the GWPS over the recent 5-year period. Although the 2018 through 2021 results are below the GWPS, the PCE concentrations have increased since 2020. TCE concentrations at this well have fluctuated above and below the GWPS over the recent 5-year period. Well PTX06-

1088 showed *increasing* statistical trends for RDX and DNT4A. *No trend* was determined for groundwater elevations for the recent 5-year period.

For the recent 5-year period, PCE concentrations at well PTX06-1005 fluctuated near or above the GWPS between 2017 and 2019. Since February 2019, the PCE results have been below the GWPS but have increased slightly in 2021. TCE concentrations at this well have exceeded the GWPS since 2010. The TCE concentrations have been decreasing since 2020. Well PTX06-1005 showed *probably decreasing* and *decreasing* statistical trends for RDX and DNT4A, respectively, and showed an overall *decreasing* trend for groundwater elevations with *no trend* in the recent 5-year period.

Data from the groundwater monitoring wells indicate that the 5-05 Ditch Liner remedy is effectively limiting migration of residual contamination and the combined remedies are reducing groundwater elevations. As the Zone 12 ditches are historical release zones, the low and decreasing concentrations indicate that long-term discharge from this area is currently limited and that remedial effort for perched groundwater can be focused on the downgradient plume.

The installation of the new liner, completed in March 2017, with the planned regular maintenance, will continue to limit the infiltration of surface water beneath the ditch liners at SWMU 2 and 5-05 Ditch Liner. The documentation indicates the remedy has been constructed and implemented as intended in the decision documents; however, tears were observed in the liners during the 2021 inspection and sedimentation and erosion of the anchor trench continue to be an issue. Cross-media migration is prevented if the liner is intact and in place and repairs are planned.

The vadose zone beneath the ditches at SWMU 2 and 5-05 Ditch Liner is thick (>250 ft), and the amount of residual contaminant mass in the soils beneath the ditches is uncertain. Therefore, the time frame over which the liner must remain in place is also uncertain, and periodic replacement of the liner may be required until the potential for cross-media migration can be demonstrated as no longer a source to the underlying perched groundwater.

Based on the analysis of O&M records and groundwater data, the SWMU 2 and 5-05 Ditch Liner remedies addresses the RAOs of prevention of human contact with affected media and limiting potential impacts to the underlying perched groundwater. The 2021 inspection identified tears in the ditch liner that must be addressed as part of O&M activities to maintain the remedy effectiveness.

3.3.4 Optimization Recommendations

The ditch liner is a physical containment system, and, as such, once properly installed is not as amenable to optimization as active remedies. The primary optimization approaches for containment would be the maintenance or replacement schedule for the liner and the exit strategy for maintenance. Potential optimization considerations include re-assessing life-cycle costs of continued maintenance/replacement of the liner material and long-term durability over the life-span of the remedy. As noted during the 2021 inspection, tears have been observed in the liner material. Alternate liner materials may be considered if the current material degrades rapidly or continues to tear. Potential alternatives to the current containment remedy could include regrading and re-routing the surface drainage to no longer follow the current SWMU 2 and 5-05 Ditch Liner drainage network. This would also require an estimate of how often the liner may need to be replaced, based on the expected liner material life expectancy and the duration over which contaminant mass in the vadose zone soils could continue to act as a source for cross-media migration.

Repairs should be performed to remedy the tears in the 5-05 Ditch Liner and ensure remedy effectiveness. Routine O&M should include inspecting and documenting liner conditions to make sure it remains in place in the eastern end of the S-shaped portion of the 5-05 Ditch Liner where 10 anchors were not installed along the bottom of the ditch due to potential interference with utilities.

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4.0 GROUNDWATER REMEDIES

The performance and efficacy analysis of groundwater remedies selected for the perched unit is divided into two treatment technologies and four primary remedial action components. The groundwater extraction and treatment (P&T) remedy includes the P1PTS and SEPTS, and the ISB remedy includes the Southeast In Situ Bioremediation (SEISB) and the Zone 11 ISB. The location and major features of each system are shown on **Figure 2.7**.

The specific RAOs for perched groundwater remedies are to:

- Reduce the risk of exposure to perched groundwater through contact prevention,
- Achieve cleanup standards for the perched groundwater COCs,
- Prevent growth of perched groundwater contaminant plumes, and
- Prevent contaminants from exceeding cleanup standards in the Ogallala Aquifer.

The primary groundwater COCs defining the extent and magnitude of contamination above remedial goals are RDX, DNT4A, TCE, perchlorate, and Cr (VI). Of these, RDX has the largest spatial distribution and exceedances above remedial goals. The extent of DNT4A, RDX, TCE, 1,4-dioxane, perchlorate, and Cr (VI) plumes in the perched groundwater unit are illustrated on **Figure 4.1**.

4.1 GROUNDWATER EXTRACTION AND TREATMENT SYSTEMS

The efficacy of the groundwater P&T systems was evaluated based on the RAOs outlined in the ROD and on the objectives and anticipated outcomes for the systems described in the remedial design and planning documents.

Specific goals of the P&T remedy systems from the ROD include the following:

- Reduce the concentrations of COCs dissolved in groundwater,
- Stabilize and contain the slow migration of perched groundwater, and
- Reduce the volume of water moving through the perched flow regime and the upgradient driving head of perched groundwater.

The interpretation of RAOs in the Remedial Design/Remedial Work Plan (B&W Pantex, 2009b) is summarized as follows:

- Reduce the saturated thickness of the perched groundwater unit, and
- Reduce dissolved contaminant mass.

4.1.1 Remedy Descriptions

The P1PTS currently consists of 11 EWs near Playa 1 and a central treatment facility. The SEPTS currently consists of 65 EWs southeast of Playa 1 and Zone 12, 4 injection wells, and a central treatment facility. The operational goals for the P1PTS and SEPTS systems were realigned in July 2014 to a prioritized schedule consisting of the following:

- Maintain 90% operation time with no injection at SEPTS when the WWTF/irrigation system can receive all treated water,
- When the WWTF/irrigation system is limiting flow below 250 gpm from both systems, injection is used at SEPTS. A minimum flow of 125 gpm is needed for operation of the treatment units at each system to prevent channeling of the influent that would lead to ineffective treatment, and
- Maintain 90% of system treatment or well field capacity, whichever is lower.

Operational goals and EW priorities are expected to be updated in the 2022 annual report. Additionally, Pantex recognizes that, over time, the reduction of saturation in the perched groundwater will lead to reduced production of the EW field and the inability to meet design flow at the treatment system.

P1PTS Remedy

The P1PTS began operating in 2008, and the system became fully operational in 2009. The P1PTS system EWs and conveyance piping are illustrated on **Figure 4.2**. Operational components of the P1PTS consist of the EWs, piping, treatment building, treatment system, effluent system, building sumps, and the discharge system, including its control logic, for the treated water.

Groundwater pumped by the EWs is transferred via high-density polyethylene (HDPE) pipe to the influent settling tanks in the treatment building. After the sediment has settled, the influent is pumped through a bag filter and into an intermediate holding tank. The contents of the holding tank are then pumped through four 10,000-pound (lb) GAC vessels. After the GAC vessels, the water enters the boron-selective ion-exchange vessels. From the ion exchange vessels, water flows through an in-line screen before entering the effluent holding tank. Once treated to discharge goals, the water enters an effluent holding tank prior to discharge through the WWTF and then to the irrigation system (except under non-routine conditions between 2017 and March 2022, as discussed below).

In order to attain the goal of reducing groundwater elevations in the Playa 1 area, beneficial reuse of treated water is the preferred method of discharge for the P1PTS effluent. Approved beneficial uses of treated water includes crop irrigation, dust suppression, firefighting, washing, and make-up water. The P1PTS is not tied into the injection conveyance lines and cannot reinject treated water into the perched unit. For this reason, treatment throughput is temporarily stopped or slowed when mechanical problems arise with the irrigation/beneficial reuse system.

In 2017, a break occurred at the irrigation system that caused discharges from the WWTF to be diverted to Playa 1 under a permit issued by the State of Texas. Repairs to the subsurface irrigation system were completed in March 2022, but restart of the system has been hampered by additional repair issues and it has not yet achieved full operational status. A center-pivot irrigation system is under construction to beneficially reuse treated water from the WWTF and is expected to be completed in Summer 2023.

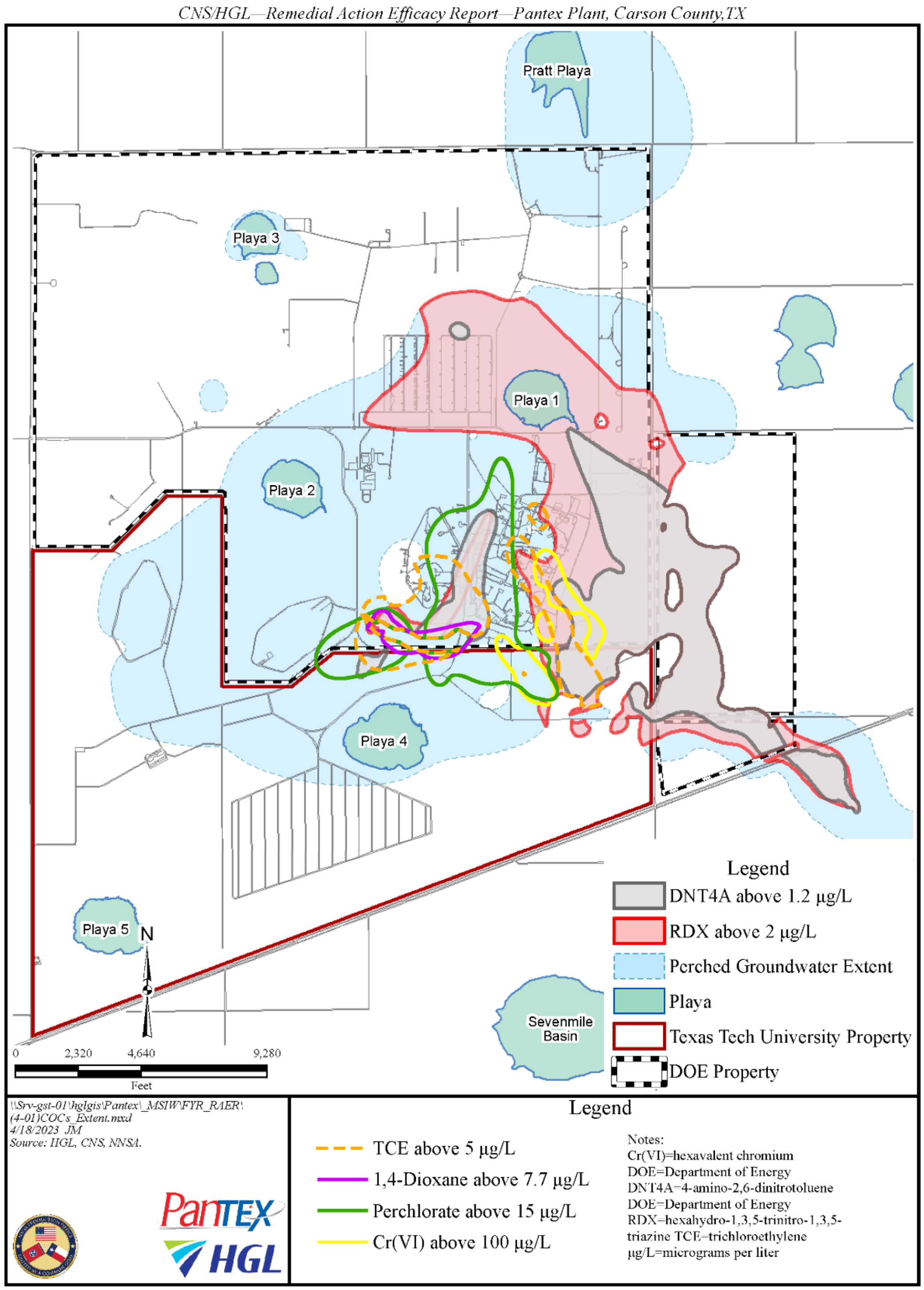


Figure 4.1 Pantex Plant Perched Groundwater Unit 2021 Plume Extents.

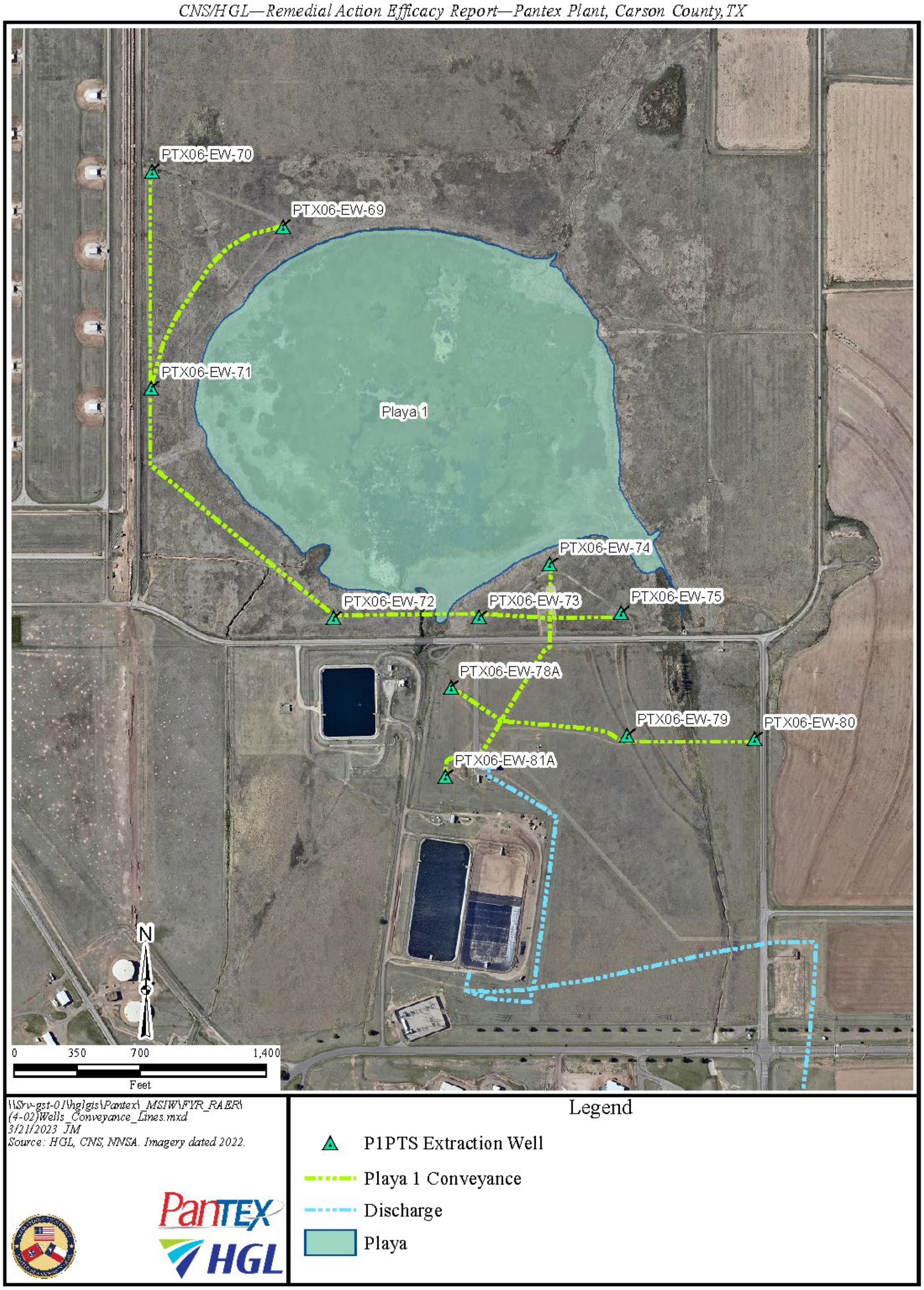


Figure 4.2 Playa 1 Pump and Treat System.

Perched groundwater is currently removed through 11 EWs and 2 miles of conveyance lines that connect the wells to the treatment units. The P1PTS EWs have variable frequency drives (VFDs). The P1PTS has a treatment capacity of 250 gallons per minute (gpm), which results in a target extraction rate of 324,000 gpd or 118 million gallons per year (gal/yr) based on a 90% operational efficiency rate. The system was operated with 10 EWs through 2016. An additional EW, PTX06-EW-81A, and conveyance lines were installed in 2013 near the P1PTS treatment plant, but they did not become operational until November 2016. A discharge line connects the treatment system to the irrigation holding lagoon. The full system and its components are described in detail in the *Final Design Basis Document* (Stoller, 2007) and in updates to the O&M manuals. The new center-pivot irrigation system is described in the *Design for Effluent Supplied Pivot Irrigation East of FM 2373* (Pro2Serve, 2021).

The primary COC in the P1PTS area of influence is RDX. RDX concentrations above the GWPS of 2 µg/L are observed in monitoring wells in all directions around Playa 1. Boron is present in groundwater above background levels in the P1PTS EWs, but typically at concentrations below human health-based screening levels. Boron concentrations above background are primarily a concern for discharge of groundwater through the irrigation system. 1,4-Dioxane has been detected in P1PTS monitoring wells, but at concentrations below screening levels. Low levels of other COCs such as TCE, perchlorate, DNT4A, HMX, and RDX degradation products have been detected in the P1PTS area, but detections are limited and largely below remedial goals.

The primary objective of the P1PTS is to remove affected perched groundwater. Removal of water beneath Playa 1 is expected to decrease the saturated thickness of the perched groundwater and the volume of perched groundwater moving downgradient (south/southeast) toward the SEPTS. An additional benefit anticipated from groundwater extraction is a reduction in the head (driving force) for vertical migration of perched groundwater into the FGZ in the Playa 1 area. While some reduction of the mass of contaminants is anticipated through this action, the COC reduction benefit is secondary to that of reducing the mounded perched groundwater.

SEPTS Remedy

The SEPTS began operating in 1995 as a pilot treatment study and was expanded as an Interim Stabilization Measure under Compliance Plan No. 50284. The location and components of the current SEPTS are shown on **Figure 4.3**. The original design of the treatment system is described in the *Southeast Perched Groundwater Pump and Treat System Remedial Design* document (B&W Pantex, 2009c). The system was expanded after 1995 by adding EWs in areas with 15 ft or more of saturated thickness. Installation of EWs in areas with less than 15 ft of saturated thickness was determined to have limited efficacy for addressing RAOs (B&W Pantex, 2007). An additional wellfield expansion was implemented in 2007. Additional EWs installed in areas of thicker saturated zones after 1995 served to improve extraction capability, to stabilize the perched groundwater plume adjacent to and east of FM 2373, and to enhance extraction within the Cr (VI) plume moving southeast of Zone 12.

The SEPTS currently includes 65 EWs, 4 injection wells, and 8 miles of conveyance lines. As illustrated on **Figure 4.3**, one of the injection wells (PTX06-INJ-10) is located just northwest of the EWs, and the other three injection wells (PTX06-INJ-13/14/15) are located much further to the west-southwest. From 2017 through 2021, the SEPTS extracted groundwater from between 58 and

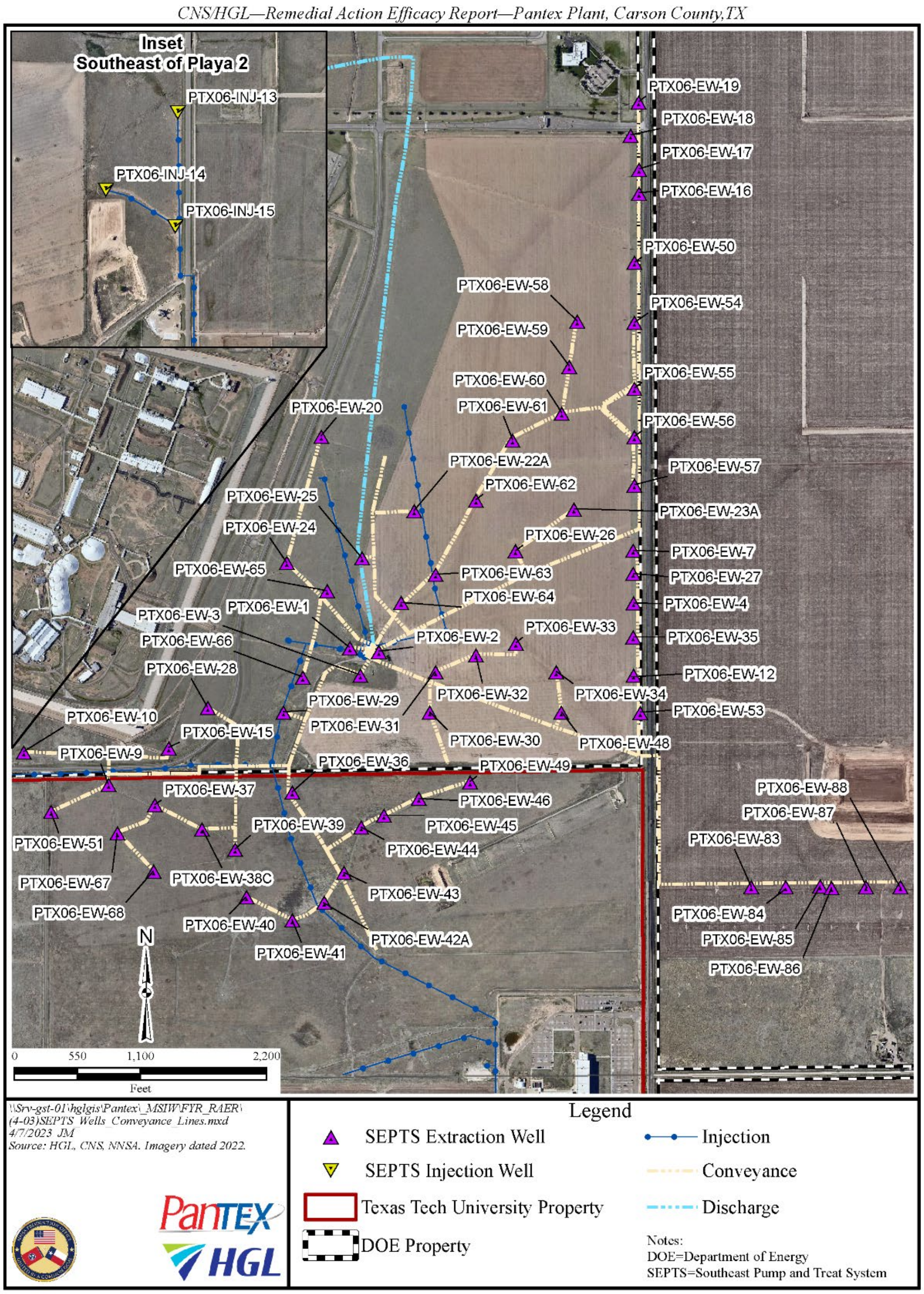


Figure 4.3 Southeast Pump and Treat System.

65 active EWs. The SEPTS has a capacity of 300 gpm, which results in a target extraction rate of 389,000 gpd or 142 million gal/yr based on a 90% operational efficiency. The SEPTS O&M Manual does not identify which, if any, of the SEPTS EWs have VFDs (Caldwell Engineering, 2007). During the 2022 site visit, the SEPTS plant operator indicated that SEPTS EWs, with the exception of PTX06-EW83 through PTX06-EW88, did not have VFDs and were either on or off.

The treatment unit processes include pretreatment filters, ion exchange for Cr (VI) removal, GAC (three 20,000-lb vessels) for HE and VOC removal, ion exchange for boron removal, and a filter press for sediment removal. Like the P1PTS, boron removal is performed for irrigation water quality. Ion exchange for perchlorate removal was added in 2022 to address movement of perchlorate from the Zone 11 area into the western SEPTS EWs. Other components of the treatment system include equalization and holding tanks, pumps and piping, influent and treated water manifolds, and various monitoring and control systems. Once treated, the water is collected in an effluent holding tank. Discharge lines connect the treatment system to the subsurface irrigation holding lagoon, the Pantex WWTF, and the ISB injection lines.

During plant maintenance and well development activities, sediment and water is washed into the building floor sumps. The sumps transfer the water and sediments to a conical bottom tank where the suspended sediment can settle. The sediment is then pumped from the conical tank through a filter press to remove as much liquid as possible. The pressed sediment is then dried by a blower. The solids are dropped out of the filter press into a hopper for collection. The solids are transported off site according to Pantex Plant disposal procedures.

The first FYR recommended a reduction in the injection of treated groundwater into the perched aquifer. Continued injection conflicts with the goal of reducing the saturated thickness of the aquifer and could affect the distribution of COC plumes. There are additional relative priorities for seven different SEPTS well groupings (CNS, 2022b). Operational goals and EW priorities are expected to be updated in the 2022 annual report.

The second FYR (HGL and CNS, 2018) recommended enhancing the irrigation system and/or developing new options to reduce reliance on injection of treated water back into the perched zone. The development of a pivot irrigation system to enhance beneficial reuse of treated water is planned to be operational by Summer 2023. Additionally, Pantex recognizes that, over time, the reduction of saturation in the perched aquifer will lead to reduced production of the EW field and the inability to meet design flow at the treatment system.

Because of the topology of the FGZ and recharge characteristics of the upper stratigraphy, several areas of the perched unit in the southeast have limited, variable, or no saturation. Variable and low saturation levels are a challenge for remediation of perched groundwater plumes in the southeast. As an example, PTX06-EW-21 went dry and was taken offline in 2013. Additionally, several higher priority wells along the fence line (e.g., PTX06-EW-53, -12, -35, and -4) are in areas that have rapidly declining water levels, which has caused these wells to operate intermittently (CNS, 2022b).

The SEPTS was originally designed to inject treated water into the perched unit to enhance mass removal. The original system design included eight injection wells, but injection into these wells was ceased to pursue the RAO of decreasing saturated thickness to mitigate lateral plume migration and reduce the potential for vertical migration through the FGZ. Treated water was diverted to irrigation systems beginning in 2005. Beneficial reuse through the same system used by the P1PTS is currently the preferred method of discharge for treated water; however, the SEPTS can still reinject water into the perched zone, if needed.

In 2017, a break occurred at the irrigation system, and as a result discharges from the SEPTS had to be reinjected, reused for ISB injections, or diverted to Playa 1 under a permit issued by the State of Texas. Repairs to the subsurface irrigation system were completed in March 2022, but restart of the system has been hampered by additional repair issues and it has not yet achieved full operational status. A pivot irrigation system is under construction to beneficially reuse treated water from the WWTF and is expected to be operational by Summer 2023 (CNS, 2022b).

The primary goal of the SEPTS is to remove COCs and control plume migration. Targeted COCs for this system are RDX and its breakdown products, the other HEs such as TNT and its breakdown products, Cr (VI), and VOCs. In addition to removing COCs from groundwater, the objectives of the SEPTS are to permanently remove perched groundwater, to gradually reduce the volume of groundwater moving downgradient toward the southeast, and to reduce the head (driving force) for vertical migration of perched groundwater into the FGZ in this area.

4.1.2 Operation and Maintenance

P1PTS Operation and Maintenance

Maintenance of the P1PTS is scheduled into four categories: daily/weekly maintenance, monthly/quarterly maintenance, annual maintenance, and "as-needed" maintenance. Daily/weekly maintenance consists mainly of checking communication with the EWs, checking for abnormal flows, visuals inspections, and weekly corrective action logs. Monthly/quarterly maintenance consists of inspections of the heating, ventilation, and air conditioning (HVAC) system, inline and exhaust fans, fire protection systems, and electrical components. Annual maintenance includes inspection of the electrical panel boards, septic tank, and conveyance lines. As-needed maintenance is conducted on the influent tanks, bag filters, GAC unit, ion exchange resin, eyewash/safety shower, and system lighting. Operators check for breakthrough in the lead GAC vessel twice per month. More specific O&M needs for the system are described in the O&M manuals, which have been updated periodically as components and maintenance protocols have evolved.

Operational data for the P1PTS is summarized in **Table 4.1**. The operational time for the P1PTS between 2012 and 2021 is shown on **Figure 4.4**. Recent operational time for the P1PTS has been below the 90% goal for all but two quarters in 2018. Operation time and total extraction for the P1PTS in the current FYR period were much lower than in the previous FYR period.

Operation of the P1PTS was substantially reduced from 2019 through 2021 to allow higher recovery at the SEPTS while the irrigation system was down. In 2021, P1PTS operation was limited to 1 week per quarter. Beginning in 2020, an aging SCADA system was no longer able to use the existing paging system to send warnings and alerts to P&T personnel; as a result, the P1PTS was shut down overnight and on weekends to avoid potential issues with unplanned releases of

Table 4.1
Operational Summary of P1PTS and SEPTS 2012 through 2021

System	Year	Number of EWs	Operational Time (%)	Operational Time Goal (%)	% of Operational Time Goal[1]	Average GPD	Target GPD	% Target GPD[2]	Total Gallons Treated (Millions)	RDX Mass Removed (lbs)	Other HE Mass Removed (lbs)	Cr(VI) Mass Removed (lbs)
P1PTS	2012	10	96%	90%	107%	278,000	324,000	86%	100	47	23	0
	2013	10	97%	90%	108%	272,000	324,000	84%	99	55	23	0
	2014	10	91%	90%	101%	298,000	324,000	92%	109	50	21	0
	2015	10	89%	90%	99%	278,000	324,000	86%	102	45	17	0
	2016	10(+1)	65%	90%	72%	189,000	324,000	58%	68	21	9	0
	2017	11	70%	90%	78%	182,000	324,000	56%	67	20	9	0
	2018	11	86%	90%	95%	198,000	324,000	61%	72	26	12	0
	2019	11	31%	90%	34%	69,000	324,000	21%	25	5	3	0
	2020	11	19%	90%	21%	44,000	324,000	14%	16	3	2	0
	2021	11	2%	90%	2%	4,000	324,000	1%	1	0	0	0
SEPTS	2012	62	97%	90%	108%	391,000	388,800	101%	142	443	261	134
	2013	62	94%	90%	104%	378,000	388,800	97%	137	408	263	120
	2014	61	90%	90%	100%	345,000	388,800	89%	94	350	198	58
	2015	61	58%	90%	64%	215,000	388,800	55%	80	265	151	74
	2016	59	93%	90%	103%	357,000	388,800	92%	130	377	236	79
	2017	59	75%	90%	84%	195,000	388,800	50%	72	219	119	81
	2018	58	86%	90%	95%	211,000	388,800	54%	77	195	107	77
	2019	64	97%	90%	107%	336,000	388,800	86%	122	333	208	85
	2020	64	70%	90%	78%	223,000	388,800	57%	83	190	158	45
	2021	65	93%	90%	103%	342,000	388,800	88%	124	245	213	60

Notes:
1. % of Operational Time Goal = operational time / operational time goal
2. % Target GPD = Average GPD removed / Target GPD
Shading indicates current FYR period

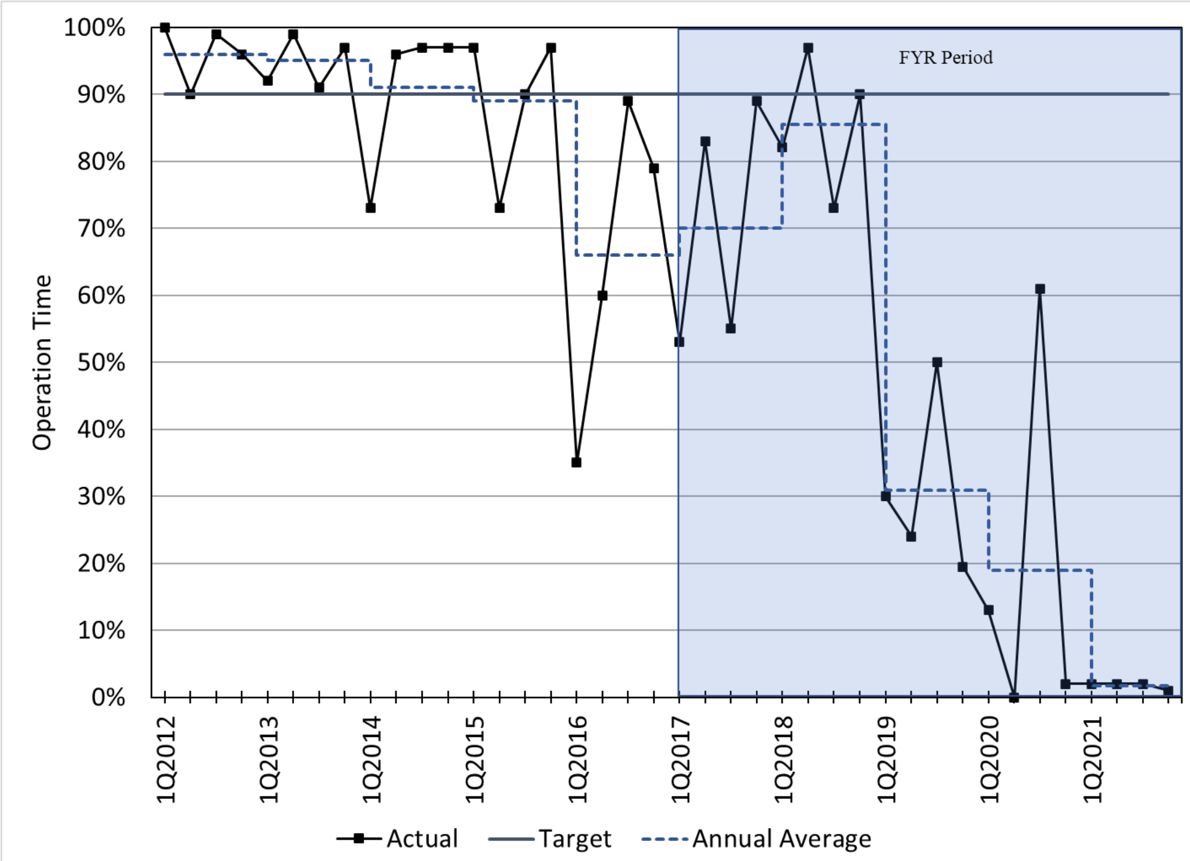


Figure 4.4 Operation Time for P1PTS, 2012 – 2021.

water from the system. The paging call-out system was updated and became operational in early 2022, and funding has been requested to install a new SCADA system at both P&T systems (CNS, 2022b).

The primary O&M challenge for the P1PTS is operation of the irrigation system for discharge of treated groundwater. As the P1PTS does not have reinjection capability, the system must be paused or shut down if the beneficial reuse system cannot accept treated discharge.

SEPTS Operation and Maintenance

Like the maintenance schedule for the P1PTS, the maintenance schedule for the SEPTS includes four categories: daily, weekly, monthly, and as-needed. Daily maintenance consists of checking all system components for leaks; checking EWs for proper communication and pressures; inspecting all systems for proper functioning of the gauges, flowmeters, level sensors, and transmitters; and checking abnormal motor or gear box noises in the extraction and injection wells. Weekly maintenance consists of inspecting extraction and injection wells for leaks and logging weekly reports/action taken to correct problems. Monthly maintenance includes inspecting water level transducers in the EWs and inspecting and cleaning EW boxes.

Operational data for the SEPTS is summarized in **Table 4.1**. The operational time for the SEPTS between 2012 and 2021 is shown on **Figure 4.5**. Operation time for the SEPTS in the current FYR was similar to that in the previous FYR period, and total groundwater extraction volume for the SEPTS in the current FYR period was approximately 20% less than in the previous FYR period. The total mass of RDX extracted during the current FYR period was approximately 30% less than in the previous FYR period and the total mass of Cr (VI) extracted during the current FYR period was approximately 25% less than in the previous FYR period.

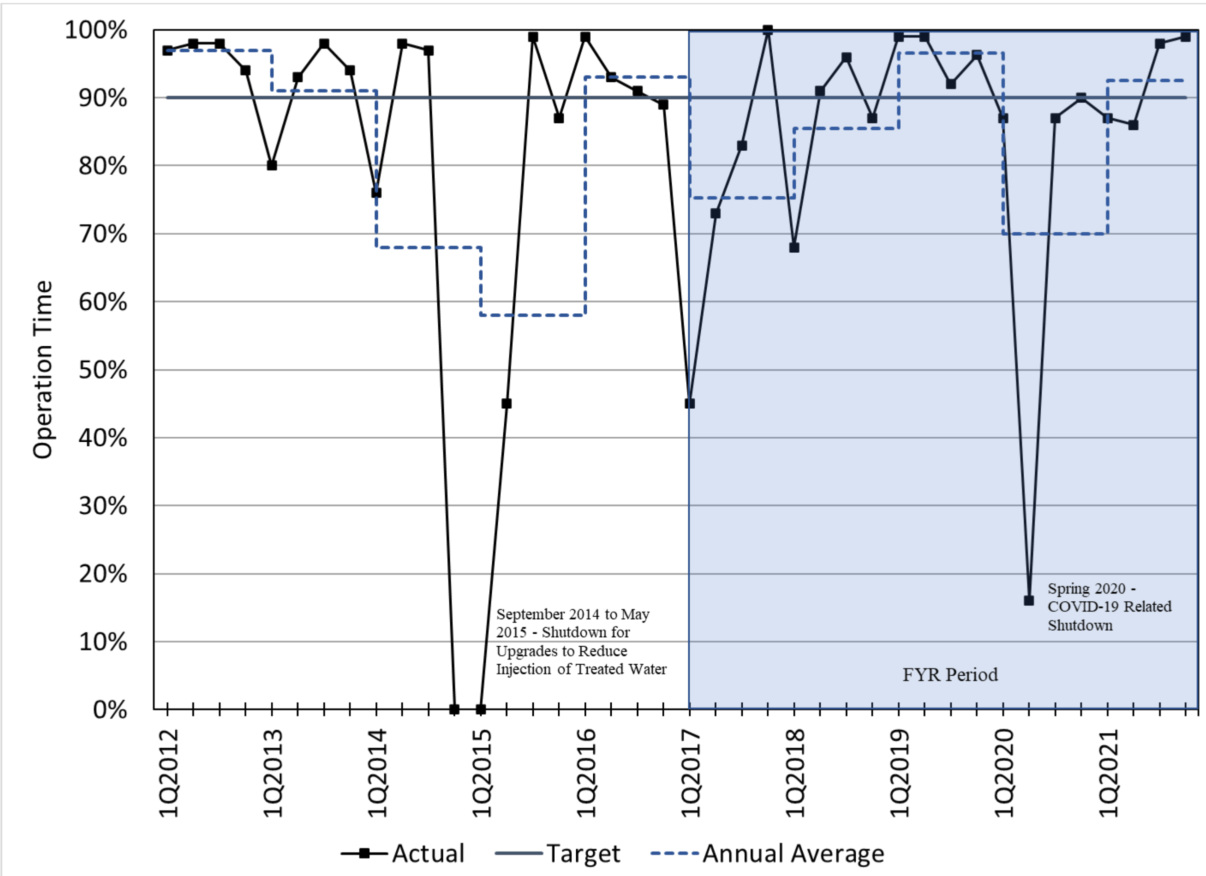


Figure 4.5 Operation Time for SEPTS, 2012 – 2021.

As needed maintenance includes EW redevelopment, lubrication on valve handles, inspection of oil level in all pumps, and the replacement of bag filters, resin beds, and GAC. More specific O&M protocols for the system are described in the *Southeast Pump & Treat O&M Plan*, (Caldwell, 2007). The O&M Manual for the SEPTS is updated periodically as components and protocols evolve.

Spent GAC is hauled to a Texas Class II landfill in Canyon, Texas for disposal. Low levels of Cr (VI) sorbed to the GAC prevent regeneration and reuse of GAC. Resin from the Cr (VI) and Boron ion exchange units is shipped to Wisconsin for regeneration and reuse.

The SEPTS was temporarily shut down in January 2019 for electrical line installation and again in spring 2020 because of COVID-19. Upgrades to the system included the tie-in of new wells PTX06-EW-83 through EW-88, located east of FM 2373, in May 2019. Electrical lines for these wells were cut by farming equipment in May 2020 and could not be repaired until April 2021.

Declining water levels in the area of PTX06-EW-83 through EW-88 have resulted in only the eastern three wells remaining operational.

An injection line that previously ran from the SEPTS to the Zone 11 ISB system was extended to an area east of Playa 2 to allow the injection of treated water through three new injection wells. This extension to the injection system was tested and became operational in March 2022 with a nominal capacity of 150 gpm. These wells allow for treated water to be injected when irrigation is unavailable for the beneficial reuse of treated water, and they also provide a method to inject the treated water without affecting the movement and capture of plumes in the southeast area. The location of these three new injection wells and the resulting perched groundwater mound that they could create northwest of the Zone 11 ISB may influence groundwater flow near the ISB in a manner that it may prevent COC bypass of the Zone 11 ISB to the northwest. Additionally, a center-pivot irrigation system is under construction east of FM 2373 to increase the capacity of the P&T systems to beneficially reuse treated water. The center-pivot system is planned to be operational by Summer 2023.

4.1.3 P&T Remedy Performance and Efficacy

The second FYR report (HGL and CNS, 2018) recommended optimization of the SEPTS and the P1PTS to enhance the capture of contaminant mass from the two systems. HGL completed the recommended optimization study in 2021 (HGL, 2021b). The optimization included modeling six scenarios using a calibrated single-layer numerical groundwater flow and contaminant transport model linked with Physics-Based Management Optimization (PBMO™). The goal was to optimize P&T system performance over a 20-year period and assess the effectiveness of each scenario in terms of meeting the RAOs. Each scenario simulated 10 years of future system operation and evaluated water and mass removal for RDX, hexavalent chromium, and perchlorate). A baseline scenario was included to simulate future system operation at 90% capacity under typical, non-optimized operations to facilitate comparison with results from each optimization scenario. Optimization scenarios focused on maximizing mass and water removal from the perched groundwater flow system, including the evaluation of potential new EW locations. Based on the optimization results for each scenario, EWs were ranked by contaminant mass removal and water volume extraction. Results showed that the existing systems as designed could remove about 67% of the COC mass included in the model simulations. The best optimization results, including limited new EWs where access and perched saturated thickness may yield viable extraction, increased mass removal to 75%. It also reduced mass moving toward perched boundary/extent by 49%. The remainder of the mass was inaccessible during this 10 yr period due to saturated thickness or access restrictions (Zone 11, Zone 12).

As noted above, the operation of the P1PTS and SEPTS was limited during the FYR period as a result of an irrigation system failure. Treated water from the SEPTS and P1PTS was discharged to Playa 1 under a permit issued by the State of Texas, and a limited amount of treated water from the SEPTS was reinjected because only one injection well was available during this FYR period. A summary of how treated water was discharged from the P1PTS and SEPTS during the FYR period is presented on **Figure 4.6.** When the P1PTS system was operated, the SEPTS extraction was reduced. In the latter part of the FYR period, full operation of the SEPTS was prioritized over P1PTS extraction to maximize plume capture, based on optimization modeling and observations

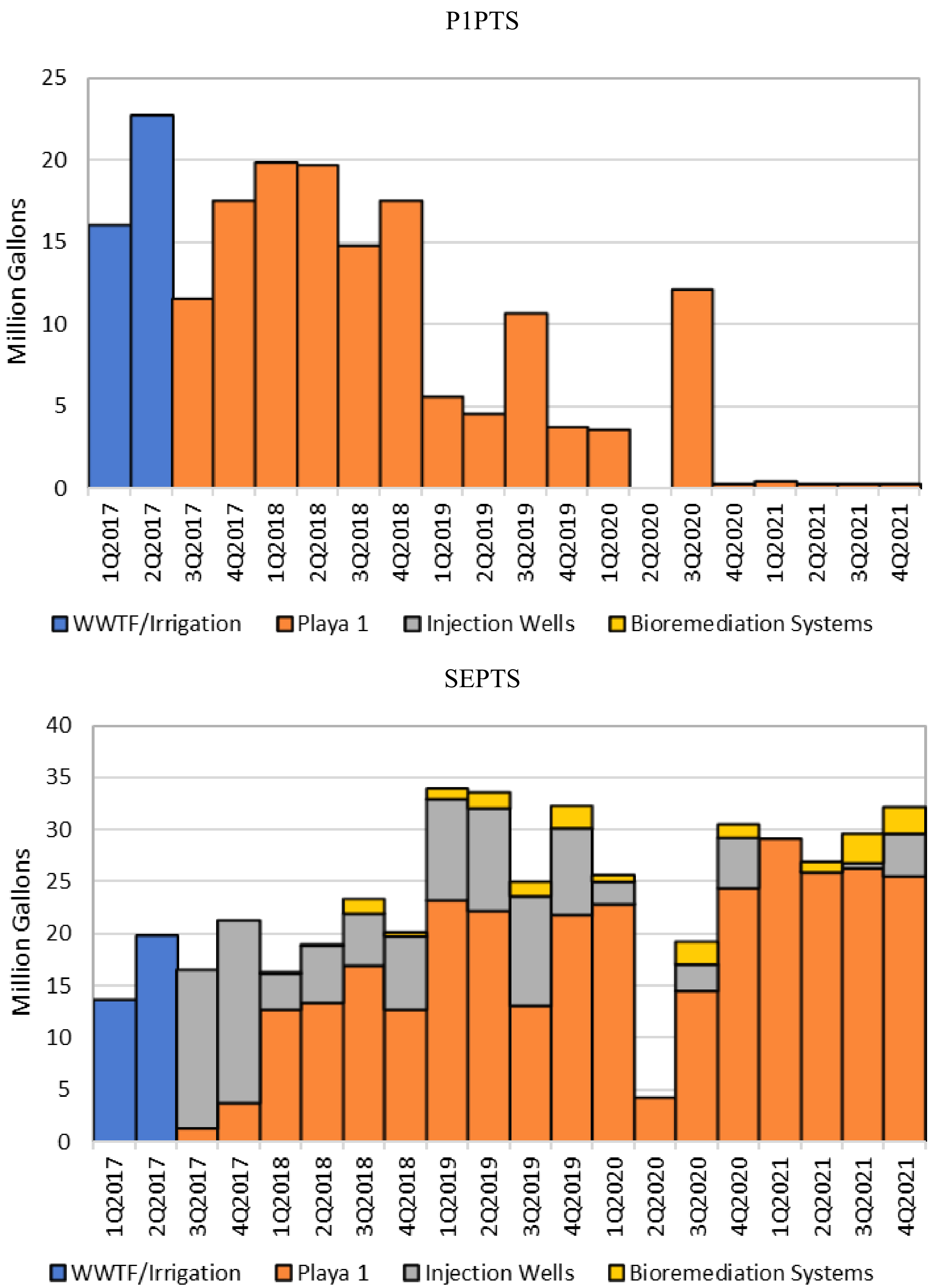


Figure 4.6 P1PTS and SEPTS Treated Water Discharge, 2017 – 2022.

of RDX plume capture. Additional system downtime resulted from a COVID-19 shut down in spring 2020, GAC change out, and other maintenance of the treatment plant and EWs. The remedial efficacy of the P&T systems has been evaluated by reviewing hydrographs of groundwater elevations and concentration trends of priority COCs at monitoring wells within the systems. In addition, estimates of total dissolved mass and movement of centers of mass of the plumes have been evaluated in the LTMO Report (**Attachment 11** to the third FYR report).

The P1PTS and SEPTS systems have been effective at reducing contaminant mass, and when operated as designed have been effective at reducing saturated thickness in the perched aquifer and at helping to control plume migration.

<u>Remedy Efficacy – Groundwater Elevations</u>

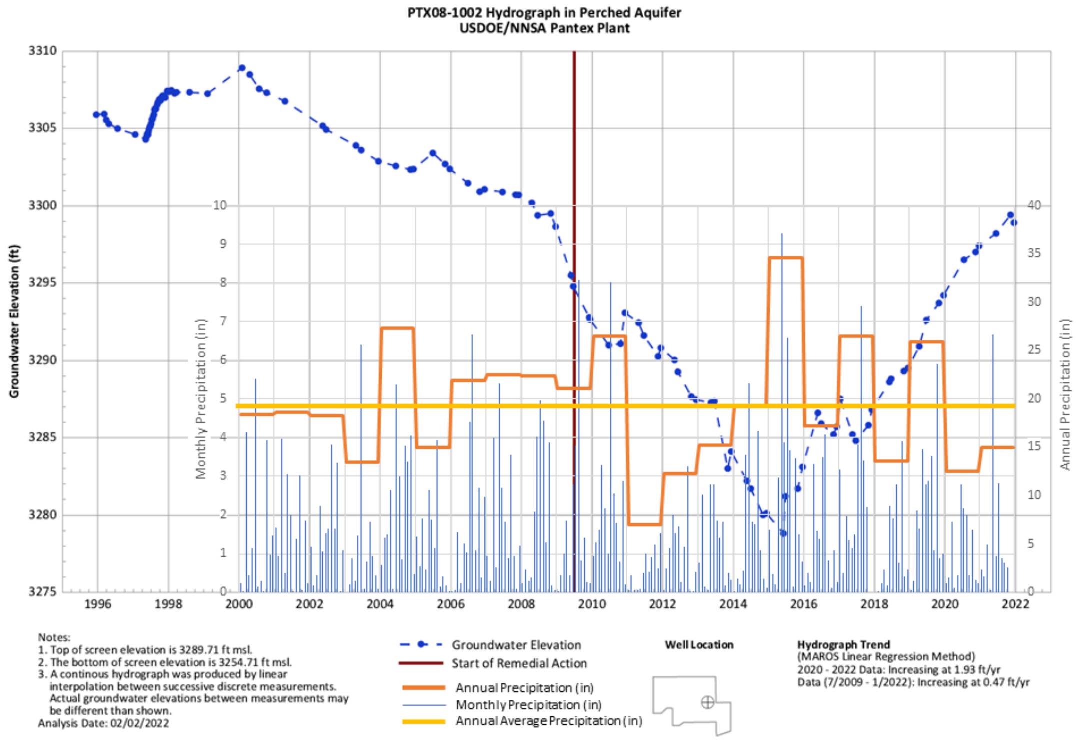
Figure 4.7 shows hydrographs for two wells: 1) PTX08-1002, located southeast of Playa 1 near P1PTS EWs; and 2) PTX06-1041, located adjacent to FM 2373 near SEPTS EWs. Observations include the following:

- At PTX08-1002, located near the P1PTS EWs, the groundwater elevation was decreasing slowly prior to 2009, before the remedy (including operation of the P1PTS) was fully implemented. Although the SEPTS was operating prior to 2009, most or all of the groundwater elevation decline prior to 2009 at PTX08-1002 was likely due to slow dissipation of a previously established groundwater mound near Playa 1 after historical wastewater discharge to Playa 1 was terminated. A relatively steeper groundwater elevation decline at PTX08-1002 began in approximately 2009 due to initiation of P1PTS groundwater extraction. Groundwater elevations at that well began rebounding in 2015, likely in response to a short-term increase in rainfall and associated natural recharge at Playa 1. A more substantial increase in groundwater elevation at PTX08-1002 occurred from late 2017 through 2021 due to a combination of discharge of treated water to Playa 1 (caused by irrigation system failures that were not resolved until 2022) and also due to reduced extraction at the P1PTS. It is not known how much of the groundwater elevation increase that began in late 2017 was caused by recharge of treated water to Playa 1 rather than by reduced P1PTS extraction.
- Conceptually, if P1PTS extraction had not been implemented in 2009, groundwater elevations near Playa 1 would have continued to decline from the historical mounding that resulted from past wastewater discharge to Playa 1. It is not known how much further the groundwater elevation would have declined in the absence of P1PTS extraction before leveling off upon reaching an approximate steady-state condition (i.e., in equilibrium with natural recharge at Playa 1).
- At PTX06-1041, located near the SEPTS EWs, the groundwater elevation was either steady or slightly decreasing prior to 2008, and then it sharply decreased in 2008. The sharp groundwater elevation decline after 2008 was most likely due to the increased SEPTS extraction that resulted from the addition of 15 new SEPTS EWs in 2007 (B&W Pantex, 2009c). The rate of decrease in the groundwater elevation at PTX06-1041 has slowed during the current FYR period, consistent with lower SEPTS extraction rates relative to the previous FYR period.

Figure 4.8, **Figure 4.9**, and **Figure 4.10** show the change in saturated thickness over several time periods. **Figure 4.8** is the change since before the start of remedial actions until 2020. The effectiveness of the SEPTS in the southeast is evident by a decline in perched saturated thickness of between 5 and 10 ft. North of Playa 1 and the P1PTS there is a slight increase in perched saturation between 2007 and 2020, but overall water levels have declined near P&T systems. **Figure 4.9** shows the change in saturated thickness since before the start of remedial actions until 2016 (slightly after water levels began to increase around Playa 1). The effectiveness of the P&T systems and limited discharge to Playa 1 are evident by water level decreases across much of the perched zone, especially around the P1PTS and SEPTS. In contrast, **Figure 4.10** shows the change in saturated thickness between 2016 and 2020 where increases in saturated thickness around Playa 1 are greater than 5 ft. The saturated thickness around the SEPTS was still declining in the southeast near the SEPTS. The increase in saturated thickness around Playa 1 illustrates the extent of impacts to perched water levels from reduced pumping at the P1PTS and discharges of treated water to Playa 1 since 2015.

One of the RAOs is to reduce the saturated thickness of the perched groundwater unit. As the groundwater elevation decreases toward the top of the FGZ (i.e., as the saturated thickness declines), it becomes harder to sustain extraction rates at target levels. Extraction rates conceptually need to decline if the goal is to maintain water levels at steady, low levels (i.e., where inflows from natural recharge are balanced by extraction plus other outflows). Near the SEPTS, where saturated thickness is less than 30 ft in all EWs, averaging between 5 and 20 ft, the eastern-most wells and EWs to the south on TTU property have already had their pumping rates reduced to prevent them from frequently cycling off due to limited saturation (CNS, 2022b).

Near Playa 1, however, the rise in groundwater elevations that occurred after 2015 has delayed the timing to achieve similarly low levels of saturated thickness in the P1PTS wells. Had the decline in groundwater elevations at PTX08-1002 from approximately 2009 to 2015 continued (i.e., no reduction in extraction rates and no discharge of treated water to Playa 1), the saturated thickness of the perched zone near Playa 1 would likely have reached approximately 15 ft by approximately 2018. If system operation moving forward is similar to that in the period from 2009 to 2015 (i.e., achieving target extraction rates and no discharge of treated water to Playa 1), the saturated thickness of the perched zone near Playa 1 could reach 15 ft by approximately 2030. Once the saturated thickness is low enough, P1PTS extraction rates conceptually would need to decline to maintain water levels at steady levels (i.e., where inflows from natural recharge are balanced by extraction plus other outflows).



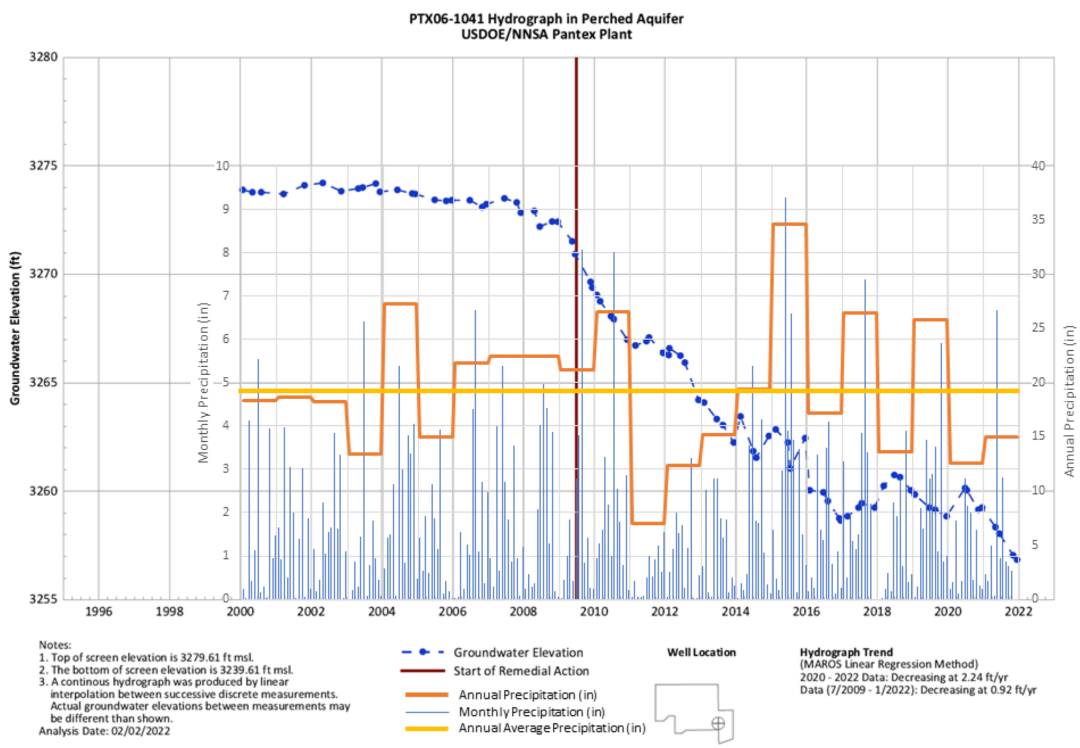


Figure 4.7 Hydrographs at Wells PTX08-1002 and PTX06-1041 with Precipitation Data from Amarillo Airport Overlayed.

(Additional hydrographs are presented in **Attachment 10** of the FYR report.)

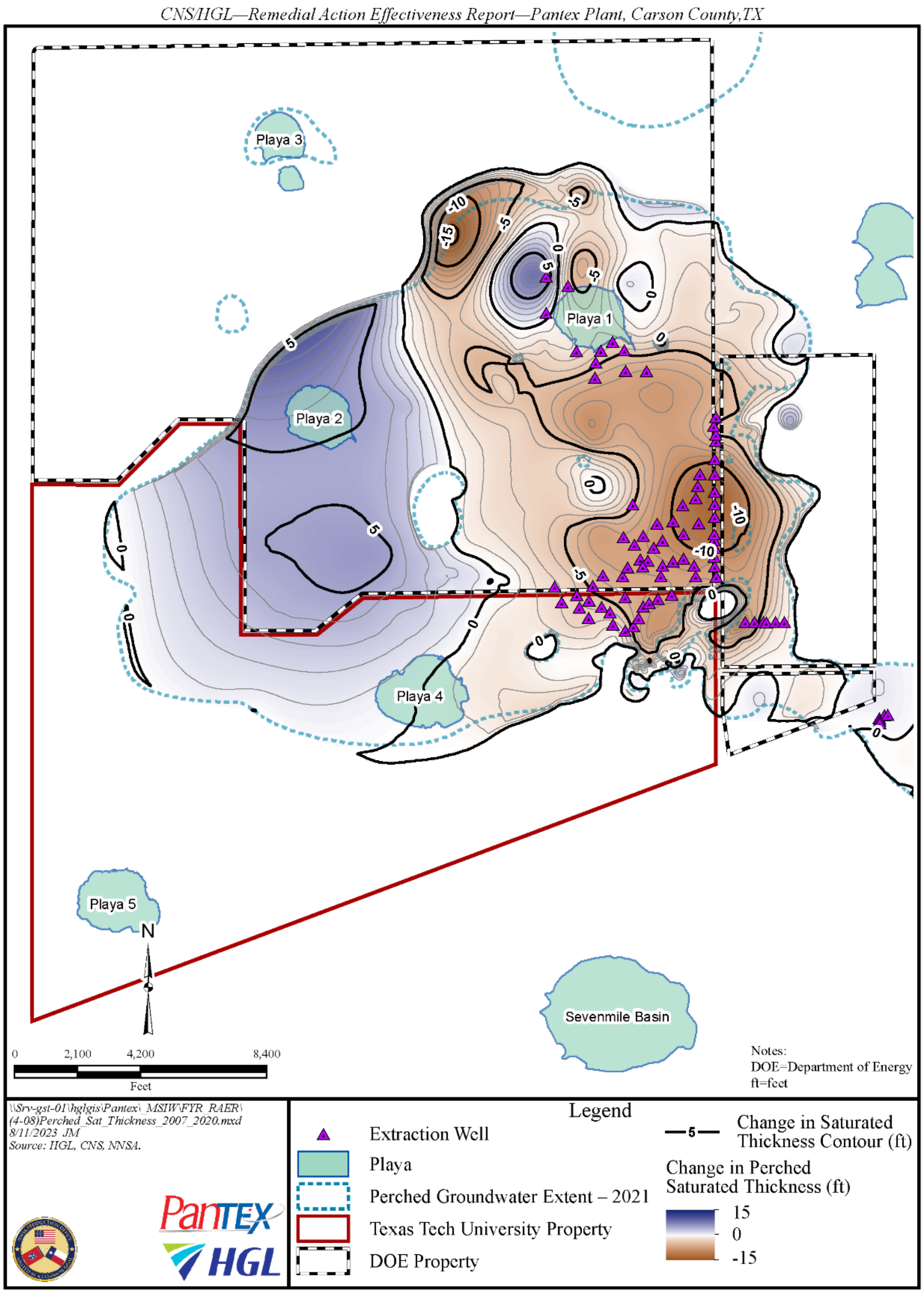


Figure 4.8 Change in Perched Saturated Thickness 2007 to 2020.

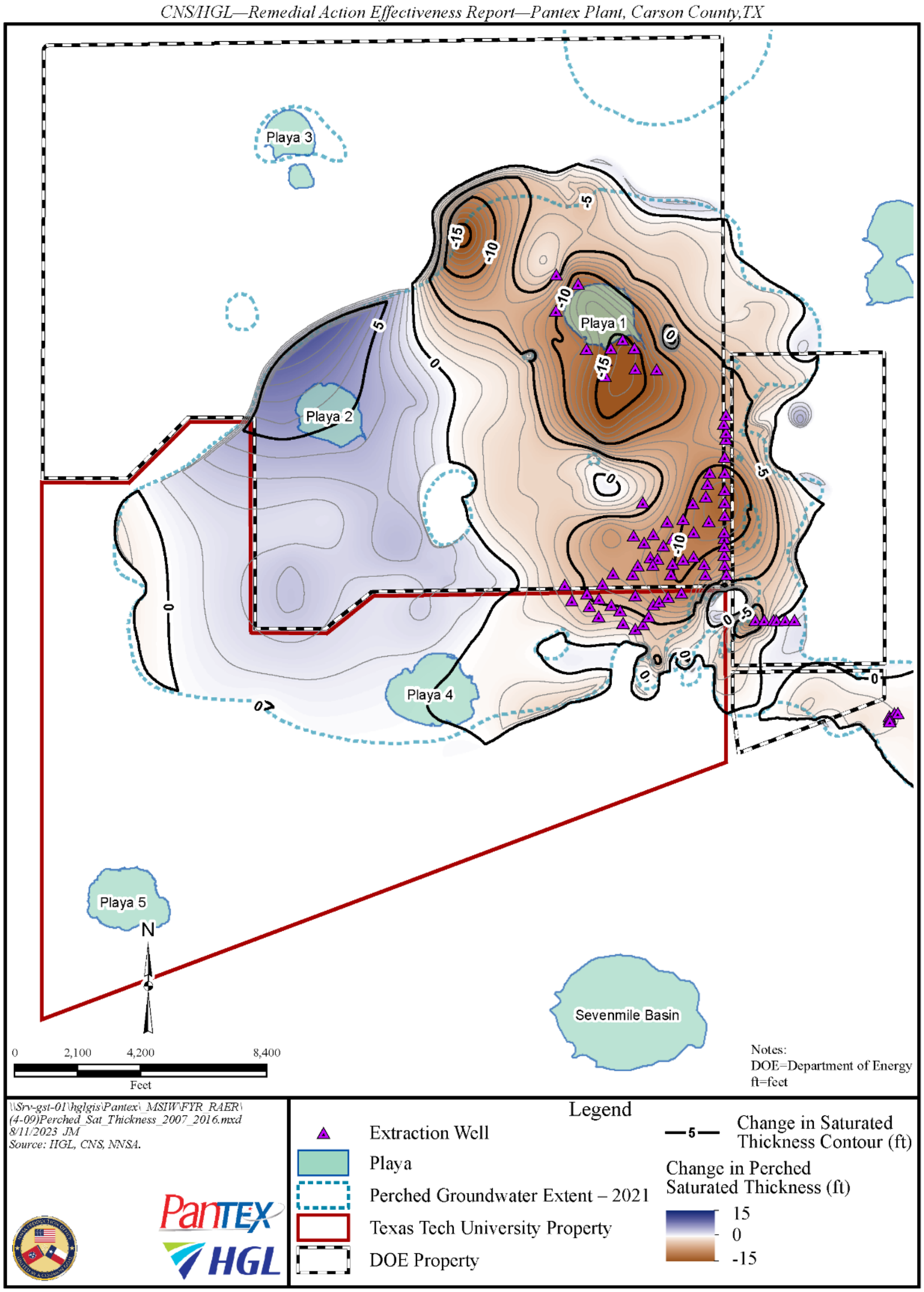


Figure 4.9 Change in Perched Saturated Thickness, 2007 to 2016.

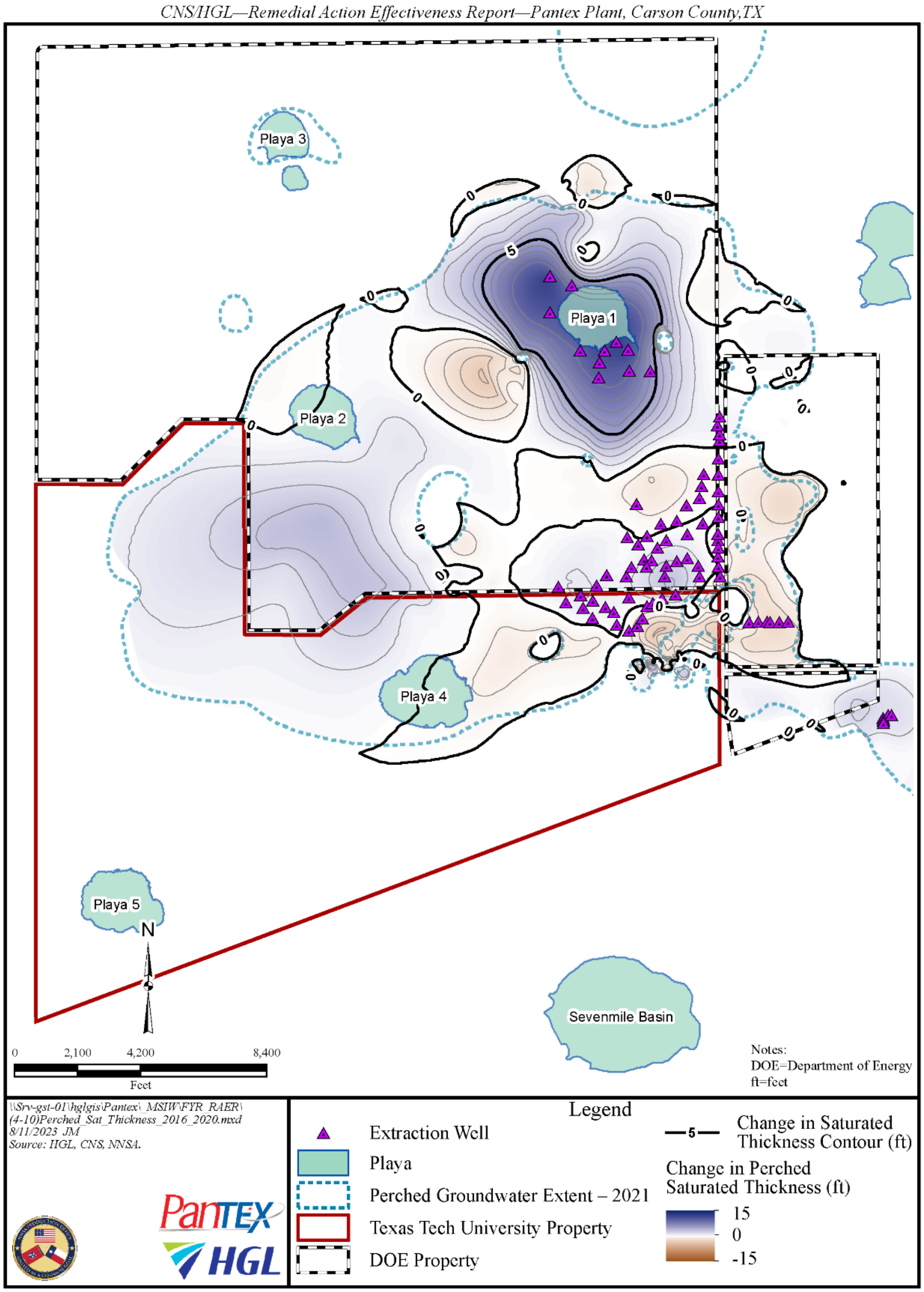


Figure 4.10 Change in Perched Saturated Thickness, 2016 to 2020.

Figure 4.11 illustrates changes over time in groundwater elevations and RDX concentrations at selected wells near Playa 1 and PTX06-1049 located further away from the playa. Observations include the following:

- Hydrographs for all the monitoring wells close to Playa 1 follow a similar pattern as described above for PTX08-1002.
- At PTX06-1049, located approximately 1 mile west of Playa 1, the hydrograph has a different pattern with a steady increase in groundwater elevation until approximately 2008 followed by a very slight decline. The slow increase in groundwater elevation at PTX06-1049 is consistent with hydrographs from other wells near Playa 2. Additionally, the strong increase in groundwater elevation after 2015 observed at wells near Playa 1 did not occur at PTX06-1049. These observations indicate that groundwater elevations as far west as PTX06-1049 are not substantively impacted by recharge changes at Playa 1 and/or groundwater extraction changes at the P1PTS.
- RDX concentrations increased at multiple monitoring wells near the P1PTS during the FYR period. For some wells there was just one measurement with a much higher concentration (e.g., 142 µg/L at PTX08-1002 in 2020 and 123 µg/L at PTX08-1001 in 2018), with much lower RDX concentrations before and after. At other wells, a more sustained increase in RDX concentrations occurred during the FYR period (e.g., PTX06-1050 northwest of Playa 1, PTX07-1P02 west-southwest of Playa 1, and OW-WR-38 northeast of Playa 1).
- The general increase in RDX concentrations observed near Playa 1 during the FYR period could have been caused by 1) contaminant mass being mobilized as groundwater elevations rose into previously desaturated material where residual contamination could be sorbed, 2) residual contaminant mass created by the discharge of treated water into Playa 1 from 2017 to 2021 being flushed from the vadose zone beneath Playa 1, and/or 3) changes in groundwater flow paths resulting from the change in extraction and playa recharge. It is difficult to determine the relative significance of those potential causes.
- The monitoring wells with the one-time spikes in RDX concentration during the FYR period were located relatively close to the EWs, whereas the more sustained RDX concentration increases were located farther from the EWs. It is possible that the timing of sampling relative to changes in EW extraction rates could have caused the relatively greater variability in observed concentrations at the monitoring wells closest to the EWs.
- Farther west at PTX06-1049, the RDX concentrations are much lower. However, a slight increase (from non-detect to approximately 2 to 3 µg/L) was observed a few years after P1PTS extraction began, and a further increase to approximately 6 µg/L occurred in 2021. This well, located approximately 1 mile from Playa 1, is downgradient from Playa 1 due to the radial groundwater flow from Playa 1. Given the large distance of the well from Playa 1, and the lack of a groundwater elevation increase during the FYR period at this location, the RDX concentration increases observed at this well are most likely due to relatively small changes in groundwater flow paths (and resulting changes in contaminant migration) that result from variations in playa recharge and/or P1PTS pumping.

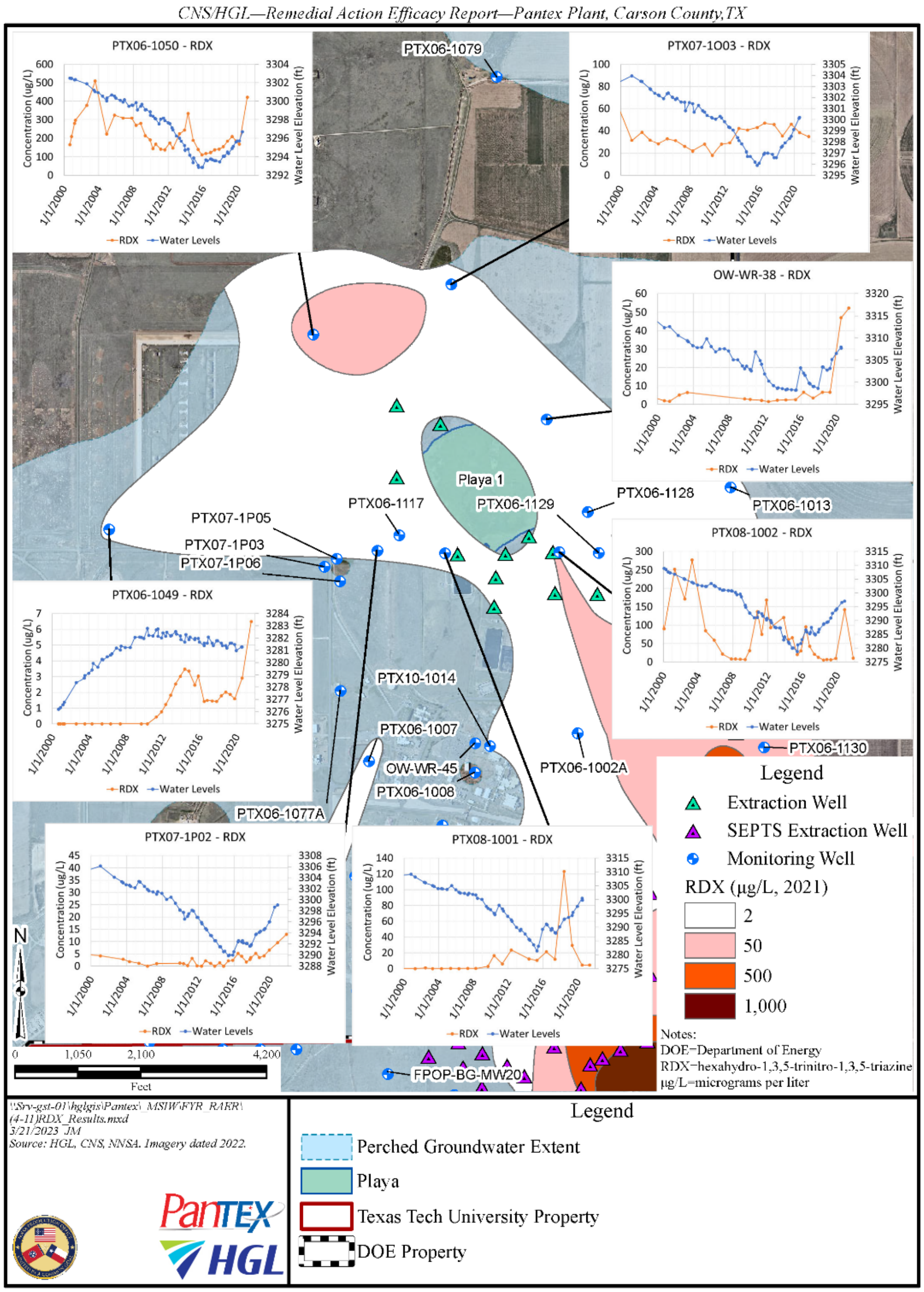


Figure 4.11 P1PTS Area Perched Aquifer Water Elevations and RDX Concentrations, 2000 – 2021.

Hydrographs for additional LTM program wells, including the perched unit and Ogallala Aquifer, are shown in **Attachment 10** of the FYR report. (Groundwater level statistical trend analysis for LTM wells was provided by CNS.)

P&T Remedy Efficacy – Mass Removal and Concentrations Trends

Table 4.2 presents annual contaminant mass removal for the two systems between 2017 and 2021 (CNS, 2022a). Approximately 96 percent of the HE mass removed was removed by the SEPTS system, primarily because the HE concentrations are higher in the SEPTS area than in the P1PTS area and because operation of the SEPTS was prioritized over operation of the P1PTS when discharge to the subsurface irrigation system was limited. **Table 4.3** presents the volumes of perched water extracted each year between 2017 and 2021. The volumes removed by the two systems were comparable in 2017 and 2018, but prioritization of the SEPTS resulted in much larger volumes of water being extracted from the SEPTS than from the P1PTS since 2019.

Table 4.2
P1PTS and SEPTS Contaminant Mass Removal, 2017 – 2021

	Mass Removal (lbs)									
	RDX + Other HEs					Cr (VI)				
System	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
P1PTS	29	37	8	5	0	NA	NA	NA	NA	NA
SEPTS	339	301	541	348	458	81	77	85	45	60

Table 4.3
P1PTS and SEPTS Water Volume Extracted

	Perched Water Extraction (millions of gallons)				
System	2017	2018	2019	2020	2021
P1PTS	67	72	25	16	1
SEPTS	72	77	122	83	124

The SEPTS is currently the more effective remedy for removing contaminant mass. For the SEPTS, mass extraction is primarily from wells in areas of higher saturated thickness, especially wells located within a depression in the FGZ, located just north and east of the SEPTS treatment building (**Figure 4.12)**. The wells with the highest mass extraction generally correlate with wells with the highest pumping rate (e.g., PTX06-EW-56), but they are generally located hydraulically upgradient from the highest HE plume concentrations (**Figure 4.13**). The highest RDX and DNT4A concentrations are generally located east of FM 2373 in an area where the saturated thickness is less than 10 ft. The low saturated thickness has limited the ability to extract mass from EWs PTX06-EW-83 through -88, located east of FM 2373 and upgradient of the SEISB Extension within an area of RDX concentrations exceeding 500 µg/L.

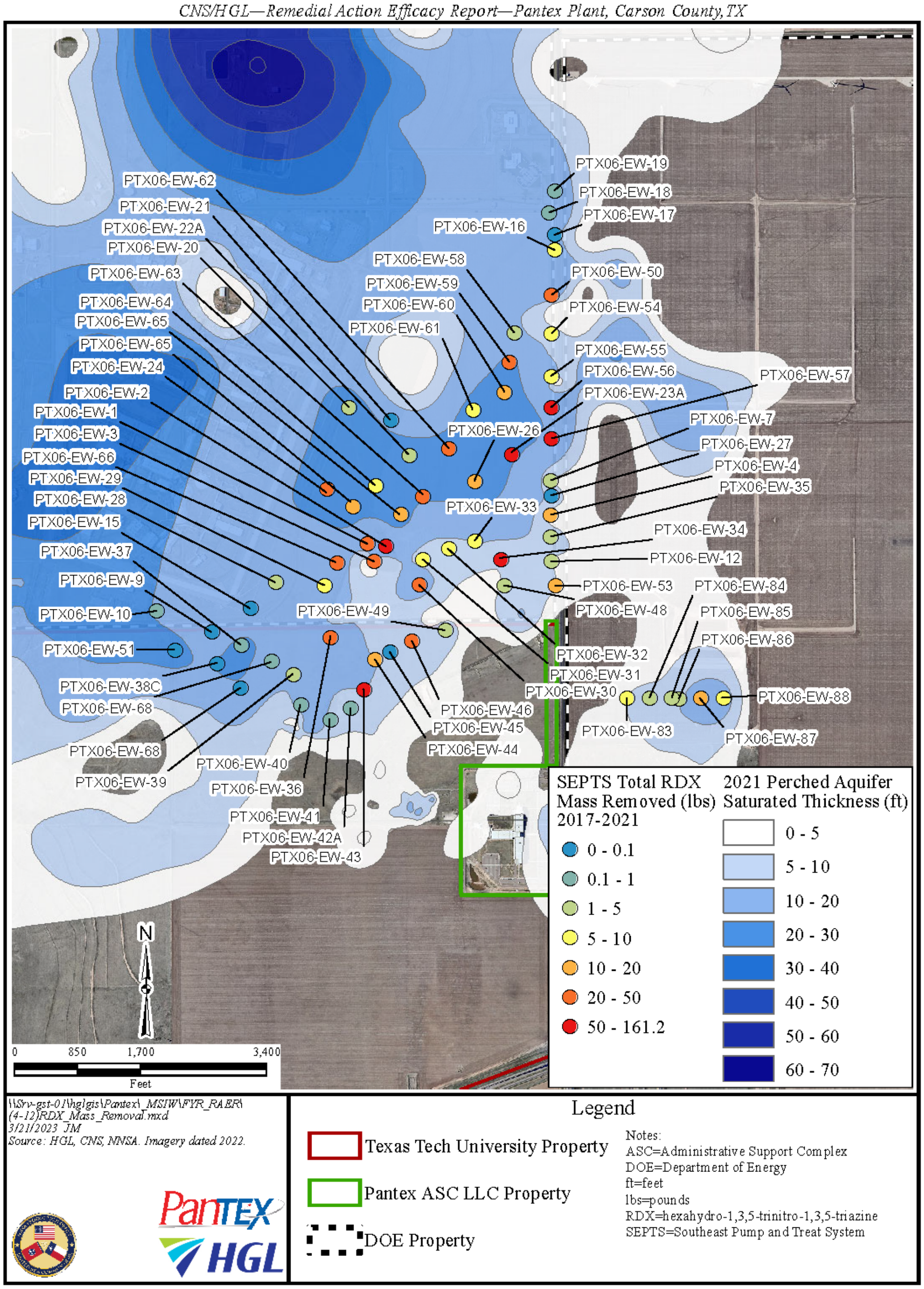


Figure 4.12 SEPTS Mass Removal by Well between 2017-2021 compared to 2021 Perched Aquifer Saturated Thickness.

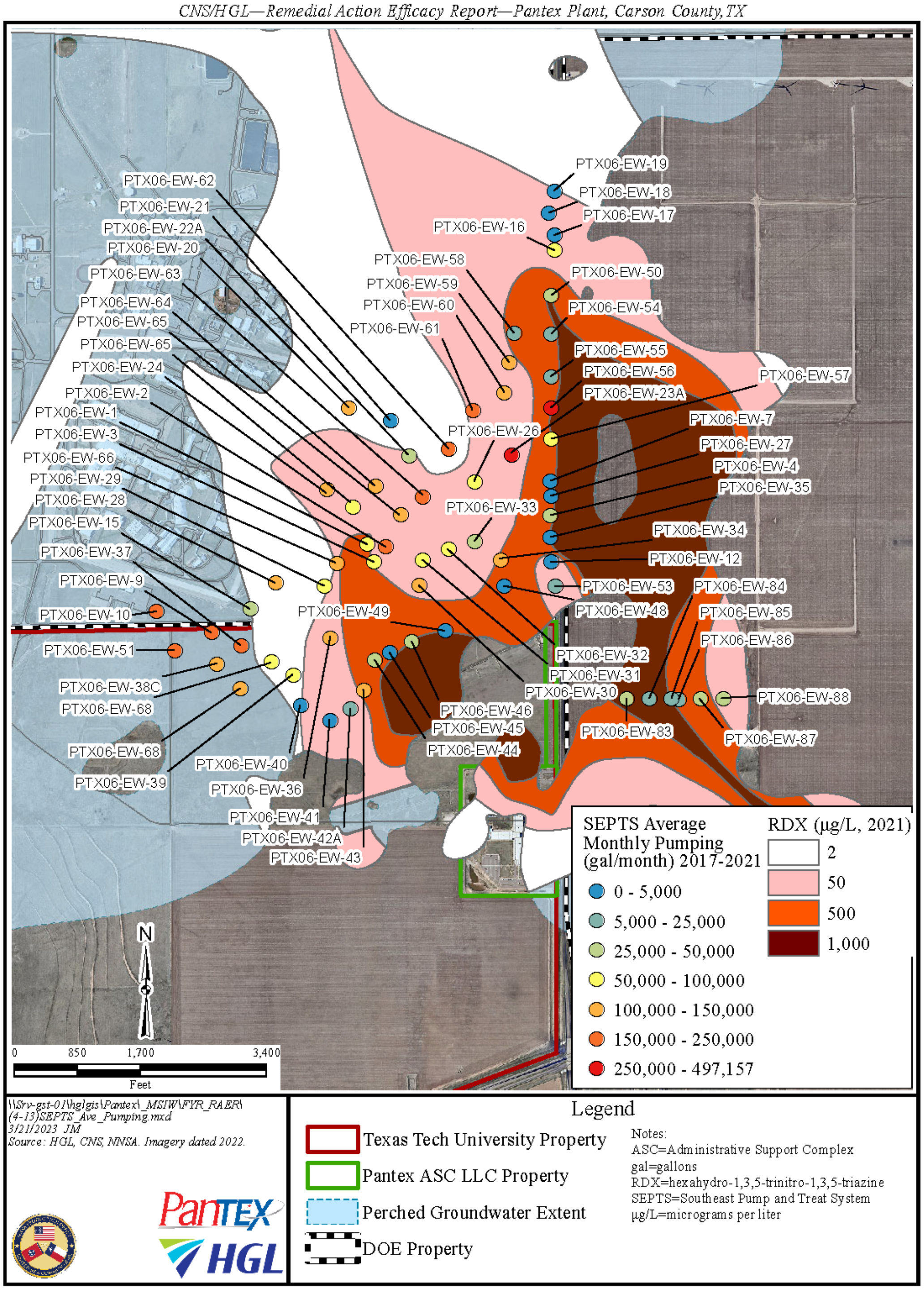


Figure 4.13 SEPTS Average Monthly Pumping (gal) Compared to 2021 RDX Isocontours, 2017 – 2021.

The LTMO Report (**Attachment 11** of the FYR report) presents detailed statistical concentration trend evaluations for priority constituents within the P1PTS and SEPTS areas. For RDX, the COC with the greatest distribution and magnitude above GWPS, most wells show statistically *stable* MK trend results (italics indicate a statistically calculated rather than visually identified trend) within the SEPTS area and statistically *increasing* MK trend results within the P1PTS area over the FYR period. Cr (VI) trends are primarily *decreasing* in areas where Cr (VI) concentrations in groundwater exceeds GWPS. Estimates of total dissolved RDX mass trend within the SEPTS area went from *variable* between 2012 and 2016 to *stable* in the most recent FYR period. Along with *stable* concentration trends in the Zone 12 source areas, these results indicate that contaminant mass has stabilized within and upgradient of the SEPTS. Estimates indicate that 99% of the RDX mass is in the downgradient portion of the plume rather than in the source area.

For the SEPTS, the center of RDX mass is along the eastern edge of the SEPTS, just east of FM 2373, with a *stable* trend in the most recent FYR period. The center of RDX mass has an *increasing* trend, with movement to the southeast if data from 2012 through 2021 is included. The longer-term trend of the RDX center of mass moving to the southeast indicates that the plume mass has moved as a result of extracting mass within the SEPTS area and as a result of mass moving between capture zones in the SEPTS to the southeast. For the Cr (VI) plume, the center of mass is moving from south of Zone 12 to the east.

Most monitoring locations in the P1PTS area either have low or no detections of site COCs. Overall, the magnitude and extent of contamination near Playa 1 is less than to the southeast toward the SEPTS. One exception is PTX06-1050, located northwest of Playa 1, which monitors groundwater with historically high concentrations of COCs. As illustrated on **Figure 4.11**, RDX trends had been *decreasing* at this well, but over the current FYR period the trend has been *increasing* to as high as 421 µg/L (approximately one order of magnitude or more higher than other monitoring wells near Playa 1). Well PTX06-1136, downgradient (to the west) of PTX06-1050, has been dry since 2017, indicating that the RDX in perched groundwater is not expanding to the northwest. Wells along the northeastern extent of the perched unit generally show *stable* trends, indicating that the plume is not migrating in the northern area. However, RDX concentrations increased substantially in the current FYR period at OW-WR-38, located northeast of Playa 1 (see **Figure 4.11**), to more than 50 µg/L in 2021. As discussed in **Section 4.1.3.1**, increases in RDX concentrations near Playa 1 during the current FYR period were likely caused by the combination of reduced P1PTS extraction rates and the discharge of treated water from the WWTF to Playa 1.

<u>P&T Remedy Efficacy – Horizontal Hydraulic Capture</u>

Annual reports present simulated capture zones for P1PTS and SEPTS based on average extraction rates at the EWs. Generally, the P1PTS captures water from beneath Playa 1. The modeled capture was more limited in recent years as a result of reduced extraction rates in the P1PTS. The SEPTS generally captures a large area extending from south of Zone 12 to FM 2373 and up to approximately the main gate. The potential for gaps in capture provided by the SEPTS EWs is greater when SEPTS extraction rates are lower.

Contaminant mass remains in perched groundwater and some contaminated perched groundwater continues to migrate downgradient past the SEPTS toward the SEISB system and toward the

SEISB Extension and Offsite ISB. This area of the perched unit has a saturated thickness typically below 15 ft, suggesting that additional EWs would not be effective at limiting the plume extent. Declining groundwater levels in SEPTS EWs have resulted in intermittent operation of those wells, which has decreased the ability of the SEPTS to contain perched groundwater. However, the reduced groundwater levels have also reduced the driving head through the FGZ, resulting in reduced vertical movement and reduced lateral hydraulic gradients, which in turn decrease lateral movement of perched groundwater. While concentrations at individual wells are *increasing*, the total mass of COCs, relative to the areas of higher saturation, is limited by the lower volume of water. Continued reduction of COC mass and declining water tables within the SEPTS could cause the proportion of mass beyond the SEPTS to increase relative to the mass within the SEPTS area. This is evident by the location of the RDX center of mass shifting to the south and east since the previous FYR period. The operation of the SEISB Extension and the Offsite ISB (installation is ongoing), will treat COCs that move beyond the SEPTS in these areas. Elevated concentrations of RDX do occur in thin zones of saturation east of FM 2373 and beyond the capture zone of the current SEPTS. Optimization results (HGL 2021b) indicate additional mass may be removed by new wells installed in areas of greatest saturated thickness (still <15 feet) or through installation of an ISB system upgradient of the SEISB extension to reduce potential mass migration to the southeast towards the facility boundary.

Perched groundwater level data also show a groundwater flow divide that separates flow to the east-southeast beneath Zone 12 from flow to the south-southwest beneath Zone 11. The location of the flow divide has been migrating to the west due to remedy pumping. As this divide migrates to the west, COCs associated with Zone 11 sources (i.e., further to the west) may increasingly be pulled into the SEPTS capture zone.

P&T Remedy Efficacy – Vertical Migration

The P1PTS and SEPTS have reduced the saturated thickness of the perched zone since the start of remedial operations (**Figure 4.8**). The reduction in saturated thickness throughout the area of influence of the two P&T systems has reduced vertical gradients throughout the extent of perched groundwater contamination and therefore reduced vertical migration of contaminants through the FGZ. However, there are few Ogallala Aquifer monitoring wells in areas of perched groundwater contamination to confirm that migration is not occurring. Ogallala Monitoring wells located around the edges of perched saturation do not indicate that contamination from perched groundwater is migrating through the FGZ, with the exception of PTX06-1056.

Ogallala well PTX06-1056, located in an area with no perched unit saturation southeast of the SEPTS has had *increasing* concentrations of COCs during the current FYR period. Concentrations of DNT4A approaching the GWPS indicate that migration of site COCs from the Perched Aquifer to the Ogallala Aquifer has occurred to the southwest of PTX06-1056 (i.e., in the direction that is upgradient of PTX06-1056 based on groundwater flow direction in the Ogallala Aquifer). These impacts are likely related to contamination that was already beyond the influence of the SEPTS and SEISB in an area where the FGZ is more permeable. Modeling for the Corrective Measures Study predicted that the HEs would reach the Ogallala Aquifer in the area of PTX06-1056 in both the baseline scenario and to a lesser extent in the remediation scenario between years 12 and 30 (2021–2039) (SAIC, 2007). HEs were not consistently detected in any other Ogallala monitoring well during the FYR period. Additional Ogallala monitoring wells are planned to acquire additional data in this region of the Ogallala Aquifer and delineate HE impacts if existence of a developing plume is confirmed.

4.1.4 P&T Recommendations

Saturated Thickness Near Playa 1

Perched aquifer groundwater elevations have increased substantially near Playa 1 during the current FYR period due to discharge of treated water to Playa 1 coupled with reduced P1PTS extraction. Increased groundwater elevations at individual wells near Playa 1 were illustrated on **Figure 4.11.** Saturated thickness of the perched unit as of 2021 (**Figure 4.14)** has increased to 50 to 70 ft or more in some areas near Playa 1, much higher than near the SEPTS, where saturated thickness has continued to decrease. Changes in saturated thickness between 2016 and 2020 are shown in **Figure 4.10**.

The increased saturated thickness undermines the RAO of reducing saturation in the perched zone. Construction of a new center-pivot irrigation system is planned to be operational in Summer 2023. The center-pivot irrigation will supplement the existing irrigation system and will enhance the capacity for the beneficial reuse of treated water without recharging the perched zone. It is recommended that the practice of discharging treated water to Playa 1 be minimized once the new irrigation system is operational (implemented only during special circumstances[2]) and that the P1PTS should return to using extraction rates consistent with target rates. This will allow groundwater elevations in the perched unit near Playa 1 to decrease again, consistent with RAOs. It is expected that rates of groundwater elevation decline consistent with those observed from approximately 2009 to 2015 near Playa 1 (see **Figure 4.9** and **Figure 4.11**) will be re-established under those conditions resulting in the saturated thickness reaching 2015 levels around Playa 1 in approximately six years (by 2029). It is further recommended that efforts to improve/maximize the ability of the irrigation system, and of the SEPTS reinjection system (southeast of Playa 2), to discharge treated groundwater be prioritized. Additional O&M protocols, such as freeze prevention, or maintenance of backup parts for the irrigation system may be pursued as part of those efforts.

SEPTS and P1PTS Operation After Dewatering Reaches Practical Limits

Operation of the SEPTS and P1PTS at target extraction rates (without discharge of treated water to Playa 1) has been demonstrated to reduce saturated thickness both around Playa 1 and near the SEPTS because net outflows (i.e., mostly pumping) exceed net inflows (i.e., natural recharge) under those conditions. However, saturated thickness will eventually become too low to allow the EWs to continue to operate at the current target, which is 90% of system treatment or well field capacity (whichever is lower). Saturated thicknesses may already be near these critical levels in some portions of the SEPTS area, resulting in EWs cycling on and off.

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[2] In the case where the capacity of injection and irrigation systems are not sufficient to meet treated water discharges, prioritizing extraction at the SEPTS and recharge of treated water at Playa 1, as was done during the current FYR period, is a reasonable approach to maintain capture at the SEPTS and to continue removing contaminant mass. However, it should also be a high priority to limit the duration of those events (e.g., keep spare parts for irrigation system on hand).

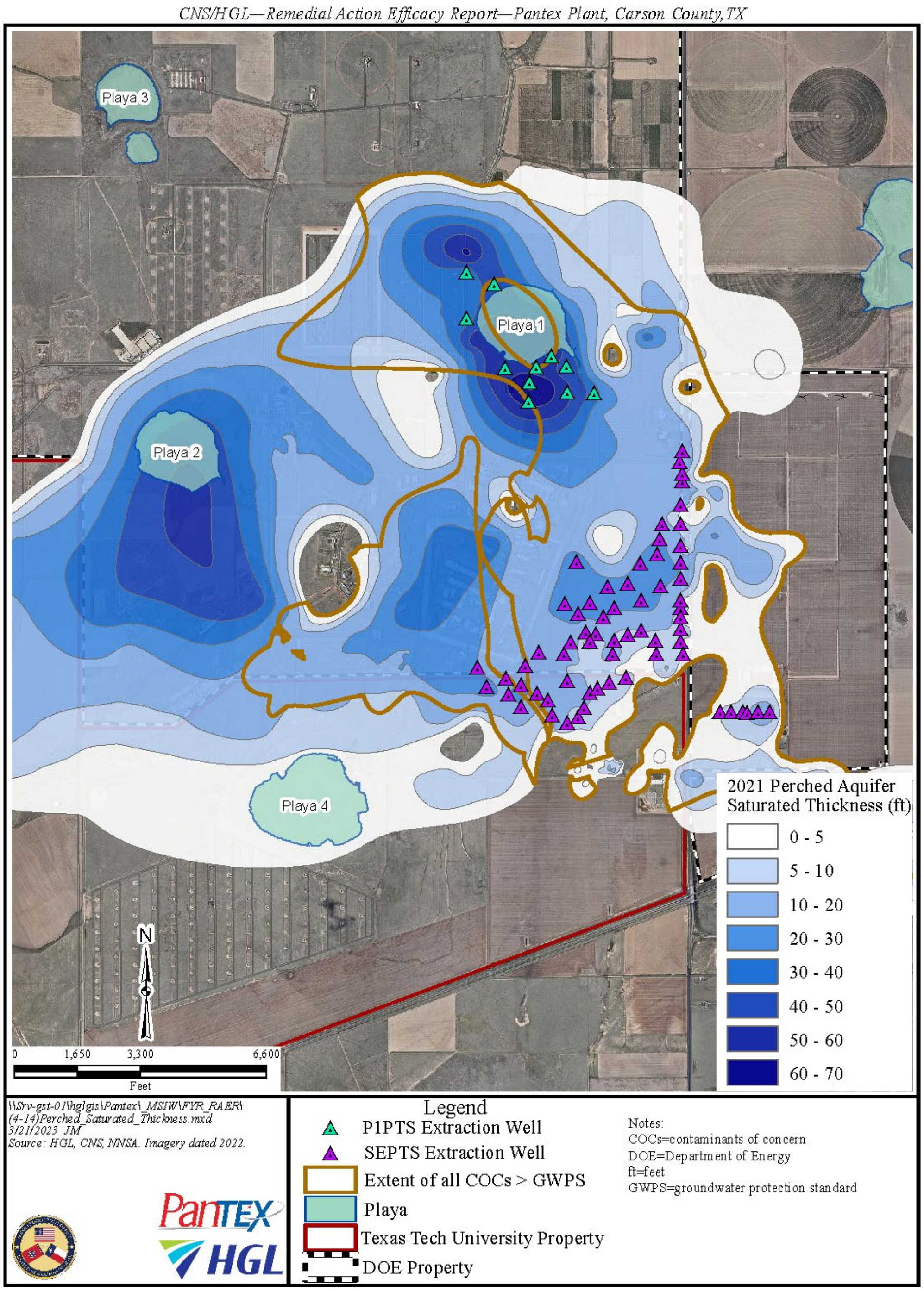

Figure 4.14 Saturated Thickness in Perched Groundwater.

It is recommended that operational goals for extraction be modified/clarified to address when and how operational goals will change when the saturated thickness becomes sufficiently low. The change in the goal could potentially be based on reaching target groundwater elevations in specific locations, and then reducing extraction rates to maintain those groundwater elevations (i.e., with low level controls in EWs set accordingly). Such an approach would allow EWs to operate for longer periods without cycling off. An alternate approach would be to pump as much as possible until the well cycles off, with level control set to the lowest feasible elevation at each well relative to pump intake elevation.

Developing a planned approach to transition away from the current extraction rate goal, when those extraction rates can no longer feasibly be met, might also include consideration of the following: 1) the optimum gap between low and high level controls in each well with respect to cycling; 2) the potential for different pumps that allow water intake at lower elevations when replacing existing pumps that have failed; 3) a plan for EW redevelopment based on decreases in specific capacity over time to improve extraction rates in wells that have sufficient water levels for sustained pumping; and 4) the potential that EWs without a VFD (if any) would benefit from VFD implementation or a smaller capacity pump when replacing existing pumps that have failed.

RDX Impacts in Groundwater Northwest/North/Northeast of Playa 1

Increased RDX concentrations were observed during the current FYR period in monitoring wells located northwest and northeast of Playa 1. RDX concentrations increased to as high as 421 µg/L at PTX06-1050 northwest of Playa 1 and as high as 52 µg/L at OW-WR-38 northeast of Playa 1 (see **Figure 4.11**). There are likely similar (and potentially higher) RDX concentrations in other locations adjacent to and/or between these monitoring wells, but there are no monitoring wells to provide further characterization. There is one P1PTS EW (PTX-EW-70) northwest of Playa 1, and the RDX concentration at that EW ranged from approximately 26 to 40 µg/L in the current FYR period.

RDX concentrations should continue to be monitored closely in PTX06-1050 and OW-WR-38 to determine if concentrations and perched groundwater levels remain elevated over the next FYR period after the center-pivot irrigation system is operational. If concentrations remain elevated or continue to increase, additional monitoring wells and extraction wells may be beneficial. Potential areas of interest include those to the south and east of PTX06-1050 and to the northwest and southeast of OW-WR-38. Based on that characterization, the potential need for expanded groundwater extraction in those areas could then be considered.

In general, the recent RDX concentrations at the locations discussed above exceed the RDX concentrations observed in locations immediately east and south of Playa 1, where most P1PTS EWs are located. Currently there is only one P1PTS EW north of Playa 1 (PTX06-EW-70). If widespread RDX impacts are present in areas northwest, north, and northeast of Playa 1 at concentrations similar to those observed at PTX06-1050 and OW-WR-38, then adding groundwater extraction in those areas may be appropriate based on remedy goals (removing contaminant mass and reducing saturated thickness of perched groundwater in impacted areas).

Prioritization of Locations for Groundwater Extraction

Much of the groundwater extraction and mass removal currently achieved by the SEPTS system is from perched aquifer wells located in a depression in the top of the FGZ (i.e., PTX06-EW-60, -61, -62, -63, and -56). Because these wells are located within a depression, the saturated thickness is higher than in surrounding wells, and therefore the available head above the EW pumps allows for higher extraction rates in these wells. This area of higher saturated thickness (20 to 30 ft) is shown on **Figure 4.14**. Reduction in saturated thickness to below 10 ft, limits the operation of EWs and reduces their ability to remove mass and control plume movement. Much of the higher RDX concentrations in groundwater in 2021 were in wells beyond the most productive SEPTS wells, with concentrations greater than 1,000 µg/L located primarily in areas with a saturated thickness of less than 10 ft east of FM 2373 or south of SEPTS EWs PTX06-EW-44 through -46 (**Figure 4.12** and **Figure 4.13**).

The 2021 P&T optimization effort (HGL, 2021b) permitted EWs to pump at their maximum rate possible without exceeded P1PTS or SEPTS capacity, to maximize mass removal and minimize plume expansion. The effort assumed the center-pivot irrigation system was fully operational, meaning no water was returned to the perched groundwater flow system. None of the more than 250,000 simulations across all the scenarios resulted in attainment of RAOs, even with addition of new EWs. This is due in part to much of the contaminant mass being inaccessible via pump and treat. For example, much of the RDX plume exists in areas of limited perched groundwater saturation (<15 ft) and cannot be effectively recovered with pump and treat technology. Other areas of the RDX plume are inaccessible due to Plant operations. The pump and treat optimization effort demonstrated that incremental improvement of mass removal and mitigation of contaminant migration are possible; however, the cost/benefit for installation of new extraction wells should be evaluated prior to any new well installation. Information on individual well pumping rates and overall system operation can be used to guide efforts to maximize system performance in terms of water and contaminant mass removal once the center-pivot irrigation system becomes fully operational. Prioritization of existing and new wells from the best scenario (scenario 5d) is reproduced in **Table 4.4** (Table 4.13, HGL, 2021b). The wells are grouped into three categories (new, existing P1PTS, and existing SEPTS), and within each of those categories the wells are ordered based on ranking of estimated total mass removed. Rankings of each well for removal of groundwater and for removal of specific contaminants are also included. The new wells shown in **Table 4.4** are based on the understanding of perched groundwater conditions (e.g., saturated thickness, hydraulic properties and, COC concentrations). Actual conditions during new well installations may differ such that the predicted groundwater and mass recovery may not be possible, especially in areas where the saturated thickness is less than 15 feet.

It is recommended that prioritization of EWs continue to be updated over time based on results of ongoing optimization (such as HGL, 2021b) and as new information becomes available. Prioritization may vary depending on where new EWs (if any) are added and how those wells actually perform with respect to removal of groundwater and contaminant mass.

Evaluated Potential for PFAS Impacts in Treated Water

If perfluoroalkyl and polyfluoroalkyl substances (PFAS) are present in treated groundwater, the discharge of treated water for irrigation (including the planned center-pivot irrigation system)

Table 4.4
Priority Extraction Wells Identified by *Groundwater Pump and Treat System Optimization Report*, Table 4.13 (HGL, 2021b)

Well Identification	P&T System	Location		Rank Water Removed	Rank Mass Removed			
		Easting (ft)	Northing (ft)		RDX Rank	Cr (VI) Rank	Perchlorate Rank	Total Mass Rank
EW4-5a	New - SEPTS	East of FM 2373		38	2	24	58	5
EW4-10b	New - SEPTS	South of Zone 12 near east end of Zone 11 ISB		8	48	12	1	6
EW4-2a	New - P1PTS	Northwest of Playa 1		3	4	55	45	9
EW4-6a	New - SEPTS	East of FM 2373		47	5	34	55	10
EW4-5b	New - SEPTS	East of FM 2373		51	6	39	52	11
EW4-10a	New - SEPTS	South of Zone 12 near east end of Zone 11 ISB		7	42	14	4	12
EW4-7c	New - SEPTS	East of FM 2373, just north of county road		46	12	30	54	20
EW4-13a	New - SEPTS	Just west of FM 2373, west of PTX06-EW-27		34	17	35	35	23
EW4-12a	New - SEPTS	East of Zone 12, western margin of SEPTS wells		24	46	7	8	26
EW4-7b	New - SEPTS	East of FM 2373, just north of county road		40	20	31	56	28
EW4-7a	New - SEPTS	East of FM 2373, just north of county road		59	30	38	57	40
EW4-10c	New - SEPTS	South of Zone 12 near east end of Zone 11 ISB		15	53	21	6	41
EW4-14a	New - SEPTS	South of PTX06-EW-68		55	60	8	19	42
EW4-3a	New – P1PTS	Southeast of Playa 1		16	31	47	18	43
EW4-4b	New - SEPTS	Southeast of Playa 1		31	34	45	43	46
EW4-8a	New - SEPTS	East of Zone 12, western margin of SEPTS wells		42	52	20	25	58
EW-70	P1PTS	638141.284	3765454.51	9	21	57	47	29
EW-75	P1PTS	640751.107	3763004.667	6	25	54	24	35
EW-74	P1PTS	640354.9885	3763274.655	4	28	52	20	38
EW-79	P1PTS	640784.5708	3762323.437	10	33	50	15	44
EW-78A	P1PTS	639800.79	3762590.92	1	44	49	11	48
EW-69	P1PTS	638869.8611	3765146.406	14	37	58	41	50
EW-73	P1PTS	639962.2275	3762980.084	2	38	51	21	51
EW-72	P1PTS	639152.158	3762973.947	5	43	53	23	54
EW-71	P1PTS	638139.5712	3764250.42	18	45	60	39	55
EW-81A	P1PTS	639773.41	3762095.77	20	56	48	13	56
EW-24	SEPTS	640723.4598	3756776.597	17	14	1	14	1
EW-10	SEPTS	638428.5403	3755127.077	11	55	4	2	2
EW-56	SEPTS	643760.2929	3757871.453	22	1	37	37	3
EW-65	SEPTS	641077.7845	3756531.534	2	7	2	10	4
EW-57	SEPTS	643761.8614	3757449.259	23	3	36	36	7
EW-51	SEPTS	638669.6492	3754608.824	13	58	5	3	8

Table 4.4 (continued)
Priority Extraction Wells Identified by Groundwater Pump and Treat System Optimization Report, Table 4.13 (HGL, 2021b)

Well Identification	P&T System	Location		Rank Water Removed	Rank Mass Removed			
		Easting (ft)	Northing (ft)		RDX Rank	Cr (VI) Rank	Perchlorate Rank	Total Mass Rank
EW-50	SEPTS	643762.509	3759389.004	25	8	44	44	13
EW-68	SEPTS	639564.5929	3754088.324	26	57	3	12	14
EW-88	SEPTS	646083.18	3753954.3	37	9	28	50	15
EW-43	SEPTS	641222.6728	3754076.038	39	11	11	28	16
EW-44	SEPTS	641375.7395	3754473.812	44	16	10	26	17
EW-67	SEPTS	639248.5091	3754423.053	29	59	6	9	18
EW-59	SEPTS	643192.5965	3758486.148	21	10	40	32	19
EW-55	SEPTS	643760.4793	3758294.486	43	13	43	42	21
EW-86	SEPTS	645482.05	3753946.07	52	15	29	49	22
EW-27	SEPTS	643749.5714	3756679.833	53	18	56	59	24
EW-3	SEPTS	641366.8608	3755797.022	48	23	13	22	25
EW-87	SEPTS	645782.09	3753953.71	45	19	32	51	27
EW-48	SEPTS	643123.1792	3755474.036	49	22	26	40	30
EW-28	SEPTS	640035.9346	3755513.208	19	54	16	5	31
EW-66	SEPTS	640864.6272	3755780.279	28	41	9	7	32
EW-49	SEPTS	642324.5101	3754867.484	50	24	22	33	33
EW-46	SEPTS	641875.3947	3754723.909	56	27	18	38	34
EW-60	SEPTS	643127.9899	3758079.011	27	26	33	34	36
EW-36	SEPTS	640774.4784	3754777.138	36	35	15	16	37
EW-12	SEPTS	643755.2425	3755796.564	57	29	41	48	39
EW-35	SEPTS	643749.6291	3756128.095	58	32	42	46	45
EW-23A	SEPTS	643233.1881	3757242.701	32	36	27	31	47
EW-25	SEPTS	641383.0815	3756817.13	33	47	17	17	49
EW-7	SEPTS	643750.2201	3756881.919	60	39	59	60	52
EW-61	SEPTS	642696.0717	3757843.919	30	40	25	30	53
EW-20	SEPTS	641024.7088	3757876.335	35	51	19	27	57
EW-16	SEPTS	643802.6612	3759993.164	54	49	46	53	59
EW-62	SEPTS	642375.186	3757320.03	41	50	23	29	60

could spread PFAS to soil and plants in areas not previously impacted by Pantex Plant operations. Similarly, injection/recharge of treated water containing PFAS at SEPTS injection wells and at Playa 1 could result in PFAS impacts to groundwater downgradient of those locations. It is recommended that influent and effluent concentrations at each treatment plant be monitored for PFAS concentrations in the influent and effluent to determine if PFAS are present, and if so, to determine the effectiveness of the existing systems in treating PFAS prior to discharge. If elevated concentrations of PFAS are present in treatment system effluent, it will indicate a potential need to augment the treatment process, a potential need to evaluate GAC disposal, and a potential need to investigate for PFAS impacts in groundwater in locations downgradient from where treated water has been discharged in the past (e.g., injection wells and Playa 1).

4.2 SOUTHEAST IN SITU BIOREMEDIATION TREATMENT

4.2.1 Remedy Description

As described in **Section 4.0**, the Selected Remedy for the Southeast Area perched groundwater includes the SEISB to remediate HEs and hexavalent chromium through anaerobic processes. Protecting the Ogallala Aquifer is the primary purpose of the SEISB.

The SEISB is located on TTU property south of the Pantex Plant. **Figure 4.15** shows the SEISB layout. In this area, the upper portion of the FGZ is characterized by paleochannels. South of the SEISB, borehole data indicates that the FGZ consists of less fine-textured lithology compared to other site areas, where borehole data indicates that the FGZ is much less permeable. The more permeable FGZ in the area of the SEISB allows for greater downward migration of perched groundwater and contaminants than the other areas with lower FGZ permeability. The Final Design Basis Document (Aquifer Solutions, 2007) observed that the RDX and chromium plumes spanned two paleochannels separated by a ridge in the FGZ (**Figure 4.16** and **Figure 4.17**). The Final Design Basis Document estimated that most of the contaminant mass was migrating through the western paleochannel and that a fraction (1/40th of the RDX mass flux and 1/100th of the chromium mass flux in the western paleochannel) was migrating through the eastern paleochannel.

Elevations for the top of the FGZ and groundwater surface indicate that the western paleochannel ends south of the SEISB's location. As noted in the Final Design Basis Document (Aquifer Solutions, 2007), the thinning of the saturated zone in this area suggests that the plume in the western paleochannel could descend into the FGZ. To degrade the bulk of the contaminant flux and to prevent contaminant migration into the FGZ, the SEISB was installed across the western paleochannel upgradient of where the perched groundwater pinches out. While the remedial design was being prepared, the saturated thickness across the SEISB footprint ranged from approximately 1 to 6 ft.

The SEISB was installed in 2007 and consists of 42 injection wells downgradient of the SEPTS. SEISB injection wells are oriented to form a transect perpendicular to the direction of groundwater flow. The SEPTS began operation in 1995, was expanded in 2007, and became fully operational in 2008. As a result of SEPTS operation, perched water levels in the area of the SEISB have declined, and some injection wells are now in areas that have become desaturated. Per the Final Design Basis Document (Aquifer Solutions, 2007), the injection wells were installed 1 ft into the

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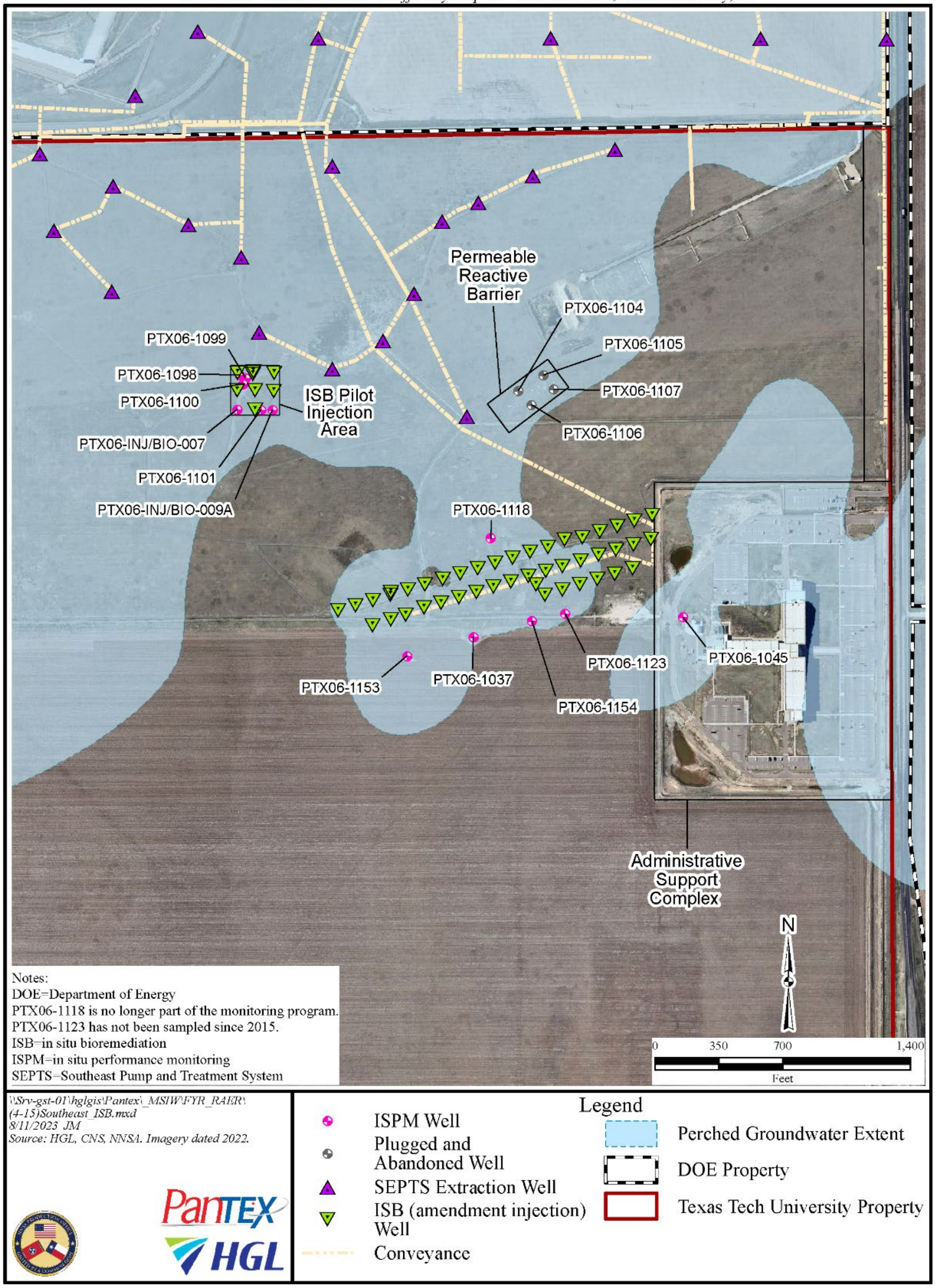

Figure 4.15 SEISB Layout.

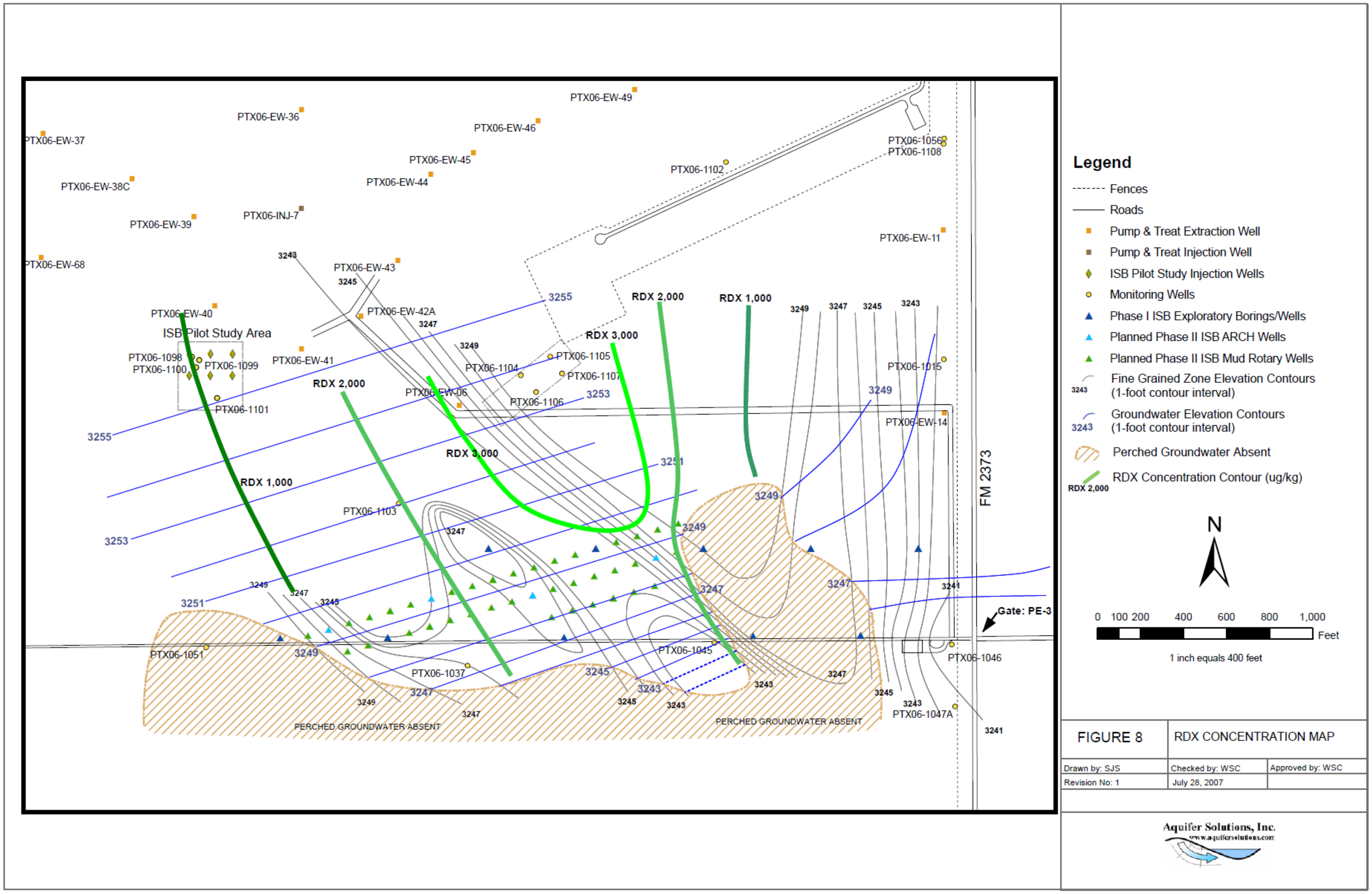

Figure 4.16 SEISB Design and 2007 RDX Plume (Aquifer Solutions, 2007).

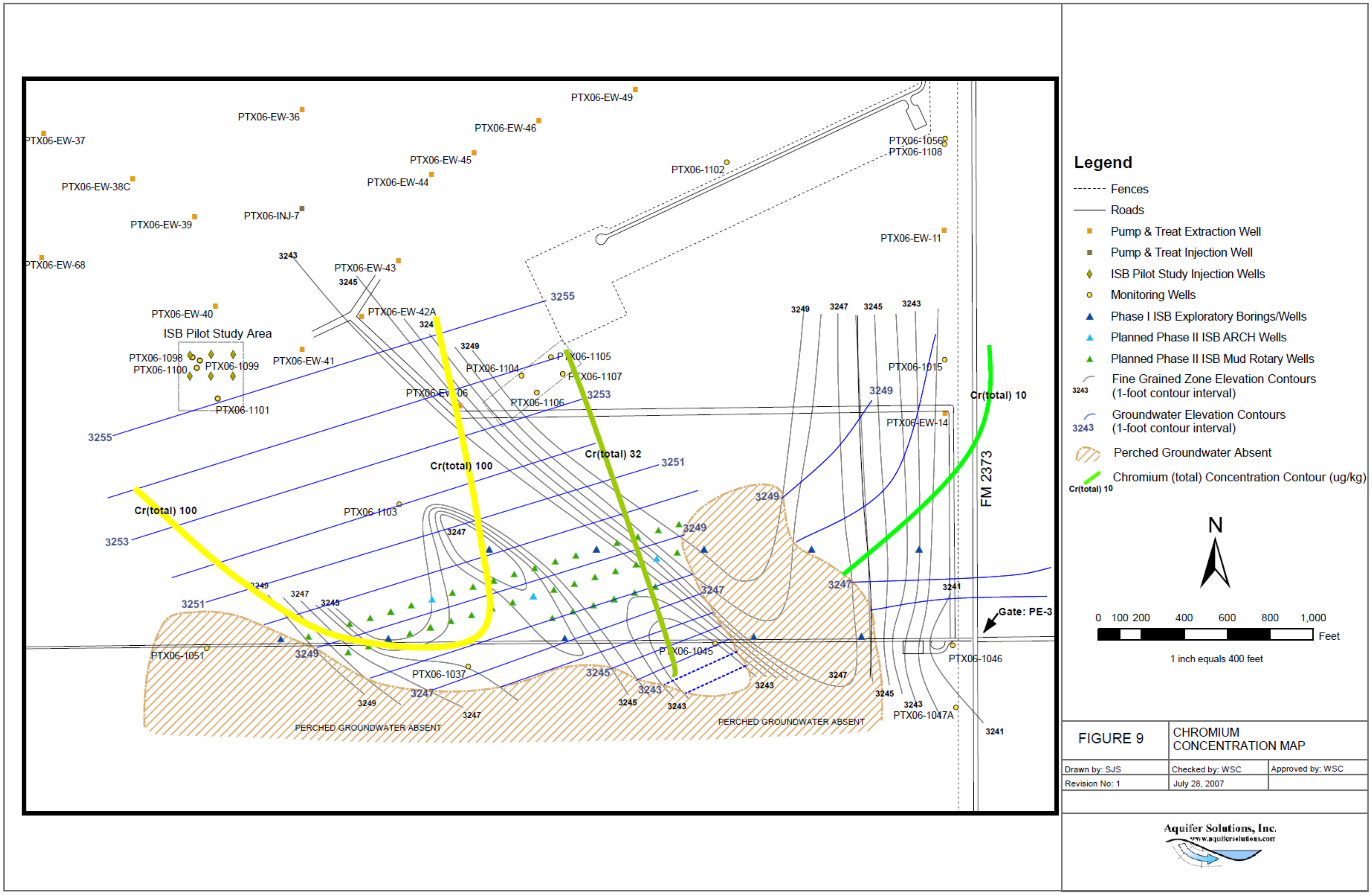

Figure 4.17 SEISB Design and 2007 Cr (VI) Plume (Aquifer Solutions, 2007).

top of the FGZ with screened intervals of 10 or 15 ft (Aquifer Solutions, 2007). SEISB screen bottoms are located between 277 ft bgs and 287 ft bgs.

The purpose of the injection wells is to distribute a carbon substrate amendment throughout the treatment zone. The carbon substrate acts as an electron donor to support anaerobic biodegradation of RDX and other HEs and to reduce hexavalent chromium to its less toxic, less mobile, trivalent form. For the first six injection events, completed between 2008 and 2016, the carbon substrate was emulsified vegetable oil (EVO). The specific product was Newman Zone non-ionic, buffered, bioremediation amendment with a formulation of 46% emulsified soybean oil, 4% sodium lactate, and less than 10% surfactants and other food-grade additives. For the seventh injection event, the carbon substrate source was molasses, which is more soluble than EVO and should achieve a greater radius of influence (ROI). On the other hand, molasses tends to be consumed more quickly than EVO and may require more frequent replenishment.

Initially, there were six performance monitoring wells for the SEISB: PTX06-1037, PTX06-1045, PTX06-1118, PTX06-1123, PTX06-1153, and PTX06-1154. In 2020, upgradient well PTX06-1118 was removed as a performance monitoring well due to a persistent lack of water. PTX06-1123 has not been sampled since 2015 because the water level has been insufficient to collect a sample. Select injection wells are also sampled to support performance monitoring. Initially, injection wells PTX06-ISB014, PTX06-ISB019, PTX06-ISB024, PTX06-ISB030B, PTX06-ISB038, PTX06-ISB042, PTX06-ISB046, and PTX06-ISB048 were sampled. Wells PTX06-ISB014 (last sampled in 2016), PTX06-ISB019 (last sampled in 2014), and PTX06-ISB024 (last sampled in 2017) are in areas of declining water levels and are no longer used to assess SEISB performance. Injection well PTX06-ISB021 was added to the performance monitoring program in 2020.

There are two injection control trailers used to mix and deliver the amendment solution to the injection wells. These trailers are used for both the SEISB and Zone 11 ISB. The trailers are configured to allow operation 24 hours a day. The water for mixing the solution is obtained from the SEPTS.

4.2.2 Operation and Maintenance

Injection Well Maintenance

Carbon substrate amendment has been injected into the SEISB seven times: March 2008; April 2010; May 2012; September 2013; April 2015; October 2016; and November 2019 to January 2020. Before each injection event, the injection wells underwent maintenance for biofouling. The most recent well maintenance event occurred from August through September 2019, with post-maintenance hydraulic testing conducted in September and October 2019. The 2019 well maintenance program targeted 25 injection wells based on water levels and the extent of the perched groundwater (injection wells located outside the perched groundwater extent were not included in the 2019 well maintenance program). Due to declining water levels, a substantial portion of the SEISB is outside of the perched groundwater extent. The 2019 well maintenance program consisted of the following:

- Visual well inspection and measurement of the depth to water and depth to bottom of each well.
- Initial mechanical rehabilitation that consisted of bailing to note the initial water conditions followed by brushing and surging. Water from the SEPTS was added to the injection well to submerge the entire screened interval if less than 60% of the well screen was saturated. After brushing and surging, water was removed from the well via bailing. Bailing ceased when the water removed from the well was relatively free of suspended solids or no additional water could be removed.
- Chemical rehabilitation using a Welgicide solution. After addition of the Welgicide solution, each well was surged and then allowed to rest for at least 24 hours. After the rest period, a bailer was used to remove the Welgicide solution and associated solids.
- Final mechanical rehabilitation during which each well was jetted, surged, and bailed twice. Similar to the initial mechanical rehabilitation step, water was added to wells with less than 60% of the well screen submerged to promote removal of biomass/solids across the entire screened interval. The final stage of mechanical rehabilitation was considered to be complete when the extracted water was generally free of suspended solids. In addition, in wells with more than 10% of the screen saturated under static conditions, field parameter readings were used as an additional line of evidence to determine when mechanical rehabilitation was complete.
- Hydraulic testing of each well after final mechanical rehabilitation. The hydraulic testing consisted of constant-rate injection tests during which a specified volume of water was injected into each well at a constant rate. The results were used to calculate the transmissivity and specific capacity at each well.

Field observations during well maintenance noted the removal of biosolids from most wells and EVO from PTX06-ISB029A. In addition, sand was removed from PTX06-ISB046 and PTX06-ISB047, suggesting that the well screen and/or sump for each of these wells is damaged.

The 2019 well maintenance program made some modifications to the standard well maintenance procedure. First, airlifting was not conducted. Wells were jetted and surged to dislodge biosolids. Second, water was added to submerge well screens that were mostly dry. The *Well Maintenance Report* (Arcadis, 2020a) recommended that these modifications be incorporated into the standard operating procedure for well maintenance.

Amendment Injection

Amendment injection occurs after completion of well maintenance. During each injection event, not all injection wells might be used. During the most recent injection event from November 2019 through January 2020, amendment was applied through 25 injection wells. The selection of which wells to treat is based primarily on saturated thickness. During the most recent injection event, the injection system was reconfigured to allow direct mixing of makeup water from the SEPTS with the molasses solution, thereby eliminating the need for storage tanks for the makeup water, and to increase the number of wells to which amendment could be supplied simultaneously. In addition, wellhead seals were installed to facilitate pressurized injection (Arcadis, 2020b).

Molasses was the carbon substrate selected for the 2019/2020 injection event. The stock molasses solution was 70% by weight Brix cane molasses and 30% by weight water. This solution was diluted with SEPTS water. The target dilution was 3.2% of the 70/30 stock solution by volume (target dosing of 2% pure molasses by volume). The initial target volume per well was calculated from the saturated thickness. Several of the injection wells had low water levels that resulted in relatively low injection volumes. To promote wider amendment distribution, the target injection volume for wells with less than 2 ft of saturated thickness was re-calculated to be based on a saturated thickness of 4 ft. During amendment injection, the target injection volume for 12 wells was recalculated in accordance with the process for low-performing wells outlined in the work plan. Actual injection volumes met or exceeded the final target volume for all wells (Arcadis, 2020b). Per Table 2 of the *Post-Injection Report* (Arcadis, 2020b), 986,726 gallons of diluted molasses solution was injected. The average dilution was 3.7% of the stock molasses solution on a volume basis (2.3% pure molasses by volume). The actual dilution slightly exceeded the target dilution, resulting in the amendment injection fluid having just under the target dose of 2% molasses by volume.

Given that the final target injection volumes were met and that the total injection volume (986,726 gallons) was greater than the initial volume (836,539 gallons) based solely on saturated thickness, the well maintenance program ensured proper function of the injection wells. The average injection flow rate per well ranged from 1.7 gpm at PTX06-ISB012 and PTX06-ISB032 to 9.4 gpm at PTX06-ISB038.

4.2.3 Remedy Performance and Efficacy

Analytical Data for COCs

As stated in Section 4.3.1, the current performance monitoring network consists of PTX06-1037, PTX06-1045, PTX06-1123, PTX06-1153, PTX06-1154, PTX06-ISB021, PTX06-ISB030B, PTX06-ISB038, PTX06-ISB042, PTX06-ISB046, and PTX06-ISB048. Because an upgradient performance monitoring well is not available, the influent concentrations to the SEISB are not known.

The primary groundwater COCs at the SEISB are RDX and chromium. The table below summarizes the analytical results for chromium, RDX, and RDX's degradation products (MNX, DNX, and TNX). For informational purposes, the analytical results for the three injection wells that were previously sampled also are included in **Table 4.5**.

The analytical results for the SEISB injection wells indicate limited presence of the groundwater COCs and RDX degradation products within the treatment zone. Other than an anomalously elevated chromium detection at PTX06-ISB046 in 2020, COC results for the injection wells have been less than cleanup goals since 2015. These results indicate that the SEISB treatment zone is functioning properly and/or that the influent COC concentrations are low.

Table 4.5
Summary of Analytical Results for COCs

Sampled Well	Well Location	Summary of Data
PTX06-ISB014	Upgradient row, western side of SEISB	Chromium results < GWPS. One RDX detection at 0.025 mg/L in 2015. RDX degradation products not detected. Not sampled since 2016.
PTX06-ISB019	Upgradient row, middle of SEISB	No detections 2012 – 2014. Not sampled since 2014.
PTX06-ISB021	Upgradient row, middle of SEISB	Sampled in 2020 and 2021. No detections of RDX and degradation products. Chromium results < GWPS.
PTX06-ISB024	Upgradient row, eastern side of SEISB	Chromium results < GWPS. One RDX detection at 0.0027 mg/L in 2012. Two RDX degradation product detections in 2012. Not sampled since 2017.
PTX06-ISB030B	Downgradient row, western side of SEISB	Chromium results < GWPS. RDX not detected. RDX degradation products not detected.
PTX06-ISB038	Middle row, middle of SEISB	Chromium results < GWPS. One RDX detection at 0.00162 mg/L in 2020. One DNX detection at 0.000659 mg/L in 2020.
PTX06-ISB042	Middle row, eastern side of SEISB	Chromium results < GWPS. RDX not detected. RDX degradation products not detected. Not sampled in 2016, 2018, 2019, and 2021.
PTX06-ISB046	Downgradient row, middle of SEISB	One exceedance (0.16 mg/L) of chromium GWPS (0.1 mg/L) in June 2020; < GWPS during three subsequent sampling events. One RDX detection at 0.000323 mg/L in 2020. One DNX detection at 0.00125 mg/L in 2020.
PTX06-ISB048	Downgradient row, eastern side of SEISB	Chromium results < GWPS. One RDX detection of 0.00082 mg/L in 2014. RDX degradation products not detected. Not sampled in 2020.
PTX06-1037	Downgradient of middle of SEISB	Chromium results < GWPS. Maximum RDX detection of 1.57 mg/L in August 2008; one RDX detection of 0.00012 mg/L between October 2014 and August 2021. RDX degradation products frequently detected between 2009 and 2016 and then detected only once subsequently in 2020.
PTX06-1045	Downgradient of eastern edge of SEISB	Well frequently not sampled. Chromium not detected. RDX detections decreased from historical (2008 – 2010) results of 2.1 mg/L – 2.2 mg/L to 0.00308 mg/L in 2021. RDX degradation products routinely detected.
PTX06-1123	Downgradient of middle of SEISB	Not sampled since 2015. Historical chromium results < GWPS. Decrease in RDX concentration from 3.62 mg/L in March 2008 to non-detect in August 2015. Historical detections of RDX degradation products.
PTX06-1153	Downgradient of western edge of SEISB	Exceedances of chromium GWPS in 2010 – 2016, less than GWPS in 2017 – 2021. RDX consistently detected at concentrations greater than cleanup goal (0.002 mg/L). RDX degradation products consistently detected.

Table 4.5 (continued)
Summary of Analytical Results for COCs

Sampled Well	Well Location	Summary of Data
PTX06-1154	Downgradient of middle of SEISB	Chromium results < GWPS. RDX detections decreased to less than cleanup goal in 2012 and remained less than cleanup goal through 2021. RDX degradation products detected through 2015 and then not detected from 2016 through 2021.

The hexavalent chromium and total chromium results for the downgradient monitoring wells are discussed below.

- PTX06-1037: Neither hexavalent chromium nor total chromium was detected in this well between 2017 and 2021. Hexavalent chromium and total chromium were last detected in this monitoring well in July 2016 and May 2016, respectively.
- PTX06-1045: Between 2019 and 2021, the hexavalent chromium concentration at this well decreased from between 0.001 milligrams per liter (mg/L) and 0.002 mg/L to approximately 0.0005 mg/L. Between 2008 and 2010, hexavalent chromium was not detected, and total chromium results ranged from 0.005 mg/L to 0.0188 mg/L. This well was not sampled from 2011 through 2018.
- PTX06-1123: Recent data is not available for this monitoring well. Between 2008 and 2015, hexavalent chromium was detected only twice, in March 2008 and January 2012, and total chromium concentrations decreased from a baseline value of 0.0596 mg/L to non-detectable levels.
- PTX06-1153: Both hexavalent chromium and total chromium have been detected consistently at this monitoring well. Between 2009 and October 2013/January 2014, total and hexavalent chromium concentrations generally increased, and total chromium results were greater than the GWPS (0.1 mg/L). The hexavalent chromium and total chromium concentrations began to decrease in January 2014 and July 2015, respectively. Total chromium results have been less than the GWPS since November 2016. **Figure 4.18** presents this well's hexavalent chromium and total chromium results from 2009 through 2021.
- PTX06-1154: From 2009 through 2016, hexavalent chromium results ranged from non-detect to 0.0292 mg/L, while total chromium detections were reported only twice and at concentrations of 0.001 mg/L and 0.0018 mg/L. Hexavalent chromium was last detected in February 2017 at a concentration of 0.000145 mg/L. Total chromium was not detected between 2017 and 2021.

The analytical results for 2017 through 2021 indicate no exceedances of the chromium GWPS in downgradient monitoring wells. The results for PTX06-1153 indicate that downgradient total chromium and hexavalent chromium concentrations are decreasing. These results suggest that the remedy is functioning properly with respect to the chromium contamination.

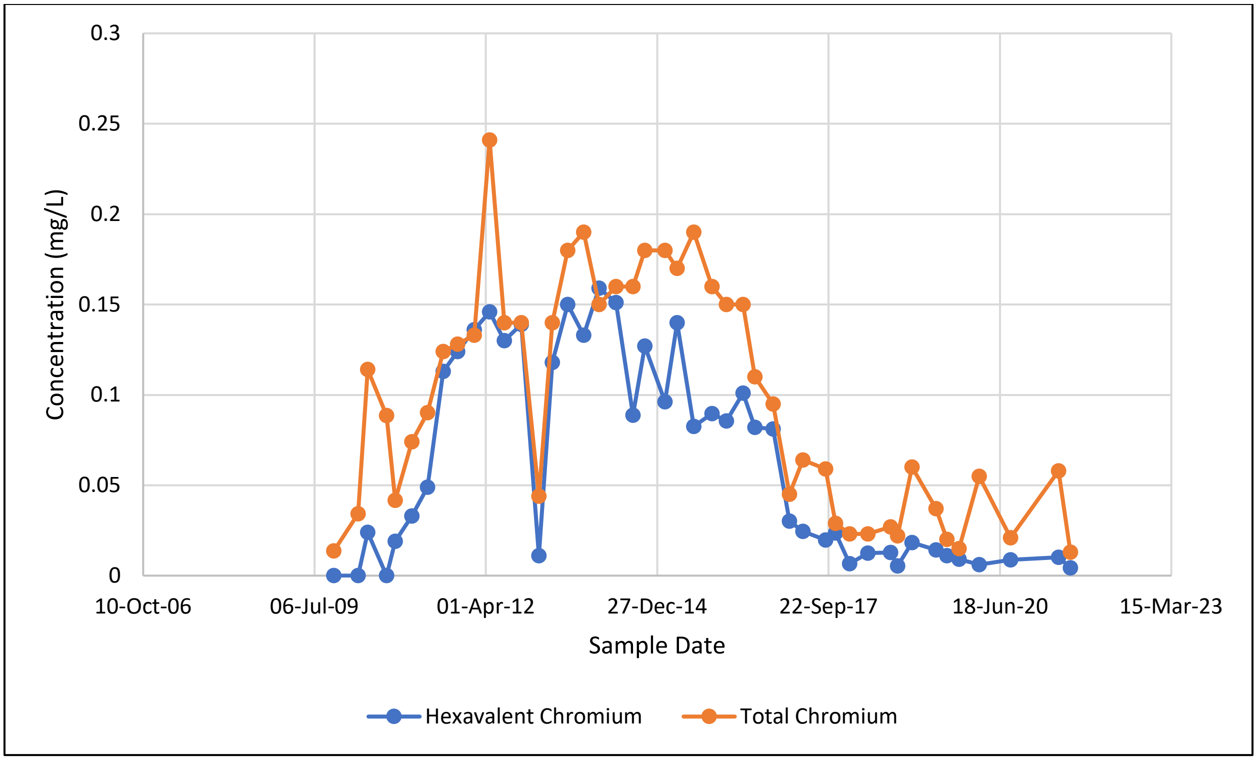

Figure 4.18 Hexavalent Chromium and Total Chromium at PTX06-1153

The RDX data for the downgradient monitoring wells are evaluated in the bullets below.

- PTX06-1037: The RDX concentration at this well decreased rapidly after 2008. The 2017 to 2021 data indicate that contaminant rebound is not occurring; RDX was detected once at a concentration less than 0.001 mg/L. The RDX cleanup goal is 0.002 mg/L.
- PTX06-1045: Between August 2008 and May 2010, the RDX concentration appeared to be stable at levels between 2.1 mg/L and 2.2 mg/L. When this well was next sampled in August 2019, the RDX concentration had decreased to 0.0581 mg/L (**Figure 4.19**). RDX concentrations subsequently continued to decrease to 0.00308 mg/L in May 2021. RDX degradation products were detected historically at this well and also from 2019 through 2021.
- PTX06-1123: Recent data is not available for this monitoring well. RDX results for this well were consistently less than the cleanup goal (0.002 mg/L) from October 2012 through the well's last sampling event in August 2015.
- PTX06-1153: Between October 2009 and September 2018, most of the RDX results were detections between 0.2 mg/L and 0.3 mg/L (**Figure 4.20**). Between September 2018 and August 2019, the RDX concentration spiked to 0.838 mg/L. Since then, the RDX concentrations have decreased to historical levels fluctuating between 0.2 mg/L and 0.3 mg/L. Other than in July 2012 and November 2015, RDX degradation products have been detected consistently at this well, indicating that anaerobic biodegradation is occurring.
- PTX06-1154: RDX results for this well have been less than the cleanup goal (0.002 mg/L) since October 2012. There is no evidence of contaminant rebound near this well.

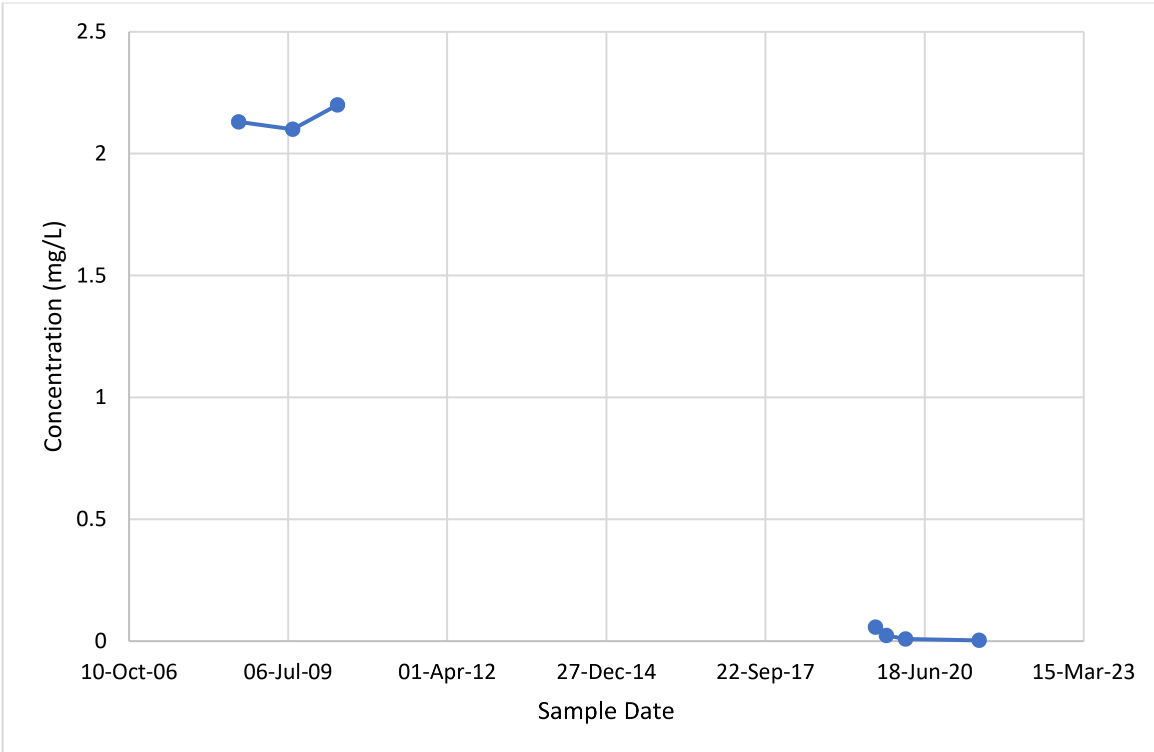

Figure 4.19 RDX at PTX06-1045

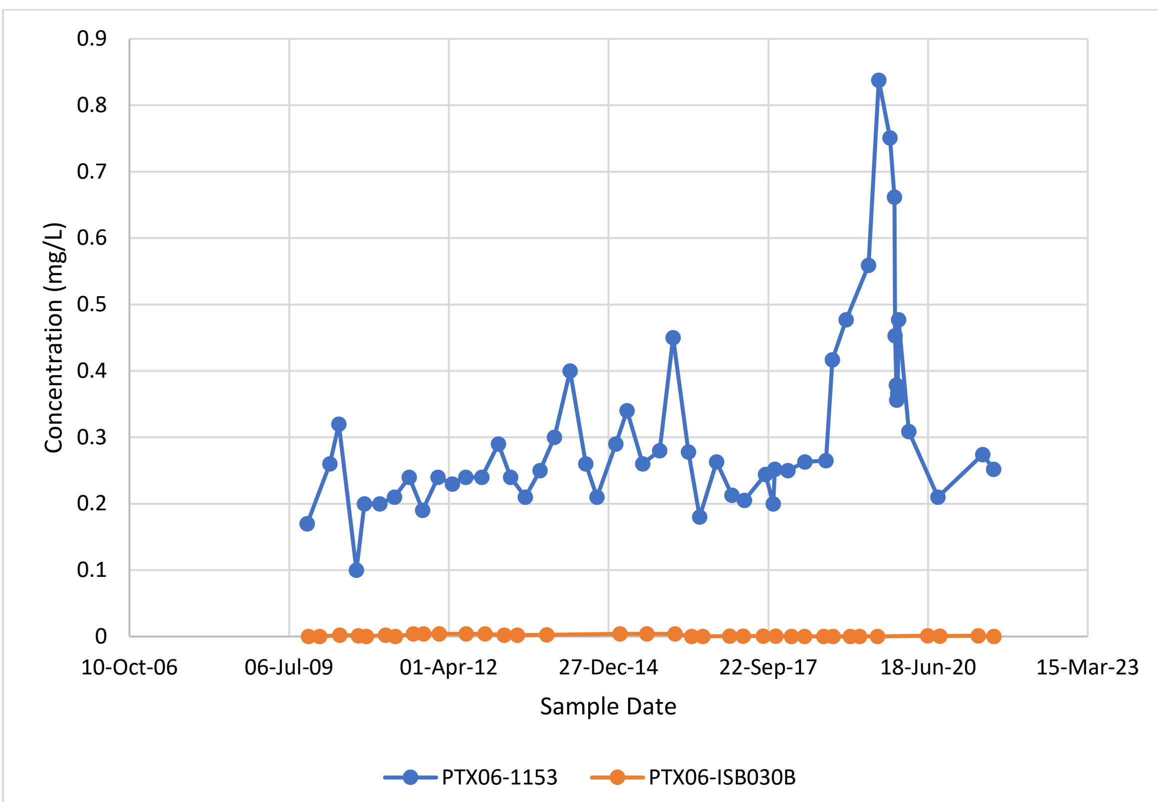

Figure 4.20 RDX at PTX06-1153

In each of the annual progress reports from 2017 through 2021, Figure 1-9 shows a gap in the perched groundwater between the SEISB and PTX06-1045. **Figure 4.21** presents the boundary for the perched groundwater from the 2021 Annual Progress Report. The perched groundwater boundary maps suggest there is no current hydraulic connection between PTX06-1045 and the SEISB. In addition, the 2019 to 2021 total organic carbon (TOC) detections reported for PTX06-1045 (maximum of 1.3 mg/L) were lower than detections reported for PTX06-1153 (maximum of 6.35 mg/L), PTX06-1154 (maximum of 8 mg/L), and PTX06-1037 (maximum of 6.3 mg/L), suggesting that PTX06-1045 is not within the SEISB's zone of influence. When the Final Design Basis Document (Aquifer Solutions, 2007) was prepared, it was inferred that PTX06-1045 was hydraulically connected to the SEISB treatment area. By 2012, however, PTX06-1045 had become dry. Although the vicinity of PTX06-1045 has recharged enough to allow groundwater sampling, connection to the vicinity of the SEISB does not appear to have been re-established.

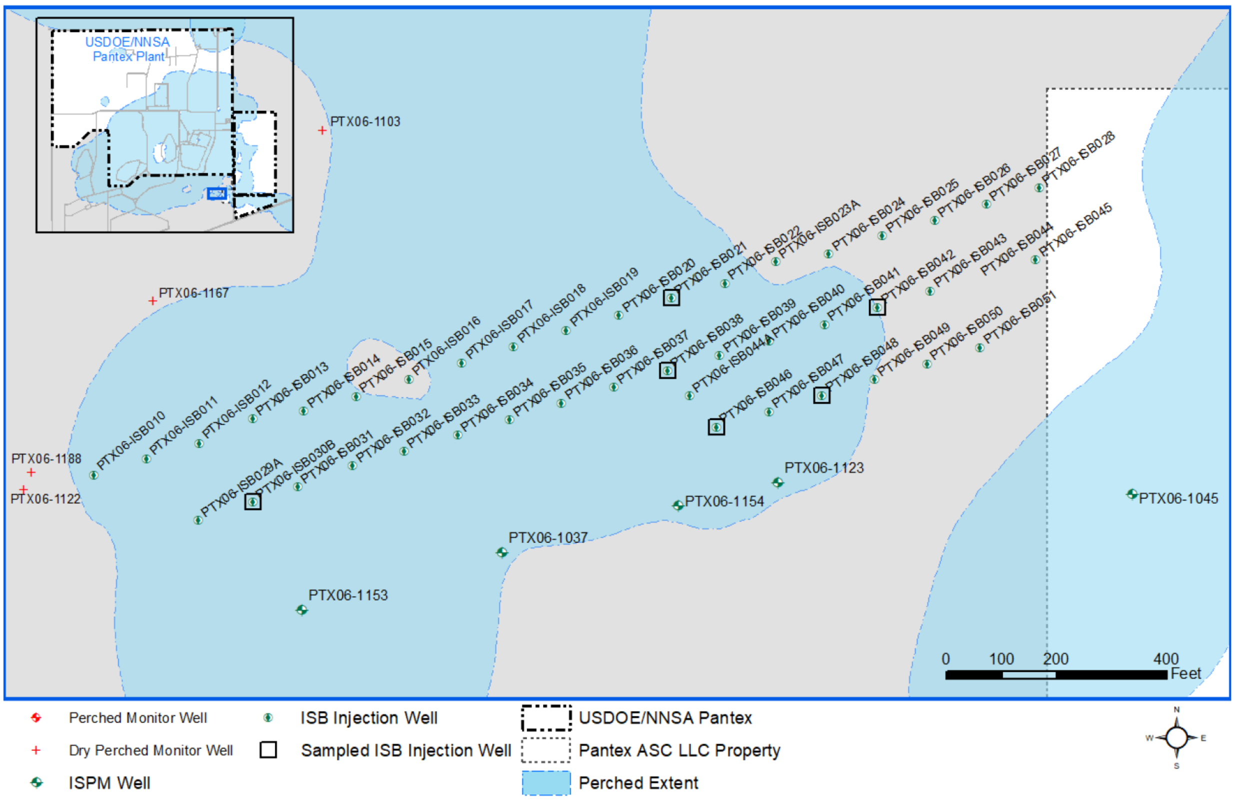

Figure 4.21 SEISB Layout with Perched Aquifer Saturation Extent (CNS, 2022b)

In summary, analytical results for the injection wells and monitoring wells downgradient of the middle portion of the SEISB (i.e., excluding PTX06-1153) indicate that concentrations within and downgradient of the treatment zone generally comply with the chromium GWPS and RDX cleanup goal. PTX06-1153 is downgradient of injection well PTX06-ISB030B. Neither RDX nor its degradation products have been detected at PTX06-ISB030B since 2009. The continued presence of RDX contamination at PTX06-1153, in spite of the lack of RDX contamination in the upgradient injection well (see **Figure 4.20**) and adjacent downgradient monitoring wells, suggests that a source of RDX contamination could exist between PTX06-1153 and the SEISB or that contaminated groundwater is circumventing the SEISB. The boundary of the perched extent of groundwater, however, suggests there is limited potential for contaminated groundwater to by-pass the western end of the SEISB. Because the injection wells were installed into the FGZ and the base of the PTX06-1153 well screen is approximately 2 ft above the top of the FGZ, it is unlikely that RDX-contaminated groundwater is migrating beneath the SEISB and upwelling at PTX06-1153.

The elevation of the top of the FGZ at the SEISB and downgradient performance monitoring wells was further evaluated in the Earth Volumetrics Studio (EVS) model (HGL, 2022a). Elevations for the top of FGZ between the SEISB and PTX06-1153, interpolated with a 3-D geologic model, show an apparent ridge between the two wells. Injected amendment would have to traverse the apparent ridge to reach the screen of PTX06-1153. The same interpolated ridge is not observed between other monitoring wells downgradient of the SEISB (e.g., PTX06-1054). In addition, the depositional environment for fluvial sediments in the perched groundwater were from more east-west trending braided streams, which could cause preferential flow more to the east-southeast than to the south toward PTX06-1153 from the SEISB. East-west preferential flow and/or the apparent ridge between the SEISB and PTX06-1153 suggests that PTX06-1153 may be somewhat hydraulically disconnected from the SEISB, which could help explain the persistence of RDX contamination.

The 2017, 2018, and 2019 Annual Progress Reports (CNS, 2018, 2019, and 2020) show groundwater elevations for three injection wells, PTX06-ISB030B, PTX06-ISB019, and PTX06-ISB014, located on the west side of the ISB. Between 2017 and 2019, these three wells consistently exhibited lower groundwater elevations than PTX06-1153. It is possible that the injection wells were not hydraulically connected to the perched groundwater due to biofouling and that the measured water levels do not represent the surrounding perched zone. On the other hand, it is possible that the western end of the ISB is in a leakage area to the Ogallala Aquifer and that the water levels reliably represent a localized reversal in flow direction between PTX06-1153 and the SEISB. Such a localized flow reversal would explain the lack of RDX degradation observed at PTX06-1153. The persistence of the RDX contamination at PTX06-1153 is a data gap.

Natural Attenuation Parameter Data

Select injection wells in the SEISB are sampled for natural attenuation parameters (volatile fatty acids [VFAs], alkalinity, manganese, iron, nitrate, sulfate, dissolved organic carbon (DOC), and TOC). These parameters, along with pH, dissolved oxygen (DO), and oxidation-reduction potential, can be used to assess whether the groundwater geochemistry is suitable for anaerobic biodegradation of RDX and reduction of hexavalent chromium. Recent data for these parameters are evaluated below.

Production of organic acids during VFA fermentation can decrease the groundwater pH unless there is enough alkalinity to buffer the acids. Between 2017 and 2021, alkalinity detections ranged from 146 mg/L to 2,050 mg/L, with most detections greater than 500 mg/L. There appears to be sufficient alkalinity to buffer against organic acid production. This conclusion is supported by the groundwater pH measurements. Most of the pH readings reported for 2017 to 2021 ranged between 6.5 and 7.5. The lowest pH reading was 4.57 in PTX06-ISB021, taken during the June 2020 sampling event. During subsequent sampling events, the pH at this well increased to between 6.54 and 7.1. The second lowest pH reading was 6.48, which is not acidic enough to inhibit anaerobic bioremediation.

Between 2017 and 2021, DO concentrations ranged from less than 0.1 mg/L to 9.65 mg/L. During this time, 134 DO measurements were recorded for the injection wells and downgradient performance monitoring wells. One of the readings was negative, which indicates a malfunctioning meter. Of the remaining 133 measurements, 66 were approximately equal to (based on rounding to 1 significant figure) or less than 1 mg/L. Forty-nine readings were greater than 2 mg/L. Ideally for anaerobic biodegradation, the DO concentration is less than 1 mg/L. Within the treatment zone, 36 of 66 measurements were approximately equal to or less than 1 mg/L. The DO concentrations in PTX06-1153 and PTX06-1045 tended to be greater than the readings recorded for PTX06-1154 and PTX06-1037. The highest DO readings were recorded for PTX06-1153 and PTX06-1045. Because of the potential for oxygen to be introduced to the groundwater sample during field parameter measurements, there is uncertainty in the absolute DO concentration.

Oxidation-reduction potential measurements ranged from -222 millivolts (mV) to 195 mV, with 38 positive readings and 96 negative readings. Of the 66 oxidation reduction potential (ORP) measurements recorded for the injection wells between 2017 and 2021, only four, or 6%, were positive, and the remaining 62 readings were negative. Conversely, the ORP measurements for PTX06-1153 and PTX06-1045 indicate groundwater surrounding both wells tend to be oxidizing. Groundwater near PTX06-1154 tends to be mildly reducing. At PTX06-1037, the ORP has varied between moderately reducing and mildly oxidizing. These results suggest that the carbon substrate amendment is generally maintaining reducing conditions within the SEISB, while conditions downgradient of the SEISB vary from moderately oxidizing to moderately reducing. As noted above for DO, there is uncertainty in the measurements due to the potential for oxygen to be introduced to the groundwater during purging and sampling.

Sulfate reduction is an indicator of anaerobic conditions; sulfate concentrations should decrease after carbon substrate injection and remain low for as long as there is sufficient substrate to sustain anaerobic geochemistry. In the injection wells, sulfate results from 2017 through 2021 ranged from non-detect to 82 mg/L, with most of the results less than 10 mg/L. The maximum detection was reported for the first sample collected from PTX06-ISB021 in June 2020. During the three subsequent sampling events, the sulfate concentration at PTX06-ISB021 decreased to between 0.81 mg/L and 3.1 mg/L. At the other injection wells sampled in 2020 and 2021, however, sulfate concentrations generally increased between 2017 and 2021 (**Figure 4.22**). The greatest increase occurred in PTX06-ISB048, where sulfate was detected at concentrations of 62.9 mg/L in May 2021 and 42.1 mg/L in August 2021. Molasses supplied to Pantex contains sulfate. The increase in sulfate concentrations within the treatment zone is likely attributable to the switch to molasses as the carbon substrate.

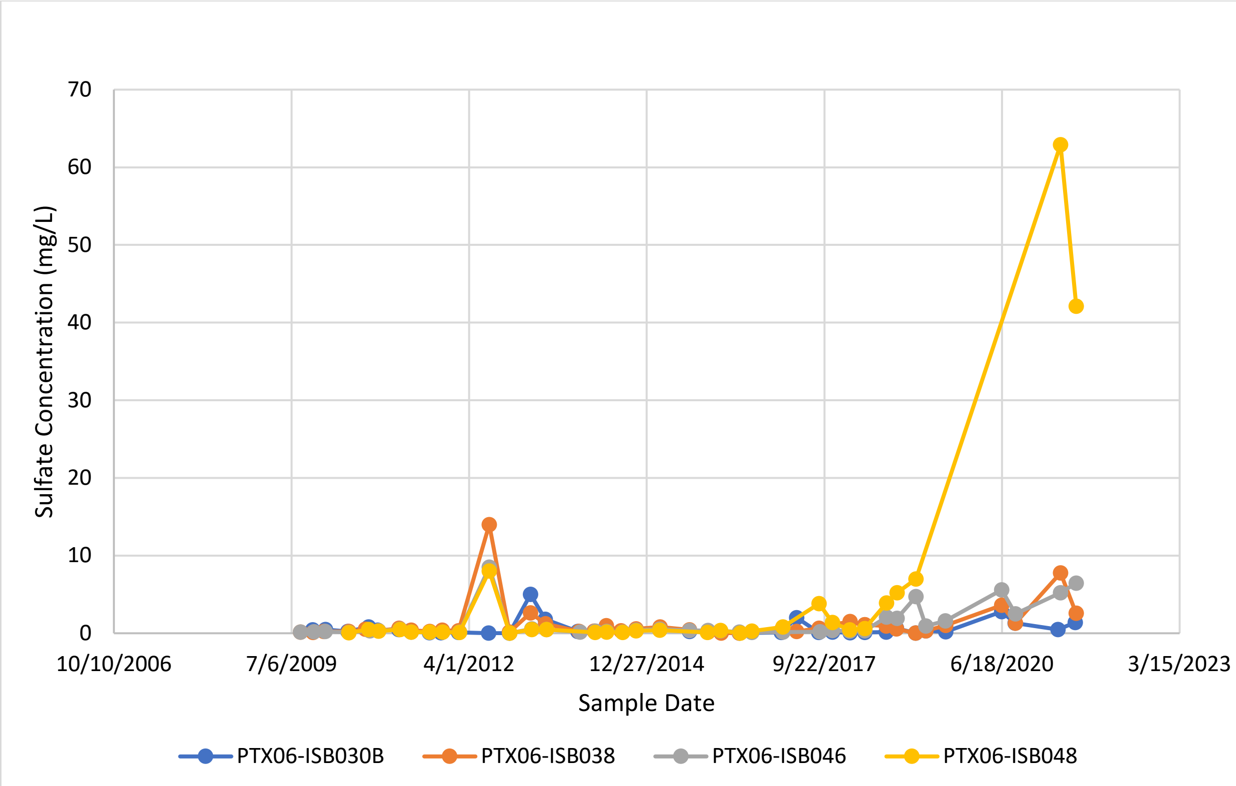

Figure 4.22 Sulfate in SEISB Treatment Zone

Downgradient of the SEISB, sulfate concentrations are highest in PTX06-1153 and PTX06-1045 and lowest in PTX06-1037 and PTX06-1154 (**Figure 4.23**). For the latter two wells, sulfate concentrations have been consistently less than 5 mg/L since 2010. These low sulfate concentrations indicate the downgradient influence of the SEISB. PTX06-1045 and PTX06-1153 have shown sulfate levels ranging between approximately 10 mg/L and approximately 20 mg/L. The sulfate concentration at PTX06-1153 has been slowly decreasing since 2014, which suggests that sulfate reduction in the upgradient SEISB is affecting sulfate levels near PTX06-1153. The sulfate concentration at PTX06-1045 increased between 2019 and 2021.

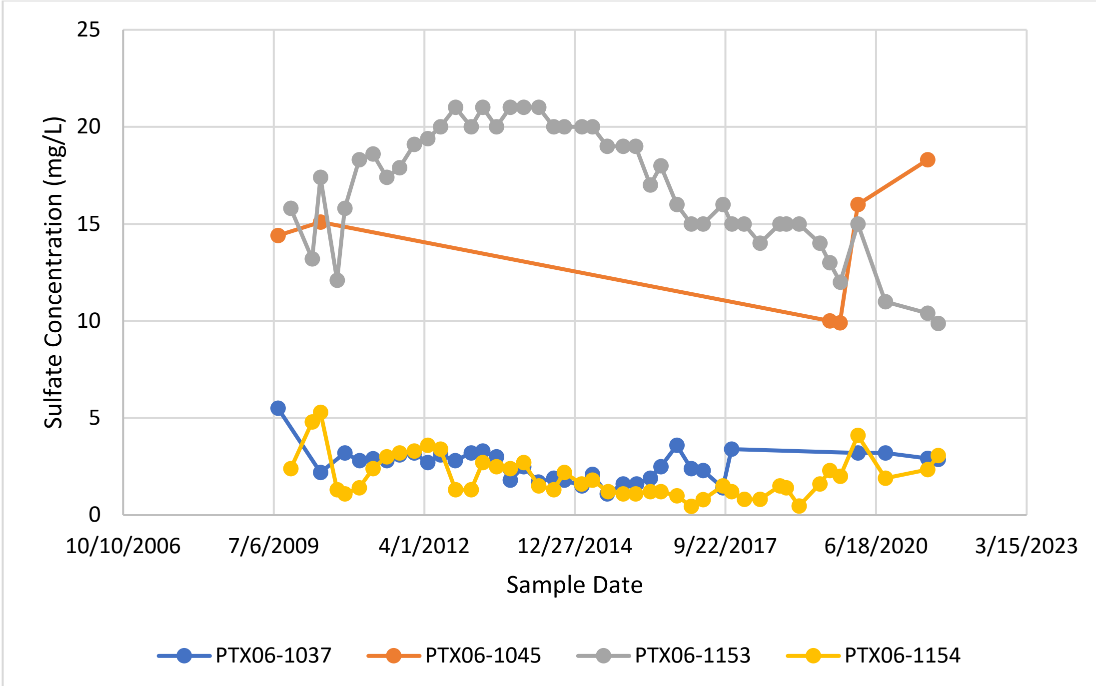

Figure 4.23 Sulfate in Downgradient Monitoring Wells

Low concentrations or non-detect results for nitrate indicate anoxic groundwater conditions. Most of the nitrate results reported for the injection wells were non-detect or detections less than 1 mg/L. Detections greater than 1 mg/L were reported for the following wells:

- PTX06-ISB038: 5.085 mg/L in August 2017.
- PTX06-ISB042: 5.77 mg/L in June 2020 and 8.16 mg/L in September 2020, not sampled in 2021.
- PTX06-ISB046: 1.64 mg/L in May 2018.
- PTX06-ISB048: 11.22 mg/L in May 2021.

The limited number of nitrate detections reported for the injection wells indicates that, for the most part, groundwater conditions within the treatment zone are sufficiently anoxic to support nitrate reduction. Downgradient of the SEISB, most of the nitrate results also were non-detect or detections less than 1 mg/L. In October 2018, nitrate detections between 1 mg/L and 2 mg/L were reported for PTX06-1154 and PTX06-1153. However, at PTX06-1045, which was sampled only from 2019 to 2021, all nitrate results were greater than 1 mg/L. These detections showed a decreasing trend from a maximum of 6.89 mg/L in August 2019 to 2.5 mg/L in May 2021. The recent nitrate results indicate that groundwater downgradient of the SEISB supports nitrate reduction.

Typically, when groundwater changes from aerobic conditions to anaerobic conditions, iron and manganese oxides/hydroxides dissolve and increase the aqueous concentrations of both metals. At the SEISB, manganese concentration within the treatment zone increased after the 2008 amendment injection to levels greater than 10 mg/L and then generally declined with periodic spikes after subsequent amendment injections (**Figure 4.24**). Between 2017 and 2021, most results for the injection wells were less than 10 mg/L; only three detections, the June 2020 (87 mg/L) and August 2020 (11 mg/L) detections for PTX06-ISB021 and June 2020 (20 mg/L) detection for PTX06-ISB046, were greater than 10 mg/L. Manganese concentrations in the treatment zone temporarily increased after the 2019 to 2020 molasses injection, suggesting that the amendment enhanced anaerobic conditions.

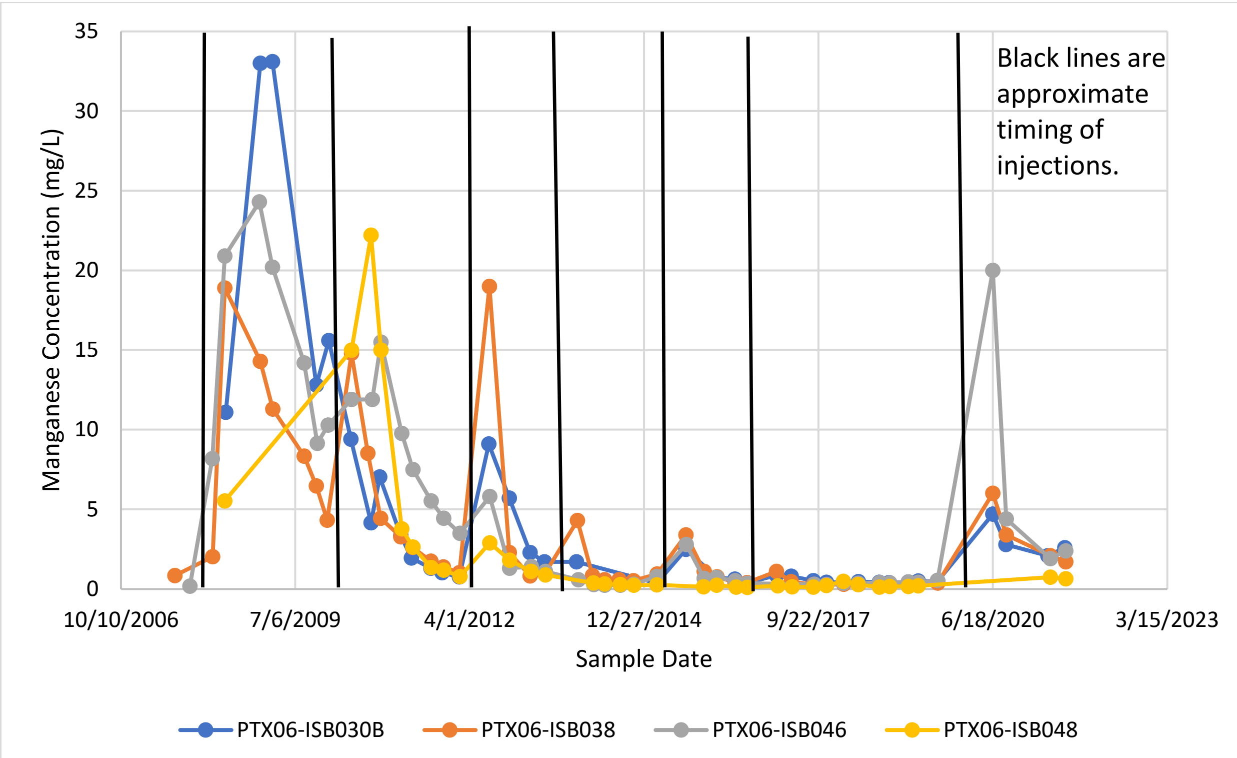

Figure 4.24 Manganese in SEISB Treatment Zone.

In downgradient wells PTX06-1037, PTX06-1153, and PTX06-1154, manganese concentrations exceeded 1 mg/L after the initial amendment injection in 2008, while the detections for PTX06-1045, ranging from 0.0036 mg/L to 0.0254 mg/L, remained low. Similarly, between 2017 and 2021, the manganese results for PTX06-1045 ranged from non-detect to 0.0041 mg/L. Detections for PTX06-1037 were generally greater than 1 mg/L, while at PTX06-1154 manganese concentration fluctuated between approximately 0.5 mg/L and 0.7 mg/L until after the 2019 to 2020 molasses injection, at which time the manganese concentration increased to greater than 1 mg/L (**Figure 4.25**). The manganese results for PTX06-1153 (**Figure 4.25**) were lower than those for PTX06-1037 and PTX06-1154, suggesting potentially less influence from the treatment zone at PTX06-1153 as compared to the other two wells.

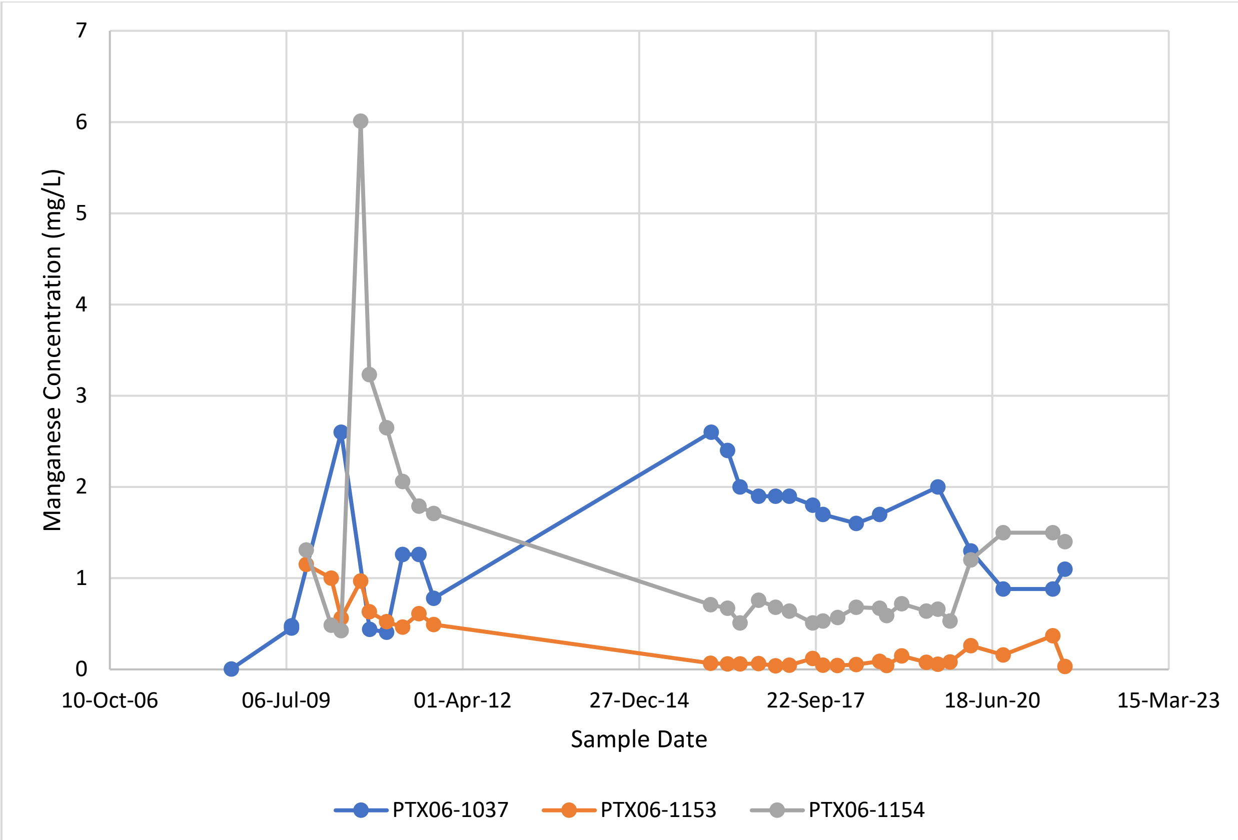

Figure 4.25 Manganese Downgradient of SEISB Treatment Zone.

The performance monitoring data for the injection wells provide results for both ferrous iron and ferric iron through 2019. Speciation data are not available for the 2020 and 2021 samples. Between 2017 and 2019, ferric iron concentrations within the treatment zone ranged from 0.3 mg/L to 6.1 mg/L, while ferrous iron detections ranged from 0.2 mg/L to 19 mg/L. Most of the ferrous iron results were greater than the associated ferric iron detections, indicating that groundwater in the treatment zone is sufficiently anaerobic to support iron reduction.

The downgradient monitoring wells are sampled for iron analysis, but the results are not speciated into ferrous iron and ferric iron. Similar to manganese, the iron detections reported from 2017 through 2021 were highest in PTX06-1037 and PTX06-1154, and lowest in PTX06-1045. These results suggest that the SEISB has greater influence over the groundwater geochemistry at PTX06-1037 and PTX06-1154 than at PTX06-1045 and PTX06-1153.

The carbon substrate amendments generate and sustain anaerobic conditions through microbial metabolism of organic compounds, such as sugars and fatty acids. Typically, TOC concentrations increase after amendment injection and decrease with time as the amendment is metabolized. Within the treatment zone, periodic amendment injections have sustained TOC concentrations greater than 100 mg/L (**Figure 4.26**). These TOC concentrations should be sufficient to support anaerobic biodegradation.

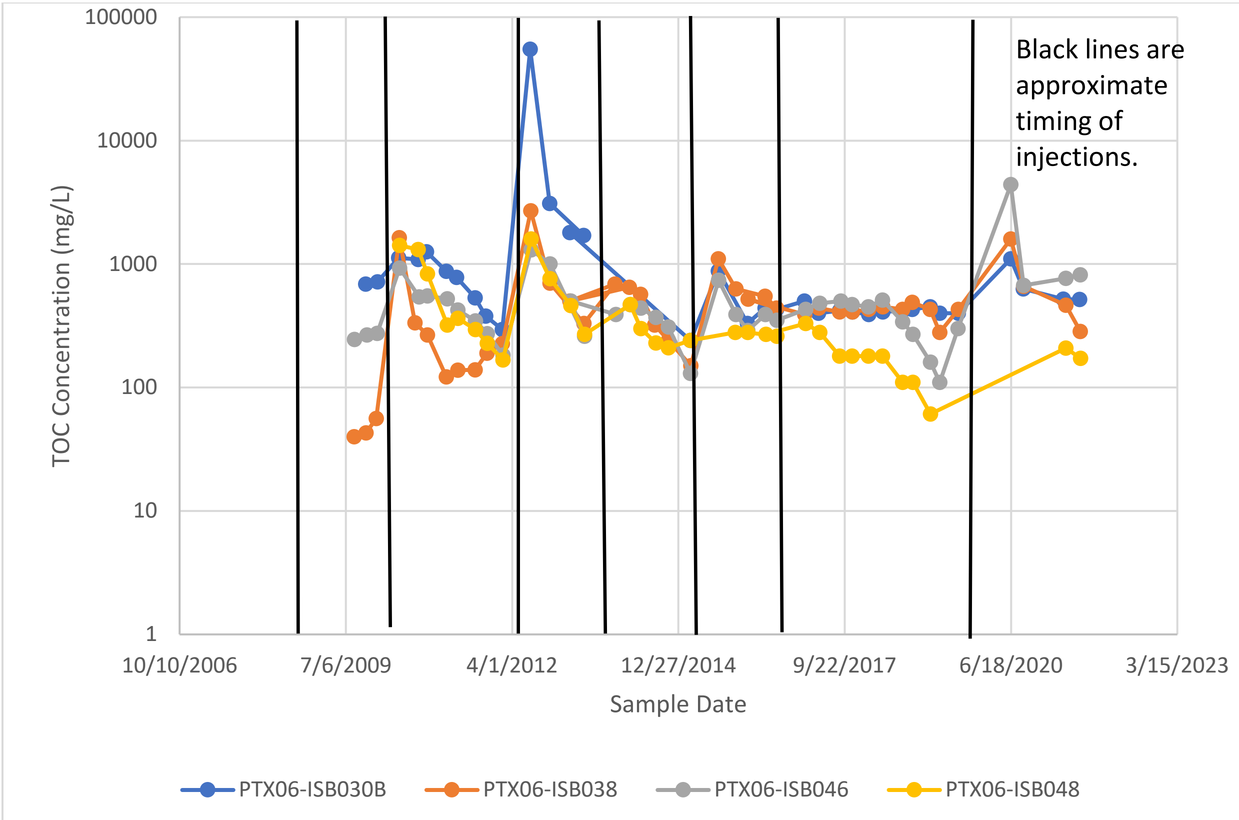

Figure 4.26 TOC in SEISB Treatment Zone.

TOC concentrations are lower in the downgradient monitoring wells than in the injection wells. Between 2017 and 2021, TOC concentrations in the downgradient monitoring wells were less than 20 mg/L. At PTX06-1045, TOC concentrations ranged from 0.78 mg/L to 1.3 mg/L and likely represent natural background levels (**Figure 4.27**). Historically, the highest TOC concentrations were observed in PTX06-1154 and PTX06-1037, while the results for PTX06-1153 have generally shown little influence from the SEISB. After the most recent amendment injection, the TOC concentration increased slightly at PTX06-1037 and PTX06-1154, but the 2021 TOC results for both wells were less than the detections reported in 2017, indicating an overall decline in TOC concentrations between 2017 and 2021. On the other hand, water was extracted from PTX06-1153 at about 1.25 gpm during the most recent injection event resulting in slightly increased TOC, suggesting that the molasses reached this well. In spite of this increase, the TOC concentration at PTX06-1153 remained less than 10 mg/L.

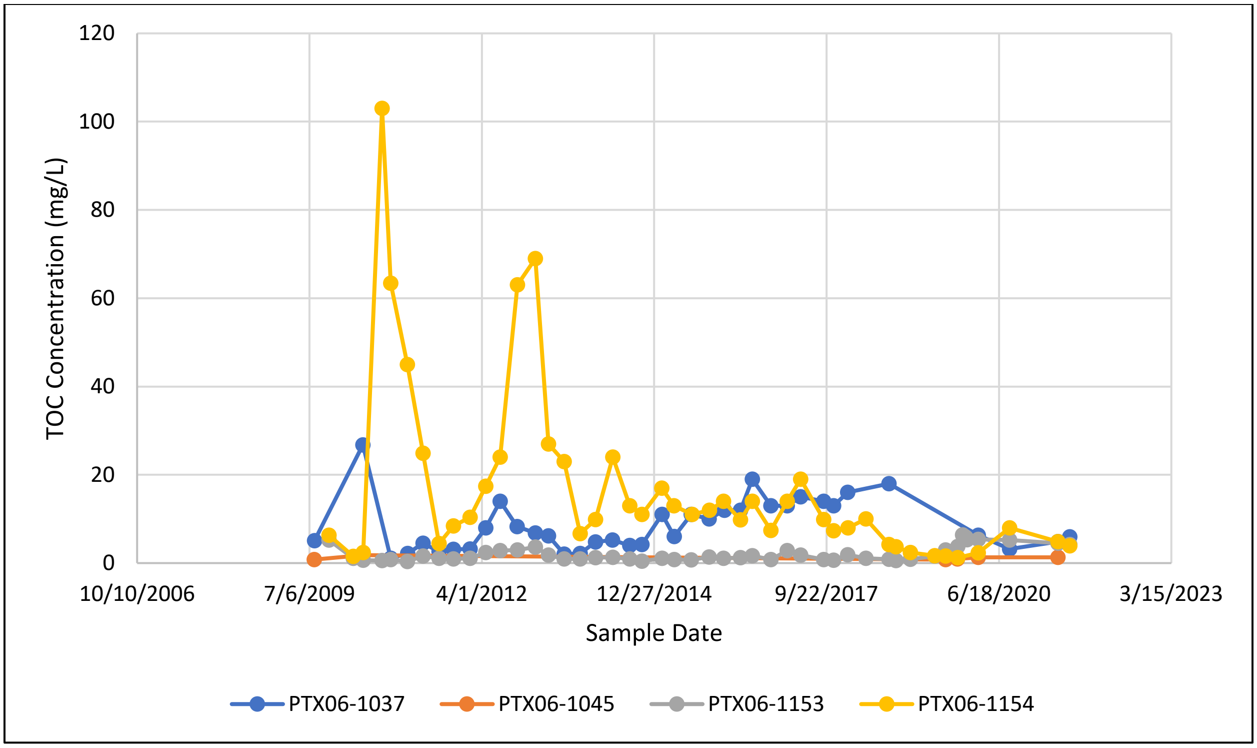

Figure 4.27 TOC in Downgradient Monitoring Wells.

In summary, the natural attenuation parameter results suggest that anaerobic conditions are being maintained within the SEISB treatment zone. Recent increases in sulfate concentrations, however, suggest that the effect of the most recent carbon substrate injection could be wearing off and that additional substrate injection may be warranted in the near future. The SEISB appears to influence the geochemistry of the groundwater surrounding wells PTX06-1037 and PTX06-1154. Historical data indicate limited influence of the SEISB on groundwater at PTX06-1153. Recent data show a decrease in sulfate concentration and an increase in TOC concentration at PTX06-1153, suggesting some influence from the SEISB. The natural attenuation parameter data support the prior conclusion (Section 4.3.3.1) that PTX06-1045 is not hydraulically connected to or influenced by the SEISB.

Well Hydraulic Testing

Well maintenance includes calculating the saturated thickness from the gauging data for each injection well and conducting post-maintenance, hydraulic testing. The SEISB is located in an area where the perched groundwater pinches out. The saturated thickness at each injection well is an important parameter for assessing the need to inject (amendment is not injected into dry wells), calculating the amendment injection volume, and evaluating groundwater flow.

In 2019, the length of water column in each of the 25 maintained injection wells prior to maintenance ranged from 0.15 ft to 10.77 ft, and the saturated thickness surrounding each of these wells was calculated to range from 0 ft to 12.91 ft. It was estimated that 11 injection wells had 0% of the well screen saturated. Saturation exceeded 50% of the screened interval at only 9 of the 25 injection wells.

The 2019 hydraulic test results for the 25 maintained wells show transmissivity ranging from 1 square foot per day (ft^2/day) to 67 ft^2/day. Specific capacity ranged from 0.03 gallon per minute per foot (gpm/ft) to 1.29 gpm/ft. Hydraulic testing was initiated in 2012. Of the 21 wells that were hydraulically tested in both 2012 and 2019, 19 showed a decrease in transmissivity over time. These decreases ranged from 17% at PTX06-ISB048 (transmissivity of 58 ft^2/day in 2012 and 48 ft^2/day in 2019) to 96% at PTX06-ISB032 (transmissivity of 25 ft^2/day in 2012 and 1 ft^2/day in 2019). Transmissivity increased at PTX06-ISB016 and PTX06-ISB029A. Between 2012 and 2019, the specific capacity increased at six injection wells and decreased at 15 injection wells. The decreases in specific capacity ranged from 2.8% at PTX06-ISB040 (0.71 gpm/ft in 2012 and 0.69 gpm/ft in 2019) to 85% at PTX06-ISB032 (0.2 gpm/ft in 2012 and 0.03 gpm/ft in 2019). As noted in Section 4.3.2.2, the injection volumes and flow rates indicate that well maintenance activities are maintaining functionality of the injection wells although transmissivity and/or specific capacity at many wells has decreased with time.

Summary of Remedy Performance and Efficacy

Within the treatment zone, the analytical and field data indicate that the SEISB is maintaining conditions that support anaerobic biodegradation of RDX and reduction of hexavalent chromium. The treatment occurring within the SEISB has had a positive effect on downgradient groundwater quality near PTX06-1037 and PTX06-1154. COC concentrations at these two wells are less than the chromium GWPS and RDX cleanup goal. At PTX06-1153, chromium concentrations were consistently less than the GWPS between 2017 and 2021 and indicate a decreasing trend from the elevated detections reported from 2013 to 2015. The RDX contamination at PTX06-1153, however, is not attenuating, and the reason for the persistent RDX contamination at this well has not been determined. As discussed previously, an interpolated ridge in the top of FGZ, depositional environment of perched zone fluvial sediments, and/or leakage of the perched groundwater into/through the FGZ could be reversing groundwater flow direction between the ISB and PTX06-1153, causing the well to be hydraulically unconnected to the SEISB treatment zone. The water level, COC, and natural attenuation parameter data suggest that PTX06-1045 is not hydraulically connected to the SEISB.

4.2.4 Optimization Recommendations

The following recommendations are provided to optimize SEISB performance:

- Investigate the vicinity of PTX06-1153 to determine the reason for the persistent RDX contamination at the well (assess presence of interpolated ridge in top of FGZ between SEISB and PTX06-1153; assess potential leakage into FGZ through water balance calculations using analytical calculations or the existing numerical model [HGL, 2021a]). Use the data to evaluate whether the SEISB should be expanded or an alternate remedy implemented to remediate the contamination at PTX06-1153.
- Groundwater data upgradient of the SEISB is not currently available. Monitoring wells used previously to provide upgradient influent concentrations have gone dry as a result of the SEPTS operation, and new monitoring wells installed in this area have also been dry. Influent data is needed to reliably determine the extent of contaminant removal by the SEISB and the need for additional amendment injection. However, continued

exploration upgradient of the SEISB system may not be an efficient use of resources. If water is present, collect samples from PTX06-1122 and PTX06-1119 to assess contaminant by-pass around the SEISB.

- Use upgradient data (if available) and geochemical data from the ISB injection wells, such as concentration changes in TOC, to identify the timing of future amendment injection events.
- Continue to monitor PTX06-1045 to assess the RDX contamination at this location but do not identify this well as a performance monitoring well for the SEISB. As discussed in Section 4.3.3.1, PTX06-1045 may have been hydraulically connected to the vicinity of the SEISB during design of the SEISB, but this connection was lost when the well dried up. The connection does not appear to have been re-established with the recent recharge of water in the well's vicinity.

4.3 SOUTHEAST IN SITU BIOREMEDIATION TREATMENT EXTENSION

4.3.1 Remedy Description

The SEISB Extension was installed in 2017 as an extension of the original SEISB remedy for the Southeast Area perched groundwater unit as provided in the ROD. The SEISB Extension was designed in general to address the continued migration of HEs to the southeast and specifically to remediate RDX through anaerobic processes. The system was positioned at the Pantex southeast boundary, adjacent to Highway 60, to treat contaminants in the southeast plume moving to off-site property. The purpose of the injection wells within the SEISB Extension is to distribute a carbon substrate amendment to generate anaerobic groundwater conditions that support biodegradation of RDX.

The SEISB Extension was originally constructed with 24 injection wells, 1 monitoring well that was converted to an injection well, and 3 downgradient in situ performance monitoring (ISPM) wells. The injection wells are spaced 75 ft apart. The system was expanded first in 2020 with the addition of four injection wells and again in 2021 with two additional injection wells. The initial 25 injection wells were installed to a depth of 1 ft into the FGZ with a 10-ft screen. The wells installed in 2020 and 2021 extend approximately 3 ft into the FGZ and have screens either 10 ft or 15 ft in length. The depth of screen bottoms of the SEISB Extension wells ranges from 280 ft bgs to 294 ft bgs. The injection wells are configured to form a single transect perpendicular to the direction of groundwater flow along the Pantex southeast boundary in the area adjacent to Highway 60 (**Figure 4.28**). The initial 25 injection wells are oriented northeast to southwest parallel to Highway 60, and the 6 additional injection wells are oriented north to south along the eastern property boundary. Future expansion of the SEISB Extension to the north is anticipated due to the observed and modeled expansion of the HE plumes to the east (CNS, 2022b).

The saturated thickness surrounding the SEISB Extension was estimated to be approximately 12 ft when the extension was constructed (CNS, 2020). The saturated thickness noted for each well at the time of installation ranged from 1.87 ft to 14.45 ft. Based on the SEISB Extension's location downgradient of the SEPTS, it is expected that the saturated thickness surrounding the SEISB Extension will decrease with time as the SEPTS continues to dewater the perched zone.

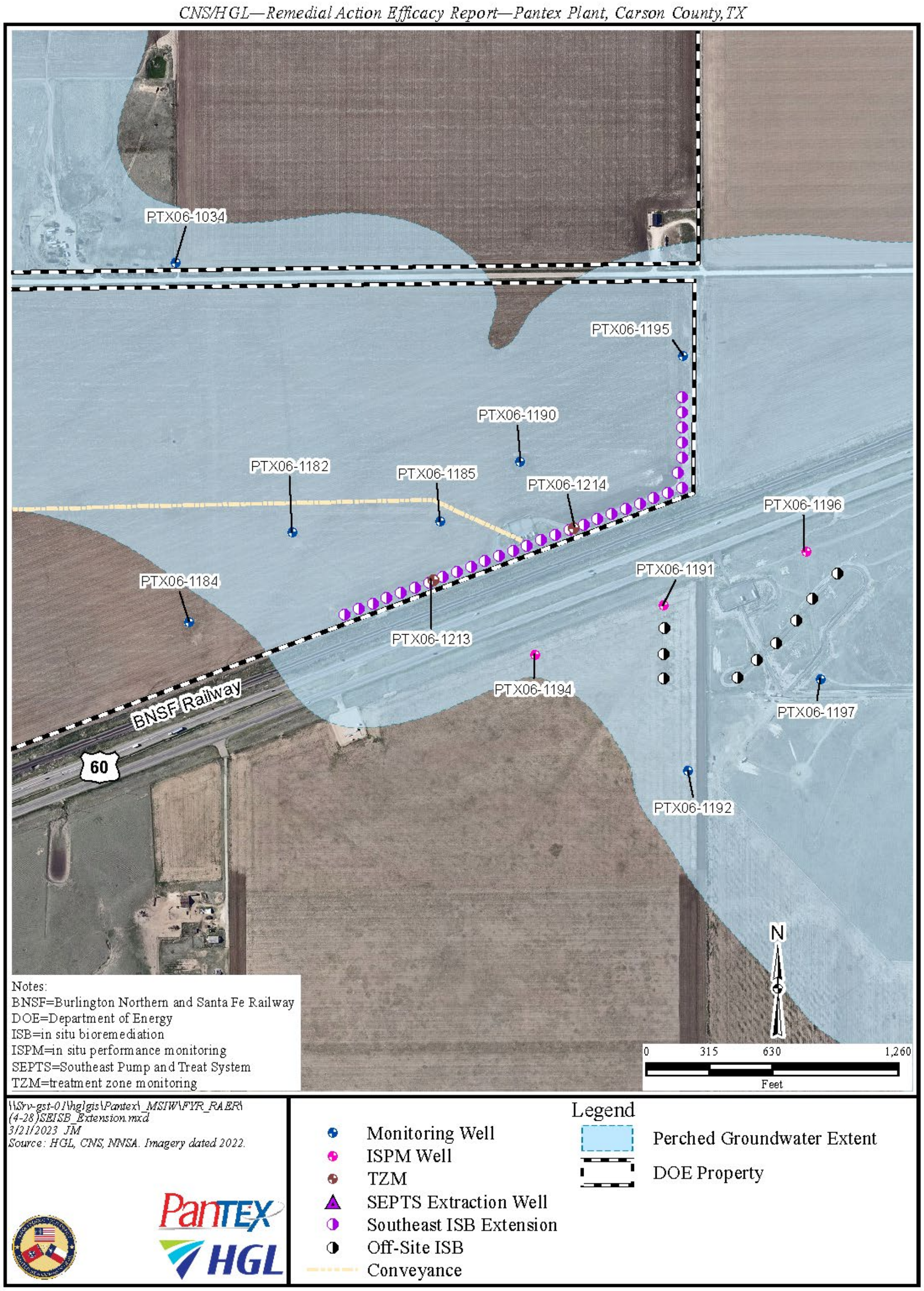

Figure 4.28 SEISB Extension System.

The initial amendment injection occurred in 2019. Unlike for the SEISB and Zone 11 ISB, where the initial amendment injections used EVO, a soluble carbon substrate, molasses was selected for the SEISB Extension. Because molasses is consumed quickly, the initial O&M schedule was based on a semiannual amendment injection with the possibility of extending the time between injections to 9 months pending evaluation of performance monitoring data. The initial amendment injection event occurred from January to March 2019. Subsequent injection events were completed from August to September 2019, July to August 2020, April to May 2021, October to December 2021, and in September 2022. This last injection is outside the period of time being evaluated in this report.

There are three performance monitoring wells for the SEISB Extension: PTX06-1191, PTX06-1194, and PTX06-1196. Two treatment zone monitoring wells, PTX06-1213 and PTX06-1214, were installed in September 2021 and, thus, provide limited data for evaluation. Injection wells PTX06-ISB302, PTX06-ISB307, PTX06-ISB317, PTX06-ISB321, PTX06-ISB325, and PTX06-ISB327 are also sampled to support performance monitoring. Injection wells PTX06-ISB302, PTX06-ISB307, PTX06-ISB317, PTX06-ISB321, and PTX06-ISB325 were installed in 2017. PTX06-ISB327 was installed in 2020.

There are two injection control trailers at Pantex that are used to mix and deliver amendment solution to injection wells. These trailers are used for the SEISB, Zone 11 ISB, SEISB Extension, and Offsite ISB. The trailers are configured to allow 24-hour operation. Solution makeup water is obtained from the SEPTS.

4.3.2 Operation and Maintenance

Injection Well Maintenance

As noted in **Section 4.3.1**, molasses was injected into the SEISB Extension five times between 2017 and 2021. The injection wells underwent maintenance for biofouling before the second injection event in 2019 and both injection events in 2021. Based on field observations during the 2020 well inspection, it was determined that active well maintenance was not warranted before the 2020 amendment injection event (Arcadis, 2020c). The approach for the 2019 well maintenance event is summarized below.

- Visual well inspection and measurement of the depth to water and depth to bottom of each well.
- Initial mechanical rehabilitation consisted of bailing to note the initial water conditions and baseline rate of water recharge followed by mechanical agitation of the well using a surge block tool with a combined brush attachment. After brushing and surging, water was removed from the well via bailing. Bailing ceased when the water removed from the well was relatively free of suspended solids or no additional water could be removed.
- Chemical rehabilitation using a Welgicide solution. After addition of the Welgicide solution and flush water to rinse the hose, fittings, and drop pipe, each well was surged to promote distribution of the Welgicide solution into the filter pack. After a minimum contact period of 24 hours, each well was bailed to remove the Welgicide solution,

groundwater, and solids. Bailing continued until the pH of the extracted water was less than 9 or the well was dry.

- Final mechanical rehabilitation during which each well was jetted, surged, and bailed twice. The final stage of mechanical rehabilitation was considered to be complete when the extracted water was generally free of suspended solids. Consistent field parameter readings were also used to determine when final mechanical rehabilitation was complete. In wells with low saturated thicknesses, SEPTS water was added before surging to facilitate treatment of the unsaturated portion of the well screen.
- Hydraulic testing of each well after final mechanical rehabilitation. The hydraulic testing consisted of constant-rate injection tests, during which a specified volume of water was injected into each well at a constant rate. The results were used to calculate the transmissivity and specific capacity at each well.

The 2021 well maintenance events generally followed the approach outlined above. Removal of the Welgicide solution, however, was considered to be part of final mechanical rehabilitation as opposed to a separate step preceding final mechanical rehabilitation. In 2021, final mechanical rehabilitation consisted of several rounds of surging, brushing, and bailing. At that time, the performance criteria for ceasing final mechanical rehabilitation were pH less than 9; extracted water relatively free of suspended solids, organic matter, or fines as noted by visual observation; and general improvement in water color from brown to light brown or clear. In addition, the well maintenance reports (Trihydro, 2021a and 2021b) did not note the use of jetting to dislodge biological material or mineral scale from the well screen and filter pack. Finally, the report for the first well maintenance event in 2021 (Trihydro, 2021a) stated that, due to "variability of testing procedures prior to this event," the hydraulic testing data for the 2021 maintenance events should not be compared to the 2019 data.

Table 4.6, below, summarizes the post-maintenance performance of the injection wells. The ranges of saturated thickness are similar for all three well maintenance events. The hydraulic properties for the 2019 data are higher than those of the 2021 data, which may reflect fouling of the screen, filter pack or immediately adjacent perched zone sediments, or differences in testing procedures. Although the maximum transmissivity increased between the two 2021 maintenance events, the ranges of specific capacity were similar.

Table 4.6
Hydraulic Testing Results from Well Maintenance Events

Well Maintenance Event	# Wells	Post-Maintenance Range of Saturated Thickness (ft)	Range of Transmissivity (ft^2/day)	Range of Specific Capacity (gpm/ft)
June – August 2019	25	1.9 – 14.3	97 – 2,278	1.27 – 14.87
February – April 2021	25	1 – 13.7	18 – 386	0.5 – 4.4
August – November 2021	29	1.4 – 14.7	20 – 1,113	0.8 – 4.7

Amendment Injection

As noted in Section 4.3.1, five injection events were completed at the SEISB Extension during the period of this evaluation (2017 to 2021). **Table 4.7** summarizes these injection events.

Table 4.7
Amendment Injection Events

Date	# Injection Wells	Target Volume (gal)	Actual Volume (gal)	Average Injection Flow Rate (gpm)	Specific Capacity (gpm/ft)	Average Dose (% Molasses by Volume)
January – March 2019	25	854,000	995,000	12 – 18.4	0.49 – 0.75	1.29
August – September 2019	25	819,000	1,050,000	5 – 19	0.14 – 0.74	2.27
July – August 2020	25	841,000	866,000	1.4 – 11.2	< 0.02 – 0.5	3.09
April – May 2021	25	886,000	898,000	4.8 – 23.8	0.02 – 1.39	1.99
October – December 2021	30	897,000	947,000	8.8 – 25.2	0.03 – 1.39	2.41

During both 2019 injection events, all injection wells accepted at least the target volume of amendment solution; some wells accepted more than the target volume. In addition, none of the injection wells exhibited mounding exceeding the work plan-specified level (50 ft below top of casing) (Arcadis, 2019a). During the 2020 injection event, four wells received less than the target volume of amendment solution, and mounding at seven wells reached 50 ft below the top of casing. The reduced performance of the injection wells during the 2020 event was attributed to a low flow rate from the SEPTS, which slowed conveyance of the molasses solution through the distribution system and caused fermentation before emplacement of the solution through the well screen (Arcadis, 2020d).

During each of the 2021 injection events, one injection well received less than the target volume of molasses solution. During the April to May 2021 event, one well received 98.3% of the target injection volume. During the October to December 2021 event, one well received 99.8% of the target volume. All other wells accepted at least the target volume.

4.3.3 Remedy Performance and Efficacy

<u>**Analytical Data for COCs**</u>

RDX is the primary groundwater COC near the SEISB Extension. Baseline samples were collected from the injection wells in 2018 before the start of amendment application. In 2018, RDX was not detected or was detected at concentrations below the cleanup goal (0.002 mg/L) in injection wells PTX06-ISB301, PTX06-ISB302, PTX06-ISB303, and PTX06-ISB304, which are located on the southwestern end of the SEISB Extension. In the remaining injection wells, RDX concentrations increased moving northeast along the alignment to a maximum detection of 1.28 mg/L at PTX06-ISB318 and then decreased to 0.0218 mg/L at PTX06-325, the northeastern most well in the original SEISB Extension. These results indicate that the original ISB configuration completely captured the western edge of the RDX plume but not the eastern edge. Expansion of the SEISB Extension to the north with the installation of injection wells PTX06-ISB326A through PTX06-ISB331 appears to have captured the RDX contamination migrating past the northeastern end of the SEISB Extension. PTX06-ISB331 was initially sampled in November 2021, and the RDX detection of 0.000884 mg/L was below the cleanup goal. In addition, RDX results for PTX06-

1195, which is located due north of PTX06-ISB331, have been non-detect or detections less than the cleanup goal.

The performance monitoring results for RDX and its degradation products DNX, MNX, and TNX in the SEISB Extension injection wells, treatment zone, and downgradient monitoring wells are summarized in **Table 4.8**.

Table 4.8
SEISB Extension Performance Monitoring Results

Well Identification	Location	Analytical Results
PTX06-ISB302	Southwestern end of ISB outside of the initial RDX plume	Two DNX detections, 0.0031 mg/L and 0.000118 mg/L, in 2019. No other detections.
PTX06-ISB307	Southwestern side of the ISB	No RDX detections since baseline (2018) result of 0.0123 mg/L. One DNX detection in 2019.
PTX06-ISB317	Middle of the ISB	No RDX detections since baseline (2018) result of 0.718 mg/L. TNX, DNX, and MNX detected during baseline sampling. Sporadic detections of DNX since the initial injection event.
PTX06-ISB321	Northeastern side of the ISB	No RDX detections since baseline (2018) result of 0.279 mg/L. One baseline detection of TNX. One post-injection DNX detection in 2019.
PTX06-ISB325	Original northeastern end of the ISB	No RDX detections since baseline (2018) result of 0.0218 mg/L. One baseline detection of TNX. Two post-injection DNX detections.
PTX06-ISB327	Southern end of northern addition to ISB	RDX (0.00847 mg/L) and all degradation products detected in 2020 (this well's baseline event). Not sampled in 2021.
PTX06-1213	Within treatment zone near PTX06-ISB307	Initial sampling in November 2021. RDX and degradation products not detected.
PTX06-1214	Within treatment zone near PTX06-ISB317	Initial sampling in November 2021. RDX and degradation products not detected.
PTX06-1191	Downgradient of northeastern side of original ISB	RDX detections fluctuating between 0.0935 mg/L and 0.164 mg/L (**Figure 4.29**); MAROS evaluation using MK analysis indicated RDX has a *probably increasing* statistical trend during the current FYR period (**Attachment 11** to the third FYR).
PTX06-1194	Downgradient of middle of ISB	RDX detections less than cleanup goal (0.002 mg/L) in 2018; not detected 2019 to 2021. No detections of RDX degradation products; MAROS evaluation using MK analysis indicated RDX has a *stable* statistical trend during the current FYR period (**Attachment 11** to the third FYR).
PTX06-1196	Downgradient of northeastern corner of ISB	RDX concentration fluctuating between 0.0173 mg/L and 0.0335 mg/L (Figure 2); MAROS evaluation using MK analysis indicated RDX has an *increasing* statistical trend during the current FYR period (**Attachment 11** to the third FYR). RDX degradation products routinely detected.

The detections of RDX degradation products in the baseline samples from the injection wells indicate that RDX degradation was occurring naturally before the initial amendment injection event in 2019. Within the treatment zone, amendment injection appears to have stimulated RDX degradation. As shown on **Figure 4.29**, the effective RDX degradation in the treatment zone has yet to be reflected in the downgradient data.

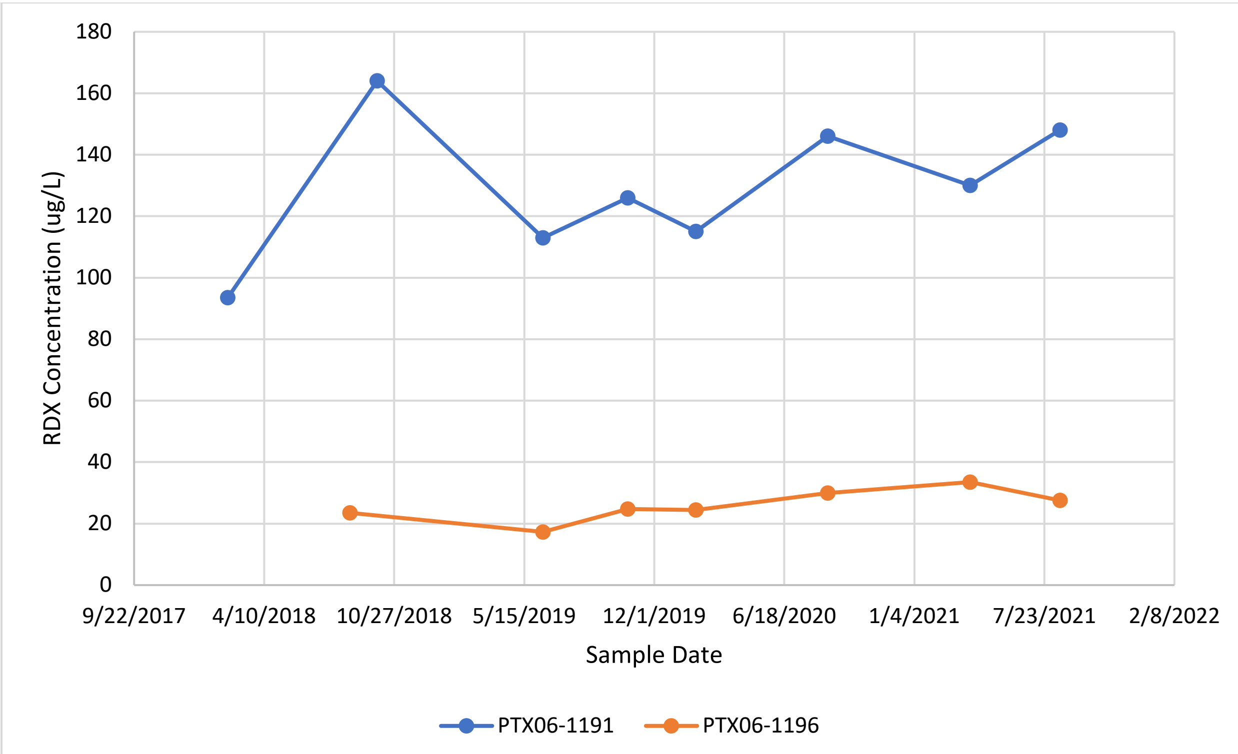

Figure 4.29 RDX at Downgradient Wells PTX06-1191 and PTX06-1196

Passive flux meter data collected in wells upgradient of and in the SEISB Extension system indicate that the seepage velocity is between 90 ft/year and 300 ft/yr. These seepage velocities are higher than estimates from design values used for the SEISB (not the extension). The final Design Basis Document (Aquifer Solutions, 2007) for the SEISB noted that hydraulic conductivity in the vicinity of the SEISB ranged from 10 ft/day to 50 ft/day with an average value of 20 ft/day. Between 2019 and 2021, the hydraulic gradient across the SEISB Extension between upgradient wells PTX06-1185 and PTX06-1190 and downgradient wells PTX06-1194 and PTX06-1196 was estimated to be approximately 0.003 ft/ft. With this hydraulic gradient and an assumed porosity of 0.25 (Aquifer Solutions, 2007), the seepage velocity in the vicinity of the SEISB Extension is estimated to be between 40 ft/year and 200 ft/year based on the range of hydraulic conductivities and 90 ft/year based on the average hydraulic conductivity. PTX06-1194 and PTX06-1196 are approximately 500 ft and 700 ft, respectively, downgradient of the SEISB Extension treatment zone. With an estimated average seepage velocity of 90 ft/year and passive flux meter average seepage velocity of 183 ft/year, it would take approximately 3 to 6 years for treated groundwater to reach PTX06-1194 and 4 to 8 years for treated groundwater to reach PTX06-1196. This evaluation indicates that the SEISB Extension has likely not been operating long enough to exert an effect on groundwater concentrations at the downgradient performance monitoring wells.

Natural Attenuation Parameter Data

To support evaluation of ISB performance, downgradient performance monitoring wells and select injection wells are sampled for analysis of natural attenuation parameters. In 2021 and 2020, the natural attenuation parameters consisted of DOC, TOC, iron, manganese, sulfate, and nitrate. In 2018 and 2019, the natural attenuation parameter list also included alkalinity and VFAs. These parameters, along with pH, DO, and oxidation-reduction potential (ORP), can be used to assess whether the groundwater geochemistry is suitable for anaerobic biodegradation of RDX. The results for these parameters are evaluated below.

The 2018 and 2019 alkalinity results ranged from 147 mg/L to 5,474 mg/L and suggested the presence of sufficient buffering capacity to counter acid production during fermentation of the carbon substrate. Most of the pH measurements reported for 2018 through 2021 were in the range of approximately 6 to 8, which is the optimal range for biodegradation. Eight pH readings, however, were less than the optimal range. These slightly to moderately acidic readings are listed in **Table 4.9**. Two injection wells, PTX06-ISB317 and PTX06-ISB321, have had more than one pH reading less than the optimal range. Although the pH at both wells rebounded to circumneutral levels, these wells appear to have less buffering capacity than the other injection wells that are sampled routinely.

Table 4.9
pH Results

Well Identification	pH	Sample Date	Comments
PTX06-ISB307	5.2	December 2020	pH readings during both 2021 events were greater than 6.
PTX06-ISB317	5.88	May 2019	pH is not consistently less than 6; pH increased during subsequent sampling events.
	5.06	December 2020	
	5.56	August 2021	
PTX06-ISB321	4.89	December 2020	pH increased to 6.35 in August 2021.
	4.9	March 2021	
PTX06-ISB325	5.43	May 2019	Subsequent readings from November 2019 through August 2021 were greater than 6.
PTX06-1213	5.52	November 2021	Well has been sampled only once.

Most of the DO concentrations in the downgradient monitoring wells were greater than 2 mg/L. These wells also had positive ORP readings. Groundwater near the downgradient monitoring wells appears to be aerobic, which indicates that the SEISB Extension has not affected downgradient geochemistry.

Within the treatment zone, DO concentrations have decreased since the baseline 2018 sampling events and currently vary from less than 1 mg/L to as high as 5.7 mg/L. ORP has also varied but the readings have generally indicated mildly to moderately reducing conditions since the initial injection event in 2019. The variations in DO concentrations and ORPs indicate that the injection events generate anaerobic conditions, but the effect wears off, necessitating repeat amendment applications to maintain the anaerobic conditions.

Decreasing sulfate concentrations indicate anaerobic conditions. Downgradient sulfate concentrations fluctuated between 8.5 mg/L and 20 mg/L between 2018 and 2021 and do not appear to have been affected by the SEISB Extension. Within the treatment zone, sulfate concentrations were similar during the baseline event and ranged from 7.1 mg/L to 17 mg/L. These results suggest that natural levels of sulfate vary within a relatively narrow range of slightly greater than 5 mg/L to approximately 20 mg/L. Since the initial amendment injection in 2019, sulfate concentrations within the treatment zone have fluctuated substantially as a result of sulfate being present in the molasses amendment. Injection wells PTX06-ISB302 and PRX06-ISB307 showed the least fluctuation, with the sulfate concentration at PTX06-ISB302 remaining less than the baseline detection of 15 mg/L and the sulfate concentration at PTX06-ISB307 increasing to a maximum value of 27 mg/L (**Figure 4.30**). At PTX06-ISB317, PTX06-ISB321, and PTX06-ISB325, sulfate concentrations have spiked to maximum detections of 80 mg/L (PTX06-ISB325), 160 mg/L (PTX06-ISB321), and 250 mg/L (PTX06-ISB317) (**Figure 4.31**). These sulfate concentrations are greater than baseline concentrations and also greater than the detections of 13.7 mg/L to 19.4 mg/L reported for upgradient monitoring wells PTX06-1182, PTX06-1185, and PTX06-1190. The elevated sulfate detections were reported for the first set of samples after an amendment injection event. After each spike, sulfate concentrations decreased, indicating the occurrence of sulfate reduction.

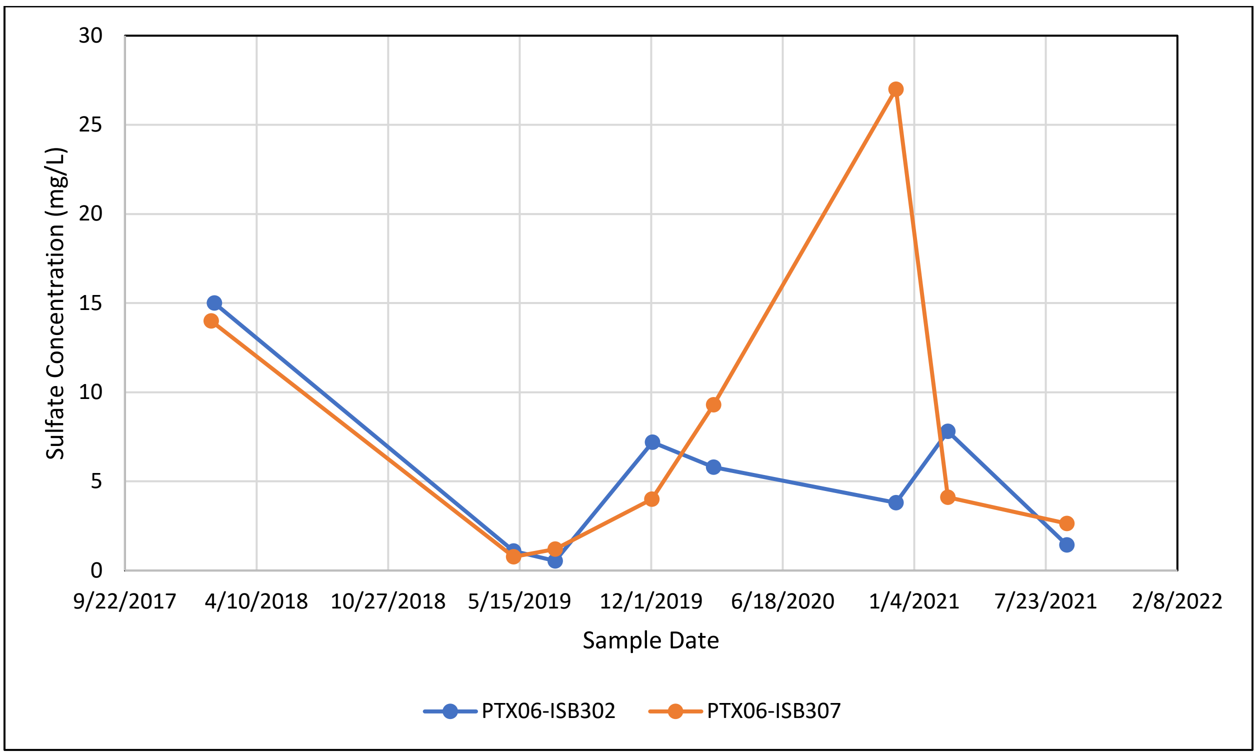

Figure 4.30 Sulfate in the Treatment Zone: PTX06-ISB302 and PTX06-ISB307.

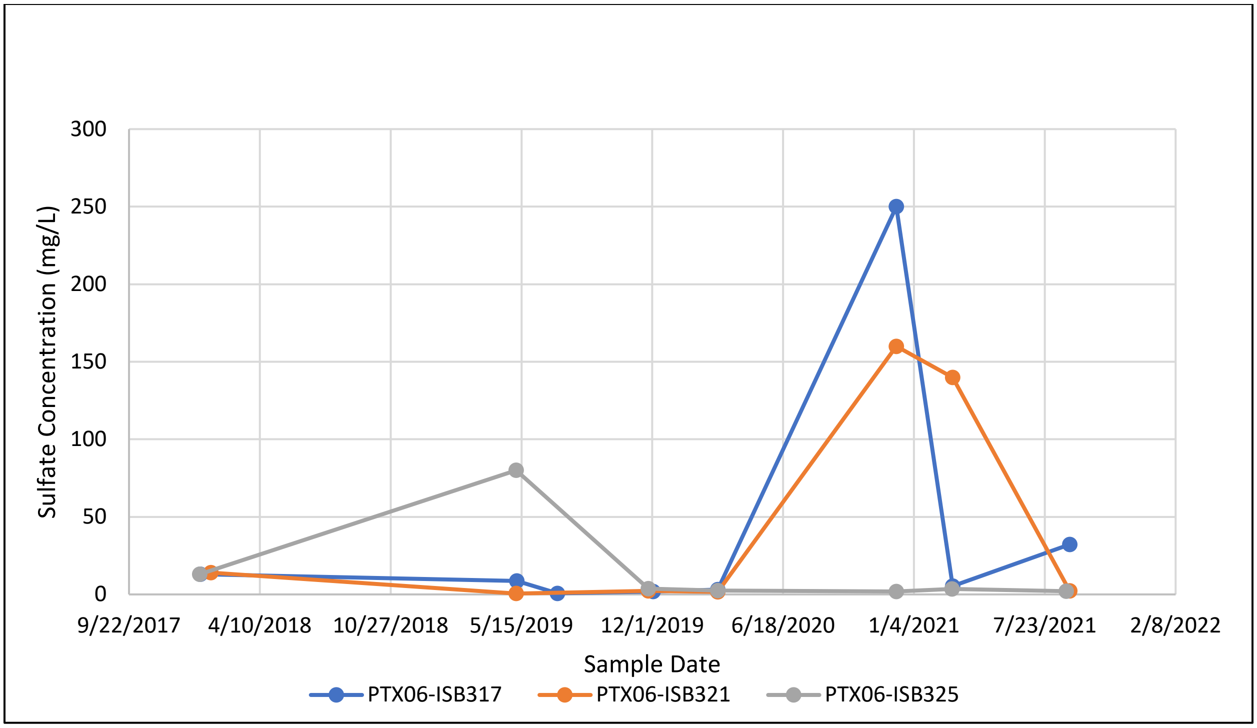

Figure 4.31 Sulfate in the Treatment Zone, PTX06-ISB317, PTX06-ISB321, and PTX06-ISB325.

Similar to sulfate, low concentrations or non-detect results for nitrate indicate anaerobic groundwater conditions. Downgradient nitrate concentrations vary between approximately 3 mg/L and approximately 6 mg/L and appear to be stable. Baseline (2018) results for injection wells were similar to those for the downgradient wells. Since the initial injection event in 2019, nitrate concentrations in the treatment zone have decreased to less than 1 mg/L with one exception, a detection of 28.81 mg/L for PTX06-ISB325 in March 2021. This result appears to be anomalous. In August 2021, nitrate was not detected at PTX06-ISB325.

Typically, when groundwater changes from aerobic conditions to anaerobic conditions, iron and manganese oxides/hydroxides dissolve and increase the aqueous concentrations of both metals. In the downgradient monitoring wells, manganese concentrations have been consistently less than 0.1 mg/L. In the treatment zone, manganese concentrations increased substantially after the initial January to March 2019 amendment injection (**Figure 4.32**). Concentrations in the treatment zone decreased and then spiked again after the July to August 2020 amendment injection. Manganese concentrations decreased in 2021 but remain greater than the baseline levels.

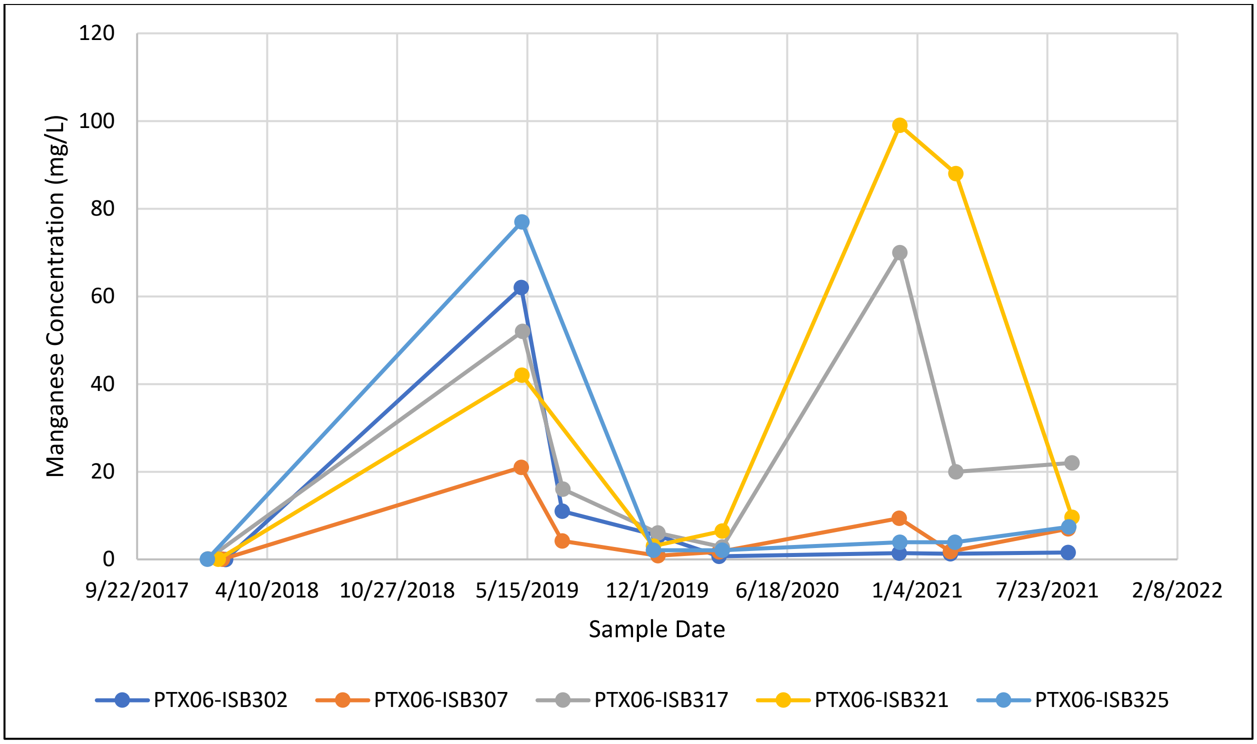

Figure 4.32 Manganese in the Treatment Zone.

Iron concentrations in the downgradient monitoring wells have been consistently less than 0.2 mg/L and appear to be stable. Similar to manganese, iron concentrations in the treatment zone increased after the initial January to March 2019 amendment injection event, then decreased, and then increased again after the July to August 2020 amendment injection (**Figure 4.33**). Iron concentrations in the treatment zone decreased in 2021 but remain greater than baseline levels. The 2019 samples from the treatment zone were speciated for ferrous iron and ferric iron. The majority of iron was in the ferrous form, indicating the occurrence of iron reduction.

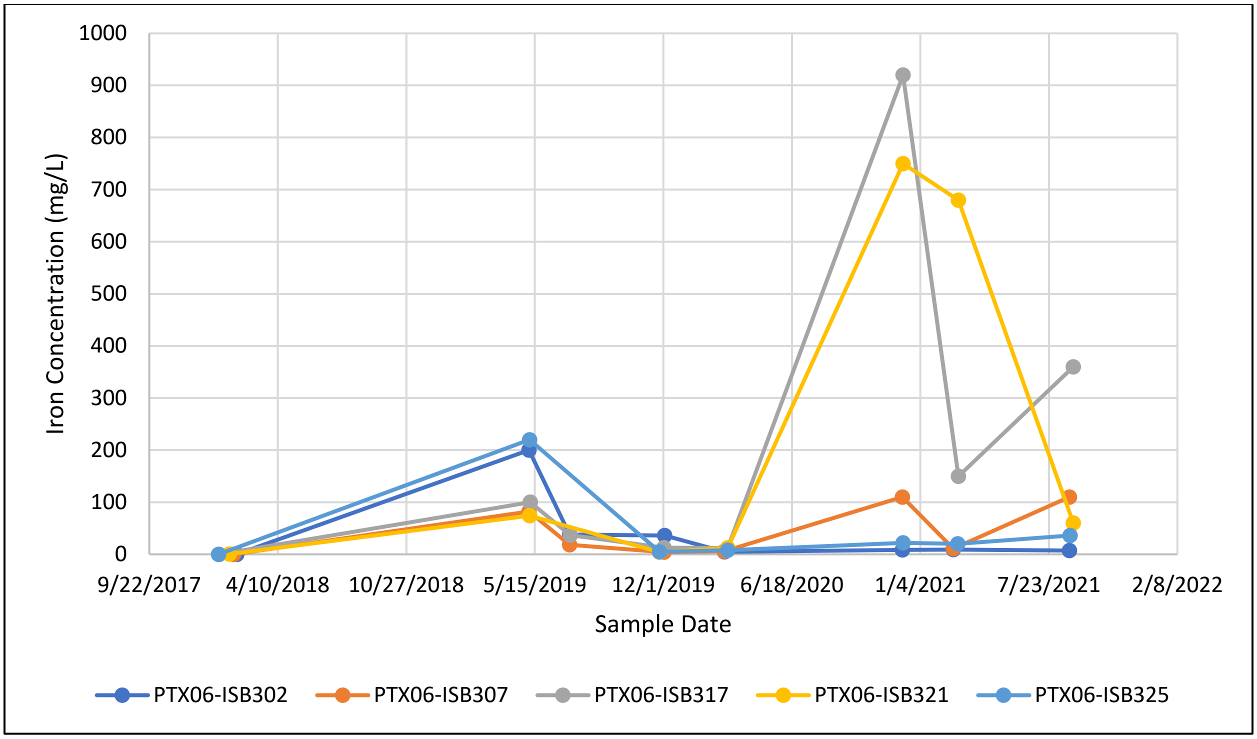

Figure 4.33 Iron in the Treatment Zone.

All carbon substrate amendments are consumed over time by the microbial community. Molasses, the carbon substrate used in the SEISB Extension, tends to be metabolized relatively quickly as compared to other carbon substrates such as EVO. The presence of carbon substrate (e.g., molasses) in the treatment zone to support anaerobic biodegradation of RDX is monitored through TOC and DOC data. Because the TOC and DOC results follow the same trends, only the TOC data are discussed below.

TOC results for the downgradient monitoring wells ranged from non-detect to 1.95 mg/L. These results likely reflect natural levels of TOC. During the baseline sampling event in 2018, TOC concentrations in the injection wells ranged from non-detectable levels to 1.9 mg/L. As expected, the molasses injection events significantly increased TOC concentrations in the injection wells (**Figure 4.34**). Between 2019 and 2021, the lowest TOC detection reported for the injection wells was 45 mg/L. These results suggest that the amendment injection schedule is maintaining elevated TOC concentrations in the groundwater immediately surrounding the injection wells.

Treatment zone wells PTX06-1213 and PTX06-1214 provide data for the space between injection wells. PTX06-1213 is located between PTX06-ISB307 and PTX06-ISB308, and PTX06-1214 is between PTX06-ISB317 and PTX06-ISB318. PTX06-1213 and PTX06-1214 were initially sampled in November 2021, during the October to December 2021 injection event. The full amount of molasses solution had been applied to PTX06-ISB307 and PTX06-ISB308 before PTX06-1213 was sampled. Thus, the November 2021 TOC result of 4,730 mg/L for PTX06-1213 reflects the complete application of amendment solution through both PTX06-ISB307 and PTX06-ISB308. PTX06-1214 was sampled during the first day that PTX06-ISB317 received the molasses solution. Molasses was not injected into PTX06-ISB318 until after PTX06-1214 was sampled.

Thus, the November 2021 TOC result for PTX06-1214 (18.5 mg/L) represents the initial TOC for PTX06-ISB317 without any influence from PTX06-ISB318. The TOC results for PTX06-1213 and PTX06-1214 suggest that the molasses solution is being distributed throughout the area between each injection well.

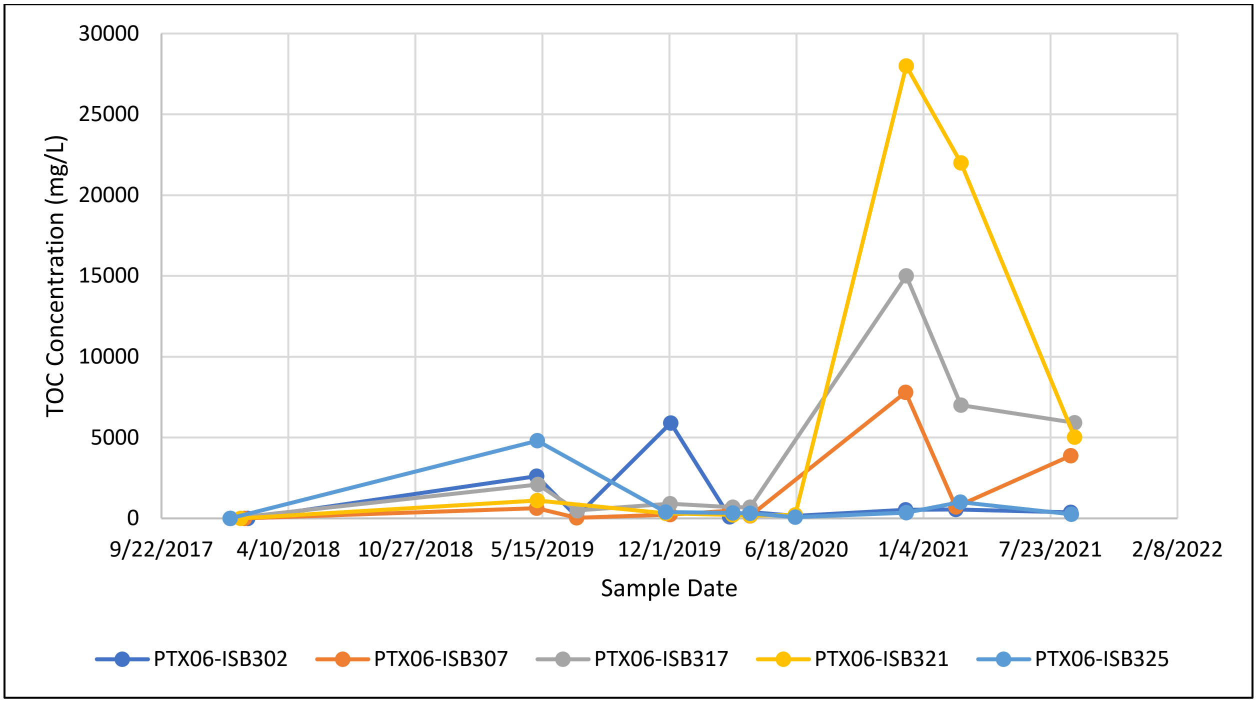

Figure 4.34 TOC in the Treatment Zone.

Well Hydraulic Testing

Well maintenance includes calculating the saturated thickness from the gauging data for each injection well and conducting post-maintenance, hydraulic testing. The SEISB Extension is located in an area where continued operation of the SEPTS could dry out the perched aquifer. The saturated thickness at each injection well is an important parameter for assessing the need to inject (amendment is not injected into dry wells), calculating the amendment injection volume, and evaluating groundwater flow.

After the most recent well maintenance event in August to September 2021, post-well maintenance saturated thickness ranged from 1.4 ft to 14.7 ft. After the first well maintenance event in June to August 2019, the post-maintenance saturated thickness ranged from 1.9 ft to 14.3 ft. These ranges of saturated thickness are similar, indicating that the SEPTS did not change the saturated thickness in the treatment zone between 2019 and 2021.

As described in Section 4.4.2.1, the 2019 transmissivity and specific capacity calculations should not be compared to the 2021 results. The ranges of specific capacity for the two 2021 well maintenance events are similar. During the April to May 2021 injection event, the extent of solution mounding in each injection well ranged from 18.7 ft to 212.3 ft, with an average height of 65.5 ft. During the October to December 2021 amendment injection, the extent of mounding increased with a range of 15.6 ft to 270.1 ft and an average of 125.7 ft. It is not known if the increased mounding between the April to May 2021 and October to December 2021 injection events represent reduced well performance or differences in injection operations. Average flow rates during both injection events, however, were similar. Regardless of the mounding, all but one well during each of the 2021 injection events received the target volume of molasses solution.

4.3.4 Summary of Remedy Performance and Efficacy

Within the treatment zone, the SEISB Extension is degrading RDX contamination to concentrations less than the cleanup goal, and the current amendment injection schedule is maintaining elevated TOC concentrations. Sulfate concentrations within the treatment zone periodically spike after injections as a result of sulfate presence in the molasses amendment, baseline and upgradient monitoring data suggest that these spikes are not an influx of upgradient sulfate. Reduction in sulfate concentrations after the spikes and the elevated iron and manganese concentrations suggest anaerobic conditions within the treatment zone. Although the SEISB Extension is degrading RDX, concentrations in the downgradient monitoring wells have not begun to attenuate. Based on seepage velocity estimates, it is expected that treated groundwater from the SEISB Extension will not reach the downgradient monitoring wells until between 2022 and 2027.

4.3.5 Optimization Recommendations

The following recommendations are provided to optimize SEISB Extension performance:

- Although most pH measurements were within the optimal range for biodegradation, several readings were below the optimal range. Recommend periodically measuring pH in all injection wells to assess the need for adding a buffering agent, such as sodium bicarbonate, to the amendment solutions.
- Since the first injection event in 2019, most TOC detections have been greater than 100 mg/L. The consistently elevated TOC concentrations suggest that the time between amendment injection events can be lengthened. Recommend increasing the duration until the next amendment injection event to provide data to evaluate decreasing the amendment injection frequency.
- Baseline data for PTX06-ISB301 through PTX06-ISB304 and recent data for upgradient monitoring well PTX06-1182 suggest that influent RDX concentrations to the southwestern end of the SEISB Extension are less than the cleanup goal. Recommend not applying carbon substrate to injections wells PTX06-ISB301 through PTX06-ISB304 during the next amendment injection event and using future data from PTX06-ISB302 to assess the need to treat these wells.
- To provide data that will allow for more immediate evaluation of the SEISB Extension's downgradient performance, consider installing monitoring wells within 200 ft of the injection wells, if possible, recognizing access constraints posed by the railroad and Highway 60 rights-of-way.

4.4 OFFSITE IN SITU BIOREMEDIATION TREATMENT

4.4.1 Remedy Description

The purpose of the Offsite ISB with limited P&T (referred to throughout the remainder of this document as Offsite ISB) is to remediate HE contamination that is migrating in perched groundwater beneath two neighboring properties to the southeast. The system is located southeast of Pantex-owned property, south of Highway 60 on property leased to Pantex (**Figure 4.35**). The system was designed in 2019 (HGL, 2019) and consists of up to 119 treatment system wells within a leased offsite area and three additional injection wells on a private property parcel located just west of the leased property. The design was developed to achieve remediation (reduce RDX below its 2 ppb GWPS) within 30 years while containing the plume within the offsite lease area. Given the site's remoteness and lack of infrastructure, all amendment makeup water will be derived from the offsite area being treated. The limited P&T system will be installed at the upgradient end of the offsite plume; injection wells will be installed for gradient control/plume containment. Amendment injections consisting of 2% molasses will occur over 15 years, followed by natural attenuation until the remedy is complete.

The offsite remedy design developed using a calibrated groundwater flow and transport model linked with numerical optimization. 2900 different potential remedy configurations were initially evaluated. The 65 best performing designs were then assessed against 20 separate representations of the offsite groundwater flow system, all 20 of which were calibrated against observed conditions, to identify the design currently being implemented in the offsite area.

Construction of the Offsite ISB began in 2020 and is occurring in a phased approach (as shown on **Figure 4.35**) that is planned to continue into 2024. Eight additional performance monitoring wells will be installed to monitor system performance. An operations plan and modeling tool (HGL, 2023) have been provided to guide remedy implementation and adjust operations, if needed, over the remedy life cycle, and provide a means for optimizing remedy performance based on observed performance monitoring data.

At the end of 2021, the Offsite ISB consisted of 19 injection wells and 11 recovery wells (**Figure 4.35**). Note the recovery well terminology is used to differentiate the ISB system EWs from the limited groundwater P&T system EWs. Slight deviations to the design location were made to assure clear distance from a gas pipeline and to minimize the chance for adverse impacts from a small playa lake. The current well network has the following configuration:

- Ten injection wells, PTX06-ISB401 through PTX06-ISB410, that form a northeast-southwest transect located near the leading edge of the RDX plume. Four recovery wells are located downgradient of the injection wells. The injection wells are oriented to be approximately perpendicular to the direction of groundwater flow.
- Six injection wells, PTX06-ISB411 through PT06-ISB416, in a northeast-southwest transect along the northern boundary of the offsite property. A line of seven recovery wells is positioned downgradient of the injection transect. The injection wells are oriented to be approximately perpendicular to the direction of groundwater flow.

- Three injection wells, PTX06-ISB417 through PTX06-ISB419, positioned in a north-south alignment in the south offsite property located west of the lease area. These wells were installed to complete a one-time amendment injection to facilitate RDX remediation on this property.

The purpose of the ISB recovery wells is to provide water for preparing the amendment solution and enhance amendment distribution away from the injection wells. The purpose of the ISB injection wells it to distribute a carbon substrate solution throughout the treatment zone. Microbial metabolism of the carbon substrate generates the groundwater conditions necessary for anaerobic biodegradation of RDX and other HEs. The first amendment injection event for the Offsite ISB was performed from June 2021 through October 2021.

Eight new and twelve existing monitoring wells will provide information on remedy performance (**Figure 4.35**). In addition, baseline COC data were obtained from most of the injection and EWs.

The objectives of the eight new monitoring wells are described below.

- PTX06-1215: Monitor downgradient RDX levels to ensure containment at the southern boundary of the Southeast Offsite Lease Area.
- PTX06-1216: Monitor the potential plume expansion on the western plume boundary between existing monitoring wells PTX06-1192 and PTX06-1201 and the effect of the hydraulic influence of the southwestern limited pump-and-treat system injection wells on the ability of the system to contain the plume.
- PTX06-1217 and PTX06-1218: Monitor the potential expansion and migration of the southwestern mid-plume.
    - ✓ Contingency: The monitored concentrations at PTX06-1218 can provide the basis for adjusting the operations of transect 3.
- PTX06-1219 and PTX06-1220: Monitor the potential expansion and migration of the central mid-plume and of the plume in the area near the small playa where ISB infrastructure cannot be installed.
- PTX06-1221: Monitor the potential expansion and migration of the northeastern mid-plume.
- PTX06-1222: Monitor the potential expansion and migration of the northeastern lower-plume.
    - ✓ Contingency: Monitored RDX concentrations at PTX06-1222 can provide the basis for adjusting the operations of transect 1b.

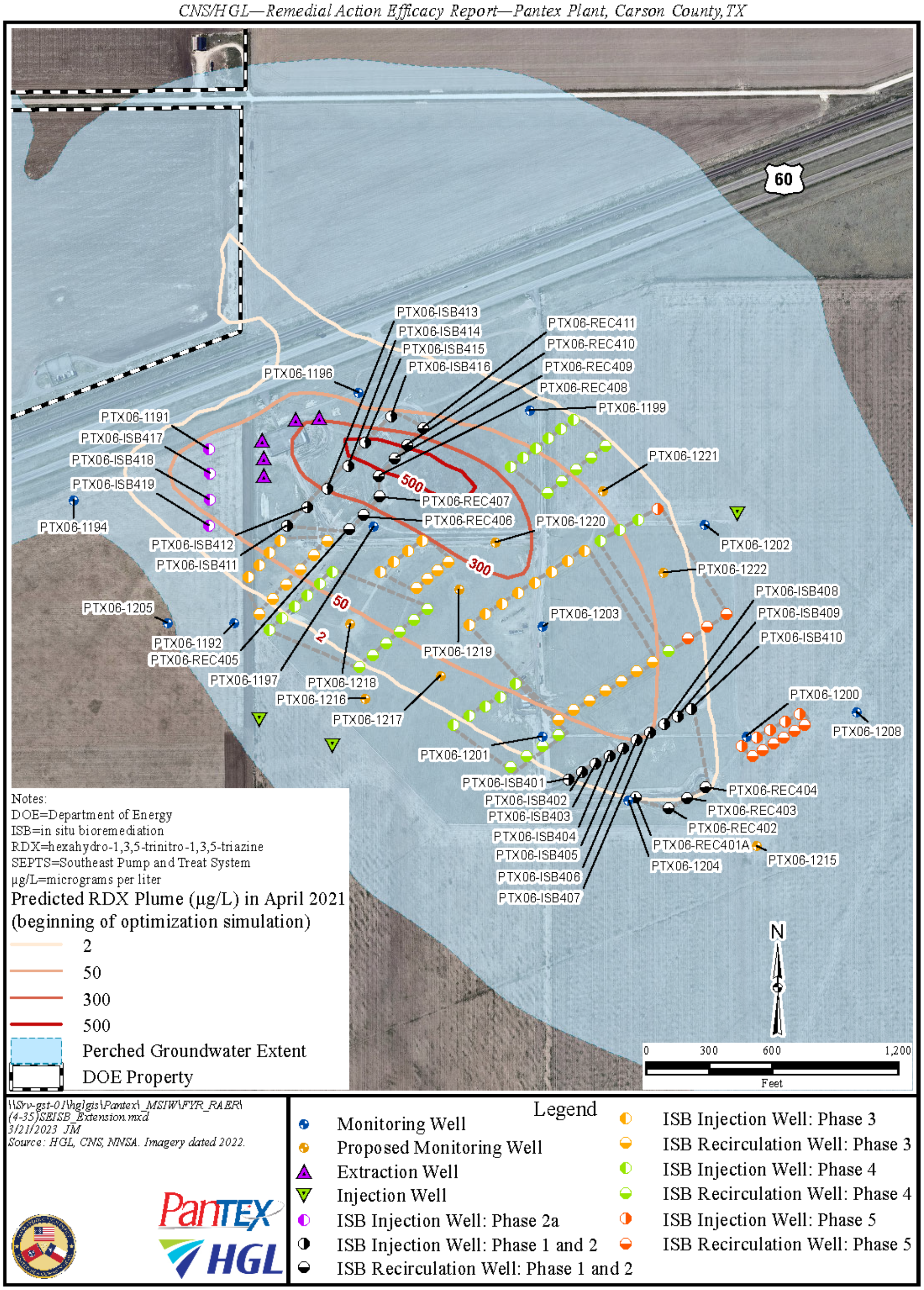

Figure 4.35 Offsite ISB.

The monitoring plan also included 12 existing monitoring wells. The objectives of these wells are described below.

- PTX06-1192: Monitor the potential expansion of the plume in the South Offsite Property and the effect of the hydraulic influence of the limited pump-and-treat system injection wells to the southeast on the ability of the system to contain the plume.
- PTX06-1194: Monitor the potential expansion of the plume to the west and monitor the performance of the SEISB-Extension system in stopping further RDX migration to the South Offsite Property.
- PTX06-1196: Monitor the performance of the SEISB-Extension system and the limited pump-and-treat system in stopping further RDX migration to the Southeast Offsite Lease Area.
- PTX06-1197: Monitor the performance of the core-plume treatment.
- PTX06-1199: Monitor the potential expansion of the plume expansion to the east.
  - ✓ Contingency: If monitored RDX concentrations at PTX06-1199 do not increase before the start of Phase 4 (October 2022), do not install the proposed north-easternmost ISB wells in transect 2b.
- PTX06-1200: Monitor the potential expansion and migration of the plume in this area.
  - ✓ Contingency: Until monitored RDX concentrations at PTX06-1200 increase above the GWPS of 2 ppb for RDX, do not install any of the proposed ISB wells in transect 5 (five injection and six recovery wells). If installed, the monitored concentrations from the wells could be used to adjust the operations of transect 5.
- PTX06-1201: Monitor the potential expansion of the plume and RDX levels in this area.
  - ✓ Contingency: Monitored RDX concentrations at PTX06-1201 can provide the basis for adjusting the operations of transect 1a.
- PTX06-1202: Monitor the potential expansion of the plume in this area and the influence of the limited pump-and-treat system injection well on the ability of the system to contain the plume.
  - ✓ Contingency: If monitored RDX concentrations at PTX06-1202 do not increase before the start of Phase 4 (October 2023) and of Phase 5, reconsider the installation and/or adjust the locations of the northeastern-most proposed Phase 4 and Phase 5 ISB wells of transect 1b.
- PTX06-1203: Monitor the performance of the core-plume treatment.
  - ✓ Contingency: Monitored RDX concentrations at PTX06-1203 can provide the basis for adjusting the operations of transect 1c.
- PTX06-1204: Monitor the potential expansion and migration of the plume in this area.
  - ✓ Contingency: Monitored RDX concentrations at PTX06-1204 can provide the basis for adjusting the operations of the existing ISB injection and recovery wells in this area.

- PTX06-1205: If not dry and if RDX concentrations at PTX06-1192, located to the east, increase, monitor for potential expansion of the plume.
- PTX06-1208: Monitor changes in RDX levels that would suggest a more significant eastward component of flow than modeled and indicated by observed water levels and RDX data.

4.4.2 Operation and Maintenance

Injection Well Maintenance

Carbon substrate amendment has been injected into the Offsite ISB once during the FYR period. Maintenance for biofouling was not performed prior to this injection event because the wells had been recently installed. (Trihydro, 2022a).

Amendment Injection

The first amendment injection event for the Offsite ISB occurred from June through October 2021. Amendment was applied through the ten southern injection wells located at the leading edge of the plume. The northern injection wells did not receive any amendment.

Makeup water for the amendment solution was obtained from all 11 recovery wells. Water from the northern recovery wells was treated with granular activated carbon (GAC) before transfer to frac tanks for storage pending use in diluting the stock molasses solution. The GAC influent, mid-process, and effluent were periodically sampled for explosives analysis. Explosives were not detected in the effluent samples. Water from the southern recovery wells was transferred to frac tanks without GAC treatment.

Water from the frac tanks was directly mixed with the stock molasses solution in the injection trailer prior to injection. Injection of the Offsite ISB was able to occur at a faster rate than groundwater extraction, therefore groundwater extraction was the limiting factor in injection throughput of the system (Trihydro, 2022a).

Molasses is the carbon substrate selected for application in the Offsite ISB. For the first injection event, the stock molasses solution was 80% by weight Brix cane molasses and 20% by weight water. The stock molasses was diluted to reach a target concentration of 2% pure molasses by volume. The actual molasses concentration during injection ranged from 1.9% to 2.4% by volume with an average of 2.12% by volume. Each injection well received the target volume or more than the target volume of molasses solution. In total, 562,917 gallons of diluted molasses solution was injected (Trihydro, 2022a).

4.4.3 Remedy Performance and Efficacy

Analytical Data for COCs

There has not been sufficient time since the initial amendment injection to evaluate remedy performance with respect to COC concentrations. The baseline results for RDX and its degradation products are summarized below.

- Data for upgradient wells PTX06-1191 and PTX06-1196 indicate stable RDX concentrations flowing towards the first line of injection wells.
- Upgradient well PTX06-1194 and northern crossgradient well PTX06-1192 bound the plume's western edge.
- Increasing RDX concentrations at PTX06-1197, PTX06-1199, PTX06-1201, and PTX06-1203 illustrate the plume's expansion to the southeast across the offsite property.
- PTX06-1208, PTX06-1202, PTX06-1200, and PTX06-1204 bound the southern and southeastern edges of the plume. RDX concentrations at PTX06-1204 are increasing, confirming the need to inject carbon substrate through the southern injection wells.
- RDX and degradation products are present along the southern injection transect. RDX results for the end wells PTX06-ISB401 and PTX06-ISB410 were less than the cleanup goal, indicating that the injection line spans the full width of the RDX plume.
- RDX and degradation products are present in the northern injection wells. The injection line does not span the eastern plume boundary. RDX concentrations in western wells PTX06-ISB418 and PTX06-ISB419 are less than the cleanup goal.
- The southern EWs are at the leading edge of the plume.
- RDX concentrations in the northern EWs are similar to those reported for injection wells PTX06-ISB411 through PTX06-ISB416.
- Detections of RDX degradation products indicate that RDX is being biodegraded under natural conditions.

Natural Attenuation Parameter Data

The natural attenuation parameters are TOC, DOC, nitrate, sulfate, iron, manganese, and alkalinity. TOC is an indicator parameter for the presence of the molasses solution. Monitoring well data indicate that natural background levels of TOC range from less than 1 mg/L to approximately 2 mg/L. The four southern recovery wells were sampled in September and October 2021 during the initial injection event. The TOC results were consistent with background levels, indicating that the amendment solution had not migrated to these EWs. Because post-injection data for the southern injection wells are not yet available, the degree to which the amendment injection increased the TOC concentration within the treatment zone is not known. Due to the lack of post-injection data, natural attenuation parameters were not evaluated further.

Well Hydraulic Testing

Baseline hydraulic testing of PTX06-ISB401 through PTX06-ISB416 was completed. Transmissivity ranged from 195 square ft per day to 1,410 square ft per day with an average value of 953 square ft per day. Specific capacity ranged from 3.12 gpm per ft to 13.64 gpm per ft with an average result of 7.26 gpm per ft.

4.4.4 Summary of Remedy Performance and Efficacy

Due to the recency of the initial injection event, the Offsite ISB's performance with respect to COC degradation was not evaluated. Hydraulically, PTX06-ISB401 through PTX06-ISB410 appeared to perform well as each well received the target volume of amendment solution.

4.4.5 Optimization Recommendations

It is too early in operation of the Offsite ISB to develop recommendations for optimizing ISB performance. A number of deviations between the 2021 design assumptions and actual system installation and operation have occurred. The operation plan and modeling tool (HGL, 2023) provide a means to adjust the system implementation while ensuring restoration objectives are met. As the remaining installation phases are completed, observed data during well installation (e.g., top of FGZ, perched groundwater saturated thickness, hydraulic conductivity) should be evaluated against those same parameters used in the design (HGL, 2021c) to assess potential impacts and associated mitigation measures. Performance monitoring data should also be evaluated against the modeling tool to determine which of the 20 aquifer realizations is most closely represented by the observed data, and the amendment injection schedule adjusted accordingly.

4.5 ZONE 11 IN SITU BIOREMEDIATION TREATMENT

4.5.1 Remedy Description

In situ bioremediation is being used in Zone 11 to address TCE and perchlorate contamination. The Zone 11 ISB is located on Pantex property south of industrial Zone 11 (**Figure 4.36**). The Zone 11 ISB was initiated in March 2009 with the installation of 23 injection wells. Nine wells were added in September 2009. In 2014, two wells that had been installed for pump testing were converted to injection wells, and 18 injection wells were installed to the west of the initial system. Six injection wells were installed in 2019 to capture TCE and perchlorate contamination migrating past the northwestern edge of the ISB. In 2021, 26 injection wells were installed as a second row across the southern side of the ISB system to treat higher TCE concentrations migrating to the southeast. Also in 2021, five wells were installed on the western side of the ISB system to compensate for existing wells that had lost injection capacity. At the end of 2021, the Zone 11 ISB encompassed 89 injection wells. This count includes both active and inactive wells. The layout of the Zone 11 ISB is shown on **Figure 4.36.**

Most of the Zone 11 injection wells were installed with the screen bottom at or below the top of the FGZ. At injection wells, the screen bottom ranged from 5 ft above the top of the FGZ to 4 ft below the top of the FGZ, with screen bottom depths ranging from 270 ft bgs to 296 ft bgs. The screened intervals were based on the saturated thickness at each location, and the wells screens range from 15 ft to 26 ft in length. The distances between the initial injection wells varied, but most wells were spaced between approximately 100 ft and 130 ft apart. The 26 wells installed on the southern side of the ISB system in 2021 were positioned approximately 50 ft apart.

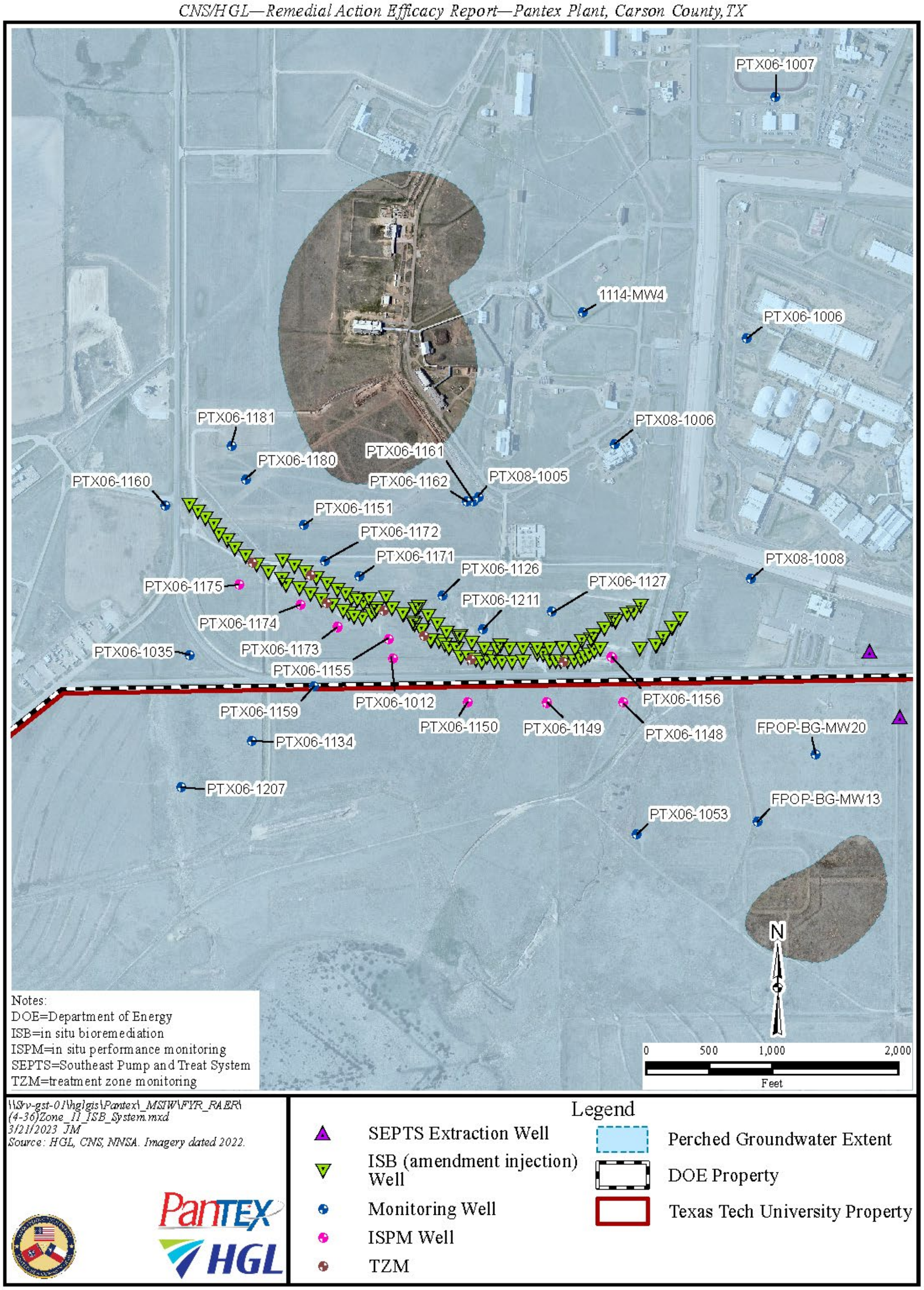

Figure 4.36 Zone 11 ISB.

From 2009 through 2016, EVO was the carbon substrate amendment used in the ISB. In 2018, both EVO and molasses were applied. In addition, a study was conducted to evaluate which amendment (EVO or molasses) provided better distribution away from the injection wells. This study concluded that molasses, which is more soluble than EVO, provided a greater radius of influence than EVO. Since the 2018 study, molasses has been used as the carbon substrate amendment except for the 26 injection wells installed in 2021, which were spaced 50 ft apart to allow use of EVO.

Performance of the Zone 11 ISB is monitored through seven wells installed in the treatment zone and nine downgradient wells. **Table 4.10** lists the performance monitoring wells and their locations with respect to the ISB system. In addition, between 2017 and 2021, groundwater samples were collected from 16 injection wells. Five upgradient wells (PTX06-1126, PTX06-1127, PTX06-1151, PTX06-1171, and PTX06-1211) are routinely sampled and provide information on changes in the levels of groundwater contaminants flowing into the treatment zone.

Table 4.10
Treatment Zone and Downgradient Performance Monitoring Wells, Zone 11 ISB

Well Identification	Location	Installation Date
Upgradient Wells		
PTX06-1126	Upgradient of central side of ISB system	January 2008
PTX06-1127	Upgradient of eastern side of ISB system	January 2008
PTX06-1151	Upgradient of western side of ISB system	March 2009
PTX06-1171	Upgradient of central side of ISB system	July 2014
PTX06-1211	Upgradient of eastern side of ISB system	August 2021
Treatment Zone Monitoring Wells		
PTX06-1164	Treatment zone between PTX06-ISB091 and PTX06-ISB092 (west side)	September 2012
PTX06-1169	Treatment zone between PTX06-ISB076 and PTX06-ISB077 (center)	August 2014
PTX06-1170	Treatment zone between PTX06-ISB085A and PTX06-ISB083 (center)	August 2014
PTX06-1176	Treatment zone between PTX06-ISB103 and PTX06-ISB166A (west side)	August 2014
PTX06-1177	Treatment zone between PTX06-ISB096 and PTX06-ISB097 (west side)	August 2014
PTX06-1209	Treatment zone between PTX06-ISB144 and PTX06-ISB145 (east side)	August 2021
PTX06-1210	Treatment zone between PTX06-ISB156 and PTX06-ISB157 (east side)	August 2021
Downgradient Monitoring Wells		
PTX06-1012	Downgradient of central portion of ISB system	May 1995
PTX06-1148	Downgradient of eastern side of ISB system	August 2008
PTX06-1149	Downgradient of eastern side of ISB system	August 2008[1]
PTX06-1150	Downgradient of eastern side of ISB system	August 2008
PTX06-1155	Downgradient of PTX06-ISB074 through PTX06-ISB076 (central part of ISB system)	September 2009
PTX06-1156	Downgradient of PTX06-ISB161 through PTX06-ISB163 (east side)	September 2009
PTX06-1173	Downgradient of PTX06-ISB106, PTX06-ISB168, and PTX06-ISB169 (west of center)	September 2014
PTX06-1174	Downgradient of PTX06-ISB101 through PTX06-ISB103 (west side)	June 2014
PTX06-1175	Downgradient of PTX06-ISB095 and PTX06-ISB096 (west side)	August 2014

Notes:
[1] Original well plugged, abandoned, and replaced in September 2013.

There are two injection control trailers used to mix and deliver the amendment solution to the injection wells. These trailers are used for the Zone 11 ISB, SEISB, SEISB Extension, and Offsite ISB. The trailers are configured to allow 24-hour per day operation. The water for mixing the solution is obtained from SEPTS.

4.5.2 Operation and Maintenance

<u>**Injection Well Maintenance**</u>

Between 2017 and 2021, four rounds of amendment injection were completed at the Zone 11 ISB. Before each injection event, the injection wells went through maintenance for biofouling. This maintenance program consisted of the following:

- Visual well inspection and gauging,
- Initial mechanical rehabilitation to remove gross deposits,
- Chemical rehabilitation using a Welgicide solution,
- Final mechanical rehabilitation, and
- Hydraulic testing after completion of final mechanical rehabilitation.

The hydraulic testing is a constant-rate injection test during which a specified volume of water is injected into each well at a constant rate. Results are used to calculate the transmissivity and specific capacity at each well.

Table 4.11 summarizes the well maintenance program. The number of wells varies across maintenance events because new wells and wells that will not receive amendment do not warrant rehabilitation. Table 2 presents the ranges of well transmissivity and specific capacity calculated from post-maintenance hydraulic testing data. According to the *Well Field Maintenance Report* (Trihydro, 2022b) for the 2021 maintenance event, "[a]analyzing hydraulic performance over time requires consistent hydraulic testing procedures and prior procedures are not definitively known as they were performed under the previous O&M [operation and maintenance] contract." For this reason, the report documenting the 2021 well maintenance activities did not compare the most recent hydraulic test results to historical data.

Table 4.11
Summary of Well Maintenance Events, Zone 11 ISB

Well Maintenance Event	# Wells Maintained	Transmissivity Range (ft^2/day)	Specific Capacity Range (gpm/ft)
April–June 2018	22	2 - 332	0.09 - 3.14
March–June 2019	48	1 - 498	0.1 - 4.87
June–August 2020	20	1 - 132	0.08 - 1.36
April–July 2021[1]	42	1.4 - 112	0.06 - 0.86

Notes:
[1] Excludes test results for wells installed in 2021. New well transmissivities ranged from 262 ft^2/day to 980 ft^2/day, and specific capacities ranged from 0.07 gpm/ft to 6.74 gpm/ft.
gpm/ft = gallons per minute per foot
ft^2/day = square feet per day

There is variability among the transmissivity ranges because not all injection wells undergo hydraulic testing during each well maintenance event and, as a result, the most or least transmissive wells might have been excluded from testing. For example, the most transmissive well in 2019, PTX06-ISB066, was not included in the 2018, 2020, and 2021 hydraulic testing. Regardless, the transmissivity and specific capacity ranges were similar in 2018, 2019, and 2020, suggesting that well maintenance efforts had maintained injection capacity. The low ends of the transmissivity and specific capacity ranges in 2021 were similar to the earlier results, while the high ends were lower than prior results. The 20 wells maintained from June through August 2020 were rehabilitated in 2021 also. At 15 of these 20 wells, transmissivity increased between 2020 and 2021, but the well with the highest transmissivity in 2020 (PTX06-ISB093) showed a substantial decrease in transmissivity from 132 ft^2/day to 29 ft^2/day. Between 2020 and 2021, specific capacity increased at 10 wells, decreased at 4 wells, and changed little at 6 wells. The degree to which the changes in transmissivity and specific capacity between 2020 and 2021 reflect changes in well conditions or a different testing protocol has not been determined.

The 2020 well maintenance event included testing of four chemical agents for well rehabilitation. These well rehabilitation agents were Welgicide (removes biofilm), EOS Clean (removes organic matter), a combination of Nuwell 120 and Nuwell 310 (targets common mineral precipitates), and Scrud Remover™ (removes EVO). Samples of fouling material from select wells were placed in chemical rehabilitation solutions for 48 hours. During the 48-hour period, four sets of observations were recorded for each sample of fouling material. The field test results indicated that Welgicide was the most effective chemical rehabilitation agent, followed by Scrud Remover™. To further evaluate Scrud Remover™, this reagent was used for chemical rehabilitation of two injection wells. Welgicide was used for the remaining wells that warranted rehabilitation in 2020. During the subsequent injection event, there was no substantial difference in performance of the wells treated with Scrud Remover™ as compared to the Welgicide-treated wells (Arcadis, 2020e). Because alternative well rehabilitation agents did not perform better than Welgicide, subsequent well maintenance continued to use Welgicide.

Amendment Injection

Four rounds of amendment injection were performed at the Zone 11 ISB between 2017 and 2021. **Table 4.12** summarizes these amendment injection events.

Table 4.12
Summary of Injection Events, 2017–2021, Zone 11 ISB

Date	# Wells	Target Volume (gal)	Actual Volume (gal)	Newman Zone® Average Dose	Molasses Average Dose
July–October 2018	22	1,146,589	1,832,930	3.2% by volume	2.3% by volume
May 2019–January 2020	48	1,450,072	3,913,260	Not applied	1.6% by volume
August–November 2020	26	3,804,136	2,679,340	Not applied	3% by volume
July–November 2021	64	4,547,302	4,193,547	Not applied	2% by volume

In 2018, a field test was conducted to assess amendment distribution within the treatment zone. Fluorescein dye and a Newman Zone®/molasses solution were applied to PTX06-ISB091, PTX06-ISB092, PTX06-ISB096, PTX06-ISB103, and PTX06-ISB104. PTX06-1164 is between PTX06-ISB091 and PTX06-ISB092; PTX06-1164 is approximately 50 ft from each well. PTX06-1176 is between PTX06-ISB103 and PTX06-ISB104; the monitoring well is approximately 50 ft from each injection well. TZM well PTX06-1177 is 37 ft from PTX06-ISB096. During injection, the three monitoring wells were tested for visual evidence of the dye, and samples for laboratory analysis of TOC were collected. Neither fluorescein dye nor TOC was observed in the monitoring wells after injection of the target volume for each injection well. Breakthrough of both the dye and TOC was observed in the monitoring wells after the injection volumes were increased by 195% to

372%. As a result of the dye test, target injection volumes were increased for subsequent injection events, and the amendment was changed from Newman Zone® to a more soluble carbon source (molasses) to improve amendment distribution. Results of this dye test also influenced the selection of 50-ft spacing for the 26 injection wells added along the southern side of the ISB system in 2021.

The initial injection volumes used in the 2018 amendment distribution test were based on the Zone 11 ISB design document. Due to the lack of dye and TOC observed in monitoring wells after application of the initial injection volumes, the 2018 *Post-Injection Report* (Arcadis, 2019b) concluded that calculating injection volumes in accordance with the design document had likely resulted in under-distribution of the amendment and estimated a mobile porosity of between 11% and 17%. The report also concluded that the TOC concentrations observed in the monitoring wells at the end of the field test were too low for both amendments that were injected, Newman Zone® and molasses, to have reached the monitoring wells. Based on the TOC data and because molasses more readily dissolves in water, the report concluded that molasses has a greater radius of influence than Newman Zone®.

In 2018, 6 of 22 wells received less than the target injection volume due to low flow rates. The remainder of the target volume for each well was applied to other wells. The average flow rate for individual wells ranged from 1.3 gpm to 30.3 gpm, with an average of 11.9 gpm.

In 2019, each well received at least the target injection volume, and several wells received more than the target amount. The average flow rate per well ranged from 1.2 gpm to 18.3 gpm, with an average value of 8 gpm.

In 2020, 7 wells received the approximate target volume of amendment solution, and 19 wells received less than the target volume. The 2020 *Post-Injection Report* (Arcadis, 2021) noted that injection at each of the 19 wells that received less than the target volume was ceased in accordance with an approved rationale. Average flow rate per well ranged from 1 gpm to 5.3 gpm with an average value of 2.7 gpm.

In 2021, 19 of 64 wells received less than the target injection volume. The average injection flow rate per well ranged from 1.1 gpm to 20 gpm, with an average of 7 gpm.

4.5.3 Remedy Performance and Efficacy

Analytical Data for COCs

The primary groundwater COCs at the Zone 11 ISB are perchlorate, TCE, and TCE's degradation products. Other contaminants, including PCE and 1,2-DCA, occur in the area. The results for each performance monitoring well are summarized in **Table 4.13**.

Table 4.13
Summary of Analytical Results for Contaminants of Concern, Zone 11 ISB

Well	Summary of Data
Upgradient Monitoring Wells	
PTX06-1126	Sampled in 2008–2021. Perchlorate decreased from >GWPS (26 µg/L) in 2008–2017 to <GWPS in 2018–2021. (*decreasing* trend) TCE >GWPS (5 µg/L) in 2008–2021 (*probably decreasing* trend). 1,2-DCA fluctuating around GWPS (5 µg/L) in 2008–2021. PCE periodically >GWPS (5 µg/L) in 2017–2021. cis-1,2-DCE present at concentrations <GWPS (70 µg/L) in 2008–2021. VC not detected.
PTX06-1127	Sampled in 2008–2021. Perchlorate >GWPS in 2008–2021 (*decreasing* trend). TCE >GWPS in 2008–2021 (*increasing* trend). PCE increased to slightly >GWPS in 2016–2021 except for one detection in 2017. 1,2-DCA decreased to <GWPS in 2019–2021. cis-1,2-DCE <GWPS in 2008–2021. VC not detected.
PTX06-1151	Sampled in 2009–2021. Perchlorate >GWPS in 2009–2021 and decreased to only slightly >GWPS in 2021 (*d*ecreasing trend). TCE >GWPS in 2009–2021 (*no trend*). 1,2-DCA >GWPS in 2009–2020 and <GWPS in 2021. PCE and cis-1,2-DCE <GWPS in 2009–2021. VC not detected.
PTX06-1171	Sampled in 2015–2021. Perchlorate and TCE >GWPS in 2015–2021 (*stable* trend and *decreasing* trend, respectively). 1,2-DCA decreased from slightly >GWPS to slightly <GWPS. PCE and cis-1,2-DCE <GWPS in 2015 - 2021. VC not detected.
PTX06-1211	Sampled in October 2021. Perchlorate, cis-1,2-DCE, and PCE <GWPS. 1,2-DCA approximately =GWPS. TCE >GWPS. VC not detected.
Treatment Zone Wells	
PTX06-1164	Sampled in 2015–2021. Perchlorate >GWPS in 2015. Currently cycling between >GWPS and <GWPS. TCE concentrations > GWPS, except for a single sample in November 2018. cis-1,2-DCE >GWPS in 2018 and decreased to <GWPS. VC not detected until 2019 with concentrations > GWPS, decreased to <GWPS in 2020 and 2021.
PTX06-1169	Sampled in 2016–2021. Perchlorate not detected. Fluctuating TCE detections, mostly >GWPS. cis-1,2-DCE and 1,2-DCA >GWPS. VC >GWPS in 2020 and 2021.
PTX06-1170	Sampled in 2015–2021. TCE >GWPS until November 2021. cis-1,2-DCE > GWPS until March 2021. Perchlorate not detected except for one result of 0.4 µg/L in March 2020. VC not detected until September 2019, then >GWPS through November 2021.

Table 4.13 (continued)
Summary of Analytical Results for Contaminants of Concern, Zone 11 ISB

Well	Summary of Data
PTX06-1176	Sampled in 2015–2021. Perchlorate >GWPS until January 2018, not detected since. TCE concentrations > GWPS until July 2018; <GWPS November 2018–March 2020, not detected since. cis-1,2-DCE >GWPS intermittently in 2017 - 2019; then <GWPS after June 2019. VC first detected in June 2019; attenuated to non-detect in November 2021.
PTX06-1177	Sampled in 2015–2021. Perchlorate >GWPS in 2015 and 2016, and ≤GWPS since. TCE concentration > GWPS in 2015 and 2016; <GWPS from 2017–2021 except for one detection in 2018. cis-1,2-DCE >GWPS in 2017–2018. VC not detected until November 2021; detection >GWPS.
PTX06-1209	Sampled in October 2021. Perchlorate, PCE, and TCE > GWPS. cis-1,2-DCE <GWPS. VC not detected.
PTX06-1210	Sampled in October 2021. TCE and 1,2-DCA >GWPS. PCE and cis-1,2-DCE <GWPS. Perchlorate and VC not detected.
Downgradient Monitoring Wells	
PTX06-1012	Sampled in 2008–2021 Perchlorate not detected since October 2011. 1,2-DCA < GWPS since July 2016. Limited presence of PCE and detections < GWPS. TCE < GWPS since October 2016 (*decreasing* trend). cis-1,2-DCE frequently >GWPS through February 2020, then substantial decrease and <GWPS through 2021. VC increased to >GWPS in November 2020, decreased since but still >GWPS.
PTX06-1148	Sampled in 2008–2021 Perchlorate >GWPS from 2008–2019, <GWPS 2019–2021, and increased to >GWPS in November 2021 (*decreasing* trend). TCE increased to >GWPS in 2021 (*increasing* trend). All other chlorinated compounds < GWPS.
PTX06-1149	Sampled in 2008–2021 Perchlorate >GWPS in 2011–2013, not detected 2013–2019, increasing concentration to >GWPS in 2019–2021 (*increasing* trend). TCE <GWPS until 2019; increasing concentration to >GWPS in 2019–2021 (*increasing* trend). Other chlorinated VOC results <GWPS but increasing 1,2-DCA, cis-1,2-DCE, and PCE concentrations in 2019–2021.
PTX06-1150	Sampled in 2008–2021 Perchlorate > GWPS in 2011–2018, <GWPS in 2018 – 2021 (*decreasing* trend) TCE <GWPS in 2008–2016 and >GWPS in 2016–2021 except for one detection in 2018 (*increasing* trend) All other chlorinated compounds < GWPS.

Table 4.13 (continued)
Summary of Analytical Results for Contaminants of Concern, Zone 11 ISB

Well	Summary of Data
PTX06-1155	Sampled in 2009–2021 Perchlorate decreased to <GWPS in 2011 and remained <GWPS through 2021 (<4 detections in current FYR period). 1,2-DCA decreased to <GWPS in 2016, remained <GWPS until November 2021, when concentration increased to slightly >GWPS. Limited presence of PCE and < GWPS. TCE decreased to <GWPS in 2013, cyclical spikes to >GWPS followed by attenuation from 2013–2016, <GWPS in 2016–2020, increased to >GWPS in 2021 (*increasing* trend). cis-1,2-DCE consistently >GWPS since 2013. Sporadic exceedances of VC GWPS through 2019, increasing VC >GWPS in 2020 and 2021.
PTX06-1156	Sampled in 2009–2021 Perchlorate not detected since 2011. TCE ≤GWPS since 2010 (*probably decreasing* trend). Other chlorinated VOCs < GWPS.
PTX06-1173	Sampled in 2016–2021 Perchlorate < GWPS or not detected (<4 detections in current FYR period). Two 1,2-DCA detections slightly >GWPS. PCE <GWPS. TCE >GWPS in 2016, <GWPS in 2017–2018, >GWPS in 2019–2020, and <GWPS in 2021 (*probably increasing* trend). cis-1,2-DCE fluctuates >GWPS and <GWPS. VC increased to >GWPS in November 2020, decreased in 2021 but remained >GWPS.
PTX06-1174	Sampled in 2016–2021 Perchlorate > GWPS in 2016, not detected since. 1,2-DCA <GWPS. TCE > GWPS in June 2016 and June 2019 (*no trend*). cis-1,2-DCE >GWPS in 2019, otherwise <GWPS VC not detected until 2019, then fluctuated around GWPS through 2021.
PTX06-1175	Sampled in 2016–2021. Perchlorate concentration > GWPS in 2016–2018, <GWPS in 2019, increased to >GWPS in 2020 and 2021, and decreased to <GWPS in November 2021 (*decreasing* trend). TCE > GWPS in 2016–2021 (*decreasing* trend). All other chlorinated compounds < GWPS; cis-1,2-DCE concentration increased in 2021.
Injection Wells	
PTX06-ISB055	Sampled in 2009–2021. One trace cis-1,2-DCE detection (< 0.001 mg/L) in 2010. No other detections.
PTX06-ISB059	Sampled in 2009–2021. No perchlorate and chlorinated VOC detections.
PTX06-ISB063	Sampled in 2009–2019. Infrequent TCE, 1,2-DCA, and perchlorate detections <GWPS through 2014. No detections afterwards.
PTX06-ISB064	Sampled in 2020 and 2021. Two TCE and one cis-1,2-DCE detections <GWPS. No perchlorate or other chlorinated VOC detections.
PTX06-ISB068	Sampled in 2020 and 2021. One cis-1,2-DCE detection <GWPS. No perchlorate or other chlorinated VOC detections.
PTX06-ISB069A	Sampled in 2009–2019. One perchlorate detection and sporadic TCE and cis-1,2-DCE detections. Only one result, TCE in 2016, >GWPS.

Table 4.13 (continued)
Summary of Analytical Results for Contaminants of Concern, Zone 11 ISB

Well	Summary of Data
PTX06-ISB071	Sampled in 2012–2019. Frequent cis-1,2-DCE detections. One 1,2-DCA detection. One TCE detection > GWPS (November 2015).
PTX06-ISB073	Sampled in 2009–2021. Infrequent TCE detections, with one result (October 2016) > GWPS. Frequent cis-1,2-DCE detections <GWPS. One VC (2009) and one perchlorate (2011) detection <GWPS.
PTX06-ISB075	Sampled in 2009–2021. Between 2009 and 2016, exceedances of GWPS for cis-1,2-DCE, TCE, 1,2-DCA, and VC. Between 2017 and 2021, 1,2-DCA ≤GWPS; cis-1,2-DCE >GWPS until 2020; TCE generally >GWPS; and VC >GWPS. Perchlorate not detected.
PTX06-ISB077	Sampled in 2009–2019. TCE >GWPS in 2009 and 2015; no other GWPS exceedances for TCE or other analytes. TCE not detected in 2017–2019. cis-1,2-DCE frequently detected at concentrations <GWPS.
PTX06-ISB079	Sampled in 2009 and then 2016–2021. In 2009, perchlorate detection <GWPS. No other COC detections. In 2016–2021, one TCE detection <GWPS.
PTX06-ISB082	Sampled in 2009, 2011, 2012, and 2014–2021. Perchlorate and TCE >GWPS in 2009. After 2009, only infrequent TCE detections <1 µg/L.
PTX06-ISB133	Sampled in 2021. No COC detections.
PTX06-ISB135	Sampled in 2020 and 2021. One perchlorate and one cis-1,2-DCE detection <GWPS. One TCE detection (initial sampling) >GWPS and one TCE detection <GWPS.
PTX06-ISB137	Sampled in 2019 and 2021. TCE >GWPS and cis-1,2-DCE <GWPS in 2019. No detections in 2021.

Note: Trends in *italics* represent Mann-Kendall statistical trend analyses for data from the current FYR period (1/1/2017 – 12/31/2021).

4.5.3.1.1 Perchlorate

The upgradient monitoring wells provide information on the perchlorate concentrations flowing into the treatment zone. The baseline results (October 2021) for PTX06-1211 indicate that perchlorate concentrations upgradient of the eastern central portion of the ISB system are less than the GWPS. **Figure 4.37** presents the historical perchlorate data for the other upgradient monitoring wells. Perchlorate concentrations in all upgradient wells have decreased since 2008. Recent results for PTX06-1126 have been below the GWPS (26 µg/L). PTX06-1126 is upgradient of the western central portion of the ISB system. Results for PTX06-1127, PTX06-1151, and PTX06-1171 indicate that perchlorate concentrations exceed the GWPS along the western and eastern edges of the ISB system, with the highest influent concentration along the eastern side near PTX06-1127.

In 2021, in the treatment zone monitoring wells, perchlorate was detected at a concentration greater than the GWPS at PTX06-1209 only. Perchlorate was not detected at PTX06-1169, PTX06-1170, PTX06-1176, PTX06-1177, and PTX06-1210. At PTX06-1164, perchlorate was detected at concentrations less than the GWPS. **Figure 4.38** presents the historical perchlorate data for PTX06-1164, PTX06-1176, and PTX06-1177. Data for the other treatment zone wells are not presented either due to lack of detections (PTX06-1169 and PTX06-1170) or lack of data points (PTX06-1209 and PTX06-1210). As shown on **Figure 4.38**, perchlorate detections at PTX06-1164 have varied between concentrations less than the GWPS and greater than the GWPS; thus, it is not known if the perchlorate concentration at this well will rebound. At PTX06-1176 and PTX06-1177, perchlorate has not been detected for several years. Data for the treatment zone monitoring wells indicate effective perchlorate reduction throughout most of the treatment zone.

As described in **Table 4.13**, perchlorate concentrations in the immediate vicinity of the injection wells appear to be consistently less than the GWPS. Between 2017 and 2021, one perchlorate detection was reported for the injection wells. The detection was less than the GWPS. These results indicate that an effective perchlorate reduction occurred where TOC concentrations remained elevated.

Similar to the treatment zone data, the results for the downgradient monitoring wells show effective perchlorate reduction across most of the length of the ISB system. Between 2017 and 2021, perchlorate was not detected or was detected at a concentration less than the GWPS at PTX06-1012, PTX06-1155, PTX06-1156, PTX06-1173, and PTX06-1174. Perchlorate detections for PTX06-1150 have been less than the GWPS since 2018. The primary areas of residual downgradient perchlorate contamination are the vicinities of PTX06-1148 and PTX06-1149, which are downgradient of the eastern side of the ISB system, and PTX06-1175, which is downgradient of the western side of the ISB system. **Figure 4.39** presents the historical perchlorate results for PTX06-1148, PTX06-1149, and PTX06-1175. As shown on this figure, current concentrations for PTX06-1148 and PTX06-1149 are less than maximum detections reported in 2012, but the perchlorate concentration recently increased in both wells. In November 2021, the perchlorate result for PTX06-1175 was less than the GWPS.

4.5.3.1.2 Chlorinated VOCs

<u>Upgradient Monitoring Wells</u>
In upgradient monitoring well PTX06-1211, which was first sampled in October 2021, the baseline TCE detection of 336 µg/L was greater than the GWPS (5 µg/L). Although TCE detections reported for PTX06-1126 spiked in 2017 and 2018, concentrations reported in 2021 were less than the results for samples collected in 2008. At the other upgradient monitoring wells, however, the 2021 results were similar to or greater than baseline detections. The upgradient data indicate elevated influent TCE concentrations across the length of the ISB system. **Figure 4.40** presents the historical upgradient TCE data.

Although TCE is the primary chlorinated COC flowing into the treatment zone, other chlorinated compounds have been present in the upgradient monitoring wells. PCE has been detected periodically at concentrations greater than the GWPS (5 µg/L). 1,2-Dichloroethane has been detected at concentrations (maximum of 14.5 µg/L) greater than the GWPS (5 µg/L). In 2021, the 1,2-DCA results were approximately equal to or less than the GWPS. cis-1,2-DCE has been detected routinely, but at concentrations less than the GWPS. The presence of cis-1,2-DCE indicates some natural reduction of PCE and TCE. VC has not been detected in the upgradient wells, suggesting that natural reductive dechlorination is stalling at cis-1,2-DCE.

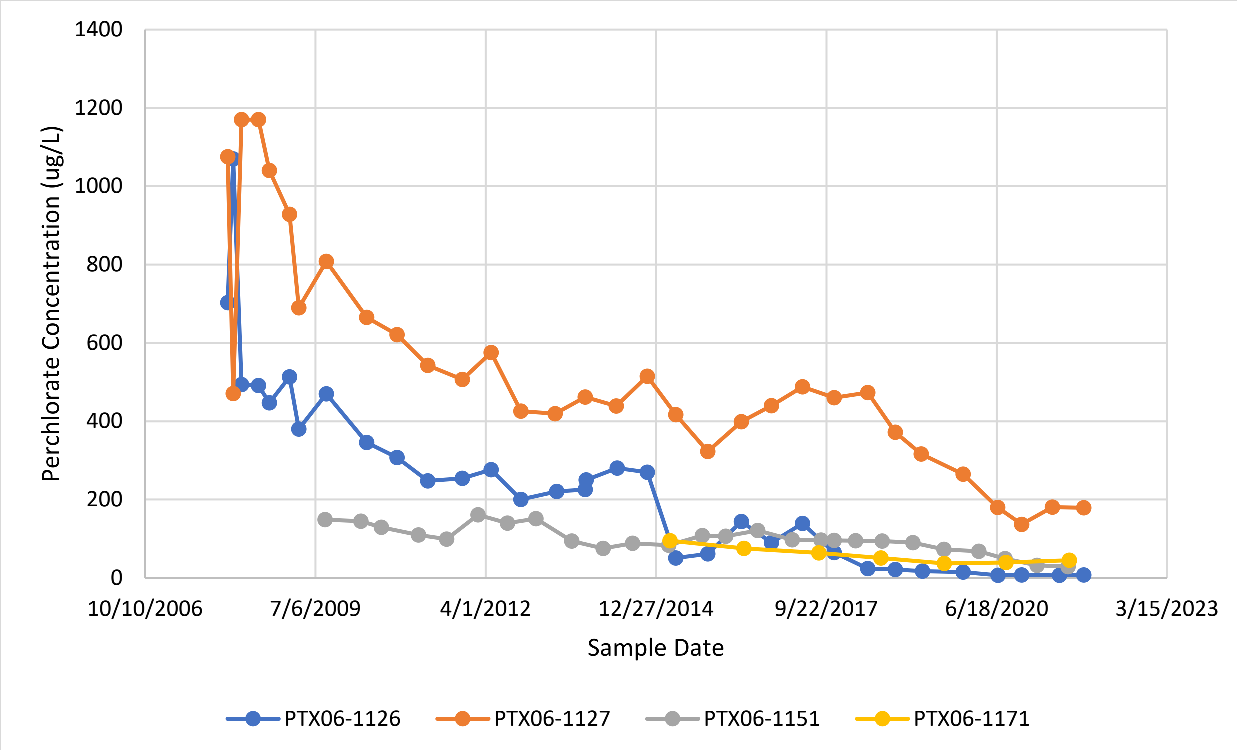

Figure 4.37 Perchlorate in Upgradient Monitoring Wells.

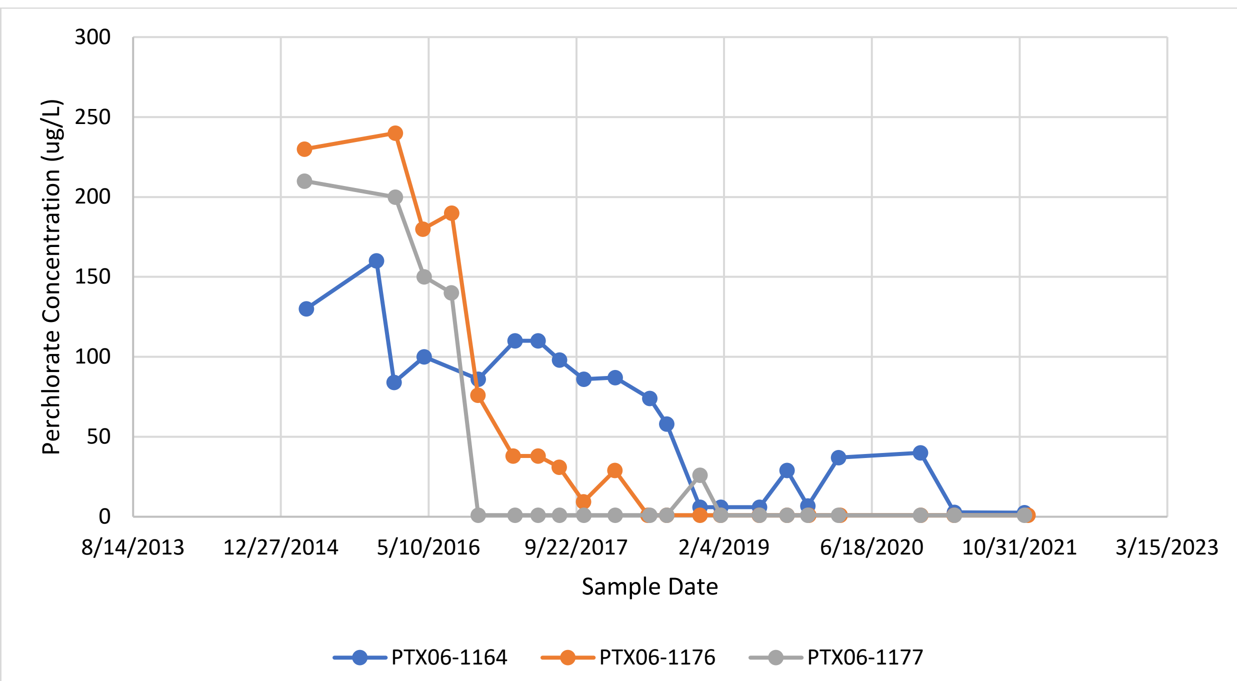

Figure 4.38 Perchlorate in Select Treatment Zone Monitoring Wells.

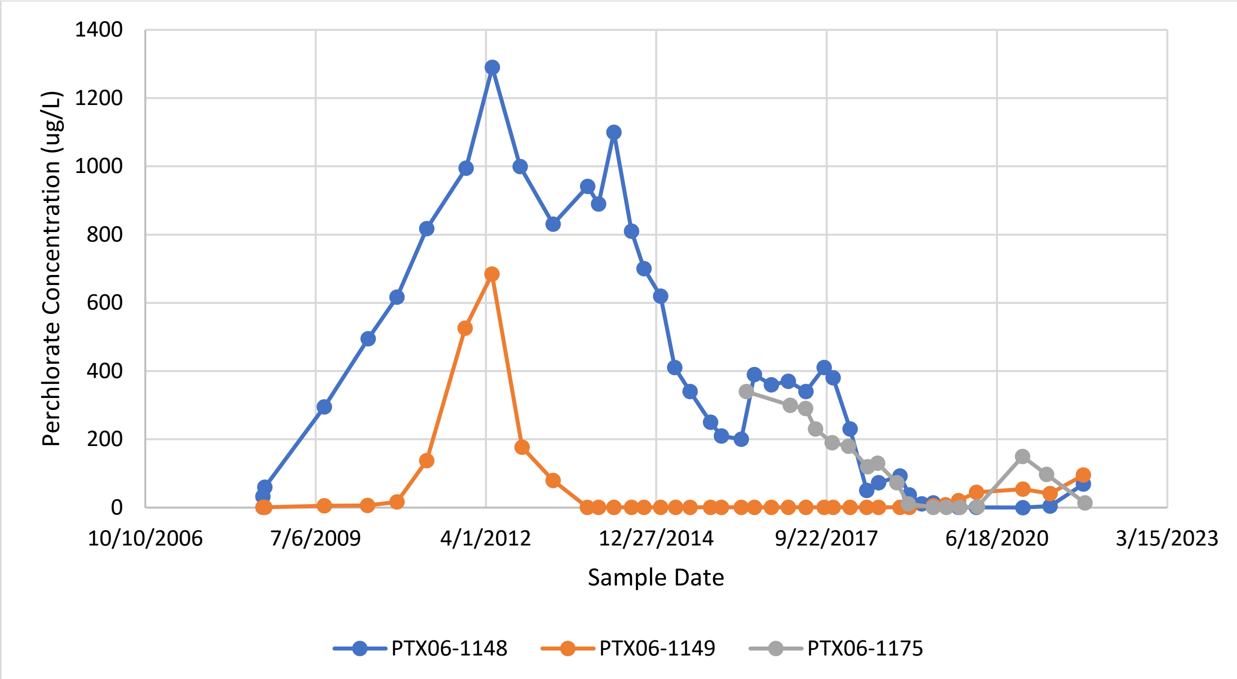

Figure 4.39 Perchlorate in Select Downgradient Monitoring Wells.

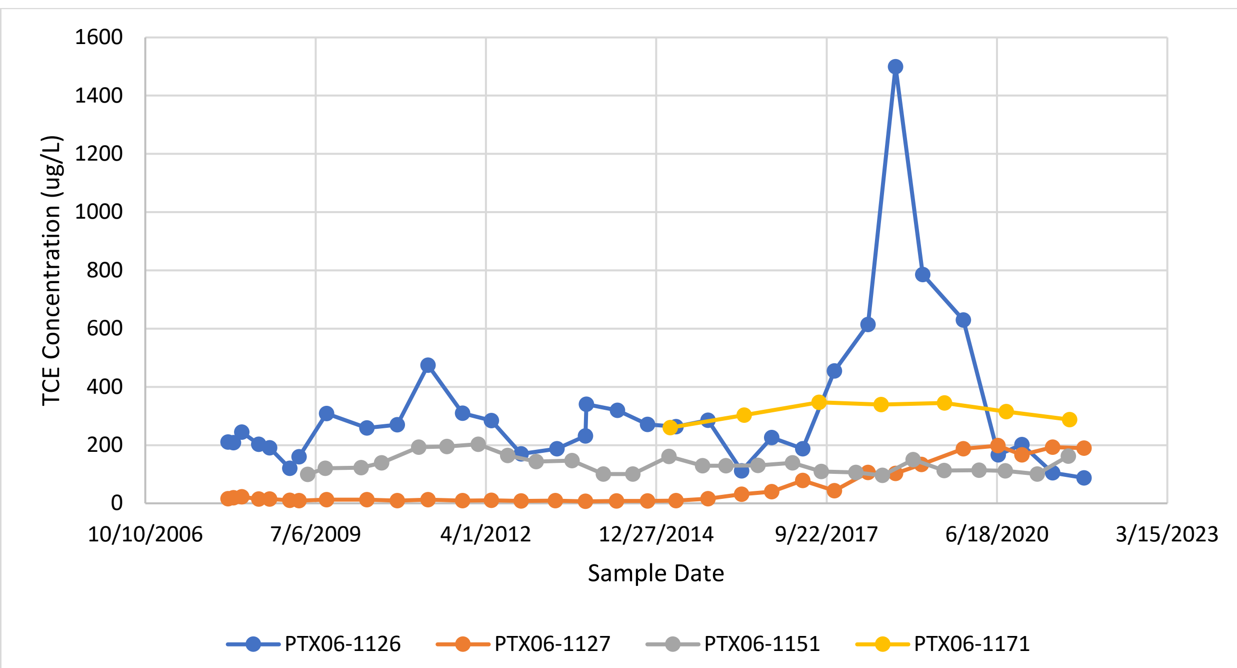

Figure 4.40 TCE in Upgradient Monitoring Wells.

Injection Wells and Treatment Zone Monitoring Wells

As summarized in **Table 4.13**, excluding PTX06-ISB075, only isolated exceedances of the GWPS have been reported for the injection wells. Historical data for PTX06-ISB075 indicated reduction of TCE to cis-1,2-DCE but no subsequent reduction of cis-1,2-DCE. Recent results, however, suggest that reduction of cis-1,2-DCE is now occurring. Detections of cis-1,2-DCE, which exceeded the GWPS starting in 2012, decreased to less than the GWPS in 2020, and the VC concentration has generally increased since 2017 (**Figure 4.41**). These results and the data for the other injection wells indicate that reductive dechlorination is occurring in the immediate vicinities of the sampled injection wells.

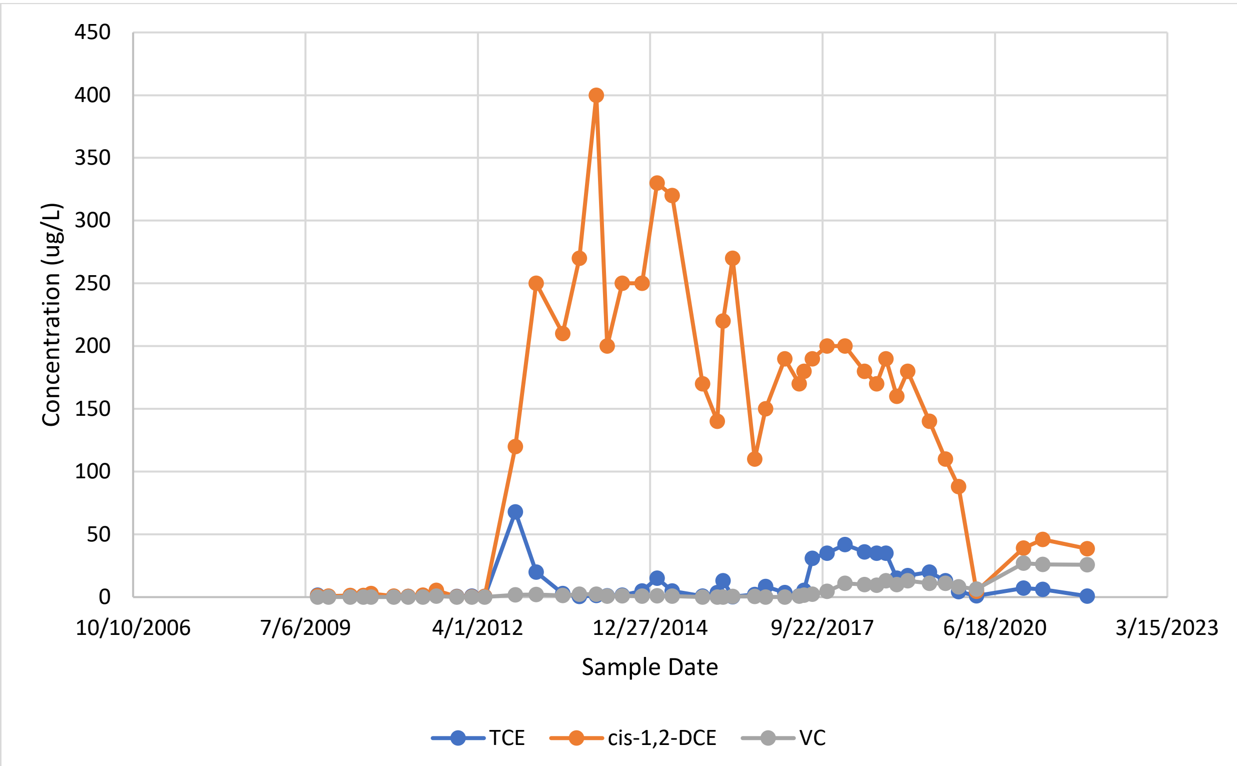

Figure 4.41 TCE and Degradation Products, PTX06-ISB075.

Figures 4.42 through **4.46** present the TCE, cis-1,2-DCE, and VC data for treatment zone monitoring wells PTX06-1164, PTX06-1169, PTX06-1170, PTX06-1176, and PTX06-1177. Figures are not provided for PTX06-1209 and PTX06-1210 because both wells are new and were sampled only once between 2017 and 2021.

At PTX06-1164 (**Figure 4.42**), the cis-1,2-DCE concentration briefly spiked in 2016 and 2018. Both spikes were accompanied by a decrease in TCE concentrations. Other than these two spikes, the cis-1,2-DCE concentrations at PTX06-1164 have been low. In addition, there has been limited presence of VC. These results indicate limited reductive dechlorination in the vicinity of PTX06-1164.

At PTX06-1169 (**Figure 4.43**), cis-1,2-DCE detections have consistently been higher than TCE detections, indicating reduction of TCE to its first degradation product. VC has frequently been detected but at low concentrations of less than 6 µg/L. These results suggest that reductive dechlorination process is stalling at cis-1,2-DCE.

At PTX06-1170 (**Figure 4.44**), concentrations of TCE and cis-1,2-DCE varied substantially from 2015 through 2018. During this time, the TCE and cis-1,2-DCE concentrations appeared to be inversely related, with the TCE concentration increasing as the cis-1,2-DCE concentration decreased and vice versa. Starting in 2019, detections for both TCE and cis-1,2-DCE decreased. In addition, VC was first detected in September 2019. After an initial increase, the VC concentration has begun to decline. These recent results suggest effective reductive dechlorination near PTX06-1170.

At PTX06-1176 (**Figure 4.45**), the TCE concentration decreased from a maximum detection of 220 µg/L in April 2016 to less than the GWPS in November 2018. The TCE concentration at this well has remained less than the GWPS through November 2021. The cis-1,2-DCE concentration exceeded the GWPS between February 2017 and January 2019 and has decreased to less than 1 µg/L since January 2019. VC was first detected in June 2019. Since then, the VC concentration has attenuated to less than 1 µg/L. The ISB system is effectively degrading TCE in the vicinity of PTX06-1176.

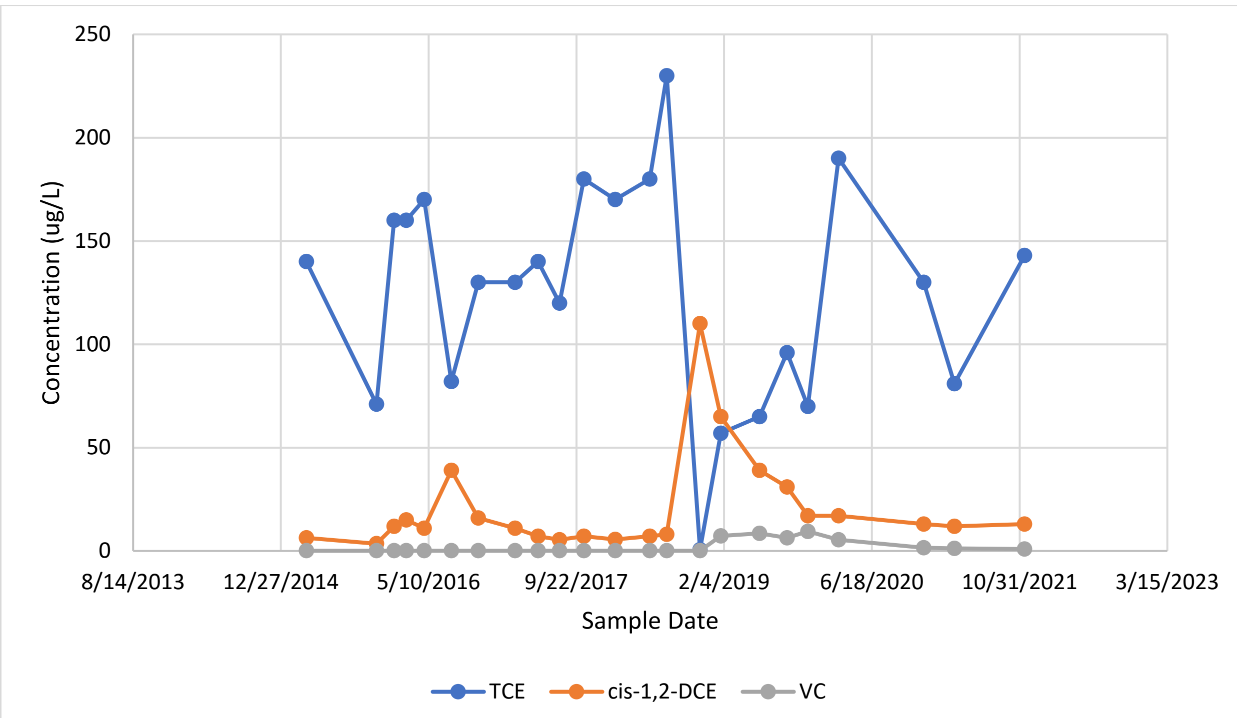

Figure 4.42 TCE and Degradation Products in PTX06-1164.

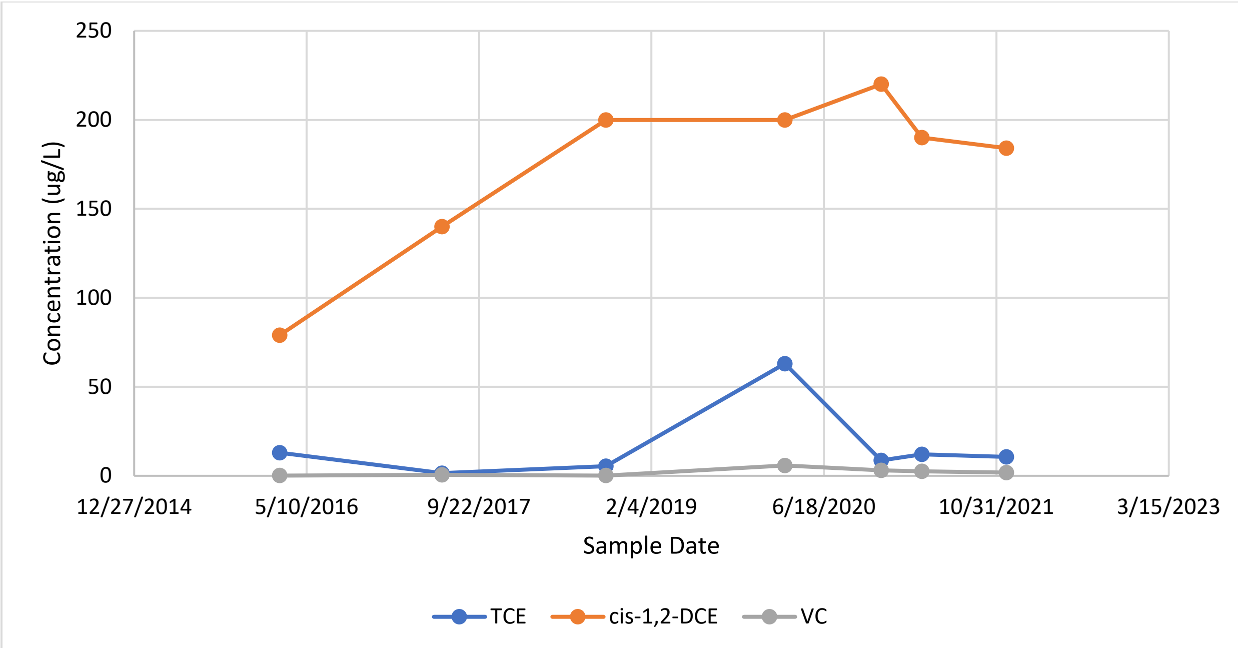

Figure 4.43 TCE and Degradation Products, PTX06-1169.

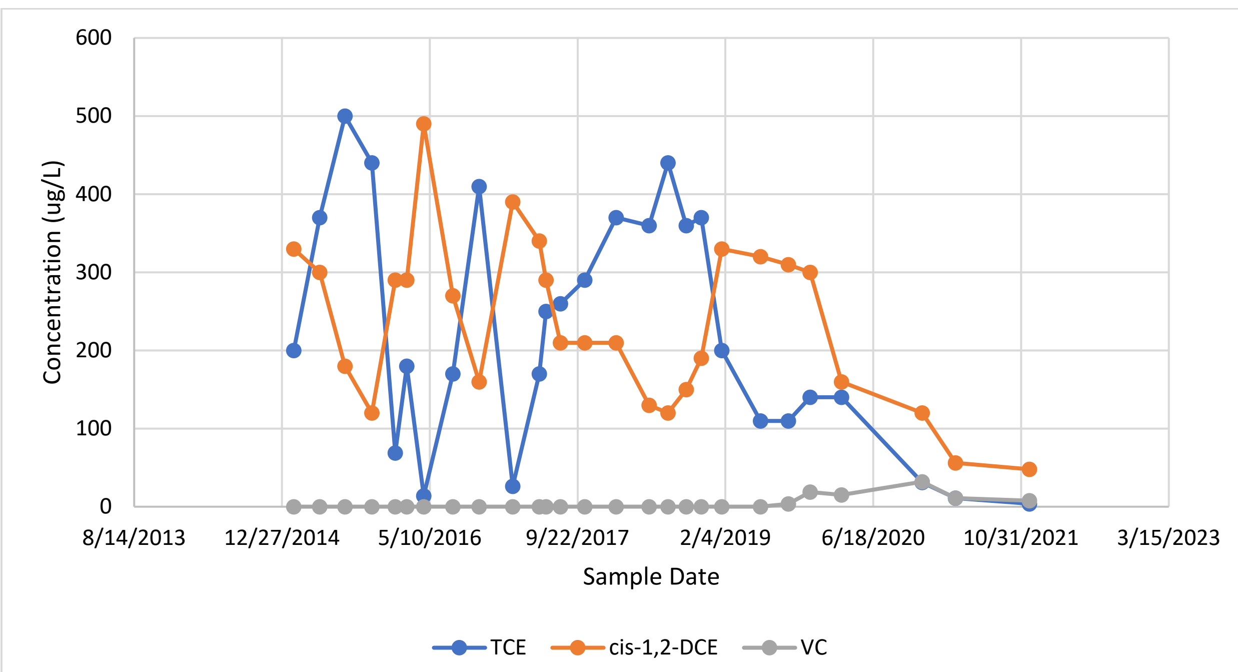

Figure 4.44 TCE and Degradation Products, PTX06-1170.

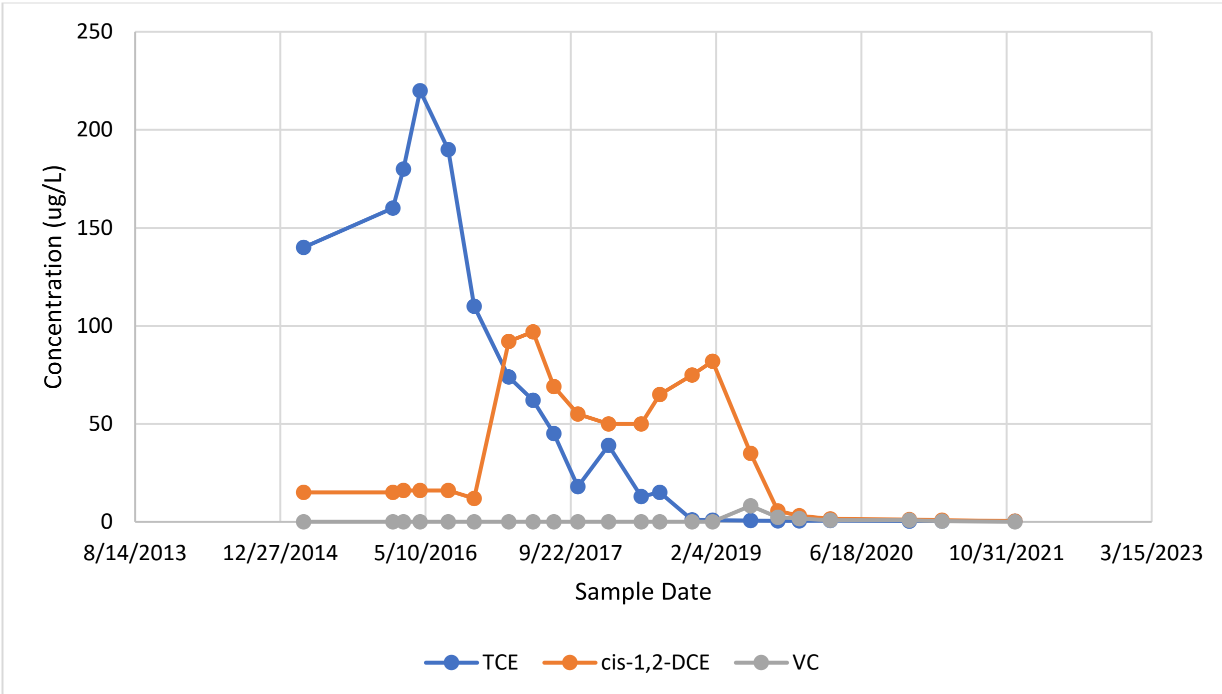

Figure 4.45 TCE and Degradation Products, PTX06-1176.

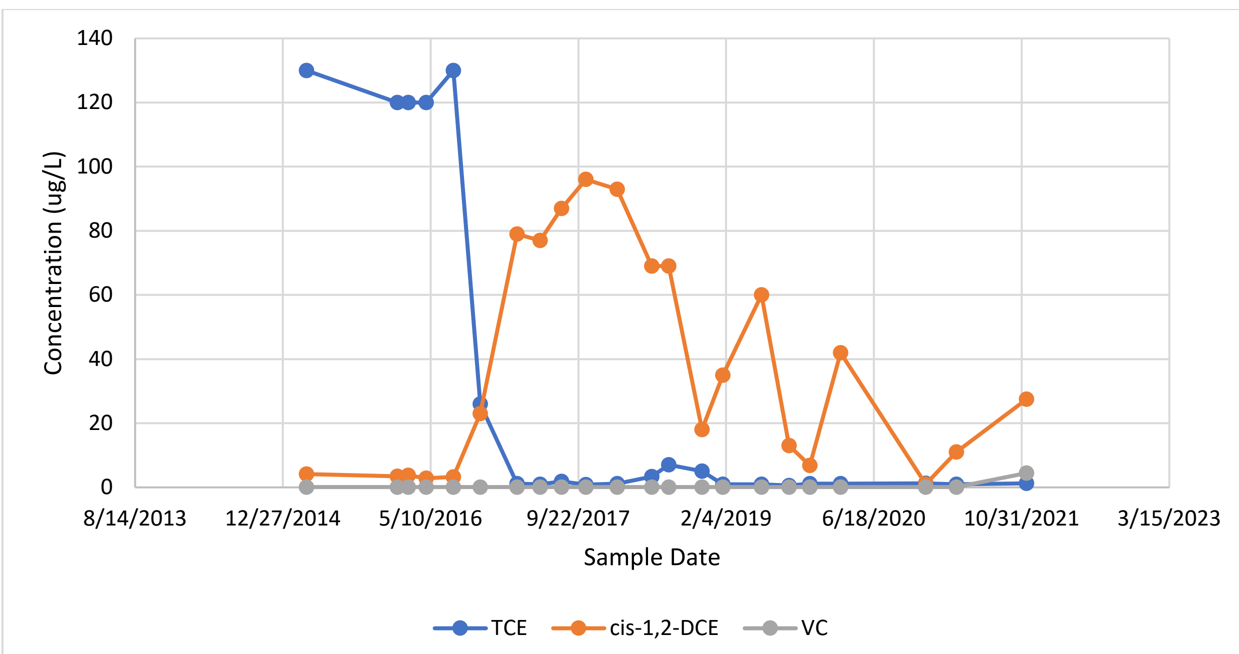

Figure 4.46 TCE and Degradation Products, PTX06-1177.

Other than one detection in July 2018, the TCE results reported for PTX06-1177 have been equal to or less than the GWPS since February 2017. When the TCE concentration initially decreased, the cis-1,2-DCE concentration increased. Since October 2017, there has been a general downward trend in the cis-1,2-DCE concentration. The cis-1,2-DCE results have been less than the GWPS since May 2018. VC was first detected in November 2021. Although this detection, 4.46 µg/L, is greater than the GWPS, the result demonstrates reduction of cis-1,2-DCE. Reductive dechlorination is occurring in the vicinity of PTX06-1177.

Treatment zone wells PTX06-1209 and PTX06-1210 were first sampled in October 2021. At that time, TCE was detected at concentrations of 329 µg/L in PTX06-1209 and 230 µg/L in PTX06-1210. The cis-1,2-DCE concentrations reported for both wells were low, 14.5 µg/L for PTX06-1209 and 16.9 µg/L for PTX06-1210. VC was not detected. These results suggest limited reduction of TCE to cis-1,2-DCE and no reduction to VC.

As noted previously, 1,2-DCA and PCE are also present in the groundwater flowing through the treatment zone. Between 2017 and 2021, the 1,2-DCA detections reported for PTX06-1169 fluctuated between 6 µg/L and 10 µg/L. These results exceed the GWPS and are similar in magnitude to the detections reported for the upgradient monitoring wells. In 2019, the 1,2-DCA concentration at PTX06-1170 increased to slightly greater than the GWPS (5 µg/L) and fluctuated around the GWPS in 2020 and 2021. At PTX06-1164, PTX06-1176, and PTX06-1177, the 1,2-DCA concentration has generally been less than the GWPS. 1,2-DCA was not detected in the sample from PTX06-1209, but it was detected in the PTX06-1210 sample at a concentration of 14.1 µg/L, which is similar to the range of detections reported for the upgradient monitoring wells. These results suggest that 1,2-DCA degradation is occurring near PTX06-1164, PTX06-1176, PTX06-1177, and PTX06-1209; to a limited extent near PTX06-1170; and not near PTX06-1169 and PTX06-1210.

The 2017 to 2021 PCE results indicate that this compound is present at concentrations less than approximately 1 µg/L in the vicinities of PTX06-1164, PTX06-1169, PTX06-1170, PTX06-1176, and PTX06-1177. At PTX06-1210, PCE was detected at a concentration of 4.78 µg/L, less than the GWPS of 5 µg/L. The baseline detection of 9.45 µg/L for PTX06-1209 was greater than the GWPS.

In summary, the Zone 11 ISB appears to be effectively degrading chlorinated compounds in the immediate vicinities of the injection wells and near PTX06-1170, PTX06-1176, and PTX06-1177. There is ineffective treatment in the vicinities of PTX06-1164, PTX06-1169, PTX06-1209, and PTX06-1210. **Figure 4.47** compares the summed micromolar TCE and degradation product (cis-1,2-DCE and VC) concentrations (i.e., total chlorinated ethene concentration) of PTX06-1164, PTX06-1169, PTX06-1170, PTX06-1176, and PTX06-1177. Between 2017 and 2021, the total chlorinated ethene concentration decreased at PTX06-1170, PTX06-1176, and PTX06-1177; increased slightly at PTX06-1164; and approximately doubled at PTX06-1169. Based on changes in the total chlorinated ethene concentration, there is ineffective treatment at PTX06-1164 and PTX06-1169, and effective treatment at PTX06-1170, PTX06-1176, and PTX06-1177.

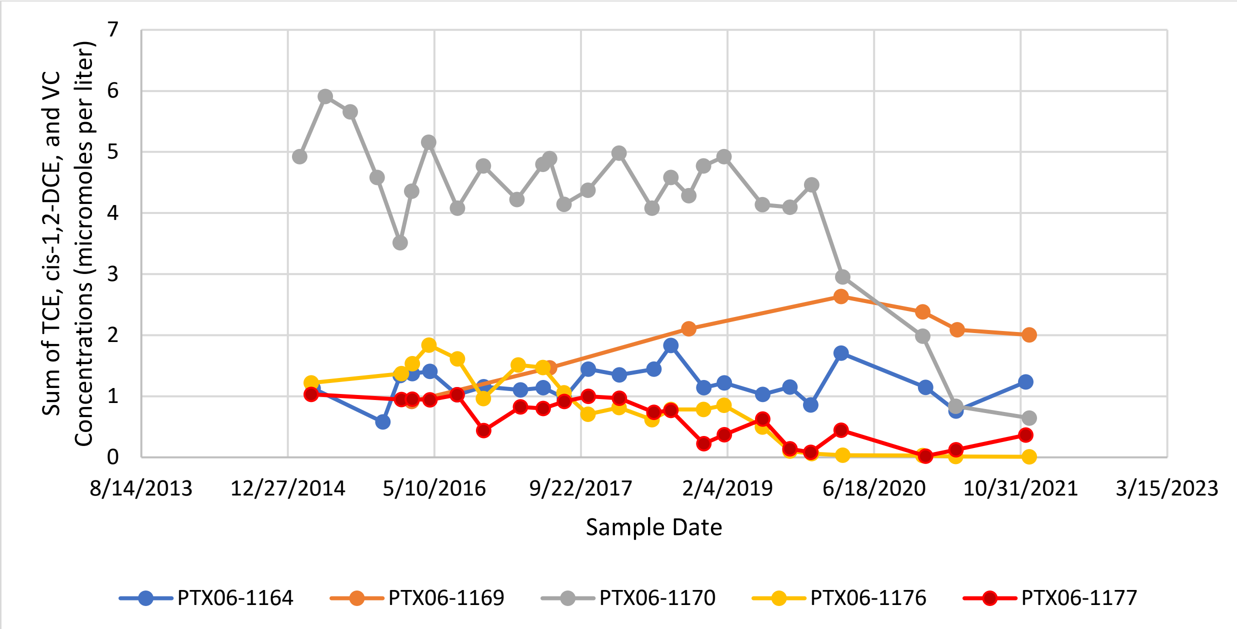

Figure 4.47 Sum of Micromolar TCE, cis-1,2-DCE, and VC Concentrations in Treatment Zone Monitoring Wells.

Downgradient Monitoring Wells

PTX06-1012 is approximately downgradient of PTX06-ISB077, PTX06-ISB069, and PTX06-ISB068. The historical results (**Figure 4.48**) for this well illustrate the downgradient effects of effective reductive dechlorination in the upgradient ISB treatment zone. As the TCE concentration decreased, the cis-1,2-DCE concentration increased. A subsequent decrease in the cis-1,2-DCE concentration was followed by an increase in the VC concentration. The 2021 data indicates that the VC contamination appears to be attenuating.

PTX06-1155 is north of PTX06-1012 and approximately downgradient of PTX06-ISB075. Although TCE detections reported for samples collected from PTX06-1155 between 2017 and 2021 were less than baseline levels (**Figure 4.49**), the TCE concentration increased between 2020 and 2021. In addition, the cis-1,2-DCE concentration increased between 2017 and 2021. The recent TCE and cis-1,2-DCE results indicate ineffective treatment. The VC detections reported for samples collected in 2020 and 2021, however, suggest a reduction of cis-1,2-DCE, which is a positive sign.

PTX06-1148, PTX06-1149, and PTX06-1150 are downgradient of the eastern side of the Zone 11 ISB. Historically, these three monitoring wells were characterized by TCE concentrations less than the GWPS and few detections of cis-1,2-DCE. Between 2017 and 2021, however, the TCE concentrations increased (**Figure 4.50**), and cis-1,2-DCE was detected more frequently. In 2021, the TCE detections reported for all three wells exceeded the GWPS. These results suggest breakthrough of contamination from the ISB treatment zone to the downgradient monitoring wells. Because the downgradient monitoring wells are several hundred feet from the injection wells (excluding the injection wells installed in 2021), the apparent breakthrough in contamination likely occurred several years ago.

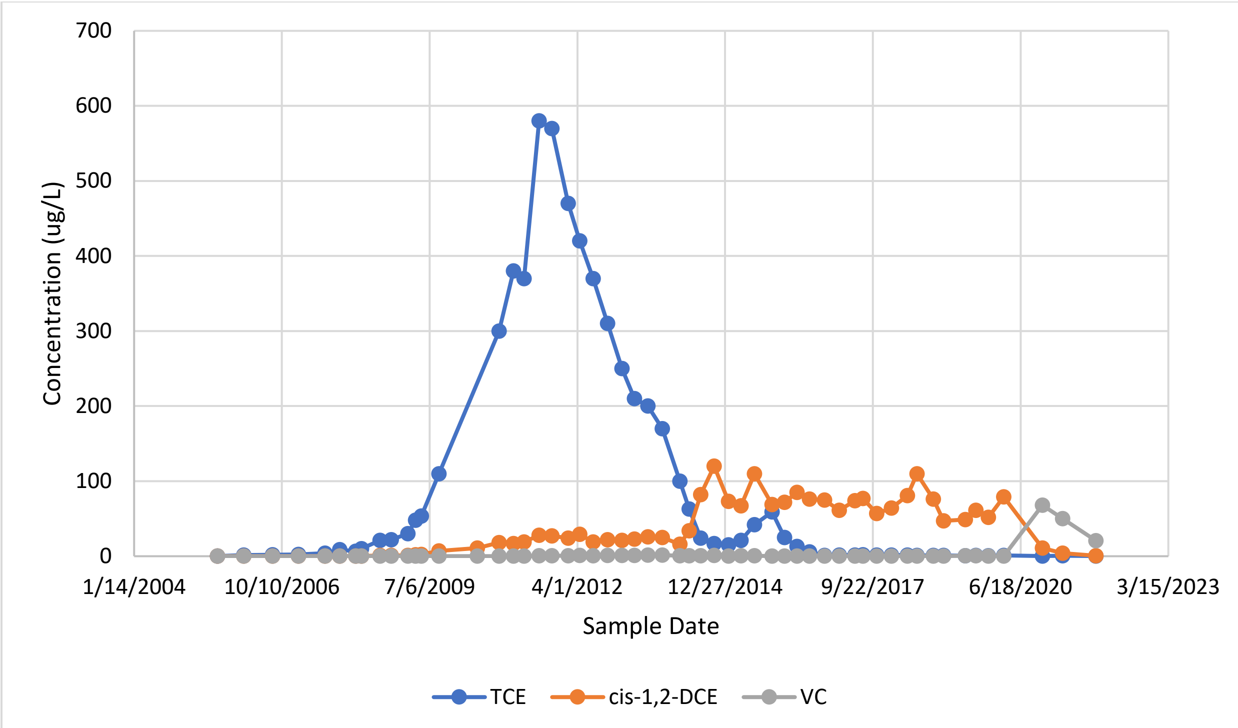

Figure 4.48 TCE and Degradation Products, PTX06-1012.

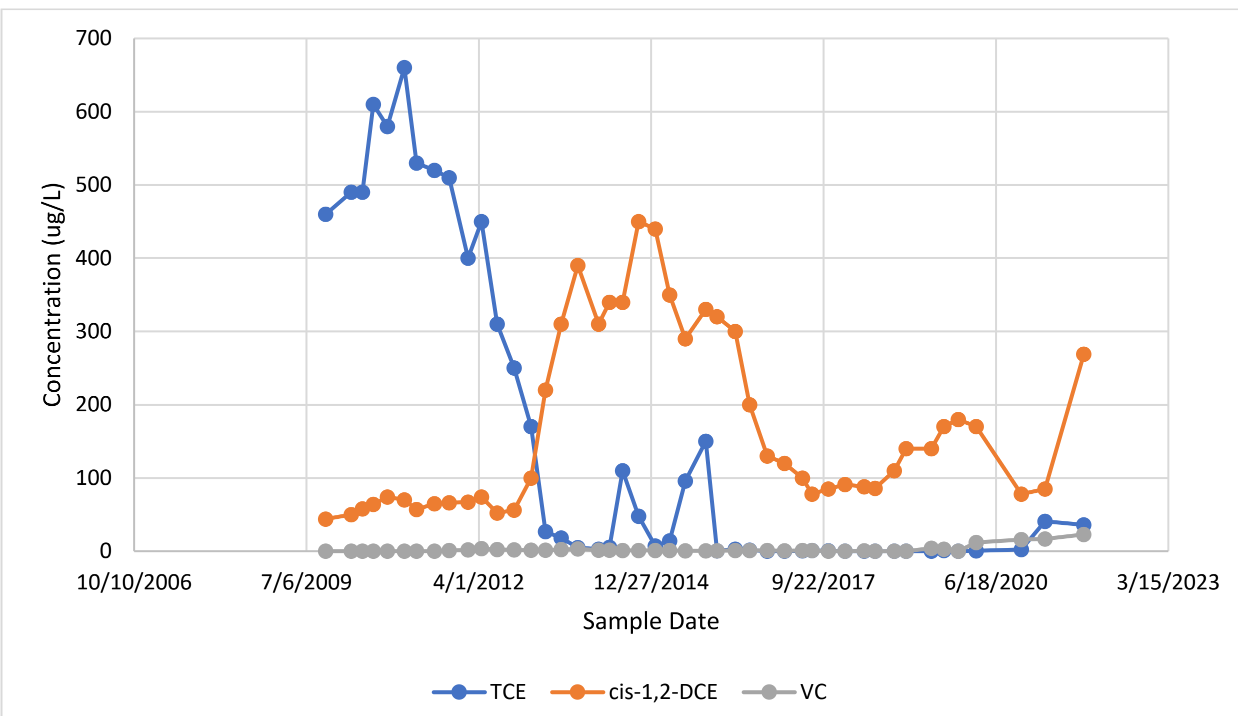

Figure 4.49 TCE and Degradation Products, PTX06-1155.

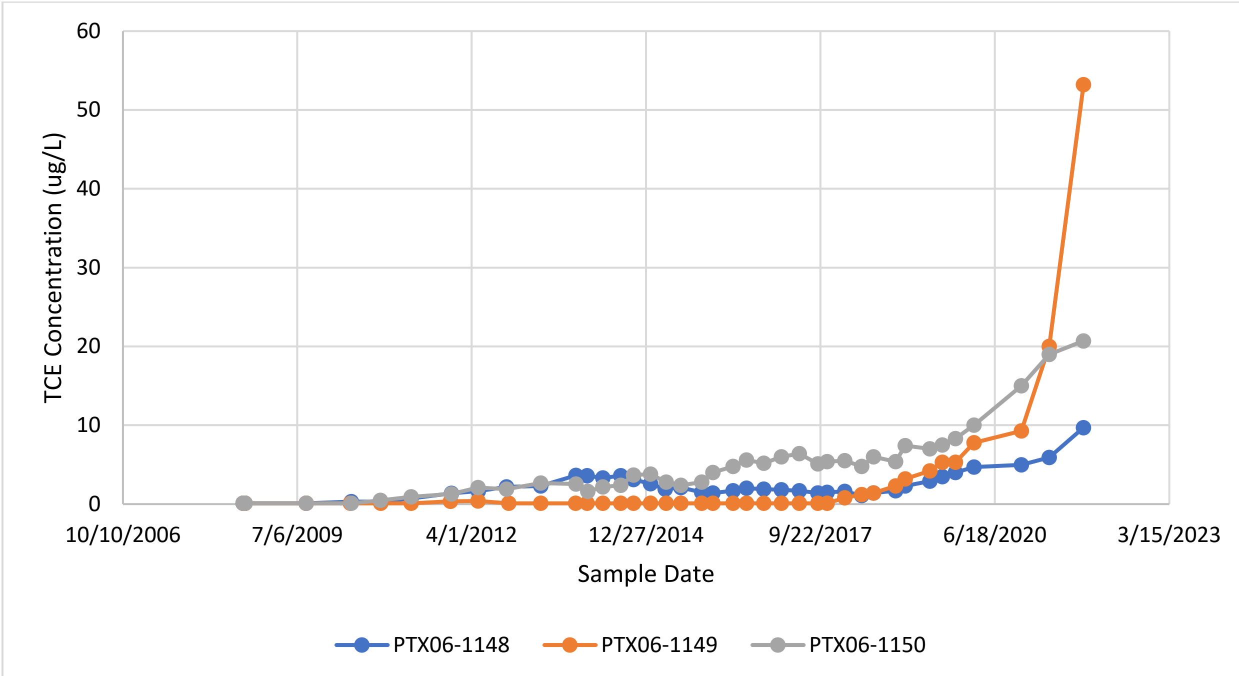

Figure 4.50 TCE at PTX06-1148, PTX06-1149, and PTX06-1150.

PTX06-1156 is located closer to the east side of the Zone 11 ISB than to PTX06-1148. The TCE and cis-1,2-DCE concentrations at this well increased between 2019 and 2021, although the TCE detections remained less than the GWPS. These results also indicate contaminant breakthrough.

PTX06-1173, PTX06-1174, and PTX06-1175 are downgradient of the west side of the Zone 11 ISB. At PTX06-1173, TCE and cis-1,2-DCE concentrations decreased between 2020 and 2021, while the VC concentration increased slightly then decreased (**Figure 4.51**). At PTX06-1174, the TCE concentration has decreased substantially from its baseline detection of 160 µg/L (**Figure 4.52**). The cis-1,2-DCE concentration spiked in 2019 and then decreased to less than the GWPS. The VC concentration increased slightly in 2020 and then decreased. The November 2021 detections for PTX06-1174 were less than the GWPS. Effective degradation of TCE appears to be occurring upgradient of PTX06-1173 and PTX06-1174.

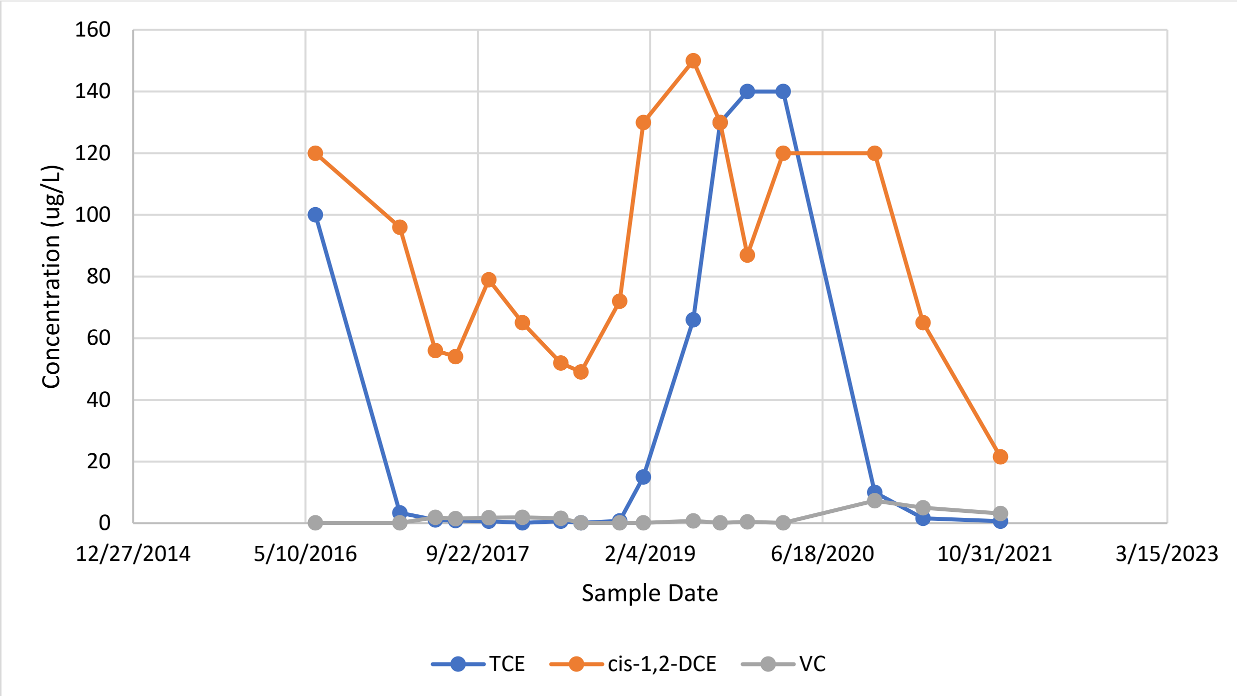

Figure 4.51 TCE and Degradation Products, PTX06-1173.

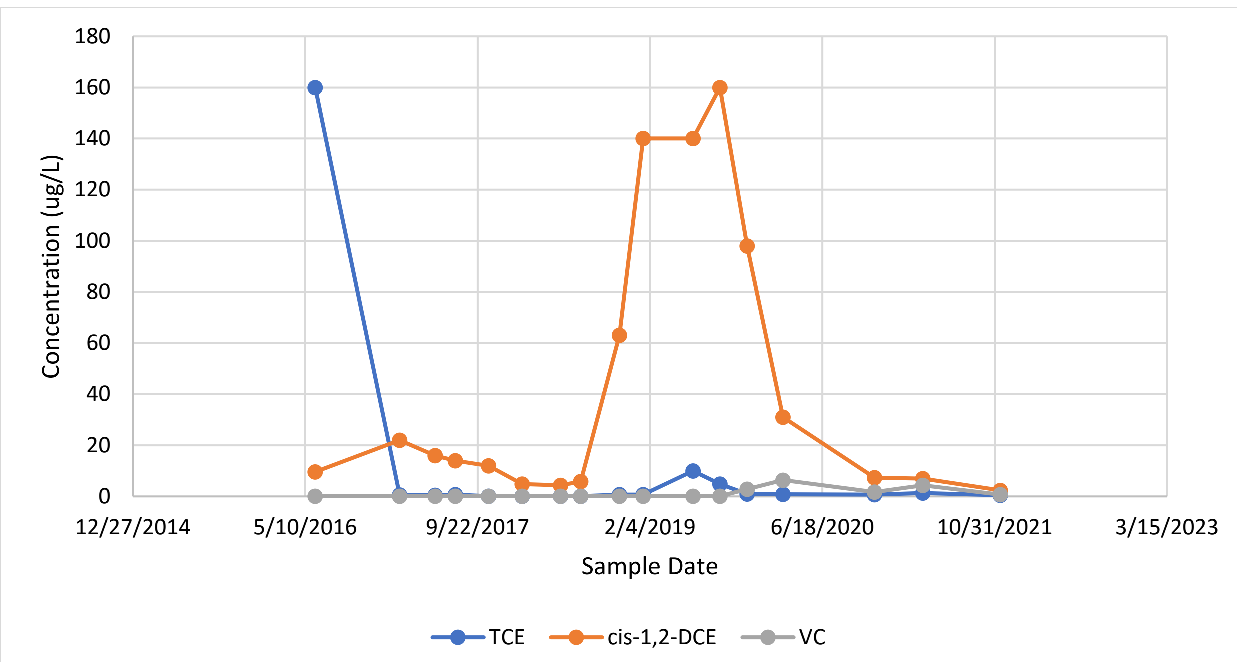

Figure 4.52 TCE and Degradation Products, PTX06-1174.

At PTX06-1175, the TCE concentration decreased between 2018 and 2021, and the cis-1,2-DCE concentration increased between 2019 and 2021 (**Figure 4.53**). VC has not been detected in this well. The TCE and cis-1,2-DCE results indicate that reductive dechlorination is occurring upgradient of the monitoring well.

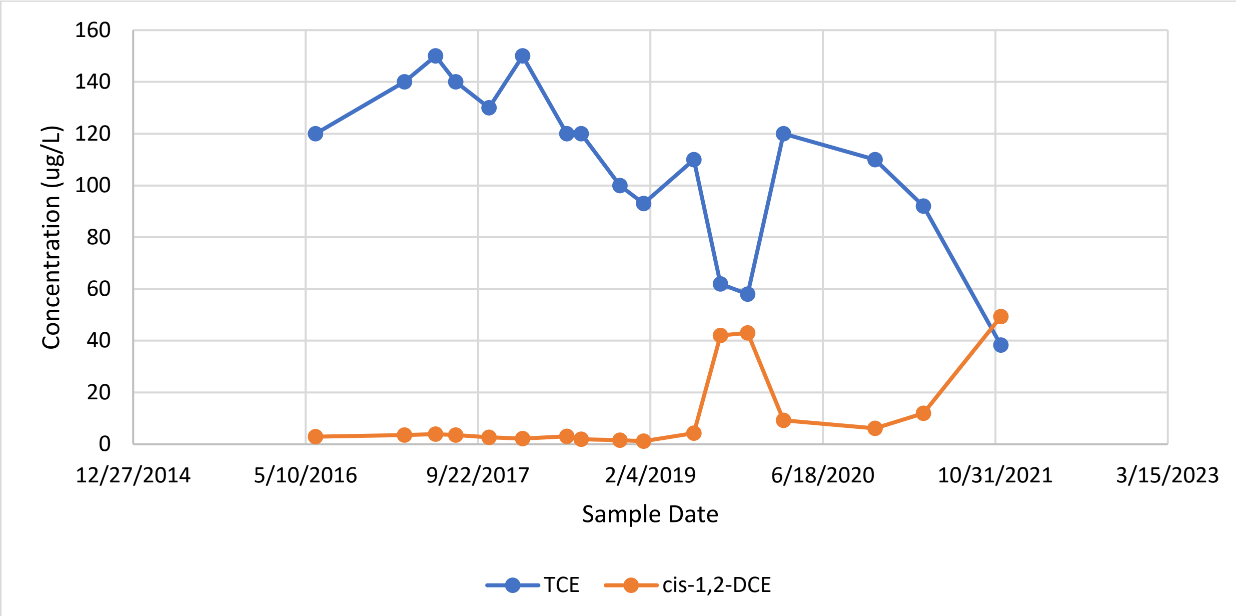

Figure 4.53 TCE and cis-1,2-DCE, PTX06-1175.

Between 2017 and 2021, 1,2-DCA detections reported for the downgradient monitoring wells were, with a few isolated exceptions, less than the GWPS. PCE was detected in a limited number of samples and at concentrations less than the GWPS.

In summary, data for the downgradient monitoring wells indicate mixed performance of the Zone 11 ISB, similar to what was observed in the treatment zone monitoring wells. TCE contamination appears to be migrating toward monitoring wells downgradient of the east side of the Zone 11 ISB. There appears to be effective performance at PTX06-1012, PTX06-1173, and PTX06-1174; the potential for effective performance at PTX06-1175; and ineffective performance at PTX06-1155.

Natural Attenuation Parameter Data

Natural attenuation parameters include alkalinity, sulfate, nitrate/nitrite, iron, manganese, methane, ethane, ethene, and TOC. These parameters, along with pH, DO, and ORP, can be used to assess whether the groundwater geochemistry is suitable for biological reduction of TCE and perchlorate. Between 2017 and 2021, the injection wells and upgradient, treatment zone, and downgradient monitoring wells were routinely sampled for analysis of natural attenuation parameters. The results are evaluated below.

The optimal pH for reductive dechlorination of TCE is between 6 and 8. Microbial metabolism of the carbon substrate applied through the injection wells generates acidity that, depending on the groundwater's buffering capacity, can decrease pH to acidic levels that can inhibit microbial reduction. Between 2017 and 2021, the pH measurements for the upgradient wells, excluding an anomalously low reading of 1.04 likely caused by a meter malfunction, fell within the optimal range. In the treatment zone monitoring wells, one measurement, 5.43 at PTX06-1176 in August 2018, was less than the optimal range. In injection wells PTX06-ISB055, PTX06-ISB059, PTX06-

ISB064, PTX06-ISB068, PTX06-ISB073, PTX06-ISB133, PTX06-ISB135, and PTX06-ISB137, the pH decreased to less than 6 during the 2020 and 2021 sampling events. Downgradient of the ISB, pH measurements ranged from 6.4 to 9.38. These measurements suggest that carbon substrate metabolism affects groundwater pH only in the immediate vicinities of the injection wells.

Although the pH decreased in several of the injection wells, the ranges of alkalinity detections were similar for the injection wells (163 mg/L to 3,384 mg/L), treatment zone monitoring wells (195 mg/L to 3,259 mg/L), and upgradient and downgradient monitoring wells (156 mg/L to 1,312 mg/L). Alkalinity was not measured in 2021. It is possible that the alkalinity concentrations in the injection wells decreased in 2021 when the pH also decreased.

DO and ORP measurements are uncertain because oxygen could have been introduced to the groundwater during purging. In addition, there is substantial variability in the readings at a given well, even if the well is located in an area unaffected by the Zone 11 ISB. For example, at the upgradient monitoring wells, DO measurements ranged from 0 to greater than 10 mg/L, and ORP measurements ranged from -379.1 mVs to +240 mVs. Due to the uncertainty and variability associated with measurements of DO and ORP, the results were evaluated qualitatively. In the injection wells, most of the DO readings were less than 2 mg/L and most of the ORP measurements were negative, suggesting generally anoxic conditions.

Sulfate is an indicator of groundwater geochemistry and a competing electron acceptor for the hydrogen produced by microbial metabolism of the amendment. In the upgradient monitoring wells, sulfate detections ranged from 24.2 mg/L to 47.6 mg/L between 2017 and 2021. The 2017 to 2021 sulfate results for the injection wells indicate a significant increase in concentrations from less than 20 mg/L (mostly less than 1 mg/L) to greater than 100 mg/L after injection of molasses solution. Data for 2012 to 2016 did not indicate a substantial increase in sulfate concentration after amendment injection. The switch from EVO to molasses appears to have caused the recent spikes in sulfate concentration at the injection wells. **Figure 4.54** shows the 2012 to 2021 sulfate data for PTX06-ISB055, PTX06-ISB059, and PTX06-ISB073 to illustrate the change in sulfate concentration at the injection wells. The decrease in sulfate concentration at PTX06-ISB059 and PTX06-ISB073 in 2020 and 2021 indicates the occurrence of sulfate reduction. Because sulfate reducing-bacteria can compete for the electrons provided by the carbon substrate, calculation of the molasses application rate should consider this competing process.

Treatment zone monitoring well PTX06-1164 is located between injection wells PTX06-ISB091 and PTX06-ISB092. From 2017 through 2021, the sulfate concentration at PTX06-1164 fluctuated between 18 mg/L and 34 mg/L except in November 2018, when it decreased to 2.5 mg/L. The November 2018 sampling event occurred after the July 2018 amendment injection, during which 132,000 gallons of EVO/molasses was applied to PTX06-ISB091 and 151,000 gallons of the solution was injected at PTX06-ISB092. Subsequent injection volumes for PTX06-ISB091 and PTX06-ISB092 were lower: 94,700 to 112,000 gallons at PTX06-ISB091 and 22,900 to 72,900 gallons at PTX06-ISB092. These results suggest that the 2019 to 2021 injection events did not apply enough solution volume for the carbon substrate to reach PTX06-1164 and generate sulfate-reducing conditions.

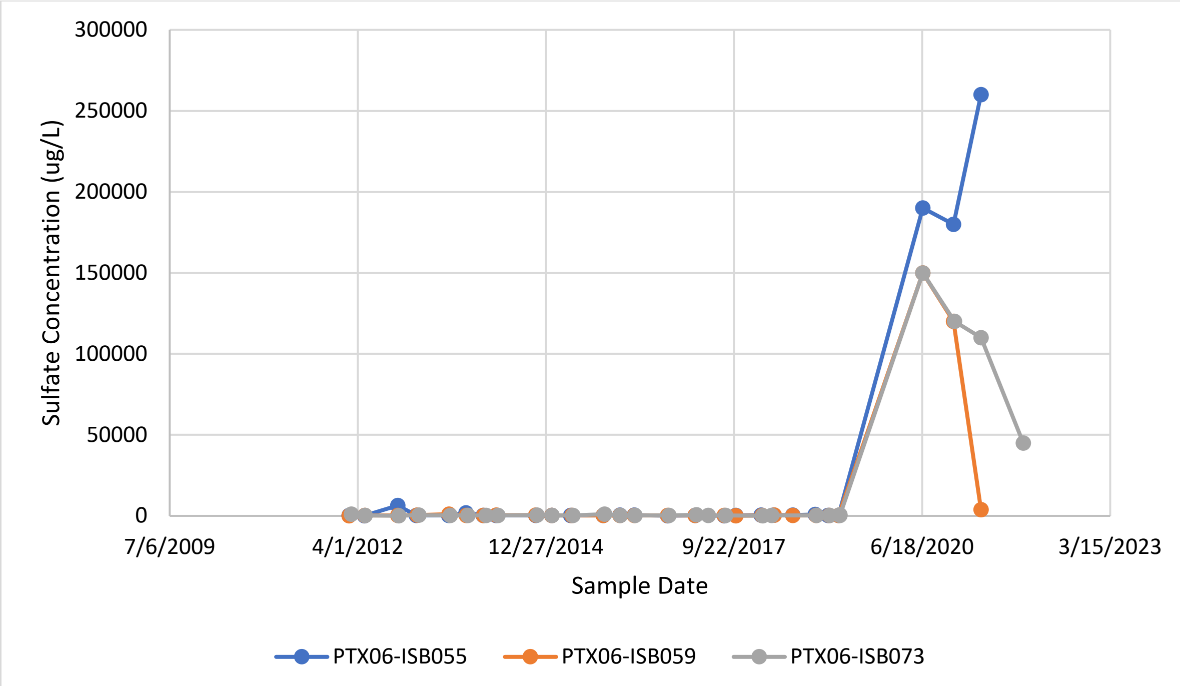

Figure 4.54 Sulfate at PTX06-ISB055, PTX06-ISB059, and PTX06-ISB073.

As described below, the sulfate data for the other treatment zone monitoring wells show no consistent pattern with respect to maintenance of sulfate-reducing conditions.

- PTX06-1169: Sulfate concentrations increased from less than 1 mg/L in 2017 to between 28 mg/L and 32 mg/L in 2021, indicating a change from sulfate-reducing conditions to non-sulfate-reducing conditions (i.e., less anaerobic).
- PTX06-1170: Sulfate detections varied between 2.1 mg/L and 24 mg/L, indicating that the groundwater near this well was sulfate-reducing at times.
- PTX06-1176: Sulfate concentrations decreased from 11 mg/L in 2017 to less than 1 mg/L from 2018 through 2021, indicating development and maintenance of sulfate-reducing conditions.
- PTX06-1177: Cyclical increases (maximum of 24 mg/L) and decreases (less than 1 mg/L) in sulfate concentrations occurred, indicating groundwater conditions fluctuating between sulfate-reducing and non-sulfate-reducing.
- PTX06-1209 and PTX06-1210: Relatively high sulfate concentrations of 28.4 mg/L and 20 mg/L, which are not indicative of sulfate reduction, were detected.

Nitrate data can be used to assess whether groundwater is anoxic. Upgradient data suggest that background levels of nitrate are less than 5 mg/L. For the injection wells, most of the 2017 to 2021 nitrate results were non-detect. With a few exceptions, detections were less than 0.1 mg/L. The results indicate generally anoxic conditions near the injection wells. At treatment zone monitoring well PTX06-1164, the nitrate concentration decreased during 2018 and remained low through

2021, suggesting development of anoxic conditions. Data for the other treatment zone monitoring wells indicated generally anoxic conditions.

Typically, when groundwater changes from aerobic conditions to anaerobic conditions, iron and manganese oxides/hydroxides dissolve and increase the aqueous concentrations of both metals. If sulfate is present and reduces to sulfide, iron and manganese can precipitate out of solution as sulfides, thereby decreasing the dissolved concentrations. The prior remedial alternatives evaluation (HGL, 2018) noted that manganese concentrations in the Zone 11 ISB injection wells increased substantially after the initial EVO injection, then decreased gradually. Between 2017 and 2021, the manganese concentration at the injection wells increased with the application of molasses. The manganese concentration also increased at PTX06-1164, PTX06-1176, and PTX06-1177 and then decreased. There was no substantial change in the manganese concentration at PTX06-1169 and PTX06-1170. The results for several of the downgradient monitoring wells indicate that dissolved manganese has migrated out of the treatment zone.

Similar to manganese, the dissolved iron concentration in the injection wells also increased after the molasses injections, and the iron concentration at PTX06-1164, PTX06-1176, and PTX06-1177 spiked. In general, the ferrous concentration was greater than the collocated ferric result, indicating that groundwater conditions support iron reduction. The results for several of the downgradient monitoring wells indicate that dissolved iron has migrated out of the treatment zone.

The presence of methane is another indicator of anaerobic conditions. Methane detections reported for the injection wells and treatment zone monitoring wells in 2017 were elevated and remained elevated through 2021. Injection of molasses did not appear to create a spike in the methane concentration in these treatment zone wells. The widespread presence of methane throughout the ISB treatment zone indicates generally anaerobic conditions within the Zone 11 ISB. Elevated methane concentrations were also detected in most of the downgradient monitoring wells.

Ethene and ethane are the final products of TCE reductive dechlorination. Between 2017 and 2021, ethene and ethane were sporadically detected in the injection wells, treatment zone monitoring wells, and downgradient monitoring wells. These sporadic detections are an indicator of complete TCE degradation. The sporadic nature of the detections suggests that complete reductive dechlorination is not occurring continuously throughout the treatment zone. Alternatively, the infrequent detections could indicate microbial metabolism of ethene and ethane.

The TOC concentration is used to assess the presence of the carbon substrate amendment, which is currently molasses. Upgradient TOC concentrations are less than 1 mg/L. TOC concentrations greater than upgradient or background levels were maintained in both injection wells and treatment zone monitoring wells from 2017 through 2021. As expected, the TOC concentrations at injection wells, excluding PTX06-ISB075, were higher than those reported for treatment zone monitoring wells. Excluding the baseline sample for PTX06-ISB135 and all results for PTX06-ISB075, TOC concentrations in the injection wells were consistently greater than 100 mg/L. At PTX06-ISB075, the TOC concentration ranged from 5.9 mg/L to 55 mg/L.

Figure 4.55 presents the historical TOC data for treatment zone monitoring wells PTX06-1164, PTX06-1169, and PTX06-1170. At PTX06-1164, the highest TOC detection, 77 mg/L, was observed in the November 2015 sample. Between 2017 and 2021, the TOC concentration at PTX06-1164 was consistently less than 10 mg/L. At PTX06-1169, the TOC concentration decreased from 16 mg/L in February 2016 to 3.36 mg/L in November 2021. At PTX06-1170, the highest TOC detection, 29 mg/L, was reported in February 2015. From 2017 through March 2020, TOC detections for PTX06-1170 were 10 mg/L or less. The TOC concentration at this well increased to slightly greater than 20 mg/L in 2021.

The change in amendment from EVO to molasses does not appear to have substantially improved amendment distribution to the vicinities of these three monitoring wells. At PTX06-1176 and PTX06-1177, the change in carbon substrate from EVO to molasses appears to have improved amendment distribution (**Figure 4.56**; note the logarithmic scale on the y-axis). The difference in TOC distribution to the treatment zone monitoring wells could be due to differential lithology that impedes distribution between the injection wells and PTX06-1164, PTX06-1169, and PTX06-1170 and/or to insufficient injection volume at the adjacent injection wells. As noted above in the sulfate discussion, injection volumes for PTX06-ISB091 and PTX06-ISB092, which straddle PTX06-1164, were lower from 2019 to 2021 than in 2018.

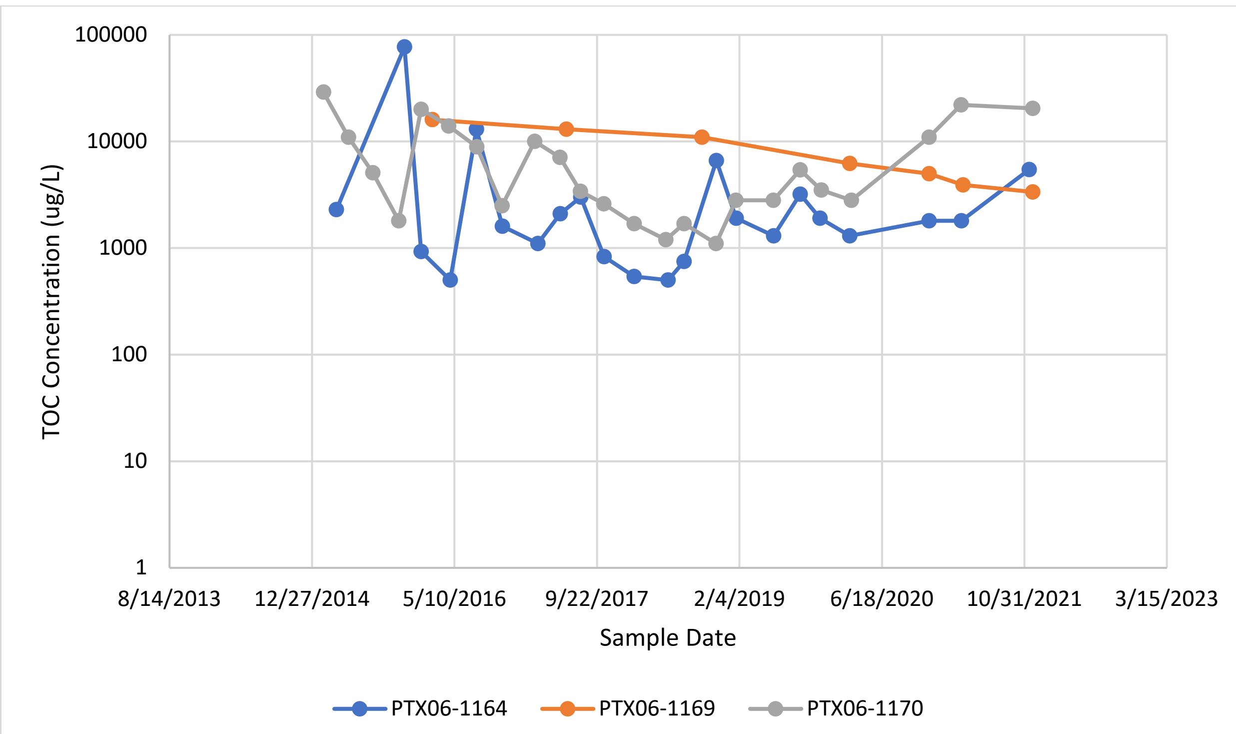

Figure 4.55 TOC in PTX06-1164, PTX06-1169, and PTX06-1170.

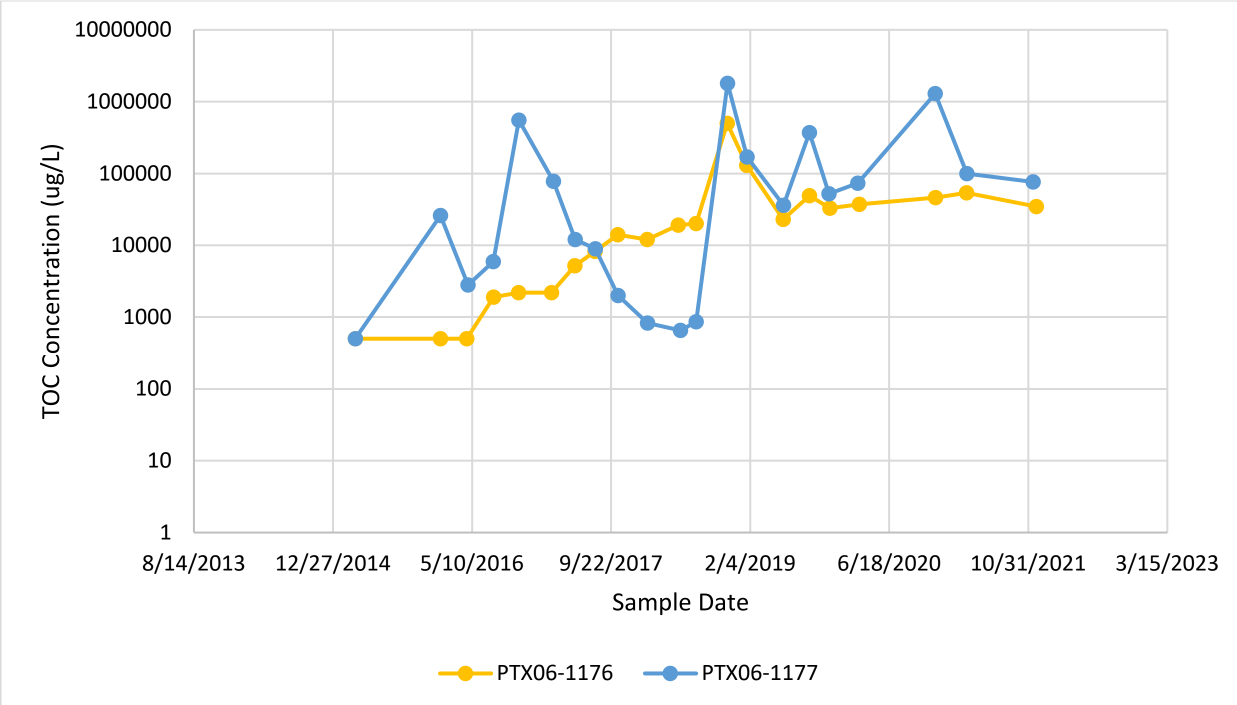

Figure 4.56 TOC at PTX06-1176 and PTX06-1177.

The October 2021 TOC results for PTX06-1209 and PTX06-1210 were low, 2.02 mg/L and 6.66 mg/L, respectively. PTX06-1209 is located between PTX06-ISB144 and PTX06-ISB145. Both wells received the first round of amendment in fall 2021. Amendment was applied to PTX06-ISB145 from September 29 to October 6, 2021 and to PTX06-ISB144 from October 19 to October 23, 2021. PTX06-1209 was sampled for the first time on October 19, 2021. Thus, the TOC detection of 2.02 mg/L represents the influence of amendment injection at PTX06-ISB145. PTX06-1210 is located between PTX06-ISB156 and TPX06-ISB57, both of which received amendment after PTX06-1210 was sampled on October 19, 2021. The TOC detection of 6.66 mg/L for PTX06-1210 likely reflects amendment delivered to PTX06-ISB155 between October 14 and October 19, 2021.

The TOC results suggest that the ability to distribute amendment throughout the ISB treatment zone varies. For example, it appears to be easier to distribute amendment to PTX06-1210 than to PTX06-1209, and easier to distribute amendment to PTX06-1176 and PTX06-1177 than to PTX06-1164, PTX06-1169, and PTX06-1170.

The 2017 through 2021 TOC results for downgradient monitoring wells are summarized below. Most of the downgradient monitoring wells showed TOC concentrations greater than natural background levels, indicating that carbon substrate migrates downgradient from the ISB system.

- PTX06-1012, PTX06-1155, PTX06-1156: Detections ranged between 5.79 mg/L and 24 mg/L, indicating downgradient migration of carbon substrate.

- PTX06-1148: Detections ranged between 1 mg/L and 10 mg/L, suggesting a limited degree of influence from the ISB. This well is farther downgradient of the treatment zone than PTX06-1012, PTX06-1155, and PTX06-1156.
- PTX06-1149: Detections decreased from 5.3 mg/L to less than 1 mg/L, suggesting a decrease in influence from the ISB from limited influence to no influence. This well is farther downgradient of the treatment zone than PTX06-1012, PTX06-1155, and PTX06-1156.
- PTX06-1150: Detections were less than 2 mg/L, suggesting minimal, if any, influence from the ISB. This well is farther downgradient of the treatment zone than PTX06-1012, PTX06-1155, and PTX06-1156.
- PTX06-1173 and PTX06-1174: Detections ranged from slightly greater than 2 mg/L to greater than 100 mg/L, indicating ISB influence ranging from minimal to substantial.
- PTX06-1175: The TOC concentration increased from natural levels to 7.67 mg/L.

Summary of Remedy Performance and Efficacy

In summary, the perchlorate data for 2017 through 2021 indicate effective degradation across most of the treatment zone and downgradient areas. Upgradient, influent concentrations appear to be attenuating, particularly in the central portion of the ISB system. Within the treatment zone, there is residual perchlorate contamination near PTX06-1209 and uncertainty as to whether the perchlorate concentration at PTX06-1164 will rebound to concentrations greater than the GWPS. Perchlorate contamination has attenuated in most of the downgradient monitoring wells. At PTX06-1175, the perchlorate concentration decreased to less than the GWPS in 2021, but there is uncertainty as to whether the concentration will rebound as it did in 2020. At PTX06-1148 and PTX06-1149, the perchlorate concentration has been increasing, suggesting migration of contamination toward these two wells located downgradient of the east side of the ISB system.

Effective TCE degradation is occurring in the immediate vicinities of the injection wells and near PTX06-1170, PTX06-1176, and PTX06-1177. There is ineffective TCE degradation near PTX06-1164 and PTX06-1169. **Figure 4.47** illustrates the varying degrees of ISB performance throughout the treatment zone. Downgradient data indicate downgradient migration of TCE along the east side of the ISB system; ineffective TCE degradation near PTX06-1155; effective TCE degradation near PTX06-1012, PTX06-1173, and PTX06-1174; and the potential for effective performance at PTX06-1175.

The most likely reason for the wide range of effectiveness in ISB performance is non-uniform distribution of the carbon substrate amendment. This hypothesis is illustrated by **Figures 4.57** and **4.58**. As shown on **Figure 4.57**, the total chlorinated ethene concentration at PTX06-1176 decreased as the TOC concentration increased (note the logarithmic scale used for the TOC axis). At PTX06-1169, the TOC concentration decreased between 2016 and 2021, while the total chlorinated ethene concentration increased. TOC distribution is affected by the injection volume per ISB well. As described earlier in this section, radius of influence testing in 2018 concluded that injection volumes needed to increase to distribute carbon substrate to the midpoints between injection wells. Since then, however, several wells per injection event have not received the target volume due to low flow rates. Comparison of injection flow rate and transmissivity results for 20 wells treated in 2018 and 2020 showed a substantial decrease in transmissivity and flow rate between the two sampling events (**Figure 4.59**). These decreases in transmissivity and flow rates suggest that biofouling is affecting well performance in spite of the well maintenance activities.

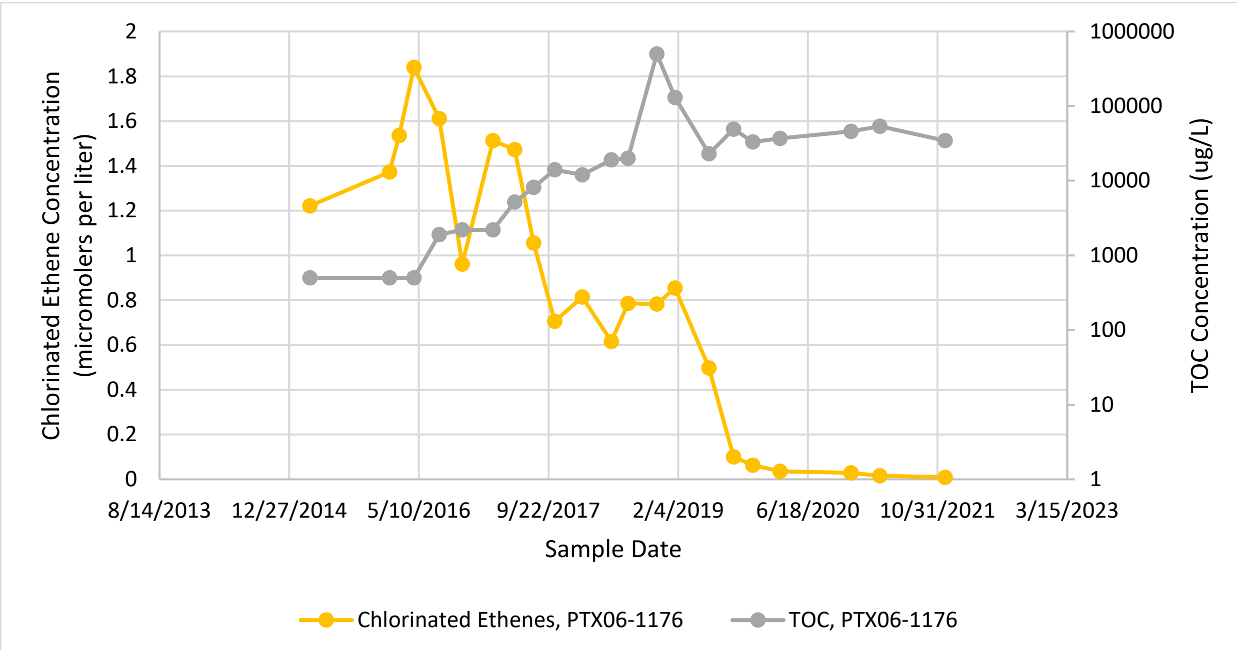

Figure 4.57 Chlorinated Ethene and TOC Concentrations, PTX06-1176.

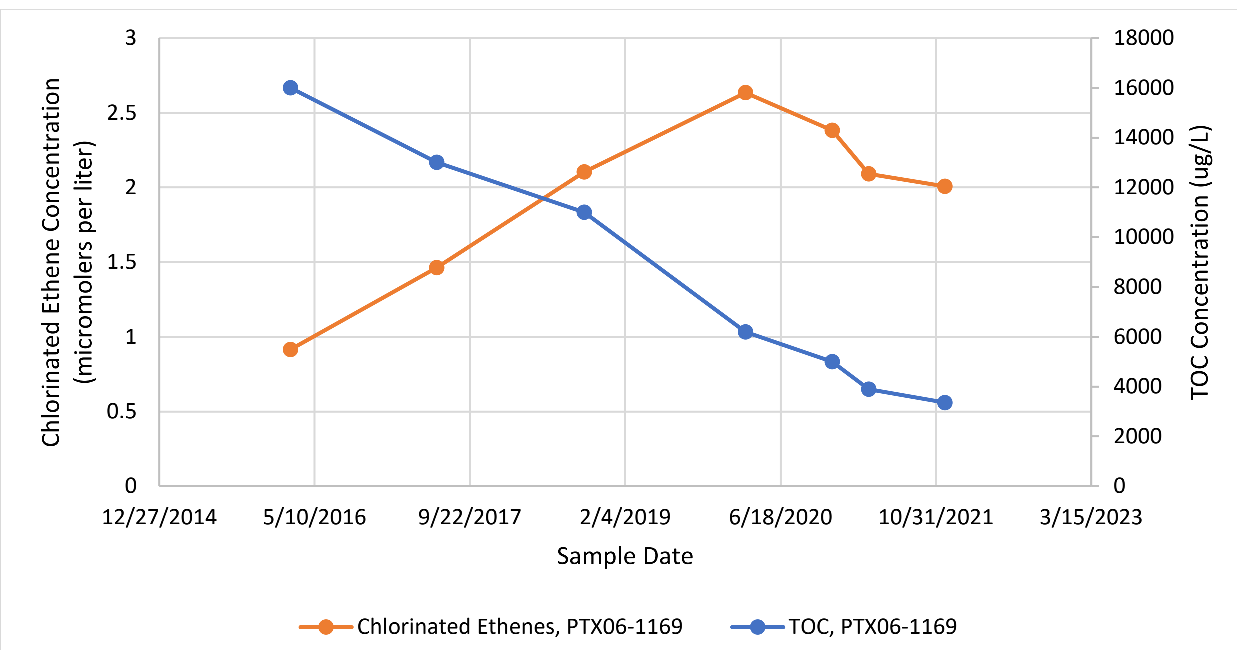

Figure 4.58 Chlorinated Ethene and TOC Concentrations, PTX06-1169.

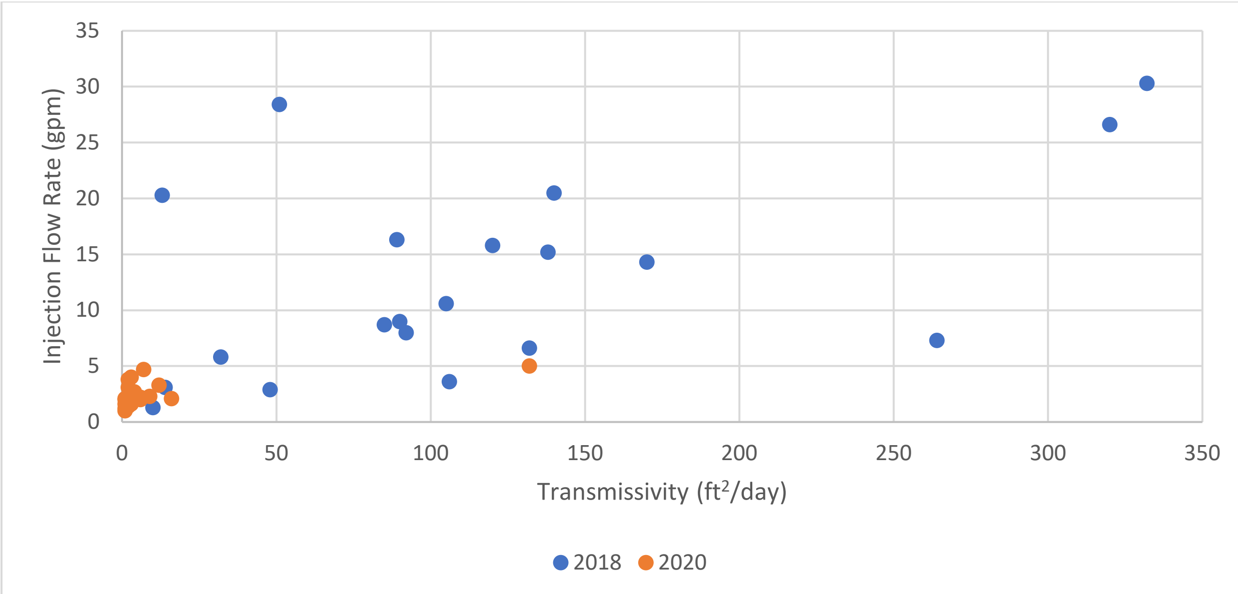

Figure 4.59 Change in Transmissivity and Injection Flow Rate Between 2018 and 2020.

Recent groundwater potentiometric contours indicate that SEPTS is creating an eastward groundwater flow direction in the vicinity of the Zone 11 ISB. Groundwater modeling indicates that this change in flow direction will increase over the next 10 years. Although the effects of this change in groundwater flow direction are not yet apparent in the performance monitoring data, it is likely that SEPTS will affect ISB performance in the future. As the change in groundwater flow direction continues, the downgradient monitoring wells may no longer be downgradient of the treatment zone.

4.5.4 Optimization Recommendations

The following recommendations are provided to optimize the Zone 11 ISB performance:

- Review amendment injection volumes to confirm that they are sufficient to distribute amendment away from the injection wells. For example, amendment solution volumes applied to the ISB wells on either side of PTX06-1164 were lower from 2019 to 2021 than in 2018, when the highest TOC detection between 2017 and 2021 was reported.
- Consider addition of a buffering agent to the amendment solutions to increase pH in the injection wells and counter future acid production by microorganisms. As noted in Section 1.3.2, the pH in several injection wells was less than the optimal range in 2020 and 2021. Because field parameters are not measured in injection wells that are not sampled, acidic groundwater conditions might not be confined to PTX06-ISB055, PTX06-ISB59, PTX06-ISB064, PTX06-ISB068, PTX06-ISB073, PTX06-ISB133, PTX06-ISB135, and PTX06-ISB137. Recommend measuring pH in injection wells during pre-injection activities to support determination of the need to include a buffering agent.
- Consider pilot-testing injection of PlumeStop™ with the carbon substrate amendment to determine if the adsorption provided by PlumeStop™ would improve treatment

efficiency. The limited radius of influence of PlumeStop™ injections may create technical limitations on its implementation in the Zone 11 ISB system.

- Install a performance monitoring well downgradient of injection wells PTX06-ISB132 through PTX06-ISB137 to provide spatial coverage along this section of the ISB system.
- It is expected that injection wells installed in 2021 will reduce the TCE contamination migrating downgradient from the east side of the ISB system, but efficacy could not be determined for the current FYR period. Amendment was first applied through these wells in fall 2021. PTX06-1209 and PTX06-1210 were added as TZM wells to support determination of amendment injection frequency and evaluation of injection well performance.
- During recent injection events, multiple wells received less than the target volume of amendment solution due to low flow rates, and the average flow rate for many wells was approximately 5 gpm or less. With such low flow rates, it can take many days to administer the target injection volume to a given well and the duration of each field event is lengthened. Consider the options to improve in situ treatment such as:
  1. Testing existing injection wells to serve as recirculation wells to enhance amendment distribution; and
  2. Testing alternative well maintenance approaches, such as sequential application of different chemical agents, longer surge times, or a heated water maintenance approach.
- Prepare groundwater potentiometric contours localized to the Zone 11 ISB and at a smaller interval (e.g., 1-ft) than the 5-ft interval currently used to allow a more precise evaluation of potential changes in groundwater flow direction due to SEPTS operation. Because in situ treatment zones are most effective when oriented perpendicular to the direction of groundwater flow, long-term changes in groundwater flow direction will affect the ISB system's effectiveness. For future amendment injection events, changes in groundwater flow direction should be considered during the selection of wells to receive treatment.

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5.0 INSTITUTIONAL CONTROLS

Remedies selected in the Pantex 2008 ROD include land and groundwater use controls, commonly referred to as ICs (B&W Pantex, 2008). ICs are non-engineered legal and administrative instruments, taking the form of restrictive covenants on property, informational notices, policy or work guidance, and property use or access controls.

The goal of ICs at the Site is to minimize the potential for human exposure to contaminated media and to protect the integrity of remedy components. ICs are implemented at Pantex in conjunction with both passive and active engineered remedies where media are not anticipated to attain remedial goals for UU/UE in the near future. Land use controls (LUCs) will be maintained on affected properties until concentrations of hazardous materials are below risk-based standards.

Site ICs were selected to address ROD-identified RAOs to reduce exposure risk to humans coming in contact with affected media, specifically:

- Reduce the exposure risk to on-site industrial and construction/excavation workers;
- Reduce the risk of exposure to affected groundwater from the perched groundwater unit through prevention of contact.

Under the ROD and the IAG (IAG, 2008), USDOE/NNSA are required to implement, enforce, monitor, and report on the status of ICs until Site remedial goals are attained. USDOE/NNSA contracts with the prime contractor (currently CNS) to implement and/or monitor ICs for compliance with CERCLA as part of the O&M of the Pantex Plant. CNS is also responsible for communicating the requirements for enforcing ICs on off-site properties that are subject to ICs.

The efficacy of ICs implemented at the Pantex Plant have been evaluated according to the EPA guidance *Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance"* (OSWER Directive 9355.7-18) (EPA, 2011).

The three main standards for ICs that are defined in the EPA guidance are listed below:

- *Clarity of Use Restrictions and Exposure Pathways* – ICs should clearly articulate the restrictions that are needed at a property to achieve overall RAOs;
- *Accuracy of Property Information and Mapping* – all physical areas that do not support UU/UE should be identified and the administrative record should have information showing that ICs cover those areas through comparison with, for example, legal descriptions and scope of ordinances (e.g., ground water ordinance covers the entire current plume area).
- *Adequacy of Long-term Stewardship of ICs* – planning documents, enforcement documents, as well as remedy selection-related documents, should be in place and detail the long-term roles and responsibilities for implementing, maintaining, and enforcing ICs.

The recommended review process for ICs includes reviewing decision documents, deed restrictions, Site-specific policy and guidance, site inspections, and interviews with Site personnel. As recommended in the EPA IC guidance, efficacy of ICs was evaluated by reviewing the applicable documentation referencing ICs. In addition, a site visit was conducted including discussions on implementation of ICs with CNS personnel.

ICs selected in the ROD have not been modified by an ESD or ROD Amendment.

5.1 REMEDY DESCRIPTION

ICs implemented as part of the Selected Remedy include both proprietary controls such as deed restrictions and informational notices (including signage), controlled access, guidance, and work policies. The specific objectives of the selected ICs and LUCs are as follows:

- To prohibit use of the perched groundwater without appropriate treatment until cleanup levels are achieved (deed restrictions);
- To restrict all Site properties to prohibit the development and use of property for residential buildings, housing, elementary and secondary schools, childcare facilities, and playgrounds where contaminants are left in place above unrestricted levels (deed restrictions); and
- To control access to those properties that pose a health risk to construction/excavation (signage, policy, and guidance).

In addition, ICs prohibit activities that would damage or impair the function of all components of the current and future remedies, including monitoring wells, in situ and ex situ treatment systems, landfill covers, and access control elements.

ICs for the Site include the following elements:

- *Site documentation* in the Administrative Record, including all decision documents, site investigation reports, risk assessments, and remedy design and performance reports.
- *Deed restrictions recorded with the Carson County* clerk and located in the Administrative Record. Deed restrictions identify the specific property boundaries and hazards present at the restricted property.
- *Maps and GIS files* of restricted property parcels included in the deed restrictions and Site reports including the first FYR.
- *Signage, fencing, and access restrictions* including security restrictions implemented as part of the Pantex Plant mission.
- *O&M protocols and inspection logs* to protect remedies and remedy components from degradation or accidental damage, and to document the status of remedial components.
- *Documentation of Site management roles and responsibilities*. USDOE/NNSA and its prime contractor have documented responsibilities for implementing Site management and work protocols for maintaining the integrity of remedies and remedial components, and for managing the transfer or property use changes for all restricted parcels.

Deed restrictions for property parcels containing affected soils and groundwater have been entered into the Carson County Deed Records. Deed restrictions include detailed surveys conducted to provide the legal description of the property that is restricted (consistent with State laws) and a description of the type of hazards present in restricted media. The surveys ensure the future ability of property users to easily identify boundaries of controls and the potential hazards. Deed records implemented for soil are illustrated on **Figure 5.1** and for groundwater on **Figure 5.2**.

Deed restrictions implemented limit the use of identified properties if the ownership, in part or total, changes. Although the USDOE/NNSA may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the USDOE/NNSA retains ultimate responsibility for the remedy.

In total, USDOE/NNSA owns 17,559 acres including the main Plant area and adjacent property. Many of the property parcels have deed restrictions. The USDOE/NNSA-owned main property used for core operations covers approximately 9,100 acres. Industrial operations occur on approximately 2,000 acres in the central portion of the property. The remaining area of the main property are managed to support and secure the industrial operations. Access to the main Plant area is highly restricted through fencing and security check in gates, surveillance, and armed patrols.

In addition, USDOE/NNSA has purchased property east of the main Plant along FM 2373 to control access to and remediate affected groundwater in the perched unit. LUCs are also implemented at the Pantex Lake property (about 1,077 acres), which is 2.5 miles northeast of the Plant boundary. Access to these areas is also controlled and surveilled, but not to the extent of the main Plant property.

The property immediately to the south of the Pantex Plant is owned by TTU and leased by Pantex as a safety and security buffer. This property is used primarily as rangeland with small areas of cultivation. The leased area of TTU property consists of 5,856 acres. Deed restrictions have been recorded for USDOE/NNSA, private property, and TTU properties.

For the perched groundwater that occurs beneath TTU property, an agreement exists between TTU and USDOE/NNSA stating that USDOE/NNSA will provide drinking water to TTU to compensate for the prohibition on water supply wells and drilling through the perched unit. In addition, a formal deed restriction applies to the TTU property that restricts use of all perched groundwater and all potential drilling activities to depths greater than 180 ft to protect the underlying Ogallala Aquifer from potential cross contamination.

For the single private property east of FM 2373 that has the potential to contain contaminants in perched groundwater, USDOE/NNSA has negotiated a deed restriction with the property owner. The deed restriction restricts drilling of any well and any use of the perched groundwater in the designated Groundwater Restricted Area.

For two additional properties south of highway 60, deed restrictions and a lease agreement were negotiated between 2020 and 2022. The deed restrictions were required due to the plume extending off site to the southeast. The deed restrictions to restrict drilling of any well greater than 180 ft, to restrict any use of the perched groundwater, and to grant access to USDOE/NNSA, EPA, and TCEQ on these additional properties were completed by June 2022 and will remain in place until the off-site remedial action is complete (CNS, 2022b).

The ROD required the development of a land and groundwater use controls implementation plan (LGUCIP) to describe ICs planned for the Site. The LGUCIP document was developed in 2010 (B&W Pantex, 2010), and identifies the specific LUC mechanisms to be implemented as well as IC monitoring and O&M protocols. Appendices of the LGUCIP includes the initial deed restrictions recorded with Carson County for both soil and groundwater. Two new deed restrictions were filed with Carson County in 2021 and 2022 to implement institutional controls for the perched groundwater plume that has expanded beneath neighboring properties to the southeast.

In addition to proprietary controls, ICs include work procedures and policies to prevent inadvertent contact with affected media and to guide proper worker safety protocols when work is conducted in areas with affected material. Work instructions include the *Solid Waste Management Unit (SWMU) Interference Policy,* SWMU Interference Notification form and logbook, and work instruction documents for projects that include excavation or projects that fall under the National Environmental Policy Act notification requirements.

5.1.1 Soil ICs

Deed restrictions for soils and landfill covers typically restrict property use to commercial or industrial uses and prohibit anthropogenic releases of water to soils, landfills, or soil gas areas of concern. Activities that would damage or degrade landfill covers are prohibited, and maintenance of positive drainage is required. Deed restrictions for soil typically prohibit drilling except for corrective action purposes. Details of prohibited and required actions vary by the characteristics of the soils covered in the deed restriction.

In addition to implementing deed restrictions that identify the extent of restricted property, the USDOE/NNSA has implemented work plans under the SWMU Interference Policy. The policy outlines procedures to ensure that approval is obtained for any construction or excavation activities that have the potential to disturb a SWMU or remedial system.

SWMUs at Pantex are marked with signs delineating the locations of SWMU boundaries. Personnel and subcontractors are trained to coordinate soil disturbing activities through reviews by the Environmental Programs subject matter expert to determine appropriate controls. The proposed work area is reviewed by personnel familiar with the identity and distribution of COCs and potential hazards are identified. Potential hazards are communicated to personnel overseeing health and safety/industrial hygiene and appropriate personal protective equipment requirements, warnings, and work protocols are drafted to prevent exposure or damage to remedy components. Work protocols extend to management of soil removed or disturbed and appropriate decontamination of disposal practices.

Deed restrictions for TTU also outline protocols to protect workers and prevent damage to remedial components. USDOE/NNSA and their contractors provide initial training and annual refreshers to the TTU Farm/Ranch Managers and TTU Farm Cooperators to ensure awareness of health and safety practices and the remedial system components.

In addition to the general security and access control for the Pantex Plant and surroundings, additional fencing has been installed to prevent exposure or disturbance. For example, a perimeter fence was installed around the Firing Site-5 (SWMU 70) impact area, including the landfill cover.

The SWMU signs and Firing Site 5 fence are maintained to control access to those soils which pose a health risk to industrial and construction/excavation workers.

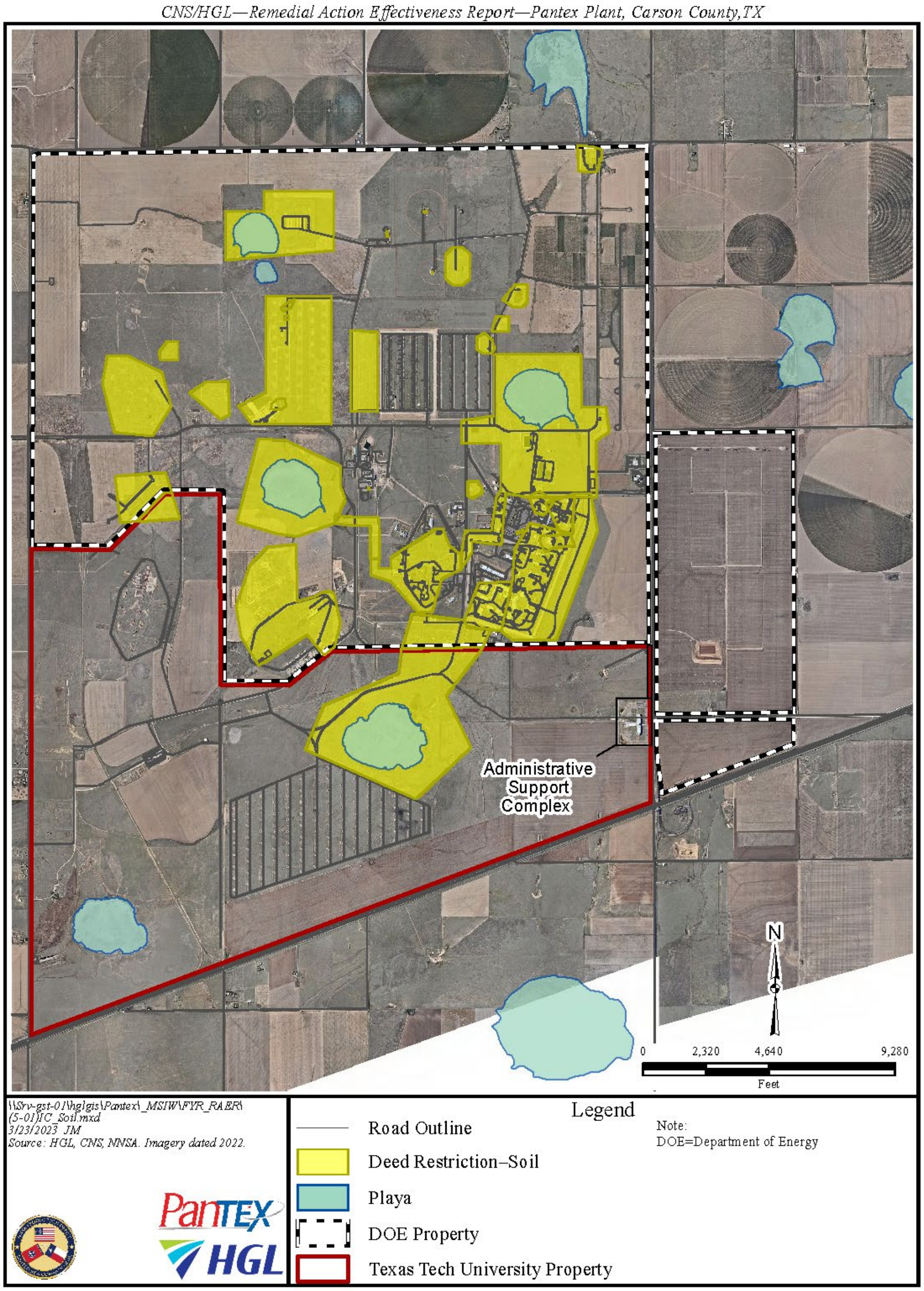

Figure 5.1 Pantex Plant Institutional Controls: Soil.

CNS/HGL—Remedial Action Effectiveness Report—Pantex Plant, Carson County,TX

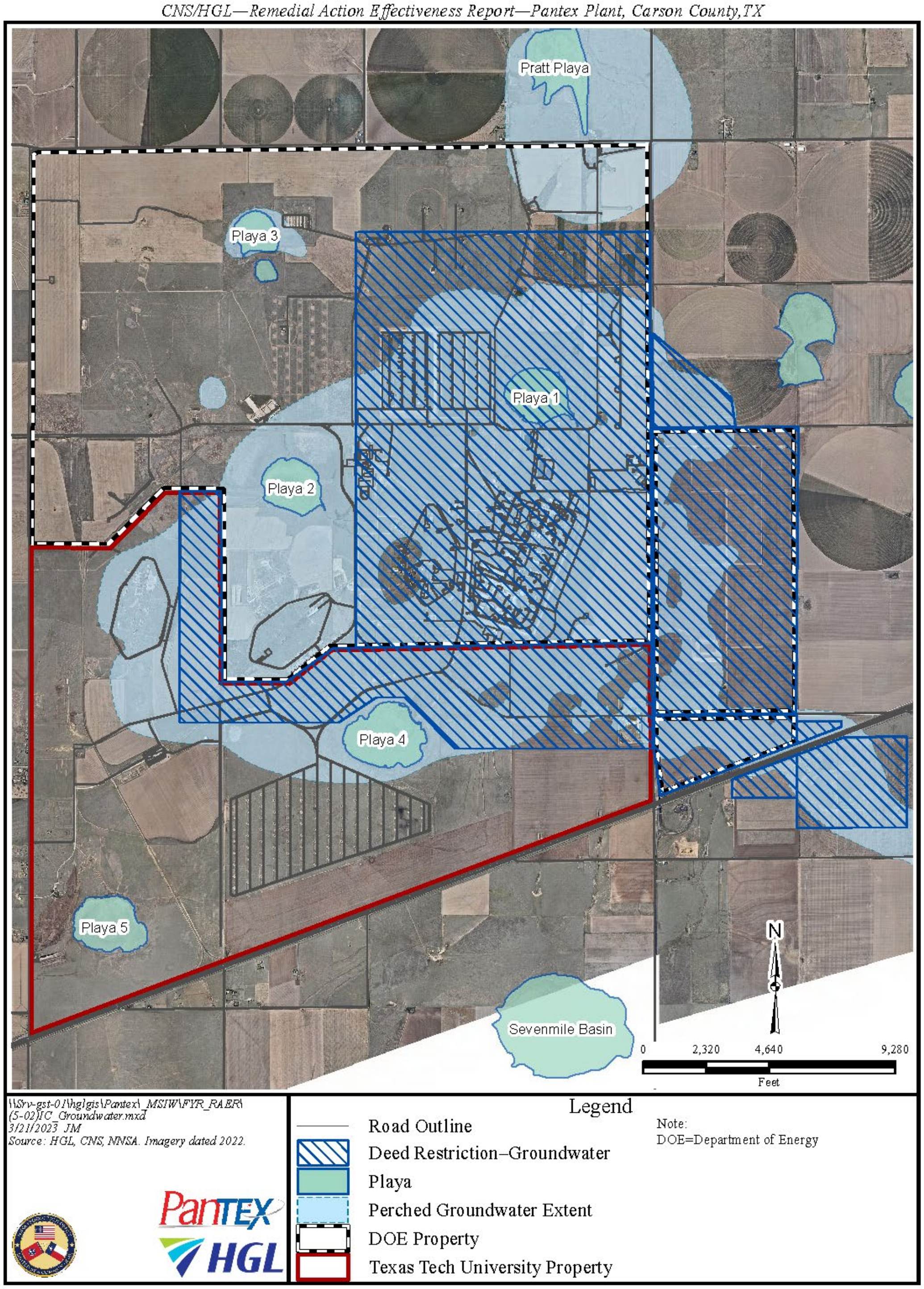

Figure 5.2 Pantex Plant Institutional Controls: Groundwater.

5.1.2 Groundwater ICs

The extent of deed restrictions recorded in Carson County to restrict groundwater use in the perched unit is shown on **Figure 5.2**. For on-site groundwater, the USDOE/NNSA has filed a deed restriction with Carson County to prevent unauthorized well drilling into the perched zone and/or through the FGZ aquitard, and to limit the potential use of perched groundwater. For off-site perched groundwater, deed restrictions have been filed with Carson County by the private property owners and by TTU to likewise prohibit unauthorized well drilling into the perched zone and/or through the FGZ, to prevent the use of perched groundwater without treatment for Site COCs, and to allow access to the properties by USDOE/NNSA, EPA, and TCEQ for the purposes of maintaining ICs and other active remedies.

The boundaries of the areas included in the deed restriction for perched groundwater encompass the extent of contaminants identified in the RFI. **Figure 5.2** depicts the extent of the proprietary controls for perched groundwater. Appendix C of the LGUCIP contains copies of the perched groundwater restrictions with the exception of two new deed restrictions filed in 2022 to address perched groundwater plume expansion beneath neighboring properties to the southeast; this information is maintained to be used in annual evaluations and CERCLA FYRs of these controls (B&W Pantex, 2010). The two new deed restrictions were provided to TCEQ and EPA via correspondence in 2022 (CNS, 2022c). As with the soil ICs, work protocols are implemented through the SWMU Interference Policy and associated documentation.

5.2 OPERATION AND MAINTENANCE

Decision documents require that soil and groundwater IC be maintained on affected properties until media attain UU/UE cleanup standards. Any modifications to the ICs must be approved by EPA and TCEQ. No modifications to the LUCs have been made since implementation.

Additionally, the integrity of all components of current and future remedies, including monitoring wells, in situ and ex situ treatment systems, liners, and covers will be preserved through inspection and maintenance, and coordination with construction and operational activities. Protected components of the selected active remedies and O&M protocols are described in **Sections 3** and **4** of this report.

Should an agreement be reached with another agency to take control of Pantex Lake, or any portion of the Pantex Plant property, USDOE/NNSA will provide notice to EPA and TCEQ at least 6 months before transfer or sale of the property, so that EPA and TCEQ can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective LUCs.

Additionally, the transfer of fee title from the United States will include a CERCLA 120(h)(3) covenant, which will have a description of the residual contamination on the property and the environmental use restrictions, expressly prohibiting activities inconsistent with the performance measure goals and objectives.

O&M of ICs is conducted by inspections of all site operations and construction projects to ensure that the LUCs and work policies are implemented as designed and have not been compromised. Procedures have been outlined in the event that a soil disturbance is discovered to ensure that corrective actions are implemented. In the event of a disruption to the LUC, EPA and TCEQ will be notified within 10 days of discovery. EPA and TCEQ are also to be informed in advance of any proposed change in land use inconsistent with the LUC. Annual reports are prepared by USDOE/NNSA on performance and efficacy of the Selected Remedies, and these reports include any issues or changes to ICs implemented over the previous year.

As part of IC implementation and maintenance, CNS conducts semi-annual meetings with TTU representatives to discuss the status of affected media and planned projects in the vicinity of the Texas Tech Research Farm. Communication and coordination between CNS and TTU allow USDOE/NNSA to be aware of activities on TTU property that may compromise the efficacy of the ICs and to ensure that TTU understands the extent and function of the implemented ICs. USDOE/NNSA also maintains communication with the off-site landowners whose properties are subject to deed restrictions and ICs.

5.3 REMEDY PERFORMANCE AND EFFECTIVENESS

The performance and efficacy of the ICs selected as part of the remedy were evaluated for clarity, accuracy, and adequacy to address RAOs.

5.3.1 Clarity of Use Restrictions and Exposure Pathways

Deed restrictions implemented for soil and groundwater located in the LGUCIP document were reviewed for clarity of restrictions and allowed uses (B&W Pantex 2010c). The documents were found to be very detailed in both the location, approved property uses, and description of potential hazards. The documents are copies of deed restrictions registered with Carson County.

The additional perched groundwater deed restrictions signed in 2022 for off-site properties were reviewed for clarity of restrictions and allowed uses (CNS, 2022c). The documents were found to be very detailed in both the location, approved property uses, and description of potential hazards.

SWMU Interference Policy and associated documents clearly outline the roles and responsibilities of managers and workers during the planning and execution of construction and excavation projects. Work instructions on How to Obtain a SWMU Interference Notification is included in the LGUCIP document. The instructions clearly identify protocols for obtaining approval of construction activities.

5.3.2 Accuracy of Property Information and Mapping

The accuracy of the property information was evaluated by reviewing the surveys described in the ICs. The LGUCIP is included in the Administrative Record for the Site and deed restrictions are recorded at the Carson County public records. The surveys described in the deed records were compared against high resolution aerial photographs, historical property use, and sampling data as well as GIS files provided by CNS. Property parcels with deed restrictions were viewed during the site inspection (September 2022). The property descriptions in the deed restrictions were consistent with aerial photos, visual inspection, Site data, and GIS files.

Remedial components, including monitoring wells, EWs, ISB systems, and water treatment and conveyance lines were observed during the site inspection and compared with GIS files and descriptions in deed restrictions. No inaccuracies or deficiencies in the location of the remedial components, including recently installed components, were found.

Based on a review of Site sampling data through 2021, deed restrictions cover all areas that do not support UU/UE. This includes recently added deed restrictions to the southeast where plume migration extends past Highway 60 to the southeast.

5.3.3 Adequacy of Long-term Stewardship of ICs

Planning documents, enforcement documents, as well as remedy selection-related documents, are in the Administrative Record and detail the long-term roles and responsibilities for implementing, maintaining, and enforcing ICs. The Administrative Record for the Site includes all major decision documents including the CMS/FS, ROD, second FYR, LGUCIP (including registered deed restrictions), annual reports, and remedy design/remedial action work plans and are available upon request. Many of these documents are readily available on the Pantex Plant web site.

The Pantex Plant is an active facility owned by the USDOE/NNSA. There are no plans to cease operations or oversight. The facility maintains highly restricted access as the main mission of the Plant is maintaining the safety, security, and effectiveness of the U.S. nuclear weapons stockpile.

Long-term roles and responsibilities for maintaining LUC and other ICs are described in the LGUCIP. The USDOE/NNSA and its contractors work closely with regulatory agencies including the EPA and TCEQ to ensure compliance with ICs.

5.4 OPTIMIZATION

ICs described in decision documents as the Selected Remedy are implemented and maintained according to EPA guidance and state laws. No deficiencies have been identified in the implementation, maintenance, or enforcement of the ICs over the past five years.

Potential updates to ICs would be triggered if groundwater plumes extend beyond the current surveyed area described in the deed restrictions. No other recommendations are made for improving existing ICs.

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6.0 MONITORING

6.1 PERCHED GROUNDWATER UNIT

The long-term groundwater monitoring network for the perched unit is reviewed in the *Long-Term Monitoring Optimization (LTMO) Review, Perched Groundwater Unit* (HGL, 2022b) included as **Attachment 11** in the FYR report. The report contains a review of the efficacy and performance of the perched monitoring network and recommendations for optimization of the LTM program for priority constituents that define the extent of exceedance of remedial goals in the perched unit.

Recommendations for the perched unit include the following:

- Adding monitoring wells in the southeast and southwest sectors;
- Continuing the investigation of the area around ISPM well PTX06-1153 to assess uncertainty related to RDX concentration trends;
- Adding 1,4-dioxane as a sampled analyte at additional wells between the Zone 11 ISB and SEPTS; and
- Continuing periodic monitoring of PTX06-1136, northwest of Playa 1, to ensure that it remains dry.

6.2 OGALLALA AQUIFER

Monitoring of the Ogallala Aquifer is performed as part of the UM and early detection LTM objectives. (Sitewide monitoring objectives are described in the LTMO Report [HGL, 2022b].) The goal of monitoring is to confirm expected conditions identified during initial Site characterization and to identify breakthrough of contamination from upper units before groundwater reaches potential points of exposure.

Ogallala well PTX06-1056, located southeast of the main industrial areas, had consistent detections of the HE breakdown product DNT4A and the VOC 1,2-dichloroethane during the current FYR period. PTX06-1056 is located in an area where the perched groundwater is absent and where breakthrough to the Ogallala Aquifer was predicted in the CMS/FS modeling report under baseline scenarios and remediation scenarios (SAIC, 2007). In 2022, DNT4A was detected in PTX06-1056 just over the GWPS of 1.2 µg/L.

Pantex has fully implemented conditions specified in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (B&W Pantex, 2009d) and has proactively evaluated potential sources for contamination at PTX06-1056. A nearby perched well (PTX06-1108) that was drilled deeply into the FGZ in an area of limited perched saturation in 1996 was plugged to address the potential for that well to act as a conduit through the FGZ. A high-volume purge/time-series sampling event was conducted in August 2022 in PTX06-1056. Results indicated that concentrations of DNT4A dropped off rapidly during the test, indicating that PTX06-1056 is near the edge of any contamination (CERCLA 5-Year Review Site Inspection, September 2022).

The detection of DNT4A at levels exceeding the GWPS triggers actions in the contingency plan to determine the source of contamination and response actions. Additional Ogallala Aquifer monitoring wells are planned to be installed to determine the extent of contamination within the

Ogallala Aquifer (CNS, 2022d). Monitoring wells should be installed in areas without perched zone saturation to limit the potential for contamination to be drawn through the FGZ during well construction.

Limited detections of VOCs such as toluene, TCE, and Freon 113 have been recorded in wells near the BG (PTX01-1010). Recommendations for monitoring the Ogallala Aquifer in the area of the BG are presented in **Section 3.2**.

7.0 CONCLUSIONS AND RECOMMENDATIONS

A summary of RAOs, remedy efficacy metrics, and conclusions is provided in **Table 7.1.**

7.1 REMEDY PERFORMANCE AND EFFICACY

A review of the Pantex Plant environmental remedial actions selected in the ROD has been conducted to support development of the third CERCLA FYR. Remedy performance assessments were conducted to evaluate specific engineered or constructed components of Selected Remedies. Performance assessments included review of decision documents, remedy design documents, monitoring data collected during the FYR period, and O&M records to confirm that the remedy has been constructed and operated as intended in decision documents and meeting RAOs. Remedy efficacy was evaluated by reviewing data such as COC concentration trends in target media in the vicinity and downgradient of the remedy and contaminant mass removal or destruction data. Remedy efficacy assessments evaluate the containment or reduction of contaminant concentrations in target media and progress toward long-term remedial goals.

7.2 SHORT-TERM REMEDIAL EFFICACY

7.2.1 Soil Remedies

Landfills and Soil Covers

Performance assessments indicate that landfill covers were constructed and are maintained as intended by the decision documents. The landfills and soil covers are effective at reducing on-site worker exposure to COCs and limiting potential leaching of COCs to groundwater.

Findings from the data and documents reviewed as well as from the Site visit indicate that the landfill and soil cover remedies are effective and protective in the short term.

- Maintenance of the soil covers using low-permeability soils is effective at preventing Site workers from contacting COCs via the soil-to-air inhalation pathway.
- ICs implemented for the Site including work protocols, signage, defined roles and responsibilities of managers, and controlled access are effective at preventing worker exposure to COCs via the soil-to-air injection pathway.
- ICs and O&M protocols prevent discharging water onto the surfaces of landfills and soil covers, limiting potential leaching of COCs to groundwater.
- Maintenance of landfill and soil covers with appropriate slopes and surface grading promote positive drainage of precipitation away from covers, preventing degradation of the remedy and potential leaching of contaminants to groundwater.
- O&M protocols for landfill and soil covers are effective at preventing degradation of the remedy. Effective O&M practices include annual visual inspection and LiDAR analysis every 5 years, followed by corrective measures to shore slopes and plug holes and settlement voids when detected.

- Installation of Closure Turf™ on SWMU 68b and SWMU 68c has stabilized the soil cover to mitigate loss of vegetation due to drought.
- LTM of perched and Ogallala Aquifer wells is effective at detecting potential leaching of contamination to groundwater. LTM data indicate that the landfill covers are effective at limiting leaching of contaminants.

Burning Ground SVE

Performance assessments indicate that the BG SVE was constructed as intended in the design and decision documents. The BG SVE is effective at reducing on-site worker exposure and limiting potential leaching of COCs to groundwater by extracting and destroying VOCs from the subsurface.

Findings from the data and documents reviewed as well as from the site visit indicate that the BG SVE remedy is effective and protective in the short term.

- The SVE remedy is removing and destroying VOC contamination. Over 2,000 lbs of contaminant mass has been removed over the FYR period.
- The SVE system is efficient at removing contaminant mass. The rate of mass removal has decreased over the current FYR period, supporting the conclusion of source abatement, even with pulsed system operation since 2020.
- LTM data indicate that the SVE system has reduced impacts to the perched groundwater aquifer and prevented impacts to the Ogallala Aquifer.
- Modifications of inactive SVE wells in 2017 facilitated oxygen transport to the subsurface and temporarily increased mass removal rates in 2017. This was followed by declining mass removal, supporting the conclusion of source abatement.

The declining trends observed in the BG SVE system influent concentrations and the corresponding daily mass removal rate, coupled with the groundwater sampling data that shows no evidence of migration of COCs into the perched zone or Ogallala, indicate that the BG SVE system has met the RAOs established in the ROD. Furthermore, the data suggests that suspending operation of the SVE system and relying on passive attenuation could continue to meet RAOs while freeing up resources to address other elements of the overall environmental remediation program at Pantex. It is recommended that the operating permit be modified to terminate operation of the BG SVE system when it comes up for renewal and that operation of the pulsed system be continued until regulatory approval to terminate SVE system operation is received.

Zone 12 Ditch Liner

Performance assessments indicate that the SWMU 2 and 5-05 ditch liner is performing as intended in the design and decision documents. The ditch liner is effective at preventing on-site worker exposure and limiting potential leaching of COCs to groundwater.

Findings from the data and documents reviewed as well as from the Site visit indicate that the ditch liner remedy is effective and protective in the short term.

- The ditch liner, in combination with ICs, effectively limits the exposure of on-site workers to residual subsurface soil contamination.
- LTM data for the perched groundwater unit indicates that the ditch liner, along with other remedial actions, has effectively limited leaching of contaminants remaining in the vadose to groundwater in the Zone 12 area.

Inspections in 2021 identified tears in the liner and sedimentation and erosion of the anchor trench. Repairs should be performed to remedy the tears in the ditch liner.

7.2.2 Perched Groundwater Remedies

<u>Playa 1 Pump and Treat System</u>

Performance assessments indicate the P1PTS did not perform as intended in the design and decision documents during the current FYR period because of the failure of the subsurface irrigation system. Limited operation of the P1PTS and discharges of treated water to Playa 1 during the current FYR period has resulted in increasing perched unit water levels and increasing COC concentrations in the P1PTS area.

Findings from the data and documents reviewed as well as from the site visit indicate that the P1PTS remedy has not been effective and protective in the short term; however, reviewing data from the second FYR indicates that the P1PTS will be effective and protective in the short term once the center-pivot irrigation system is operational and the P1PTS is operating at rates consistent with the second FYR period.

- Groundwater hydrographs from LTM wells in the P1PTS area show statistically *increasing* elevations, indicating that the reduced P1PTS operation and discharges of treated water to Playa 1 have caused the perched groundwater level to rise.
- The P1PTS system was less effective at removing groundwater and contamination during the current FYR period when compared to the 2012 to 2016 period. About 182 million gallons of groundwater and 80 pounds of contaminant mass were removed during the current FYR period compared to 478 million gallons of groundwater and 311 pounds of contaminant mass.
- Wells where concentrations (notably RDX) are increasing indicate that residual mass in the vadose is migrating to groundwater.

One area of improvement to short-term efficacy is to resume P1PTS operation at pre-2016 rates and discontinue discharge of treated water to Playa 1.

The P1PTS remedy, when fully operational, is effective at removing groundwater. Formal optimization identified existing wells and potential new wells to enhance mass removal in the P1PTS and SEPTS.

<u>Southeast Pump and Treat System</u>

Performance assessments indicate that the SEPTS is performing as intended by the design and decision documents. The SEPTS is effective at reducing concentrations of COCs in perched groundwater, reducing total contaminant mass and stabilizing the slow migration of plumes in areas where saturated thickness is above 15 ft. The remedy is effective at reducing the volume, elevation, and extent of perched groundwater. However, the SEPTS is less effective at controlling the migration of the plume through areas of low saturated thickness to the southeast.

Findings from the data and documents reviewed as well as from the site visit indicate that the SEPTS remedy is largely effective and fully protective in the short term.

- Groundwater hydrographs from LTM wells in the SEPTS area indicate statistically *decreasing* elevations, indicating that the SEPTS is effective at reducing head and flow through the perched aquifer system. The extent of saturation to the east and in the area of the SEISB is *stable* to *decreasing*.
- The SEPTS system is the most effective remedy at the Site for removing contamination, with 478 million gallons of groundwater and over 2,300 pounds of contaminant mass removed during the FYR period. However, the mass removed relative to the volume of water pumped has declined over the FYR period.
- LTM data show several statistically *decreasing* or *stable* concentrations of COCs in SEPTS area wells, indicating that mass removal is effectively reducing or stabilizing concentrations, particularly in the area east of Zone 12. The HE plumes have expanded to the southeast, outside the area of influence for the SEPTS, where it is treated by the SEISB Extension and Offsite ISB.
- The margins of the perched groundwater unit near the SEISB are drying, and the saturated thickness in the area appears to be declining. These observations support the conclusion that the SEPTS is effectively reducing saturation in this area.

Challenges to the efficacy of the SEPTS include the following:

- Site data indicate that the SEPTS is not controlling the spread of the HE plumes in the minimally saturated area east of FM 2373 and beyond the capture zone of the system. Perched groundwater in this area has a saturated thickness below 15 ft, which is not conducive to treatment by the P&T system. Groundwater concentrations are above GWPS in this area, but as there is limited saturated thickness, the total mass of contamination is not as great as in more highly saturated areas of the SEPTS.
- Saturated thickness of perched groundwater has decreased in eastern and southern EWs that are cycling off due to limited saturation. These wells are reaching practical limits of operation.

Migration of HE plumes to the southeast are treated by the SEISB Extension and Offsite ISB systems. Formal optimization identified existing wells and potential new wells to enhance mass removal in the P1PTS and SEPTS.

As with the P1PTS, improvement to short-term efficacy would include operating the center-pivot irrigation system and discontinuing discharge of treated water to Playa 1.

<u>Southeast In Situ Bioremediation System</u>

Performance assessments indicate that the SEISB is performing as intended by the design and decision documents. The SEISB is effective at attaining GWPS in groundwater downgradient of the injections and preventing the migration of COCs laterally and vertically.

Findings from the data and documents reviewed as well as from the site visit indicate that the SEISB remedy is effective and protective in the short term.

- All but one of the remedy performance monitoring wells in the SEISB shows concentrations of COCs below GWPS.
- Geochemical data indicate that the in situ amendments are generating anaerobic conditions conducive to contaminant destruction. Transient generation of RDX degradation by-products indicates that RDX is degrading.
- The margins of the perched groundwater unit near the SEISB are drying, and saturated thickness in the area appears to be declining. Reductions in groundwater elevation are likely the result of extraction by the SEPTS. Dry conditions and limited saturation support the conclusion that injections and chase-water are not contributing to increased saturated thickness or plume migration.

SEISB performance monitoring well PTX06-1153 shows concentrations of RDX above GWPS and an *increasing* statistical trend. The CSM at this location needs further refinement. The short-term efficacy of the SEISB would be improved by clarifying the direction of groundwater flow in the area of PTX06-1153 and assessing potential leakage into the FGZ through water balance calculations using analytical methods or the existing numerical model (HGL, 2021a). LTM data for the Ogallala Aquifer indicate increasing concentration trends in PTX06-1056, with a recent detection of DNT4A above the GWPS. Additional characterization of the Ogallala Aquifer in the area of the SEISB would improve the understanding of COC migration through the FGZ.

<u>Southeast In Situ Bioremediation Extension System</u>

Performance assessments indicate that the SEISB Extension is performing as intended by the design and decision documents. The SEISB Extension is effective in degrading RDX, but RDX concentrations in the downgradient monitoring wells have not begun to attenuate. Based on seepage velocity estimates, it is expected that treated groundwater from the SEISB Extension will not reach the downgradient monitoring wells until between 2022 and 2027.

Findings from the data and documents reviewed as well as from the site visit indicate that the SEISB Extension remedy is effective and protective in the short term.

- Geochemical data indicate that the in situ amendments are generating anaerobic conditions conducive to contaminant destruction. Transient generation of RDX degradation by-products indicates that RDX is degrading.
- Downgradient monitoring wells indicate *stable* to *increasing* statistical trends, indicating that the effects of treatment are not being observed downgradient yet.

Recommendations to improve the short-term efficacy and monitoring of the SEISB Extension remedy include installing monitoring wells within 200 ft of the injection wells, if possible, to assess the more immediate effects of injection events. Periodically measuring pH in injection wells will assist in assessing the need for adding a buffering agent, such as sodium bicarbonate, to the amendment solutions. Consistently elevated TOC concentrations in the SEISB Extension system indicate that the duration between injection events could be increased. Increasing the duration until the next amendment injection will provide data to evaluate the amendment injection frequency.

Offsite In Situ Bioremediation System

Due to the recency of the initial injection event, the Offsite ISB's performance with respect to COC degradation and short-term efficacy was not evaluated. Hydraulically, PTX06-ISB401 through PTX06-ISB410 appeared to perform well, as each well received the target volume of amendment solution.

Zone 11 In Situ Bioremediation System

Performance assessments indicate that the Zone 11 ISB is performing largely as intended by the design and decision documents. The Zone 11 ISB is effective at attaining GWPS in groundwater downgradient of the injections for perchlorate, with some possible incomplete degradation of perchlorate on the east side of the ISB system. The remedy, as currently implemented, is somewhat less effective at treating TCE, with varying degrees of success along the length of the ISB system. The varying effectiveness of the Zone 11 ISB system along its length could be the result of stopping injections before their target volumes were reached because of slow groundwater flow rates.

Findings from the data and documents reviewed as well as from the site visit indicate that the Zone 11 ISB remedy is partially effective and fully protective in the short term.

- On the eastern side of the Zone 11 ISB, where perchlorate is dominant, the remedy has been somewhat effective at eliminating and controlling the spread of perchlorate but concentrations of TCE have been *increasing* during the current FYR period.
- The central portion of the Zone 11 ISB demonstrates mixed results, with some performance monitoring wells showing *decreasing* concentrations and concentrations below GWPS. Other data indicate less complete reduction of TCE. Overall, TCE concentrations are *stable* to *decreasing*, indicating that the remedy has been effective at controlling plume migration, but degradation may be stalling at the generation of cis-1,2-DCE.
- The expansions of the western portion of the Zone 11 ISB in 2014 and 2019/2020 have been effective in controlling and delineating the extent of TCE contamination in the area.
- Perchlorate data from the northeastern edge of the Zone 11 plume indicates that perchlorate continues to migrate around the Zone 11 ISB system to the north and is now captured and treated by the SEPTS.
- The Zone 11 ISB remedy does not address 1,4-dioxane, which is emanating from Zone 11.

Recommendations to improve the short-term efficacy of the Zone 11 ISB remedy include reviewing amendment injection volumes to confirm that they are sufficient to distribute amendment away from injection wells. Recent injection events have resulted in multiple wells receiving less than the target volume of amendment solution due to low injection rates caused by decreased screen transmissivity. With such low injection rates, it can take many days to administer the target injection volume to a given well, and the duration of each field event is lengthened.

Consider testing alternative well maintenance approaches, such as sequential application of different chemical agents, longer purge times, or a heated water maintenance approach, to try to improve well performance. Localized groundwater potentiometric contours should be developed for a smaller interval (e.g., 1-ft) than the current 5-ft interval to allow a more precise evaluation of potential changes in groundwater flow direction due to SEPTS operation. Monitoring to delineate the extent of the 1,4-dioxane plume should continue.

7.2.3 Institutional Controls and Monitoring

Performance assessments indicate that the ICs implemented at the Site are performing as intended by the design and decision documents. ICs are effective at limiting human contact with affected media remaining on site.

Findings from the data and documents reviewed as well as from the site visit indicate that the ICs are effective and protective in the short term.

- The Administrative Record for the Site contains all decision documents, site investigation reports, risk assessments, and remedy design and performance reports that support the objective of disseminating information on hazards, access restrictions, remedy components, and mitigation efforts. Documents are assessable via request. For convenience, Pantex has posted many of the key documents on the Pantex Plant website.
- Deed restrictions on affected property are recorded with the Carson County clerk. Deed restrictions effectively document the location, property use restrictions, and hazards present on affected parcels.
- Deed restrictions effectively prohibit the development and use of property for residential buildings, housing, elementary and secondary schools, childcare facilities, and playgrounds on restricted parcels.
- Deed restrictions on property overlying affected perched groundwater effectively prohibit drilling into the perched and FGZ strata and use of extracted groundwater for purposes other than corrective action.
- Signage, fencing and access restrictions, including security restrictions, effectively eliminate unintentional or uncontrolled access to affected media. These ICs effectively control access to those properties that pose a health risk to construction/excavation workers.
- Remedy O&M protocols and inspection logs protect remedies and remedy components from degradation or accidental damage.

- Documentation of Site management roles and responsibilities identifies protocols for conducting and overseeing construction or excavation work at the Site.
- Site documentation of management roles and responsibilities effectively articulates work protocols for maintaining the integrity of remedies and remedial components and for managing the transfer or property use changes for all restricted parcels.

7.3 LONG-TERM REMEDIAL EFFICACY

7.3.1 Soil Remedies

Landfills and Landfill Covers

Long-term efficacy of the landfill and soil cover remedy is maintained by ICs including deed and property transfer restrictions limiting access, assigning responsibility, and requiring ongoing O&M.

If extreme weather conditions prevent revegetation of covers, then additional Closure Turf™ may need to be used to stabilize soil covers. No additional recommendations have been developed for improving the long-term efficacy of the landfill and soil cover remedy.

Burning Ground SVE

Based on data reviewed, the BG SVE system has obtained RAOs, and a request that the current operating permit be modified to terminate BG SVE operations should be submitted with the next permit renewal. Continued decreases in extracted contaminant mass indicate that the BG SVE remedy has obtained long-term protectiveness goals.

The recommendation to deactivate the remedy comes after observations of a steady decrease in mass removal and trial shutdown periods in the form of pulsed system operation. Affected media should continue to be sampled after deactivation to ensure that rebound does not occur, and the system should remain in working order until verification of the long-term effectiveness of the remedy can be determined.

No additional recommendations have been developed for improving the long-term efficacy of the BG SVE remedy.

Zone 12 Ditch Liner

The Zone 12 Ditch Liner will continue to be effective and protective as long as routine O&M continues. O&M protocols are documented in manuals and reported in annual reports. ICs established for the Site ensure that O&M will continue until soil attains UU/UE status.

No additional recommendations have been developed for improving long-term efficacy of the Ditch Liner remedy.

7.3.2 Groundwater Remedies

Playa 1 Pump and Treat System

The P1PTS system does not remove as much contaminant mass as the SEPTS, and its primary function is extracting perched groundwater to reduce the groundwater elevations thus decreasing the potentiometric head gradient and groundwater flow toward the southeast. As groundwater levels drop, the efficacy of the combined P&T systems may be reduced. The operational goals of the system may need to be reevaluated once perched groundwater levels return to at least their historical low levels from 2015.

As noted under the assessment of short-term efficacy, discharge of treated groundwater should be managed so that it is not injected or allowed to infiltrate back into the main perched groundwater zone.

Southeast Pump and Treat System

The SEPTS is and will provide long-term effective treatment for affected groundwater in areas where the saturated thickness of the perched unit is greater than 15 ft.

However, the SEPTS is unlikely to control and treat contaminated groundwater in areas with limited saturation. As saturation continues to drop in the area of the SEPTS, operational goals will need to be reassessed as continued pumping in wells with limited saturation may not be feasible. HE plumes in areas of limited saturation and southeast of the SEPTS will be treated by injections in the SEISB Extension and Offsite ISB.

Southeast In Situ Bioremediation System

Based on data reviewed, the SEISB system is close to attaining RAOs. Decreasing groundwater thickness in this location, likely caused by the SEPTS, also indicates that additional long-term injections may not be necessary. However, recent *increasing* concentrations of COCs in Ogallala Aquifer monitoring well PTX06-1056 indicate that COCs have migrated through the FGZ in the vicinity of the SEISB system.

As there are no active LTM wells immediately upgradient of the ISB injection wells, it is difficult to quantify contaminant mass entering the system, and, subsequently, the amount of mass treated by the system. Understanding the mass destruction efficiency of the SEISB would provide data to guide additional injections and identify when the system is no longer cost efficient. Monitoring wells installed in the area upgradient of the SEISB system have been dry and continued exploration in this area may not be an efficient use of resources.

Secondary metals produced as a by-product of the ISB remedy should continue to be monitored to confirm that concentrations return to background in the aerobic areas of the aquifer and that metals plumes do not migrate laterally or vertically to lower strata.

Southeast In Situ Bioremediation Extension System

The SEISB Extension system will likely prove long-term efficacy at treating HE plumes before they leave the Pantex Plant property. The system has shown short-term effectiveness at degrading RDX within the treatment zone, but additional time is necessary to determine the long-term effectiveness of the SEISB Extension system.

Offsite In Situ Bioremediation System

The offsite ISB system has been partially installed with installation of remaining components planned to occur in 2023-2025, as appropriate. One injection event has occurred in the system. Due to the recency of the initial injection event, the Offsite ISB performance was not evaluated with respect to COC degradation. Initial hydraulic data indicates that the system is operating as designed in terms of amendment injection, but additional time is necessary to determine the long-term effectiveness of the Offsite ISB system.

Zone 11 In Site Bioremediation System

The Zone 11 ISB will likely provide long-term efficacy at treating TCE and perchlorate plumes emanating from Zone 11. Improvements in efficacy are anticipated if target injection volumes are met to ensure that carbon substrate is sufficiently distributed between injection wells.

If additional injections and recirculation do not eliminate contaminant mass and plume migration, additional remedial actions, such as expanding the P&T system, may be considered to attain long-term efficacy goals.

Secondary metals produced as a by-product of the ISB remedy should continue to be monitored to confirm that concentrations return to background in the aerobic areas of the aquifer and that metals plumes do not migrate laterally or vertically to lower strata.

7.3.3 Institutional Controls

Deed restrictions provide long-term efficacy by identifying and limiting exposure to residual contamination as they limit property use, prohibit drilling and use of perched aquifer water, and require USDOE/NNSA maintenance of remedies until media attain UU/UE status.

Deed restrictions are effective at long-term limitation of the use of restricted properties. Although the USDOE/NNSA may transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the USDOE/NNSA retains ultimate responsibility for the integrity and protectiveness of the Selected Remedy.

Table 7.1
Pantex Plant Remedial Action Objectives and Remedy Efficacy

Medium	Remedy	RAO	Performance Metric	Data and Analyses	Efficacy	Recommendations
Soil	Combined Soil Remedies	Reduce the exposure risk to onsite industrial and construction / excavation workers through removal, treatment, or prevention of contact with COCs in the soil.	Documentation and adherence to IC's including restriction of access of workers to affected soils through policy, guidance and work protocols; Individual soil remedy performance and effectiveness metrics	Documented ICs, including SWMU Interference Policy and work plans, access information and safety records. Data from soil remedy components.	Combined soil remedies are effectively preventing worker exposure to hazardous material	None
		Reduce potential impact to perched groundwater and the Lower Ogallala Aquifer through source abatement and stabilization/control measures in the vadose zone.	*Stable* or *decreasing* concentration trends of COCs in the perched and Lower Ogallala LTM wells	Statistical analysis of LTM data from perched and Lower Ogallala wells	Primarily non-detect and *stable* to *decreasing* concentration trend data near historical release areas indicate that affected soils are not contributing additional contaminant mass to groundwater	None
	Landfills and Soil Covers	Create a barrier to contaminants that would pose a risk to human health if unmitigated, and to achieve protection of industrial workers from soil-to-air inhalation pathways	Maintenance of cover material to prevent airborne release of COCs to industrial and construction workers; maintenance of vegetative cover	Physical inspection of landfills for deficiencies in cover that would expose COCs to the air; LiDAR data on the surface integrity of soil covers	Landfill and soil covers are effective at preventing release of COCs to air	Repair and fill holes and depressions caused by settlement and/or animal burrows
		Promote positive drainage of storm water off and away from the soil/waste containing contaminants	Absence of pooling of water on landfill surfaces, maintenance of slopes	Physical inspection of landfills for deficiencies in cover and slope; LiDAR data on the surface integrity of soil covers	Landfill and soil covers are effective at promoting positive drainage and preventing pooling of water on surfaces	A culvert was observed to have settled in SWMU 56, monitor the culvert during rain events to determine if it is functioning as designed
		Reduce the likelihood of storm water infiltration into soils/waste containing contaminants that may result in leaching of contaminants to groundwater	*Stable* or *decreasing* concentration trends of COCs in the perched and Lower Ogallala LTM wells	Statistical analysis of LTM data from perched and Lower Ogallala wells near landfills	Landfill and soil covers are effective. Groundwater below landfill and soil covers (not affected by other sources) show limited detections of Site COCs or non-*increasing* trends	None
	Burning Ground Soil Vapor Extraction	Reduce exposure risk to onsite workers by removal, treatment, and prevention of contact with COCs in soil	Declining treatment system mass removal rates and trends	Influent and effluent concentrations at treatment plant and operational history of treatment system	BGSVE system has been effective at removing contaminant mass; the rate of mass removed per hour has been *decreasing* since 2017 indicating source abatement	None
		Reduce potential impact to perched groundwater and (Lower) Ogallala Aquifer through source abatement and stabilization /control measures in vadose zone	*Decreasing* influent COC concentrations	Historical influent COC concentrations to treatment system	COC concentrations have decreased over the current FYR period, indicating source removal, even with pulsed system operation since 2020	Continue pulsed system operation and request that the current operating permit be modified to terminate operation of the SVE system while continuing to monitor perched groundwater to verify that rebound does not occur
			Stable to *decreasing* concentration trends of COCs in the perched and Lower Ogallala LTM wells near BGSVE	Statistical analysis of LTM data from perched and Lower Ogallala wells near BGSVE	Perched groundwater monitoring wells have had primarily non-detect concentrations for TCE (the only high concentration soil vapor contaminant measured in wells) over the last 5 years. This indicates the SVE unit has reduced impacts to the perched groundwater and prevented migration to the Lower Ogallala Aquifer	Modify the groundwater sampling program at wells PTX01-1001, PTX01-1010, and PTX01-1011 to reflect system performance and obtain data to support termination of the SVE system operation
			Operational time and removal efficiency	Data on operational time and mass removal efficiency	Operational time was increased from the previous FYR period from 62 percent uptime to 66 percent uptime. The system had significant downtime for maintenance and pulsed pumping in 2020 and 2021; however, performance was not negatively impacted as the source is nearly depleted	None

Table 7.1 (continued)
Pantex Plant Remedial Action Objectives and Remedy Efficacy

Medium	Remedy	RAO	Performance Metric	Data and Analyses	Efficacy	Recommendations
Soil	SWMU 2 and 5/5 Ditch Liner	Reduce the exposure risk to onsite industrial and construction/ excavation workers	Physical integrity and stability of the 5-05 ditch liner	Physical inspection reports, IC's and work protocols	Inspections in 2021 identified tears in the liner and sedimentation and erosion of the anchor trench	Perform repairs to remedy the tears in the ditch liner
		Reduce potential impact to perched groundwater and the (Lower) Ogallala.	*Stable* or *decreasing* concentration trends of COCs in the perched aquifer LTM wells in the area of SWMU 2 and the 5-05 ditch liner	Evaluation of perched groundwater data from wells near the remedy, as wells as data from Lower Ogallala wells	COC concentration trends in the area of the remedy are *stable* to *decreasing*, supporting the conclusion that the remedy is effective	None
	Soil Institutional Controls	Reduce the exposure risk to onsite industrial and construction / excavation workers	Worker exposure is limited by controlled access to affected materials, work protocols, signage, as well as documented policy and guidance on work sites	Evaluation of deed restrictions, work protocols, and access restriction documentation	Deed restrictions and work policies and protocols have been implemented, effectively preventing unmitigated exposure to affected soils	None
Groundwater	Combined Groundwater Remedies	Reduce the risk of exposure to perched groundwater through contact prevention.	Prevention of access to and drilling into the perched groundwater unit except for remedial action purposes	Documentation of IC's and access restrictions	IC's are effectively preventing access and drilling into the perched groundwater unit	None
		Achieve cleanup standards for the perched groundwater COCs	*Stable* to *decreasing* concentration trends of COCs in the perched aquifer LTM wells	Statistical analysis of LTM data from perched groundwater wells	Perched groundwater concentration trends are stabilizing and *decreasing* at many perched LTM wells	None
		Prevent growth of perched groundwater contaminant plumes	Concentrations trends at sentinel or delineation wells are *stable* to *decreasing*	LTM data for perched groundwater at delineation or sentry wells	Remedies are effectively containing perched groundwater plumes to east and south, but the RDX plume has expanded to the southeast. Additional data needs to be collected to verify the SEISB Extension and Offsite ISB are reducing HE concentrations as designed.	Continue to collect data in monitoring wells downgradient of the SEISB Extension and Offsite ISB to verify that perched groundwater contaminant plumes are being degraded to below GWPS and not migrating further to the southeast.
		Prevent contaminants from exceeding cleanup standards in the Lower Ogallala Aquifer	Limited to no detections of COCs in Lower Ogallala LTM wells	LTM data from Lower Ogallala wells	COCs are either not detected or detected intermittently below GWPS in the Lower Ogallala. DNT4A in PTX06-1056 is *increasing* and had a recent exceedance of GWPS.	Install additional Lower Ogallala monitoring wells upgradient (southwest) of PTX06-1056 to investigate COC detections.
	Playa 1 Pump and Treat System	Reduce the concentrations of COCs dissolved in groundwater	Mass removal via treatment of extracted groundwater	Influent and effluent data from treatment plant	Treatment plant had reduced operation due to a failure of the subsurface irrigation system resulting in significantly reduced mass extraction. Approximately 80 pounds of contaminant mass were removed during the current FYR period	Resume operation rates similar to the previous FYR period and consider installing an additional extraction well near PTX06-1050 to treat an area of higher RDX concentrations that is not captured by the P1PTS, if concentrations continue to be elevated or increasing during the next FYR period.
			Stable to *decreasing* concentration trends at individual monitoring wells, *decreasing* total dissolved contaminant mass within P1PTS area and reduction of discharge to SEPTS area	LTM data and trends from perched groundwater; estimates of total dissolved mass in P1PTS area, influent and effluent data from the treatment plant	Several wells in the P1PTS area show *stable* to *decreasing* trends; however, some wells show *increasing* trends indicating residual mobilization of mass below Playa 1. The remedy is effective at capturing residual mass near Playa 1	
		Stabilize and contain the slow migration of perched groundwater	*Stable* to *decreasing* concentration trends at monitoring wells downgradient from P1PTS, stabilization of the center of mass; Contaminant mass removal from perched groundwater	LTM data and trends from perched groundwater downgradient from the P1PTS, trend of center of mass and spread of mass in plume; influent and effluent concentrations to the P1PTS	*Stable* to *decreasing* concentration trends at monitoring wells downgradient from P1PTS as well as stable to receding (moving towards Playa 1) center of mass and spread of mass. Reduced removal of mass and increasing concentration trends around Playa 1 indicate that mass may be remobilized by increased discharges to Playa 1 and rising water levels.	
		Reduce the volume of water moving through the perched flow regime, and the upgradient driving head of perched groundwater	Hydrographs indicating reduced levels of saturation and gradients in eastern perched groundwater	Hydrographs and groundwater elevation trends in the P1PTS area	Hydrographs and groundwater elevation trends indicate generally *increasing* groundwater elevations near Playa 1 indicating that the reduced P1PTS operation and increased discharges of treated water to Playa 1 have caused water levels to increase around Playa 1.	

Table 7.1 (continued)
Pantex Plant Remedial Action Objectives and Remedy Efficacy

Medium	Remedy	RAO	Performance Metric	Data and Analyses	Efficacy	Recommendations
Groundwater						
	Southeast Pump and Treat System	Reduce the concentrations of COCs dissolved in groundwater	Mass removal via treatment of extracted groundwater	Influent and effluent data from treatment plant	The treatment plant is effective at removing COCs; over 2,300 pounds of contaminant mass during the current FYR period. This is approximately 1,000 pounds less than the previous FYR period with approximately the same operational time indicating that concentrations in the SEPTS area have been reduced	None
			Stable to *decreasing* COC concentration trends at individual monitoring wells and declining total dissolved mass within SEPTS area	LTM data for perched groundwater at remedial action monitoring wells	Several wells in the SEPTS area show *stable* to *decreasing* trends particularly in the northern and eastern area of the SEPTS. The remedy is effective at capturing residual mass and reducing concentrations within the SEPTS area of influence. Mass that is beyond the SEPTS to the southeast is not controlled by the SEPTS	None
		Stabilize and contain the slow migration of perched groundwater	*Stable* to *decreasing* concentration trends at monitoring wells downgradient of the SEPTS, stabilization of the center of mass; Contaminant mass removal from perched groundwater	LTM data for perched groundwater at delineation or sentry wells; trend of center of mass and spread of mass in plume; influent and effluent concentrations to the SEPTS	The SEPTS remedy is removing significant contaminant mass from perched groundwater; however, LTM trend data indicate plume migration farther to the southeast	None
		Reduce the volume of water moving through the perched flow regime, and the upgradient driving head of perched groundwater	Declining water levels indicating reduced levels of saturation and gradients	Hydrographs and groundwater elevation trends of wells in SEPTS area	Hydrographs and groundwater elevation trends indicate generally *decreasing* groundwater elevations supporting the conclusion that the SEPTS is reducing driving head of the perched groundwater. Eastern extraction wells and southern extraction wells are cycling off due to limited saturation	Some SEPTS wells are reaching practical limits of operation due to limited saturated thickness. Operational goals for extraction should be modified/clarified to address when and how operational goals will change when saturated thickness becomes sufficiently low
	Southeast ISB System	Achieve cleanup standards for the perched groundwater COCs	COC concentrations below GWPS in the perched unit downgradient of the remedy; Generation of anaerobic conditions and daughter products in treatment zone	LTM and geochemical data from ISPM wells in SE ISB area	All but one ISPM well shows strongly decreasing concentrations or concentrations below GWPS indicating efficacy of remedy. Geochemical conditions indicate largely anaerobic conditions, degradation byproducts are produced and degraded.	Continue to investigate the vicinity of PTX06-1153 to determine the reason for persistent RDX contamination at the well.
		Prevent growth of perched groundwater contaminant plumes	Limitation of extent of saturation south of ISB	Groundwater data indicating extent of saturation	The extent of saturation is not increasing south of the ISB system and the plume is not migrating in this area supporting the conclusion that the remedy is effective at limiting migration.	None
		Prevent contaminants from exceeding cleanup standards in the Lower Ogallala Aquifer	Limited to no detections of COCs in Lower Ogallala LTM wells	LTM data and trends from Lower Ogallala wells	Concentrations of COCs have been observed below the GWPS in the Lower Ogallala. Concentrations of DNT4A have increased and a sample in 2022 showed a GWPS exceedance. The precise source mechanism of transport to the Lower Ogallala is uncertain, but may be due to cross-contamination drilling adjacent perched well or migration through an area of higher permeability in the FGZ.	Install additional Lower Ogallala monitoring wells upgradient (southwest) of PTX06-1056 to investigate COC detections.
	Southeast ISB Extension System	Achieve cleanup standards for the perched groundwater COCs	COC concentrations below GWPS in the perched unit downgradient of the remedy; Generation of anaerobic conditions and daughter products in treatment zone	LTM and geochemical data from ISPM wells in Zone 11 ISB area	Geochemical data indicate that the in situ amendments are generating anaerobic conditions conducive to contaminant destruction and transient generation of RDX degradation by-products indicates that RDX is degrading.	Continue monitoring downgradient monitoring wells to identify if RDX concentrations are decreasing.
		Prevent growth of perched groundwater contaminant plumes	Contain boundary of perched groundwater above remedial goals	LTM data from ISPM wells	ISPM wells indicate *stable* to *increasing* trends, indicating that the effects of treatment are not being observed downgradient yet.	
		Prevent contaminants from exceeding cleanup standards in the Lower Ogallala Aquifer	Limited to no detections of COCs in Lower Ogallala LTM wells	LTM data and trends from Lower Ogallala wells	COCs are either not detected or detected intermittently below GWPS in the Lower Ogallala, no increasing concentration trends have been observed. RDX was detected in PTX06-1157 below GWPS, but was not detected in confirmation sampling.	None

Table 7.1 (continued)
Pantex Plant Remedial Action Objectives and Remedy Efficacy

Medium	Remedy	RAO	Performance Metric	Data and Analyses	Efficacy	Recommendations
Groundwater						
	Offsite ISB System	Achieve cleanup standards for the perched groundwater COCs	COC concentrations below GWPS in the perched unit downgradient of the remedy; Generation of anaerobic conditions and daughter products in treatment zone	LTM and geochemical data from ISPM wells in Zone 11 ISB area	Due to the recency of the initial injection event, the Offsite ISB's performance with respect to COC degradation was not evaluated. Hydraulically, PTX06-ISB401 through PTX06-ISB410 appeared to perform well, as each well received the target volume.	Continue monitoring downgradient monitoring wells to identify if RDX concentrations are decreasing.
		Prevent growth of perched groundwater contaminant plumes	Contain boundary of perched groundwater above remedial goals	LTM data from ISPM wells		
		Prevent contaminants from exceeding cleanup standards in the Lower Ogallala Aquifer	Limited to no detections of COCs in Lower Ogallala LTM wells	LTM data and trends from Lower Ogallala wells		
Groundwater						
	Zone 11 ISB System	Achieve cleanup standards for the perched groundwater COCs	*Decreasing* COC concentration trends and geochemical conditions conducive to contaminant degradation at ISPM wells	LTM and geochemical data from ISPM wells in Zone 11 ISB area	The eastern side of the Zone 11 ISB is somewhat effective at eliminating and controlling the spread of perchlorate, but TCE concentrations in this area were increasing. The central portion of the Zone 11 ISB demonstrates mixed results, with only some performance monitoring wells showing decreasing concentrations. Overall, TCE concentrations are stable to decreasing, but degradation may be stalling at the generation of cis-1,2-DCE. The expansion of the western portion of the Zone 11 ISB has been effective in controlling and delineating the extent of TCE contamination in the area.	Review amendment injection volumes to confirm that they are sufficient to distribute amendment away from the injection wells and test alternative well maintenance approaches, such as sequential application of different chemical agents, longer purge times, or a heated water maintenance approach to improve well screen transmissivity.
		Prevent growth of perched groundwater contaminant plumes	Contain boundary of perched groundwater above remedial goals	LTM data from ISPM wells	Perchlorate concentrations are *decreasing* east of the remedy. TCE concentrations have *increased* in some downgradient monitoring wells, indicating mixed results for efficacy of the remedy.	
		Prevent contaminants from exceeding cleanup standards in the Lower Ogallala Aquifer	Limited to no detections of COCs in Lower Ogallala LTM wells	LTM data and trends from Lower Ogallala wells	COCs are either not detected or detected intermittently below GWPS in the Lower Ogallala, no increasing concentration trends have been observed.	None
	Institutional Controls	Reduce the risk of exposure to affected groundwater from the perched groundwater unit through prevention of contact.	Prevention of drilling into perched groundwater and human exposure to affected groundwater	Site inspection, access controls and surveillance records	No drilling has been conducted outside of remedial action components, perched groundwater is not used as a water supply. IC's are effective at preventing exposure	None
			Clarity of use restrictions	Review of applicable documentation and decision documents	Documentation is clear describing property restrictions and work protocols	
			Accuracy of property information and mapping	Review of surveys and hazard identification in deed restrictions and Administrative Record	Deed restrictions filed in Carson County and GIS files consistently and accurately identify property parcels with IC's	
			Long-term stewardship potential	Documentation of IC's; Projected long-term property use and management	Projected property use is as USDOE/NNSA active facility and surrounding access controlled property in the future; documents are in good order.	

Notes:
1. LTM = Long-term monitoring
2. COC= contaminant of concern
3. P1PTS = Playa 1 Pump and Treat System
4. SEPTS = Southeast Pump and Treat System
5. GWPS = groundwater protection standards
6. ISPM = in situ performance monitoring
7. SE ISB = Southeast in situ bioremediation
8. IC's = institutional controls
9. BGSVE = Burning Ground Soil Vapor Extraction

Appendix A
References

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Attachment 8

Soil Remedial Action Effectiveness – Landfill Cover Topography
Third Five-Year Review

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Table of Contents

List of Tables

List of Figures

List of Figures (continued)

1 Baseline Contour Development

A baseline survey of each landfill was completed to document the elevation, shape, and slope of the covers for the Interim Remedial Action Report in 2009. The survey was based on Light Detection and Ranging (LiDAR) data collected in August 2006, supplemented by Global Positioning System (GPS) elevation measurements where maintenance activities changed the elevation of the landfill covers after the 2006 LIDAR data were acquired.

A more comprehensive description of the Landfill component of the Selected Remedy is found in Attachment 7, *Remedial Action Efficacy Report* (HGL, 2022) in Section 3.1. Results of landfill and soil inspections are reported in Site Quarterly and Annual Progress Reports

2 Landfill Cover Topography

LiDAR surveys were conducted in 2011, 2017 and 2022 to acquire data needed to develop contours of the covers since completing the 2006 baseline survey. These data were used to create Digital Elevation Models (DEM) that could be used in conjunction with Geographic Information System (GIS) software to develop landfill cover elevation contours that represent present conditions for this Five-Year Review. This type of survey provides a quality check on field inspections by focusing walk-downs on the areas of suspected defects or anomalies.

Contour maps based on the 2022 LiDAR Survey for each landfill cover are provided on the following pages with the corresponding baseline survey on the facing page for comparison.

3 Landfill Cover Evaluation

Evaluation of the current 2022 contours with the baseline surveys were conducted to identify deficiencies that could allow for contact with waste materials and/or ponding of storm water that could lead to infiltration into the landfilled materials. Landfill covers deficiencies from the 2022 analysis and the subsequent September 2022 Site inspection are summarized below in Table 1.

Table 1. Landfill Cover Deficiencies

Landfill	Deficiency
SVS 6	Possible settling and resulting exposure of landfilled debris observed on the largest capped area at south-central portion of SVS 6. Numerous large animal burrows observed northeast of the end of the drainage ditch.
SVS 8	Areas with sparse to no vegetative growth observed on the landfill cover. Erosion with possible ponding appears to be occurring at the culvert at the south end of the landfill.
Landfill 3 (SWMU 54)	Exposed geotextile that suggests cover erosion observed along the slope of the landfill. The landfill cover is kept to a short depth to maintain lines of sight for security. Erosion of the cover may have resulted from mowing activities.
Landfill 4 (SWMU 55)	Settlement in the drainage ditch at the north landfill cap.
Landfill 5 (SWMU 56)	The culvert was observed to have settled due to settlement of adjacent soil.
SWMU 68d	Two areas of settlement on the northern portion of the cover due to voids in construction debris.

FIGURES

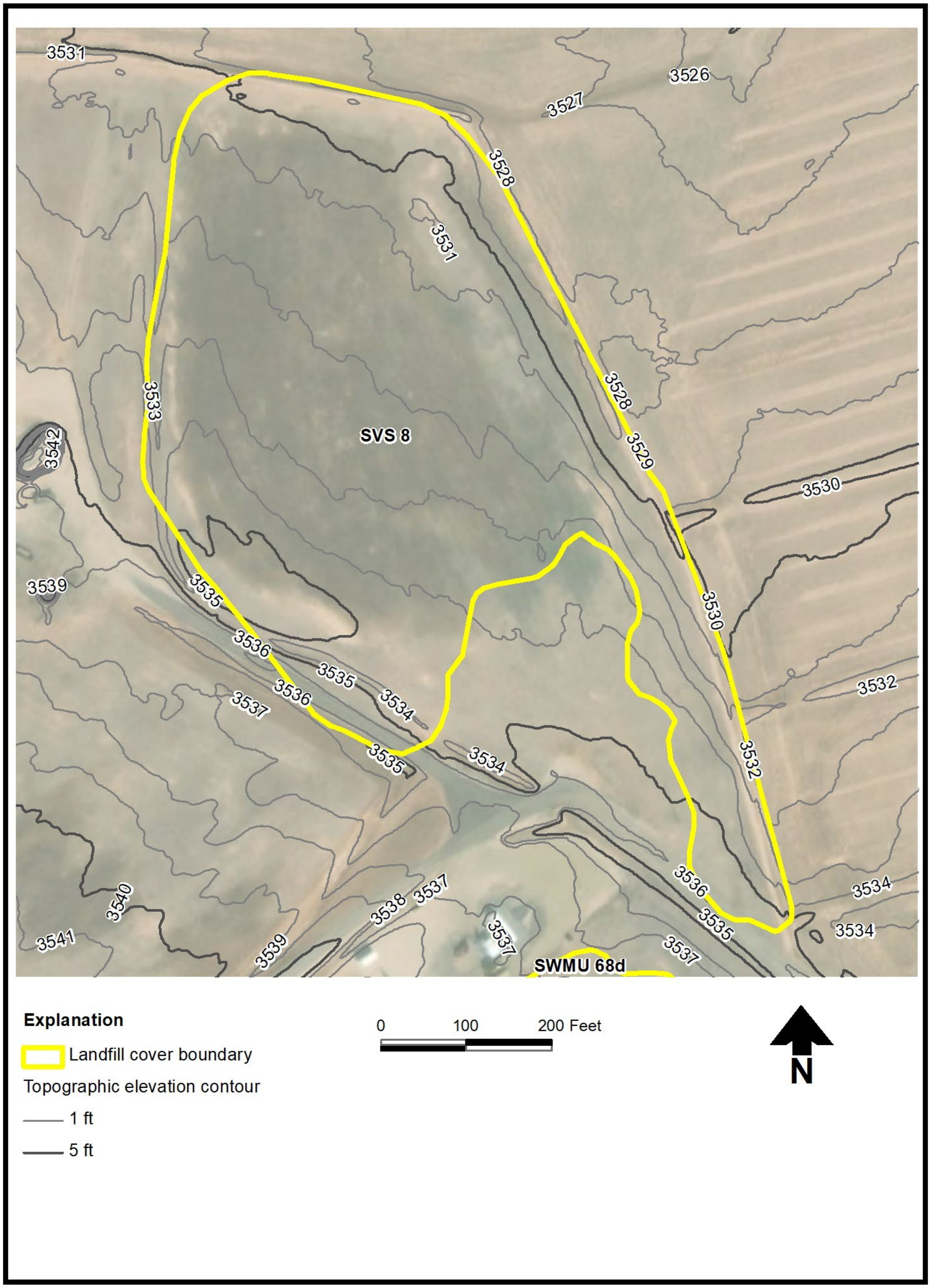

Figure 1. 2022 Cover for Supplemental Verification Site (SVS) 8

Figure 2. Baseline Survey of Cover for SVS 8

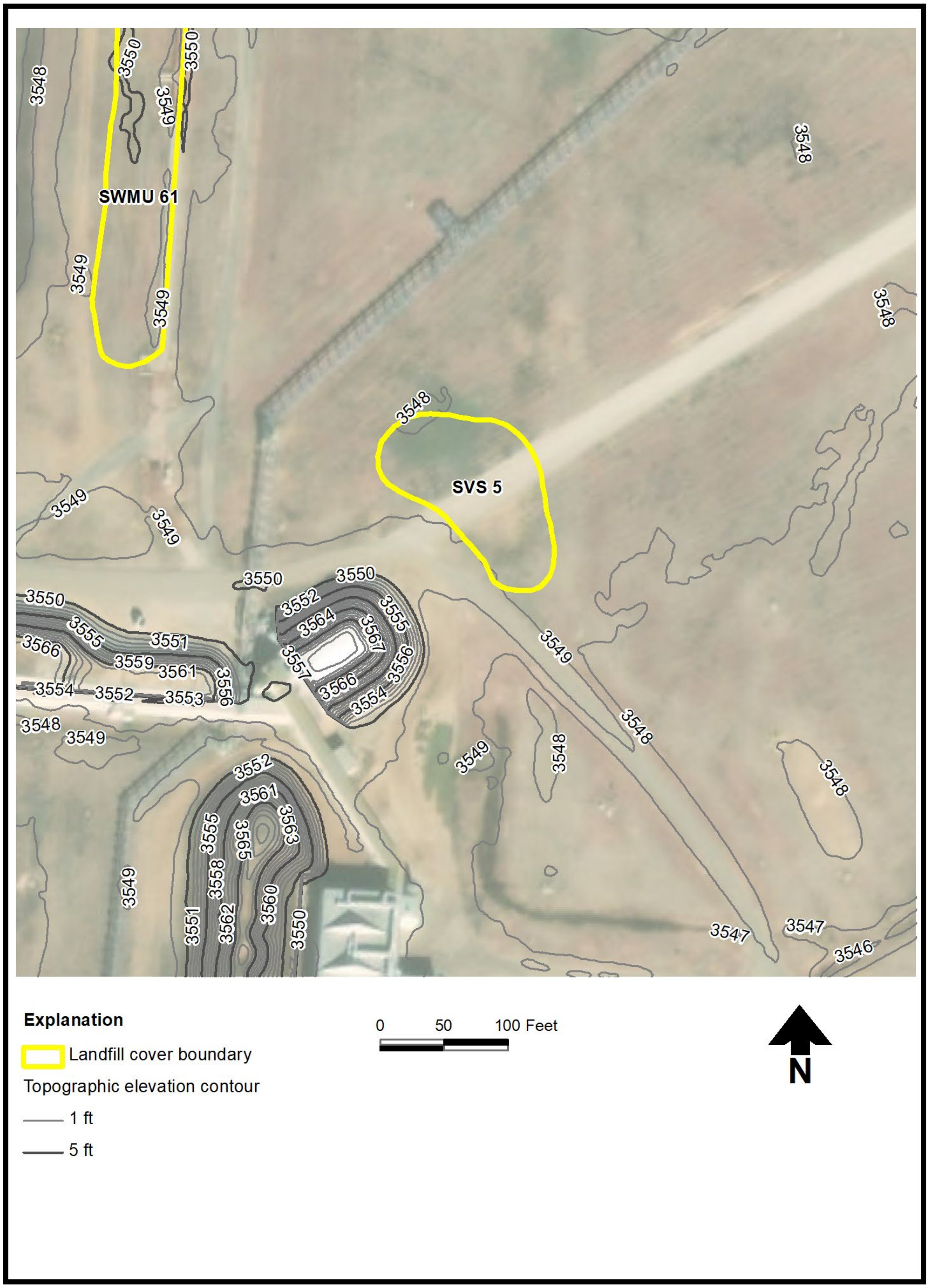

Figure 3. 2022 Cover for SVS 5

Figure 4. Baseline Survey of SVS 5

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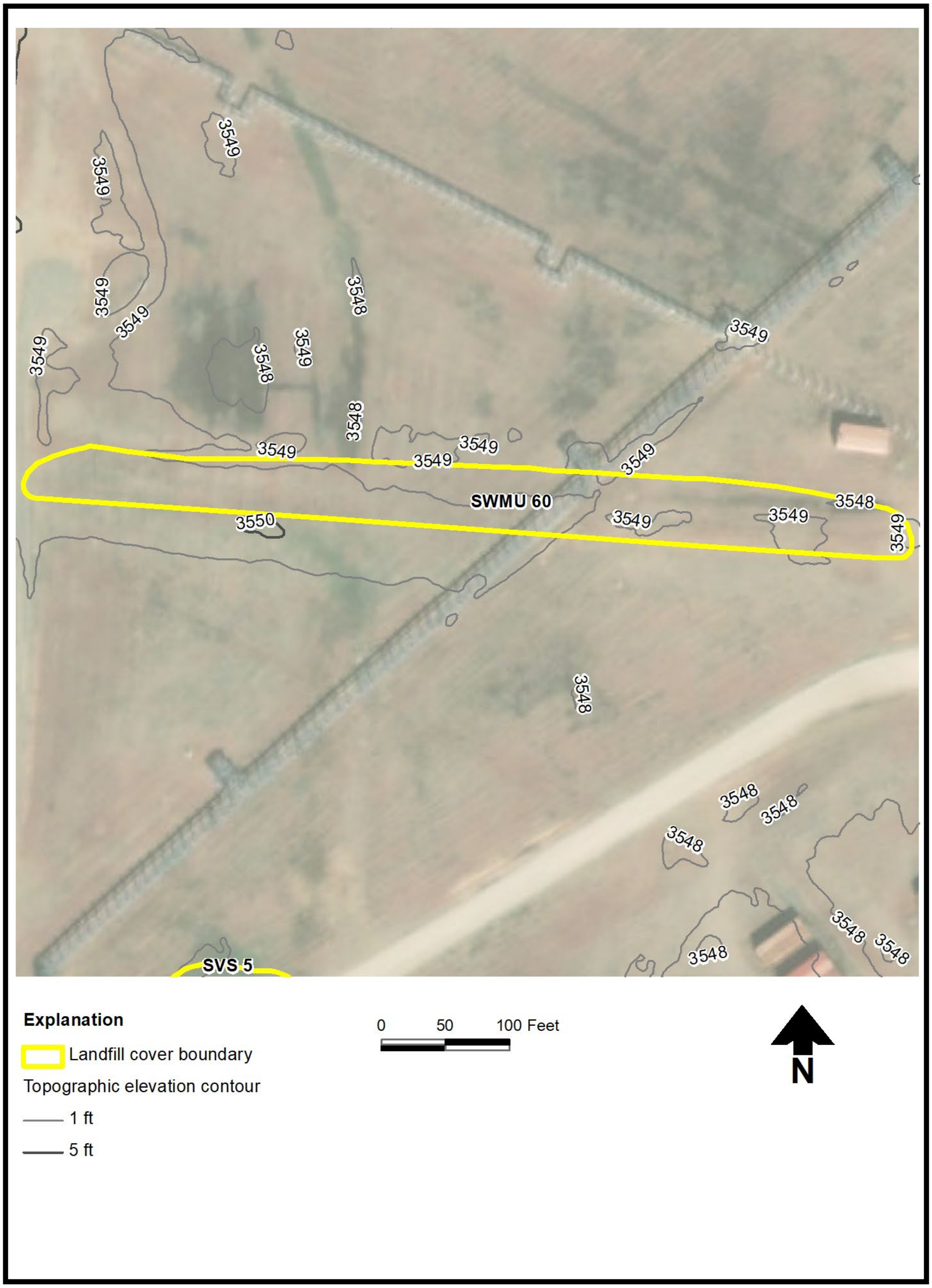

Figure 5. 2022 Cover for Landfill 9 in Zone 11 (SWMU 60)

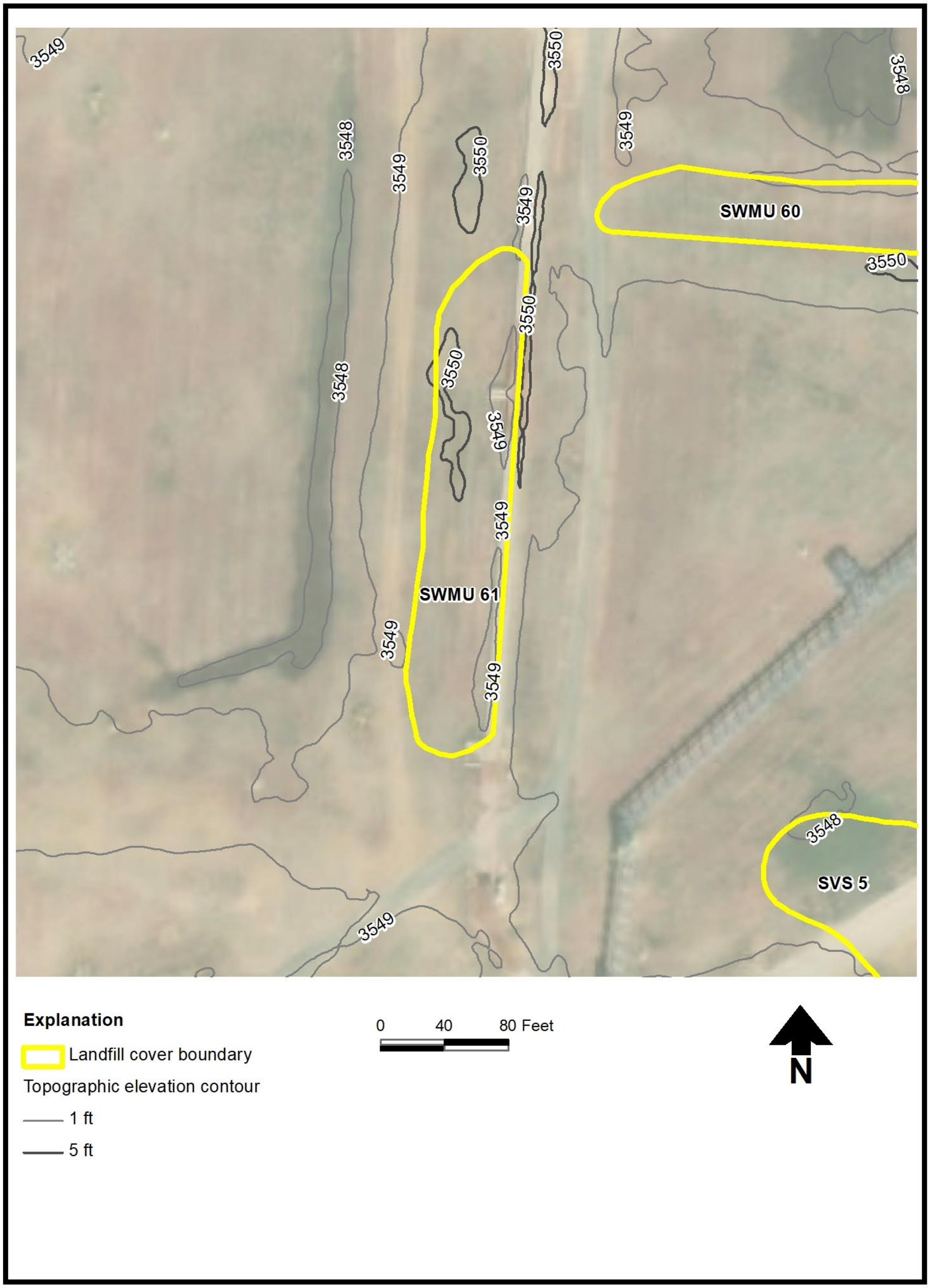

Figure 6. 2022 Cover for Landfill 10 in Zone 11 (SWMU 61)

Figure 7. Baseline Survey of Covers for Landfills 9 and 10 (SWMUs 60 & 61)

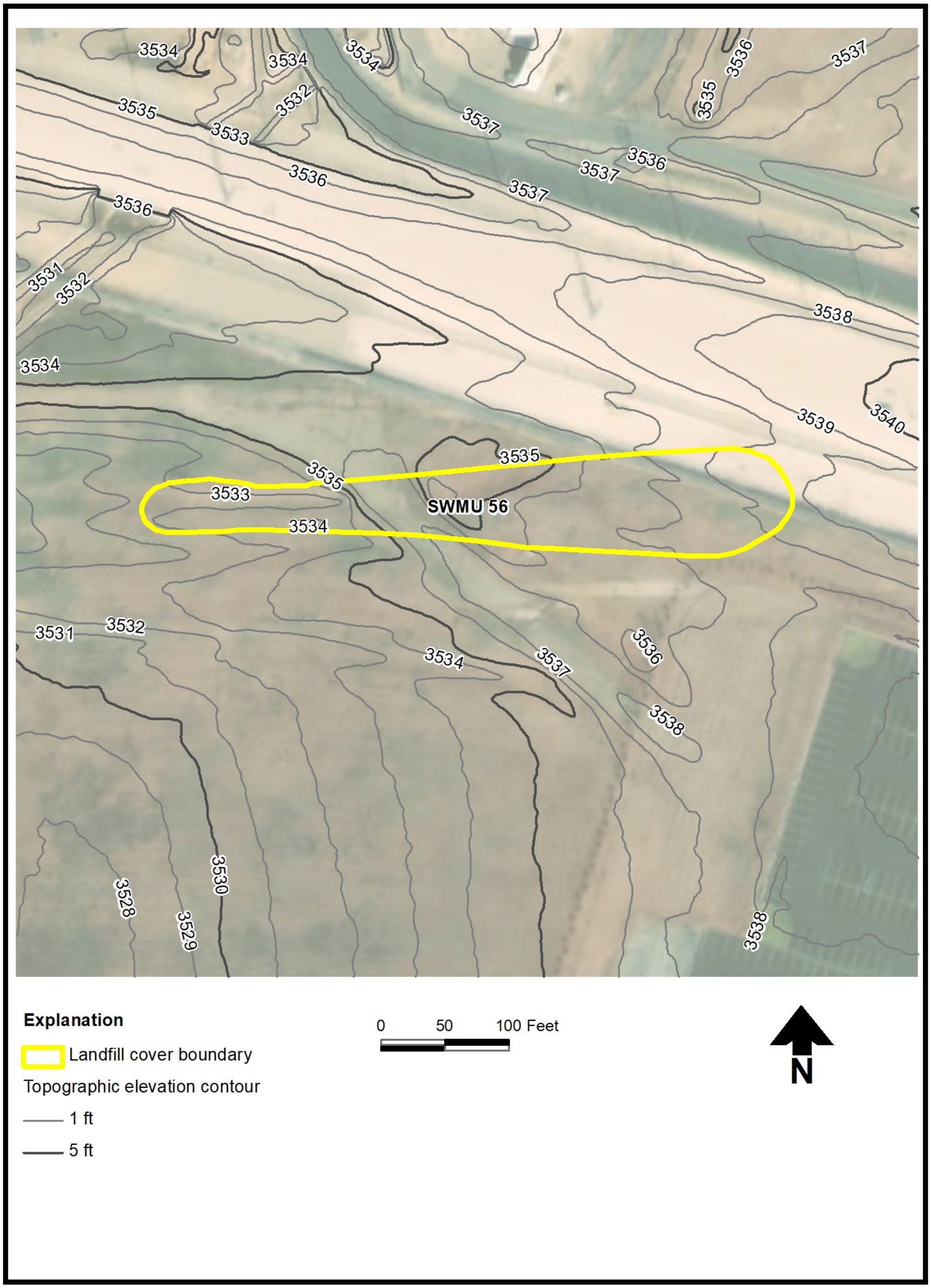

Figure 8. 2022 Cover for Landfill 5 (SWMU 56)

Figure 9. Baseline Survey of Cover for Landfill 5 (SWMU 56)

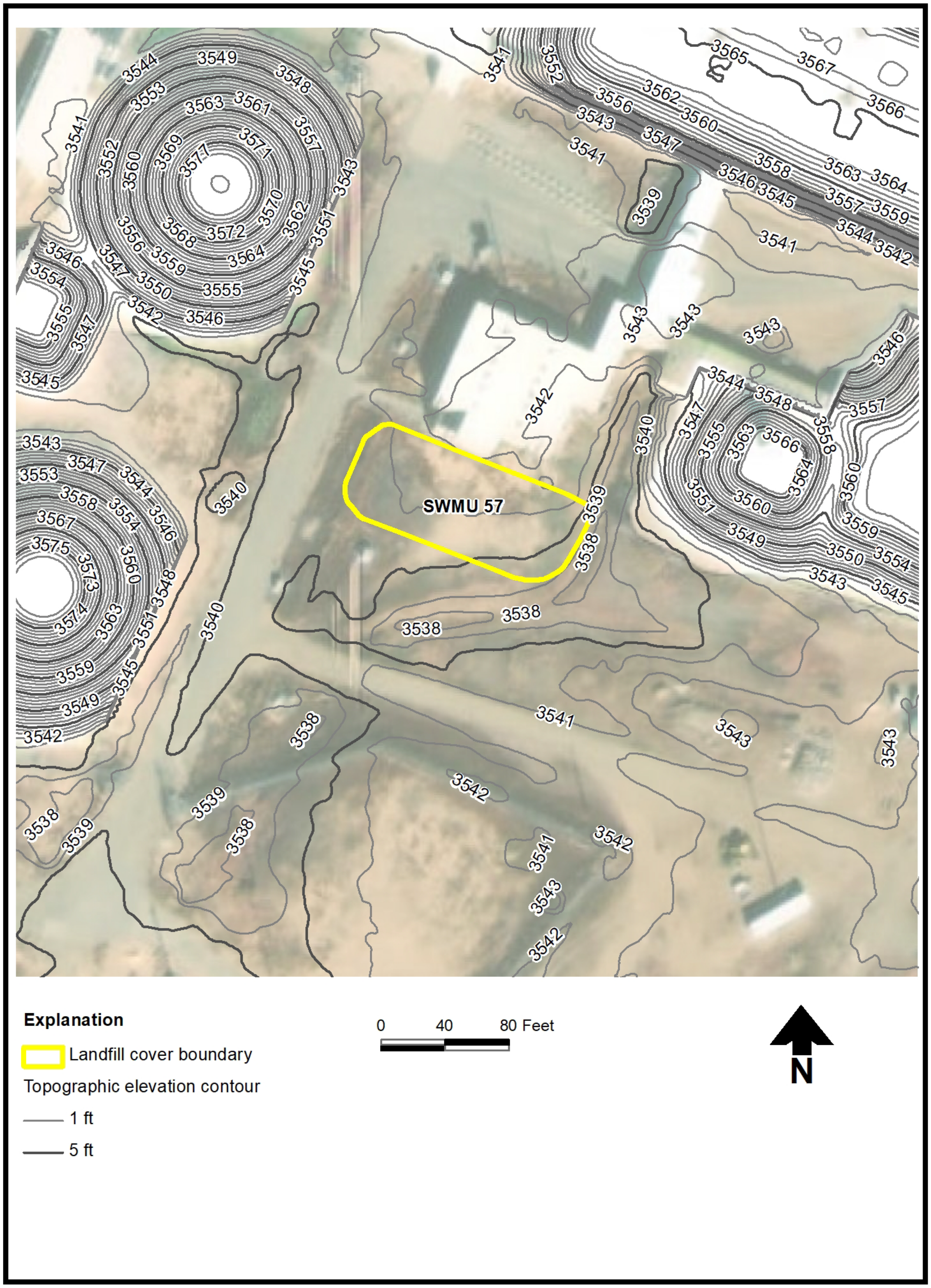

Figure 10. 2022 Cover for Landfill 6 (SWMU 57)

Figure 11. Baseline Survey of Cover for Landfill 6 (SWMU 57)

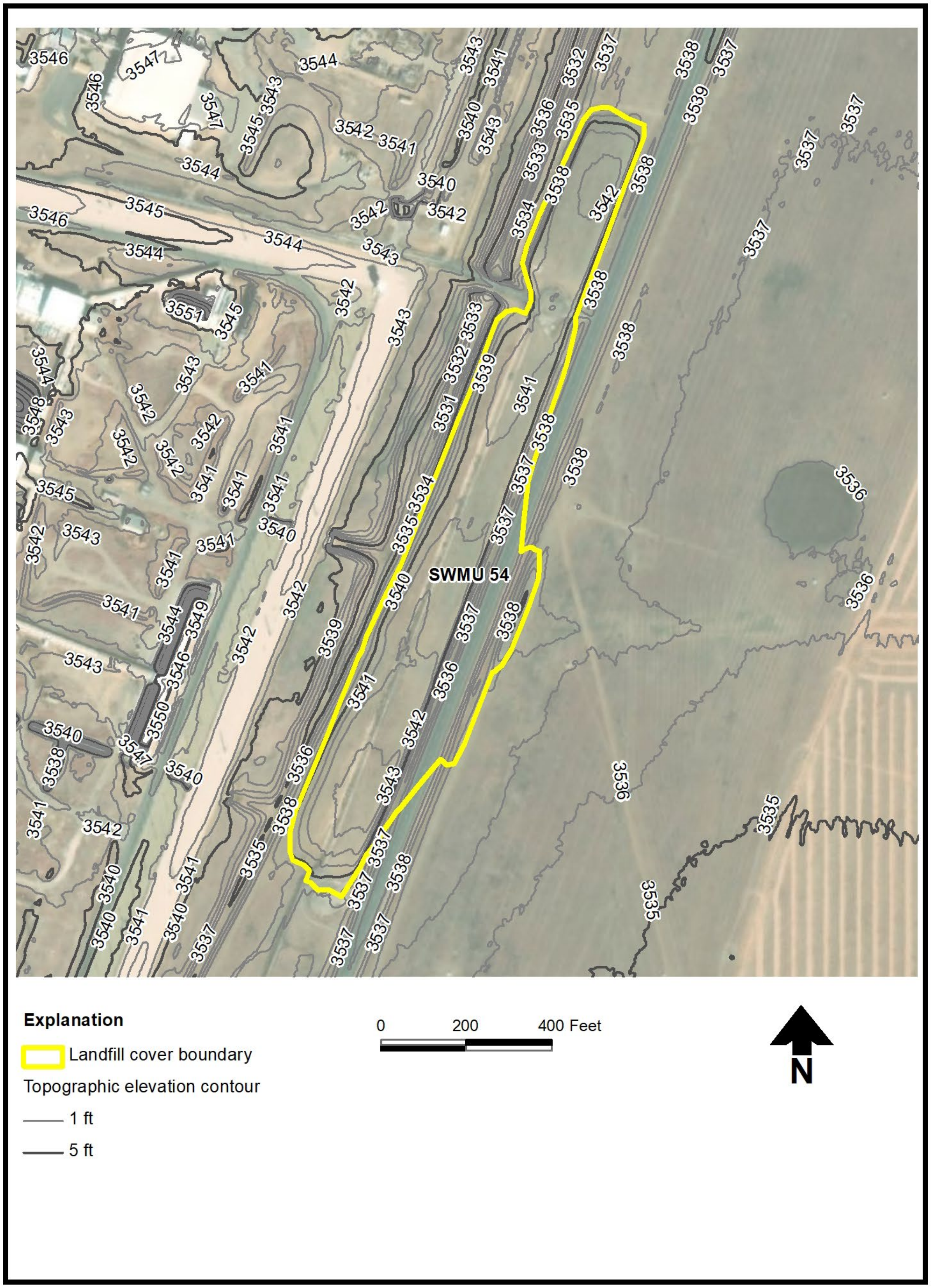

Figure 12. 2022 Cover for Landfill 3 (SWMU 54)

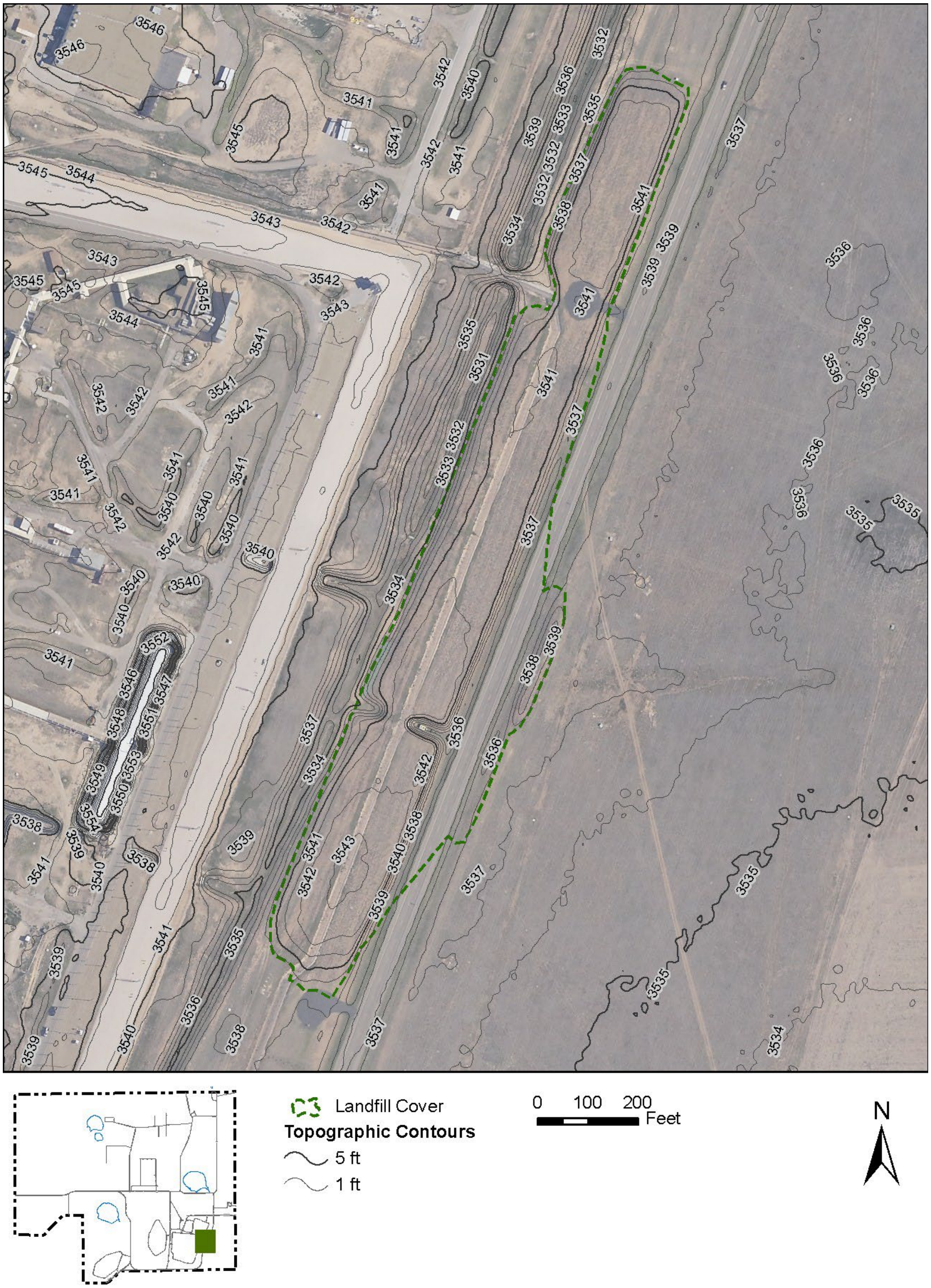

Figure 13. Baseline Survey of Cover for Landfill 3 (SWMU 54)

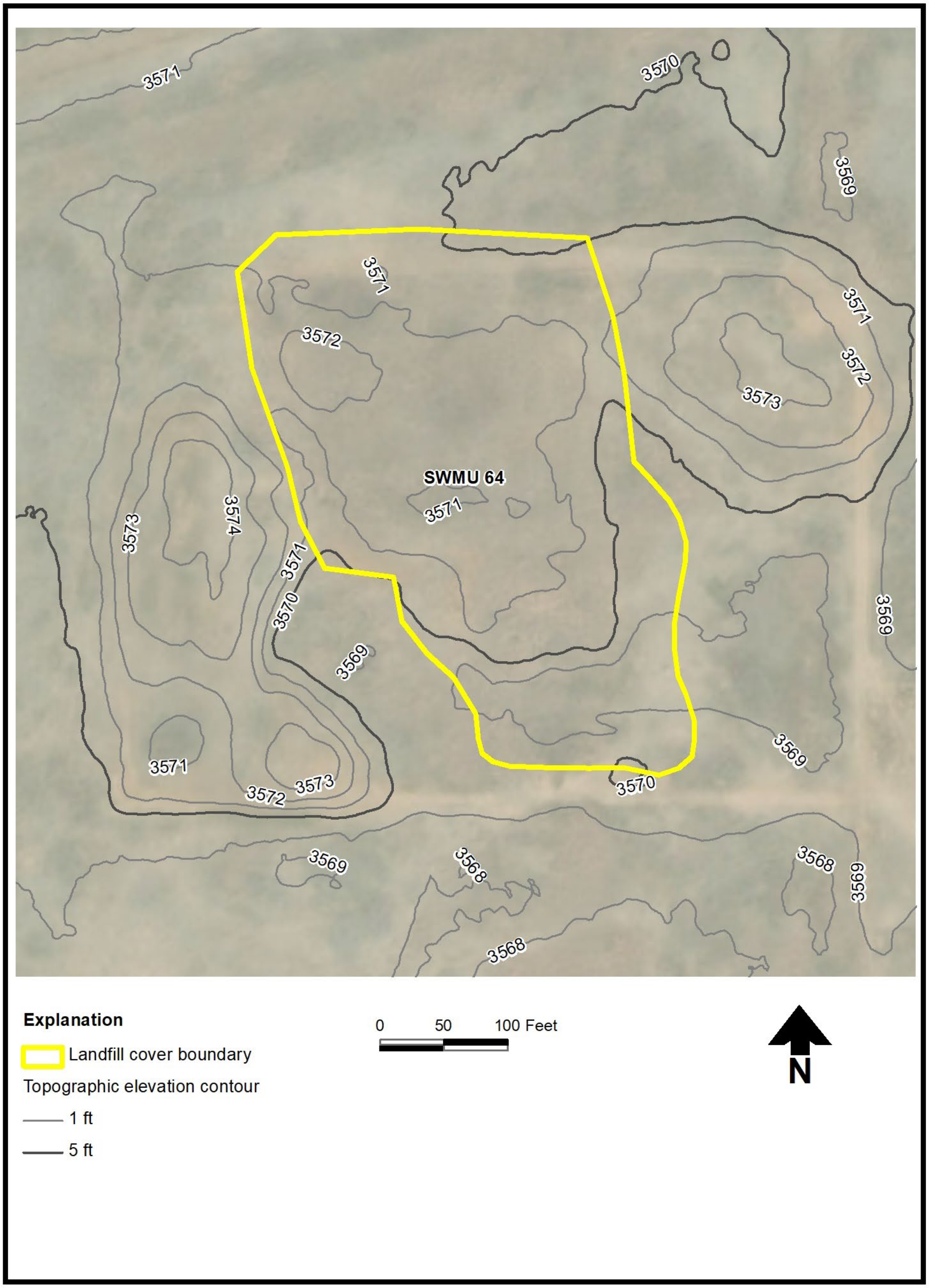

Figure 14. 2022 Cover for Landfill 13 (SWMU 64)

Figure 15. Baseline Survey of Cover for Landfill 13 (SWMU 64)

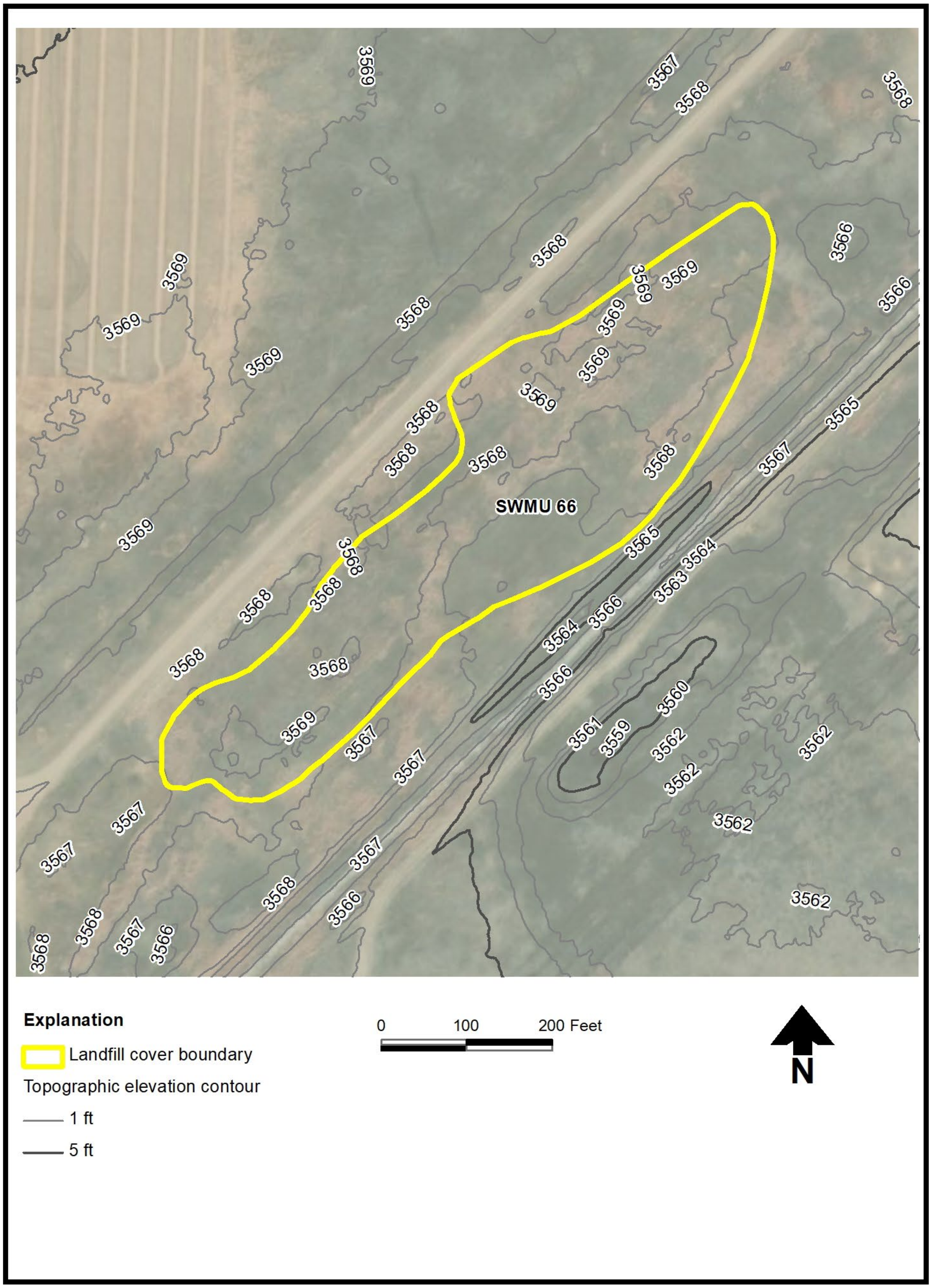

Figure 16. 2022 Cover for Landfill 15 (SWMU 66)

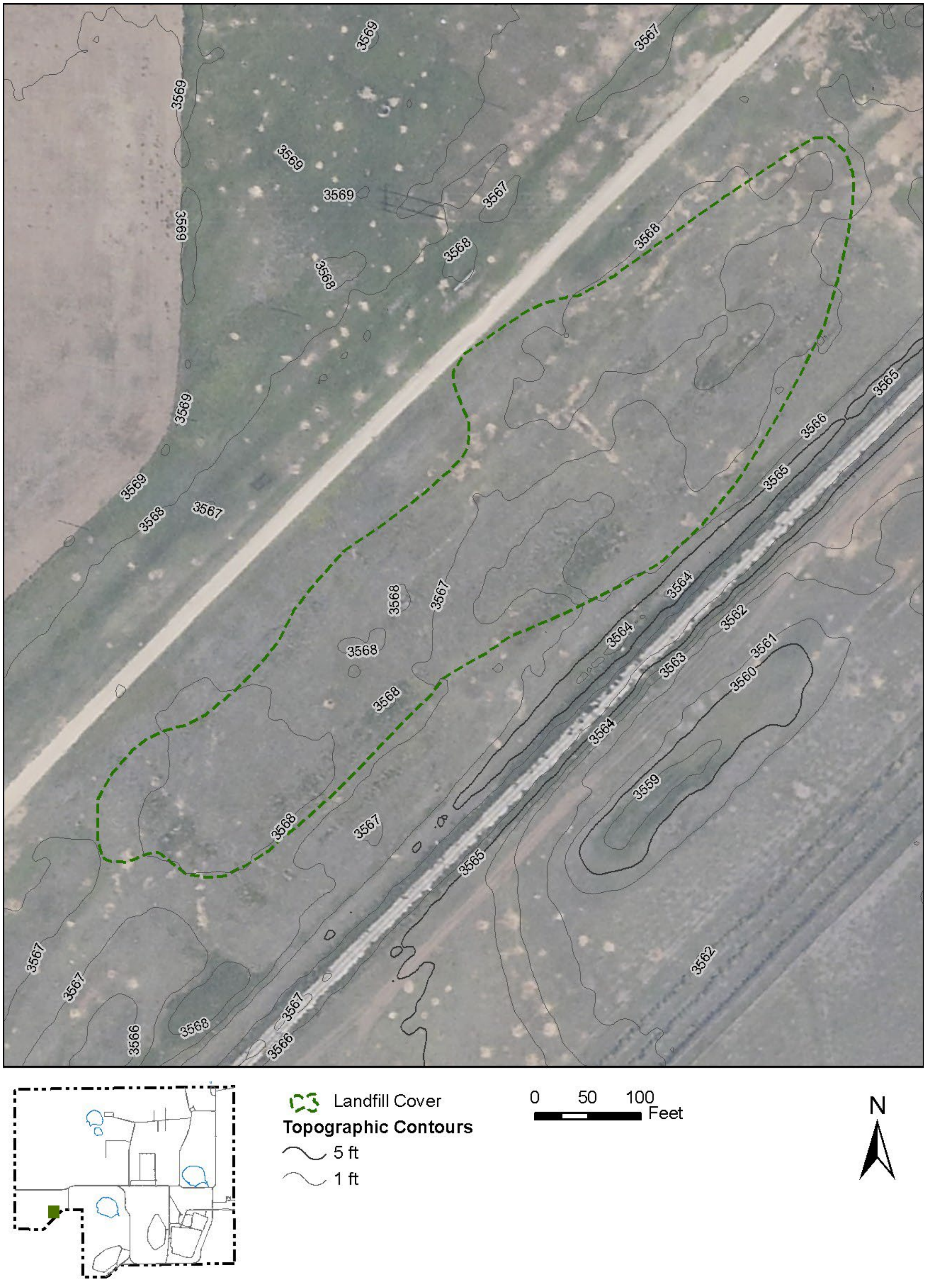

Figure 17. Baseline Survey of Cover for Landfill 15 (SWMU 66)

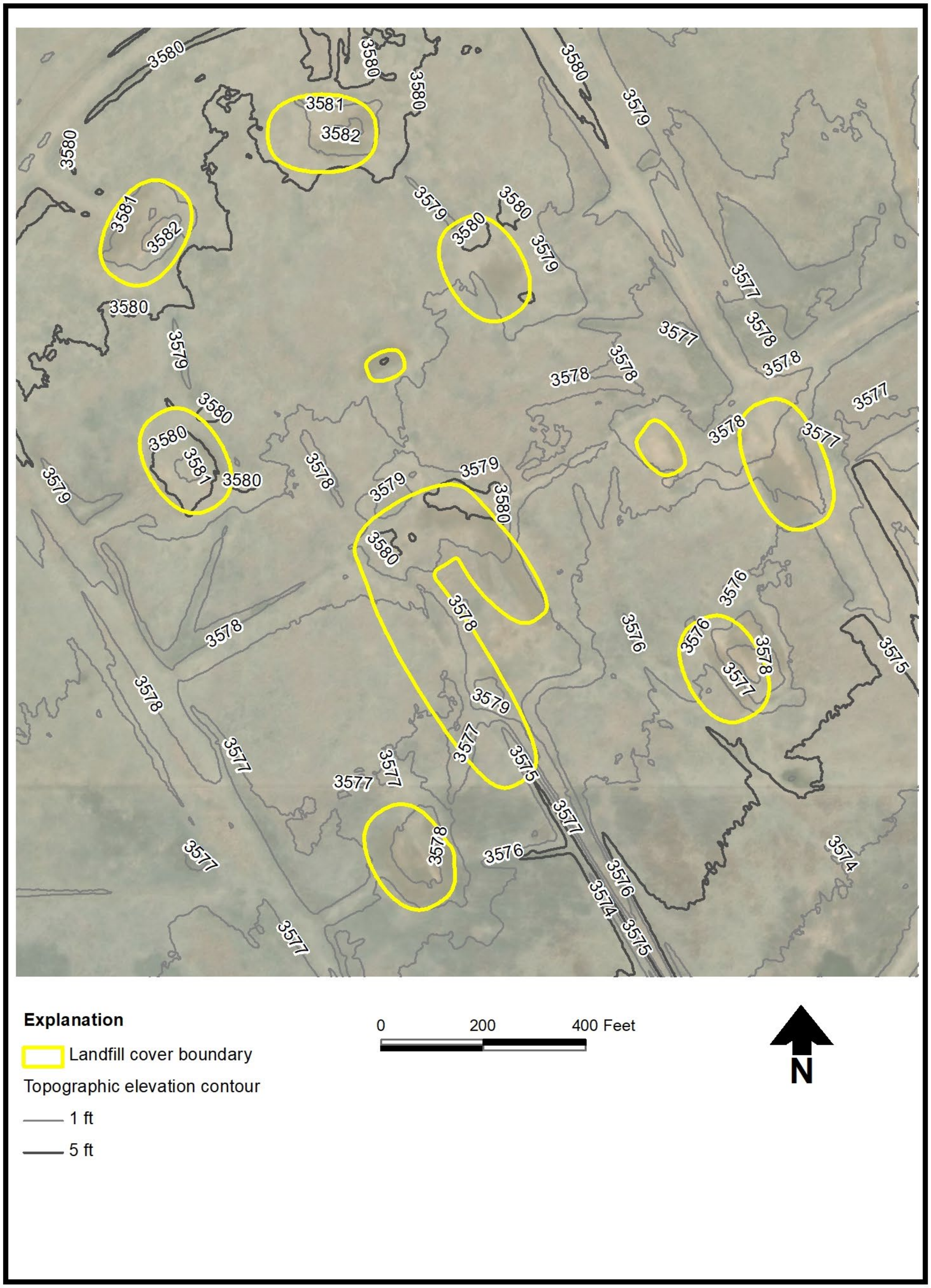

Figure 18. 2022 Cover for SVS 6

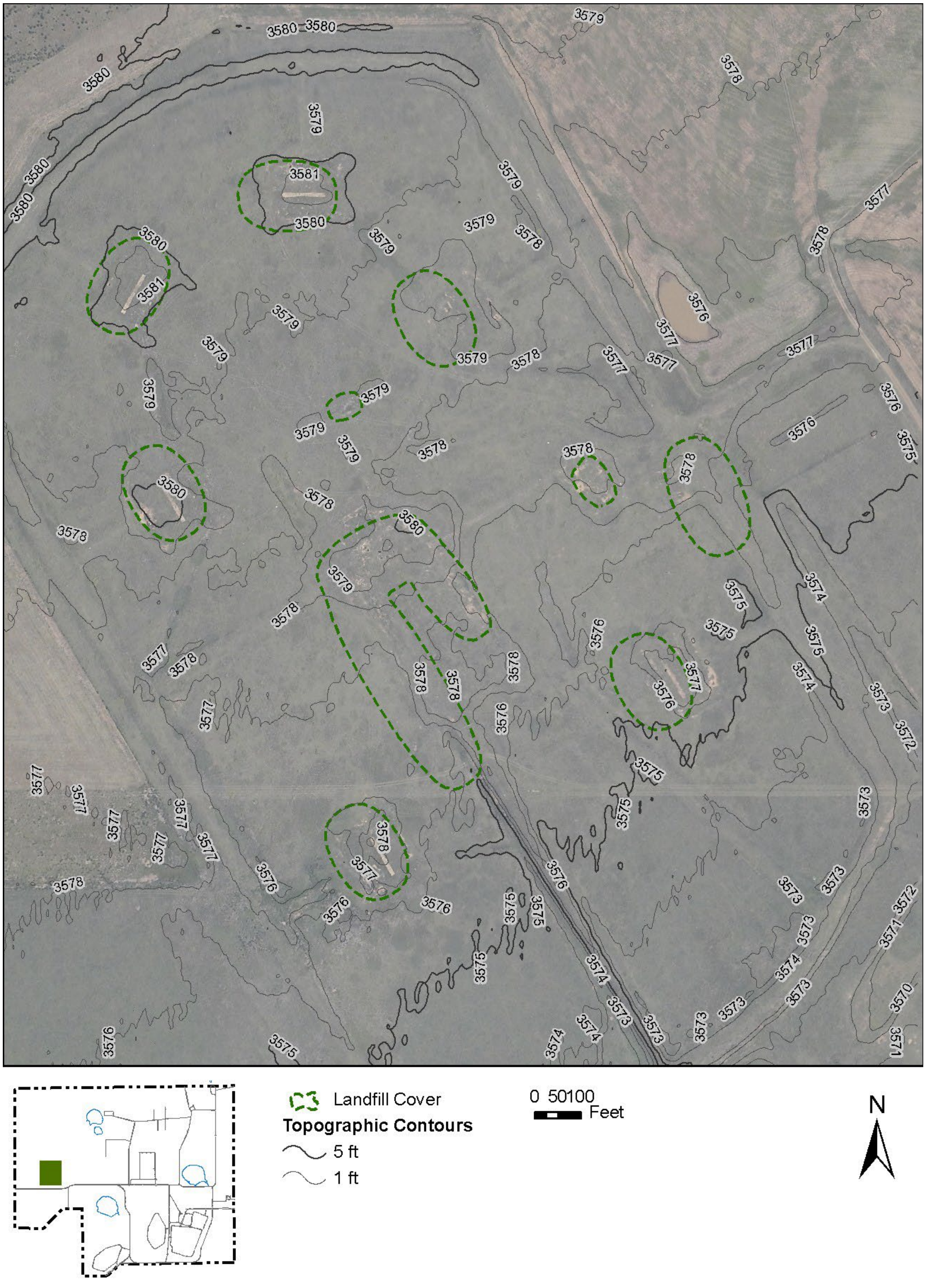

Figure 19. Baseline Survey of Cover for SVS 6

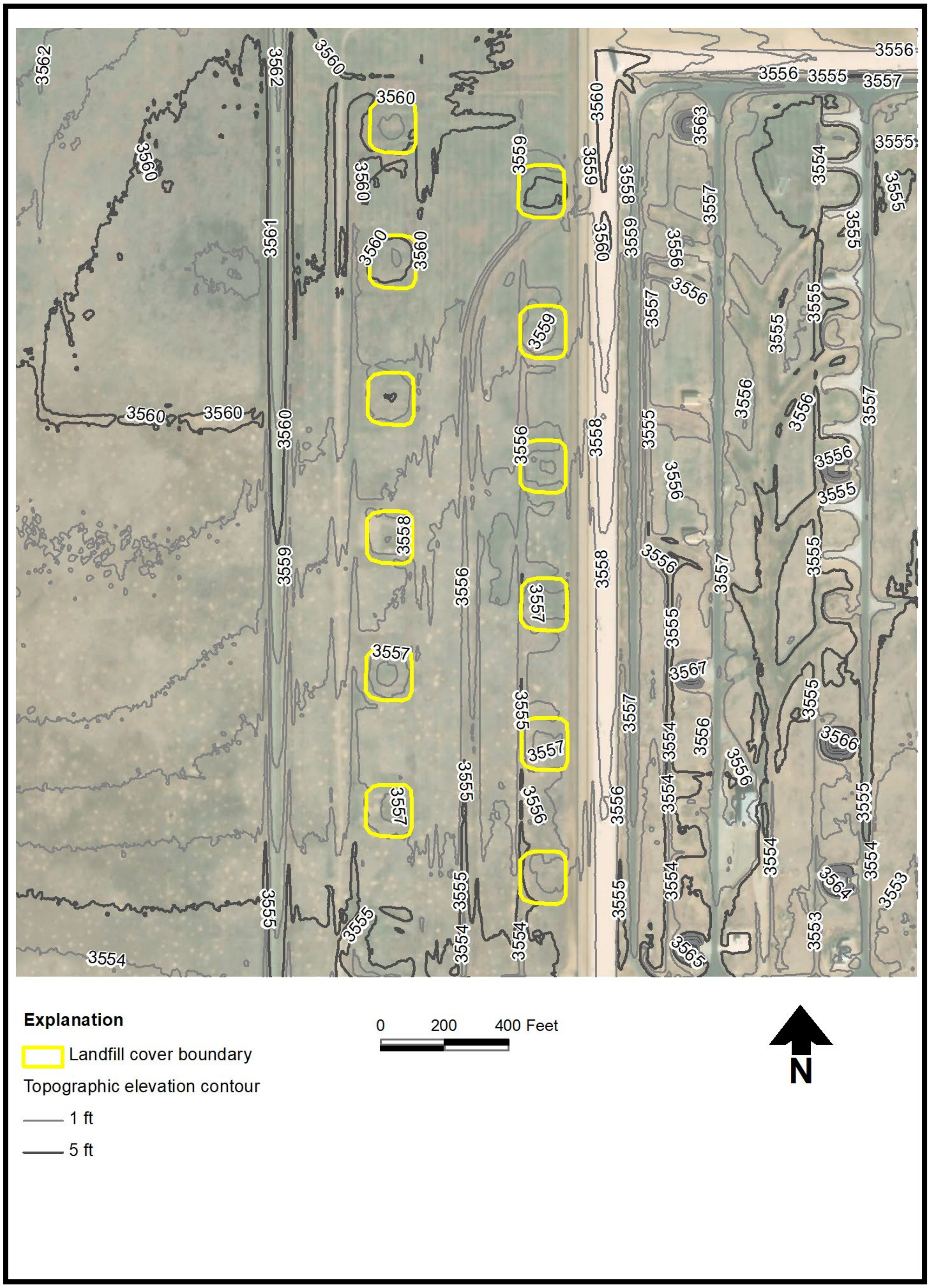

Figure 20. 2022 Cover for SVS 7a

Figure 21. Baseline Survey of Cover for SVS 7a

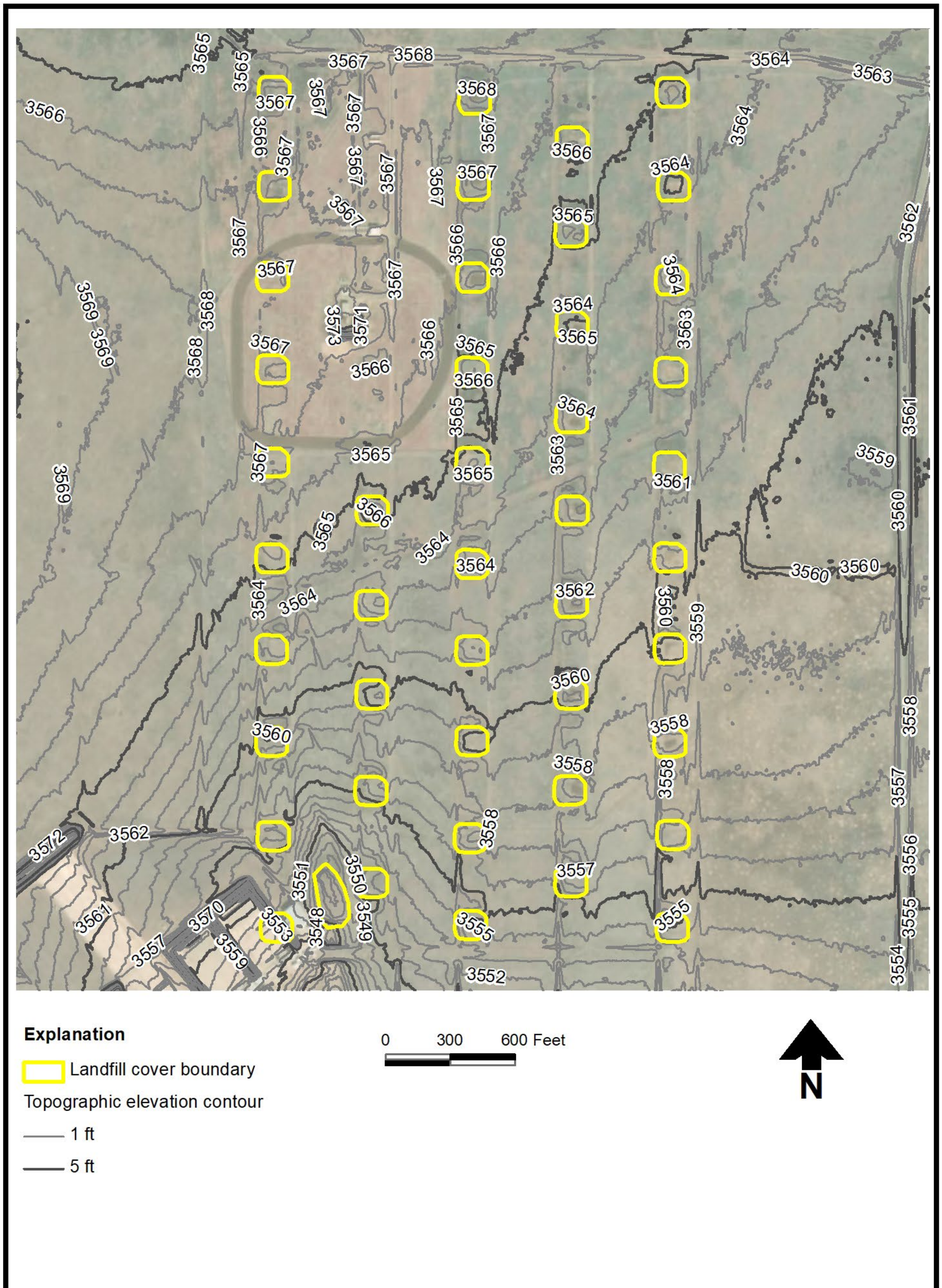

Figure 22. 2022 Cover for SVS 7b

Figure 23. Baseline Survey of Cover for SVS 7b

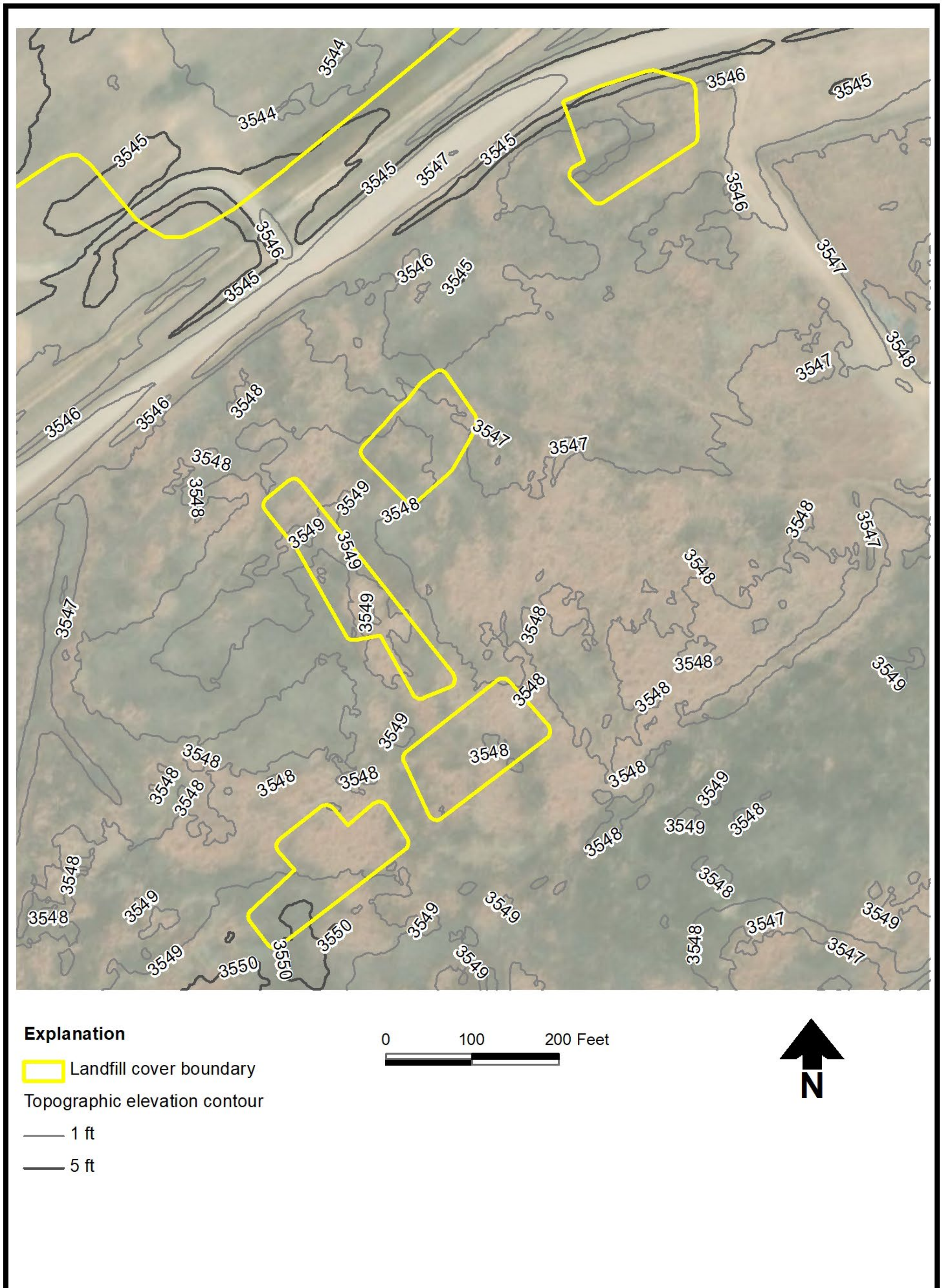

Figure 24. 2022 Covers for Unidentified AOC – Zone 10 Construction Debris Landfills

Figure 25. Baseline Survey of Cover for Unidentified AOC
Zone 10 Construction Debris Landfills

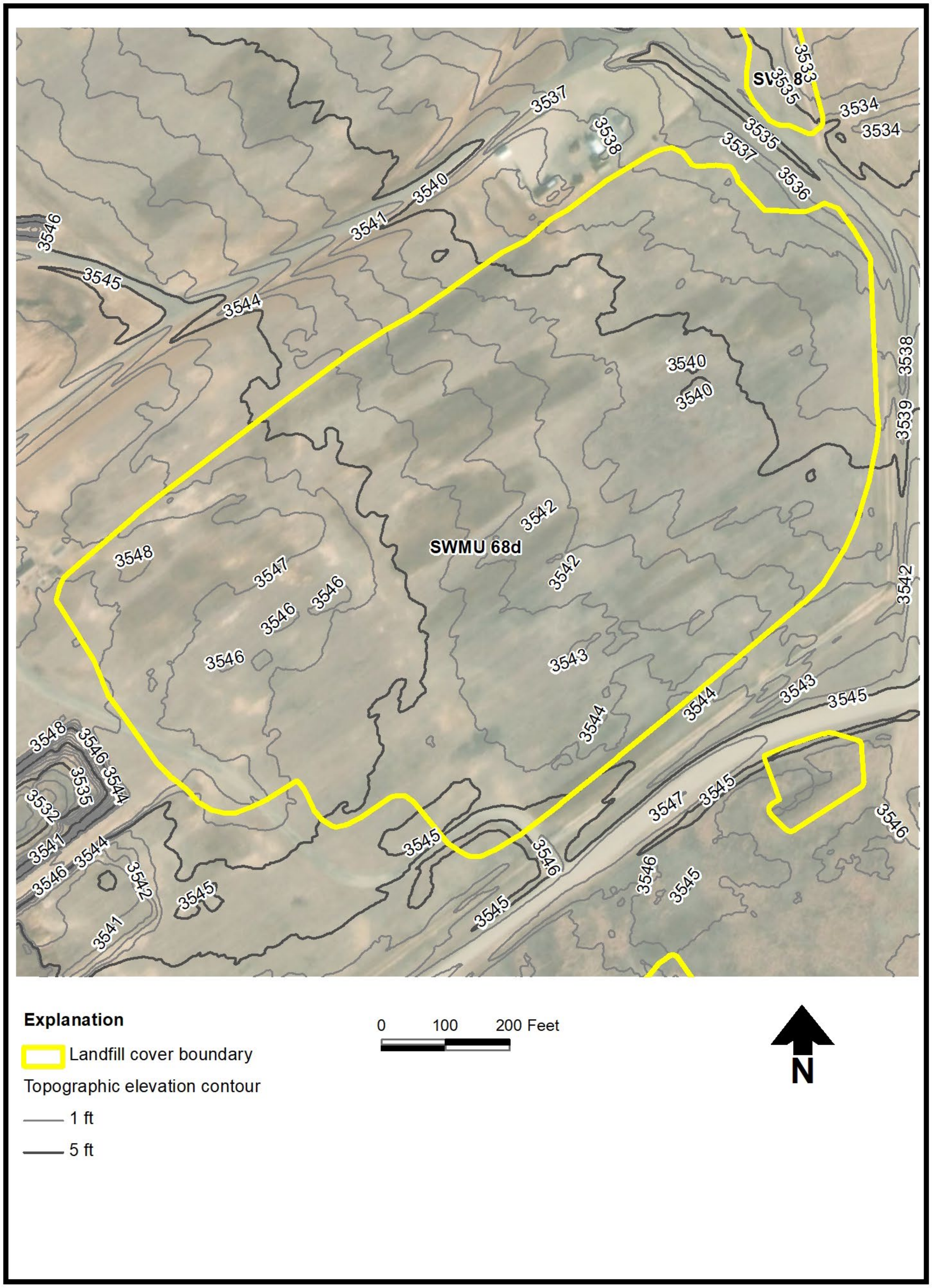

Figure 26. 2022 Cover for the "Active" Sanitary Landfill (SWMU 68d)

Figure 27. Baseline Survey of Cover for the “Active” Sanitary Landfill (SWMU 68d)

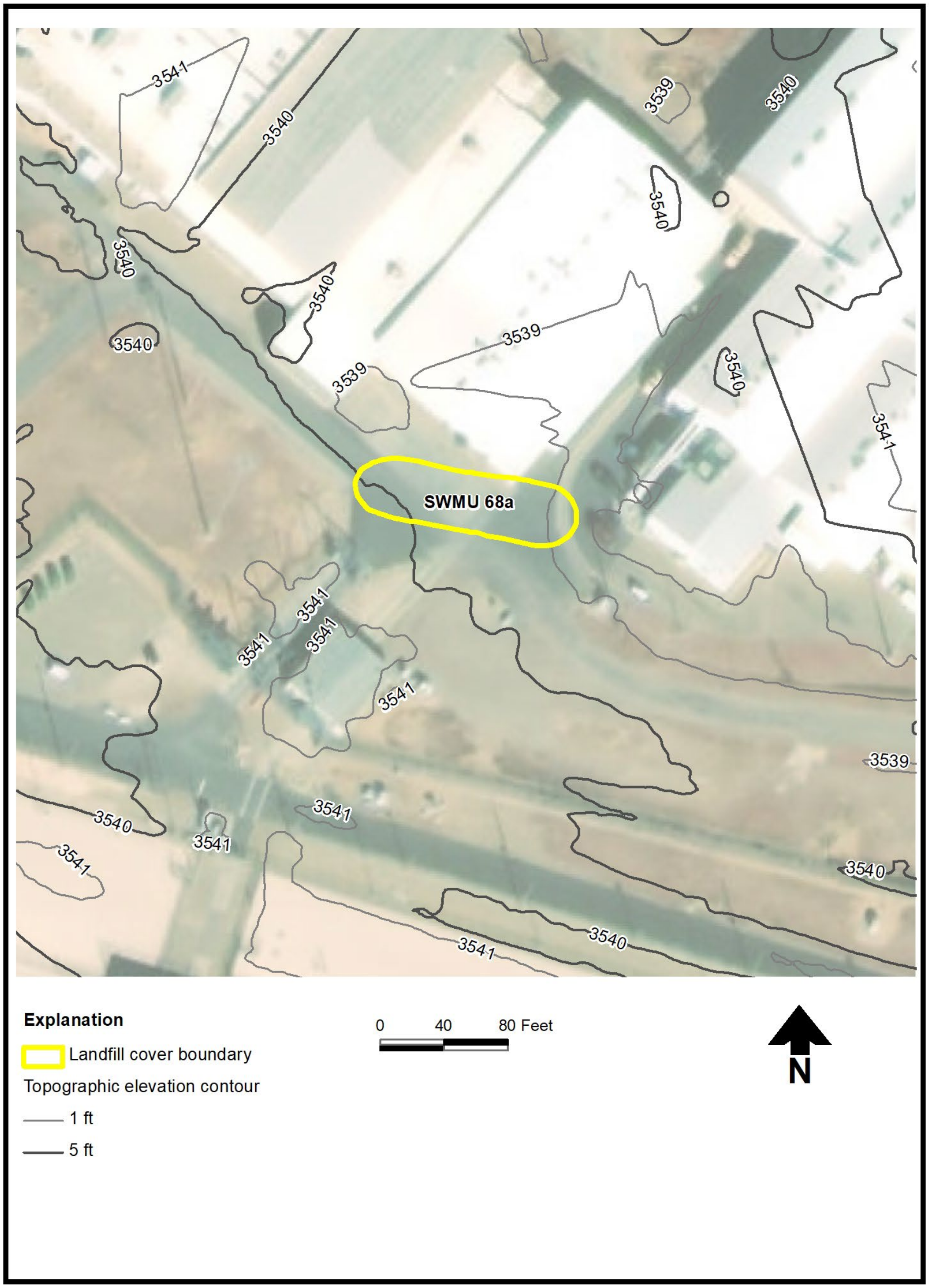

Figure 28. 2022 Cover for Original Sanitary Landfill (SWMU 68a North)

Figure 29. Baseline Survey of Cover for Original Sanitary Landfill (SWMU 68a North)

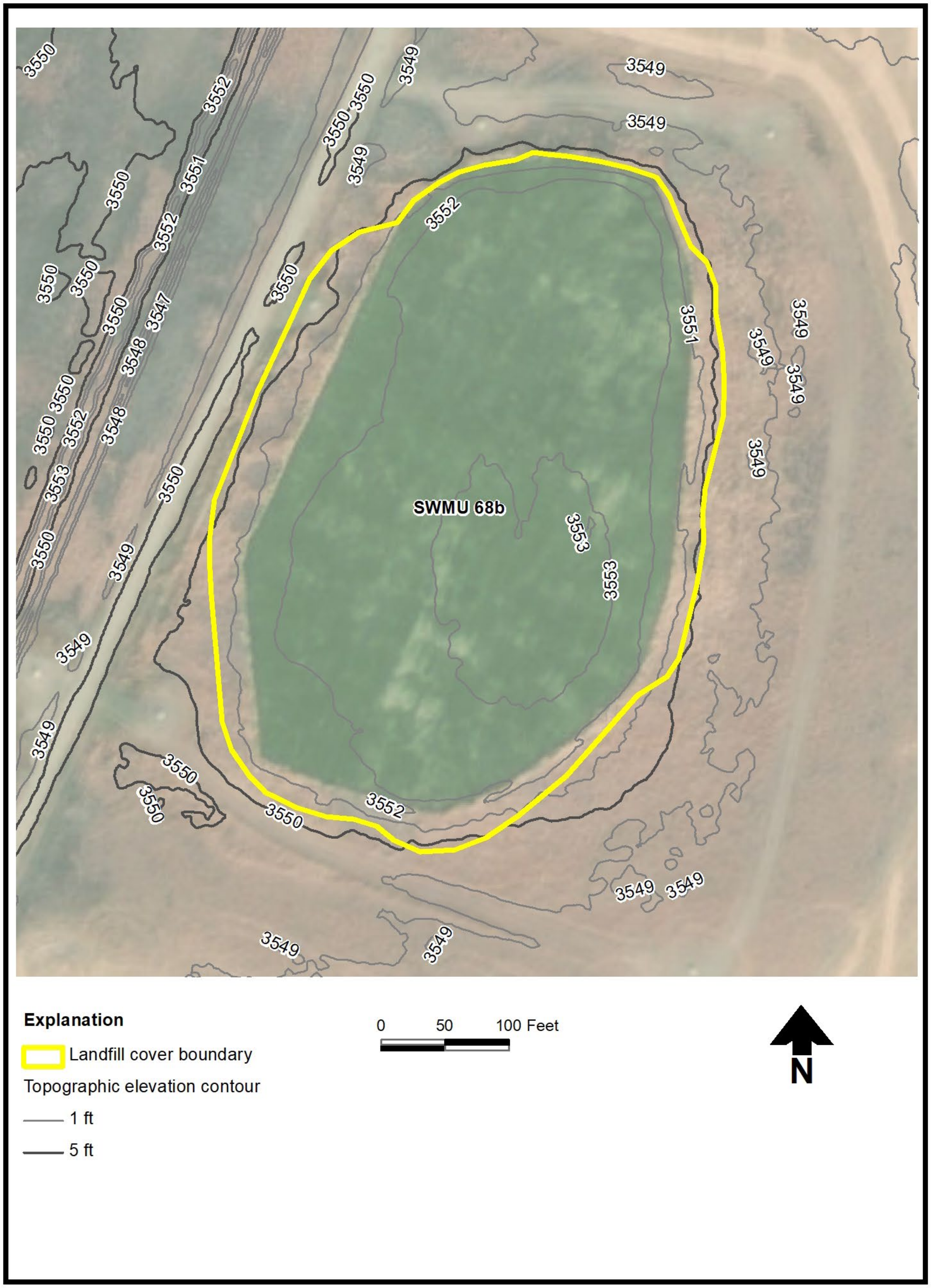

Figure 30. 2022 Cover for General Purpose Sanitary Landfill 1 (SWMU 68b)

Figure 31. Baseline Survey of Cover for General Purpose Sanitary Landfill 1 (SWMU 68b)

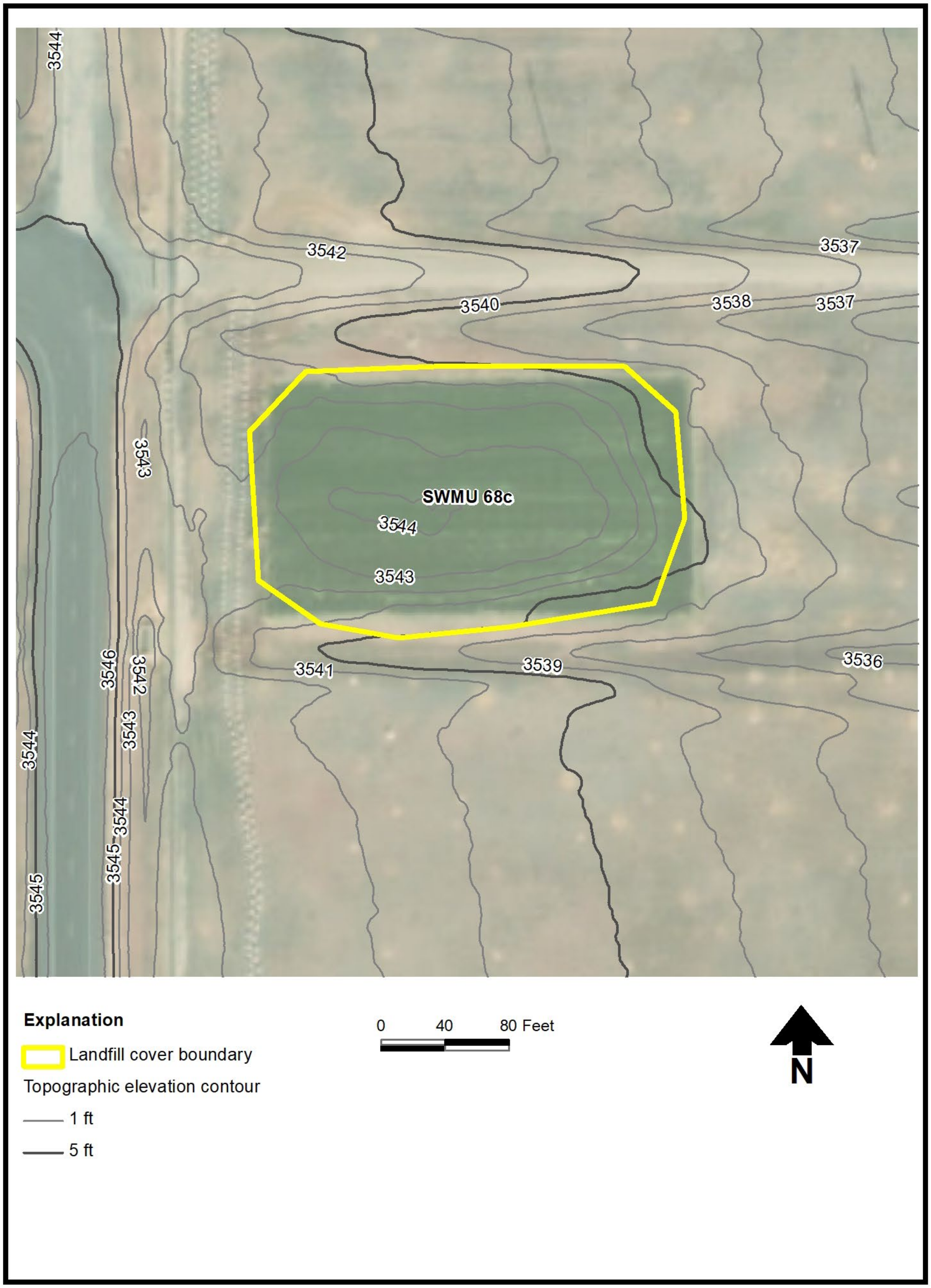

Figure 32. 2022 Cover for General Purpose Sanitary Landfill 2 (SWMU 68c)

Figure 33. Baseline Survey of Cover for General Purpose Sanitary Landfill 2 (SWMU 68c)

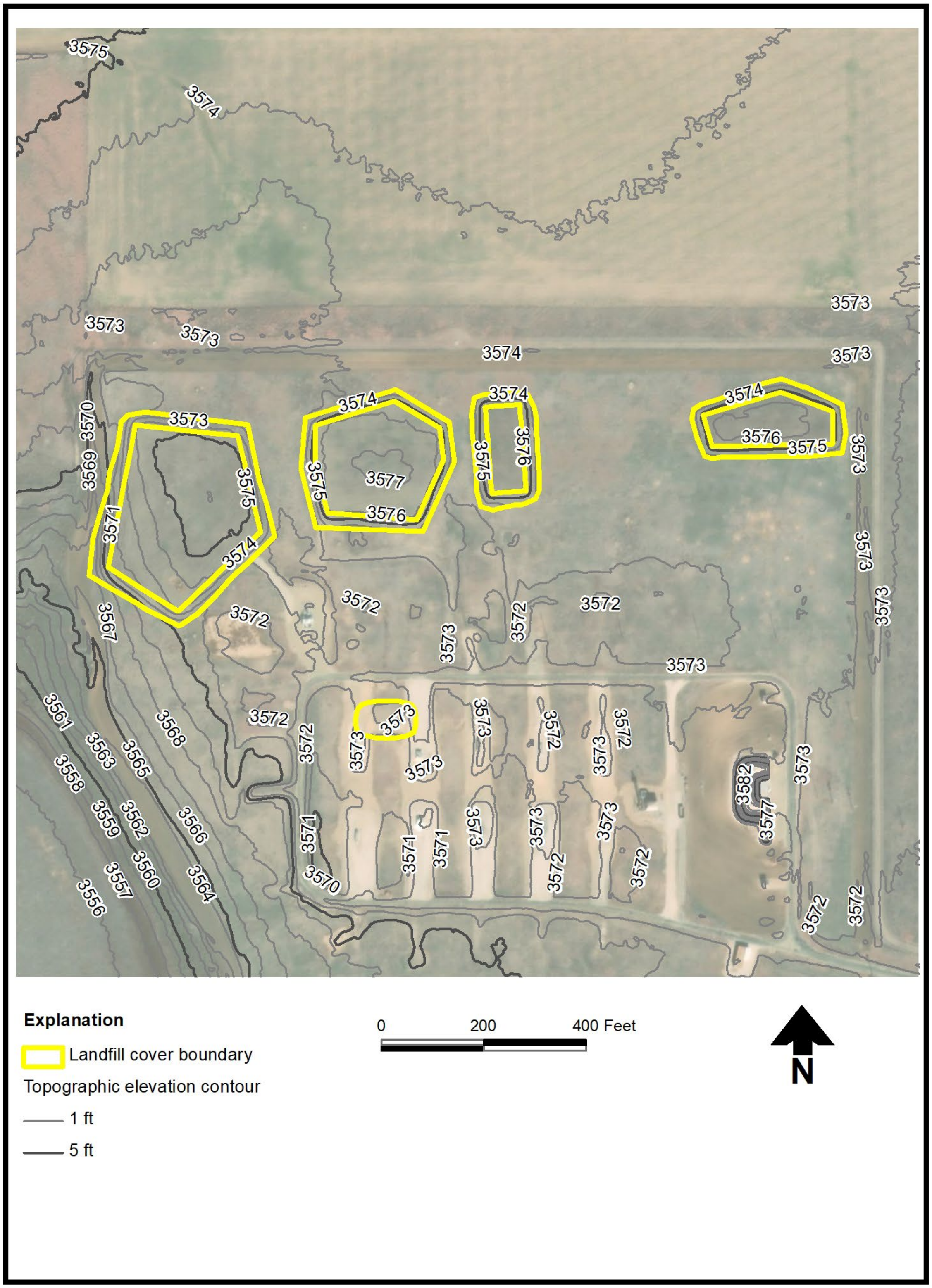

Figure 34. 2022 Covers for Burning Ground Landfills 1-8 (SWMUs 37-44)

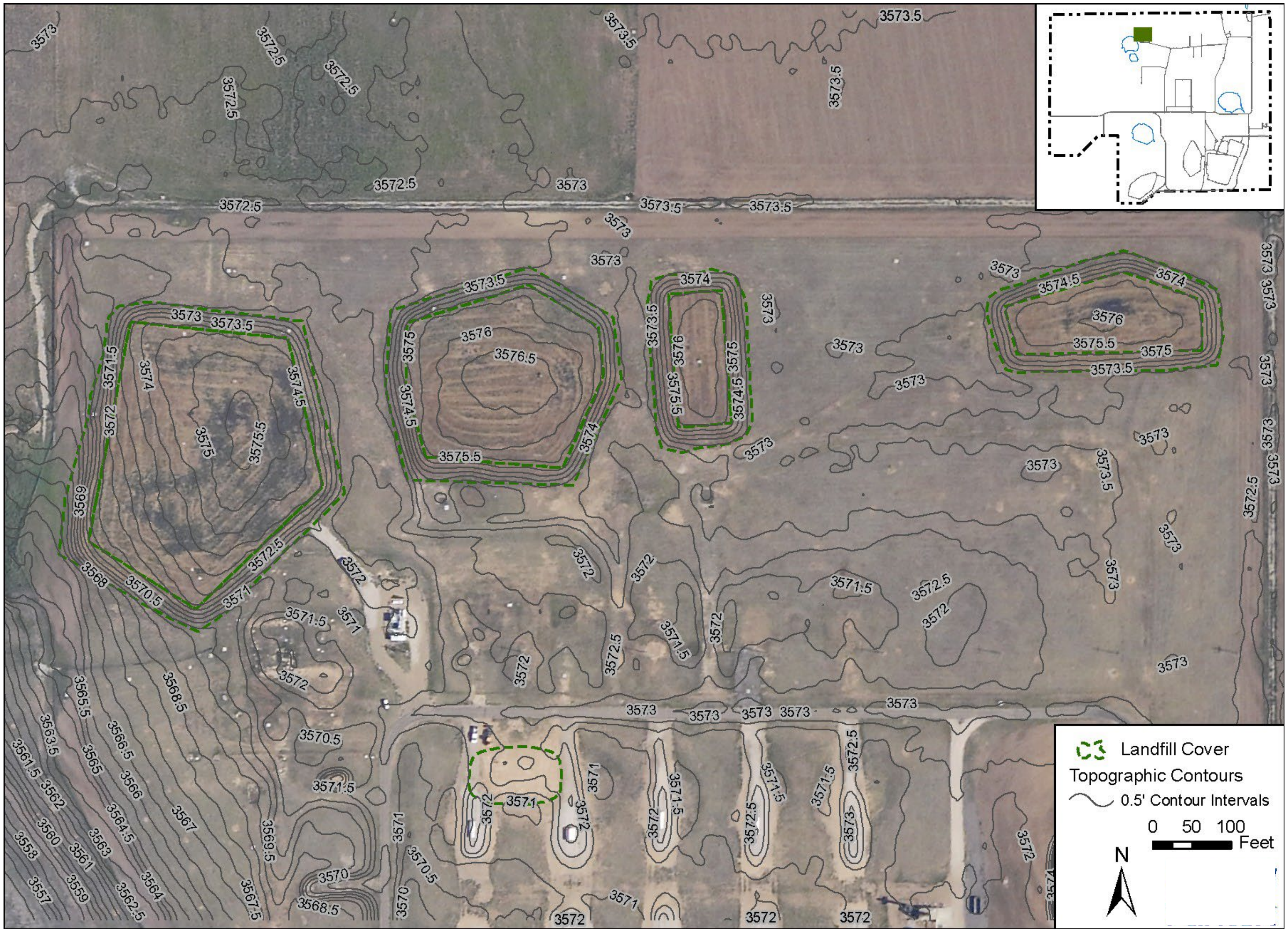

Figure 35. Baseline Survey of Covers for Burning Ground Landfills 1-8 (SWMUs 37-44)

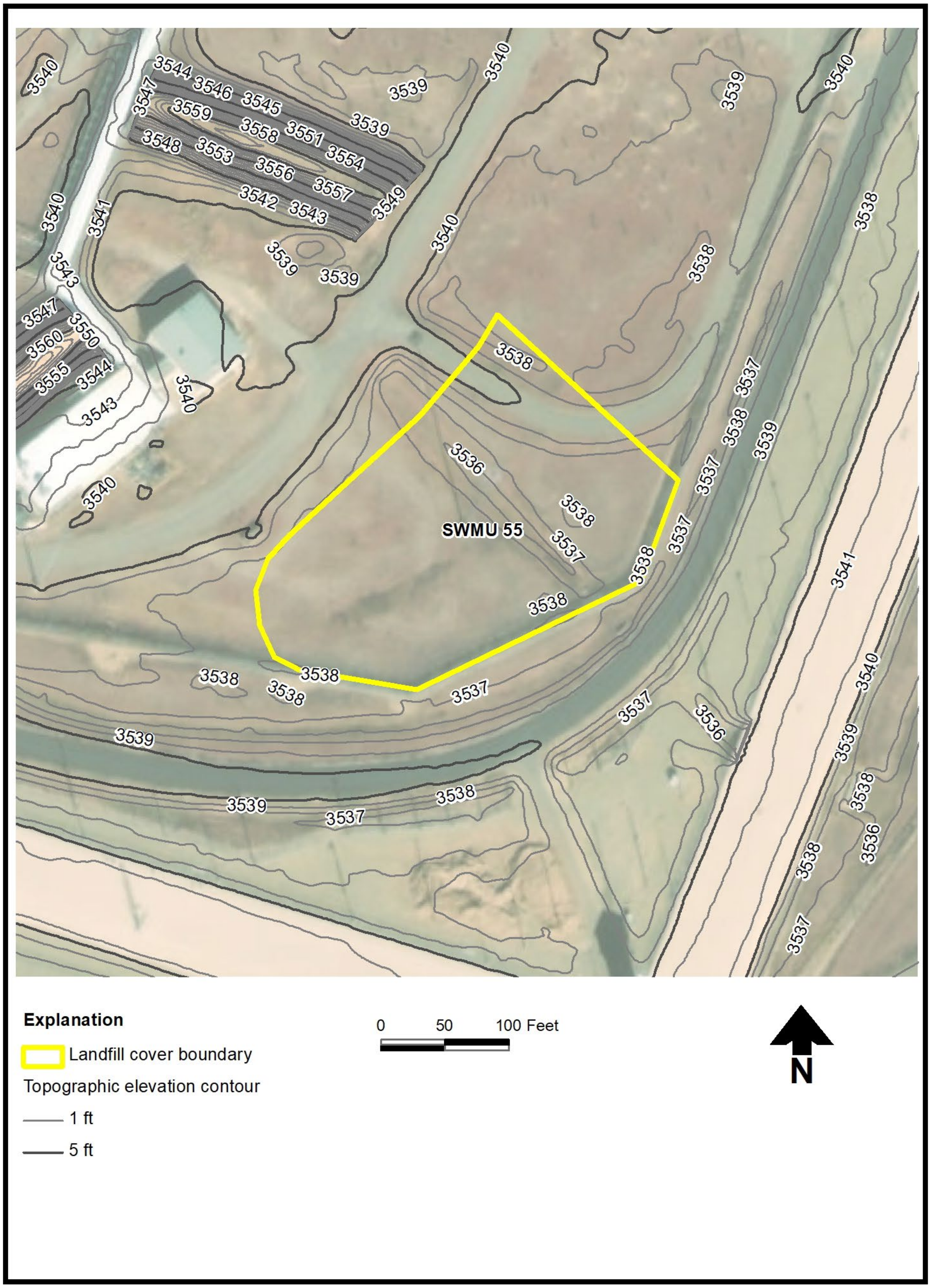

Figure 36. 2022 Cover (Northern) for Potential Landfill 4 (SWMU 55)

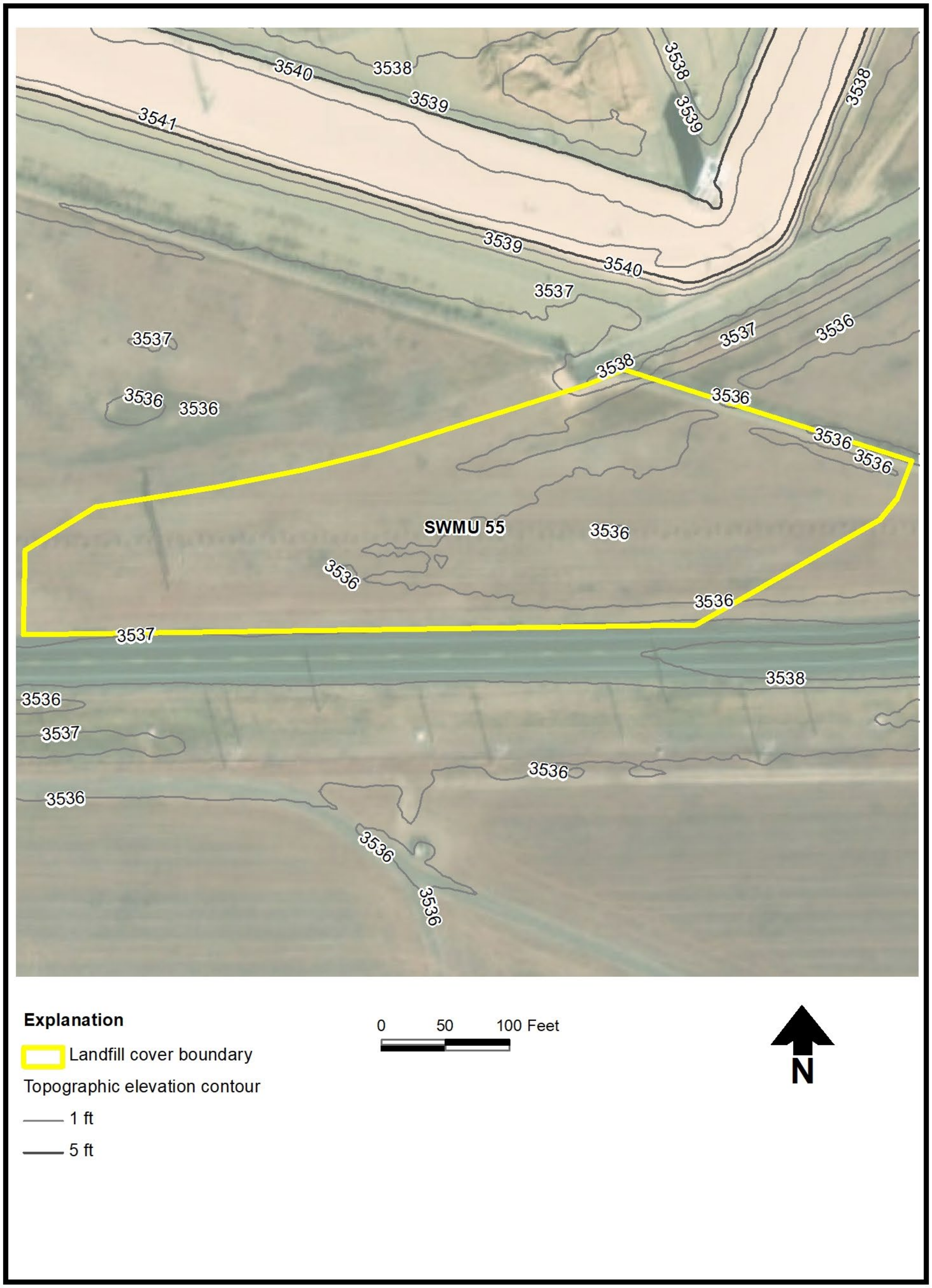

Figure 37. 2022 Cover (Southern) for Potential Landfill 4 (SWMU 55)

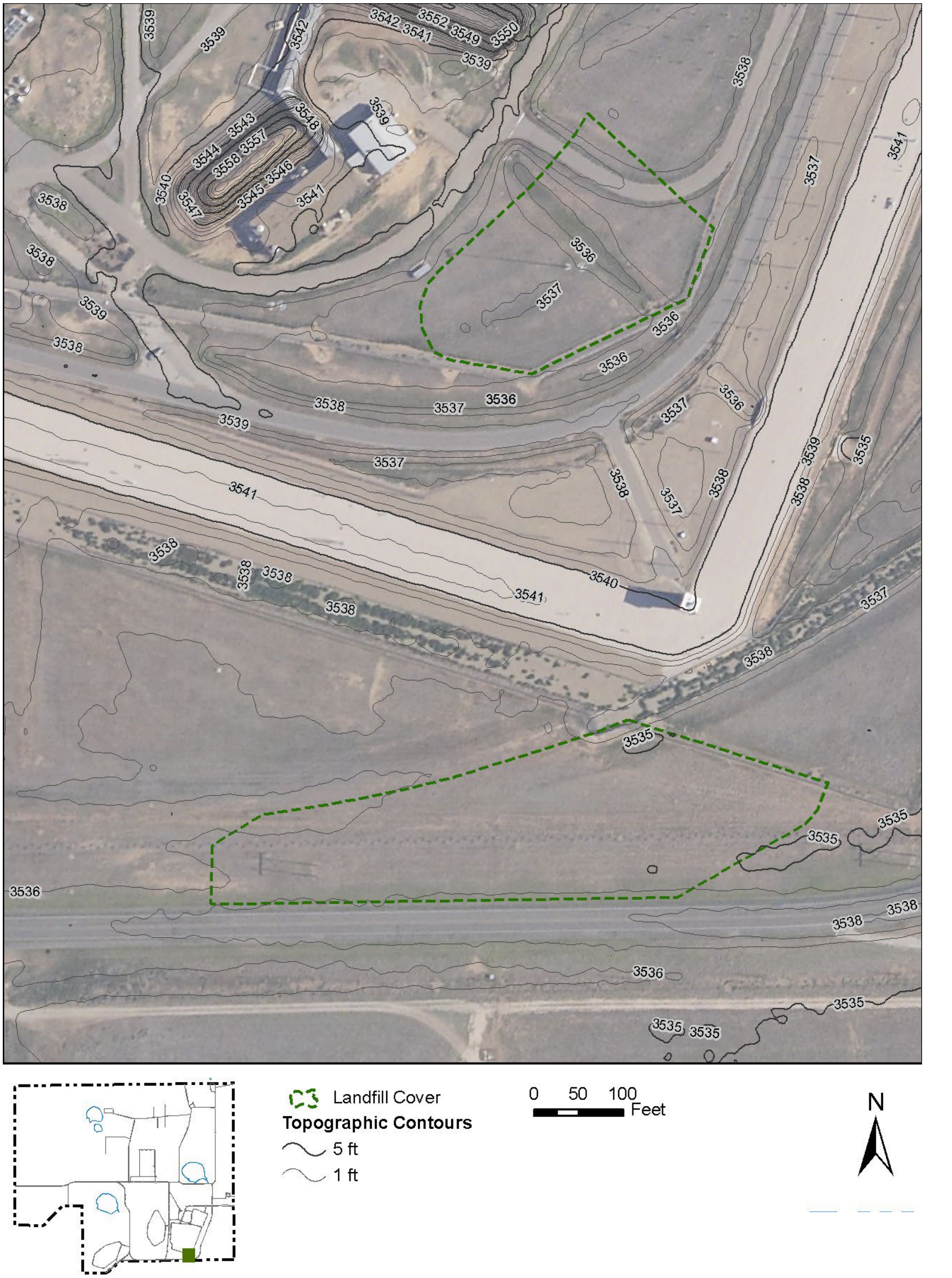

Figure 38. Baseline Survey of Cover for Potential Landfill 4 (SWMU 55)

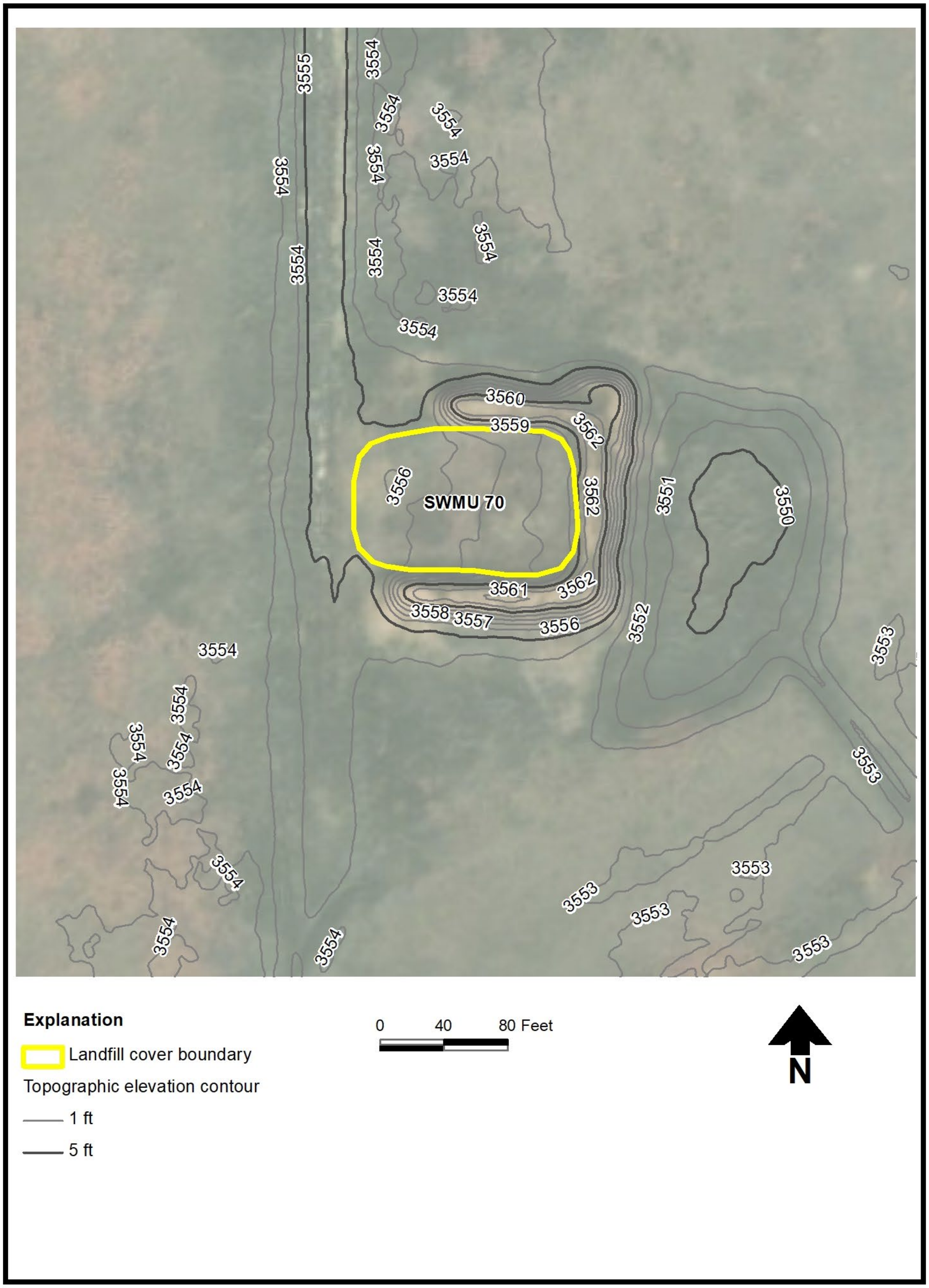

Figure 39. 2022 Cover for Firing Site 5 (SWMU 70)

Figure 40. Baseline Survey of Cover for Firing Site 5 (SWMU 70)

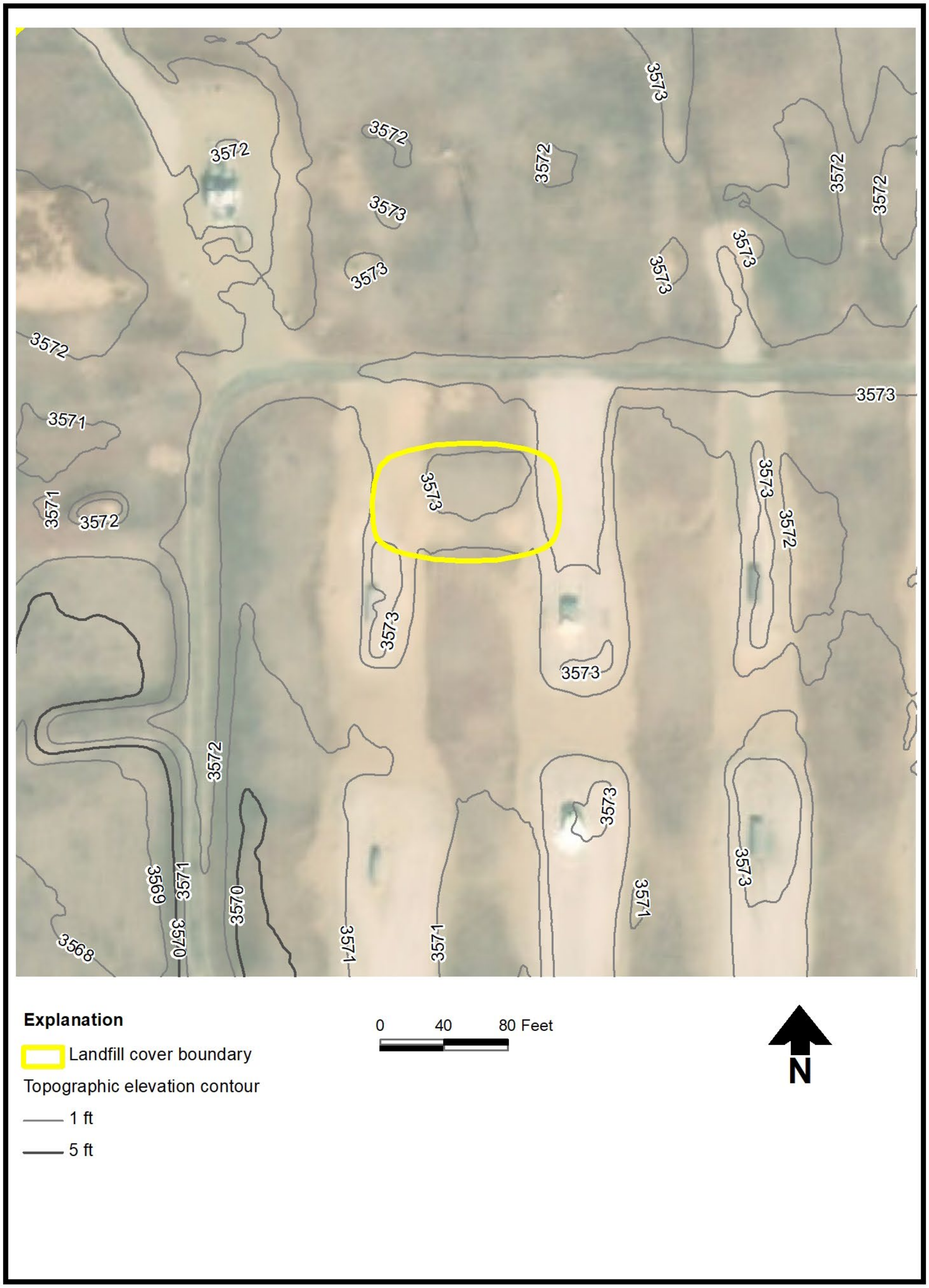

Figure 41. 2022 Cover for Former Burning Ground Ash Disposal Trench

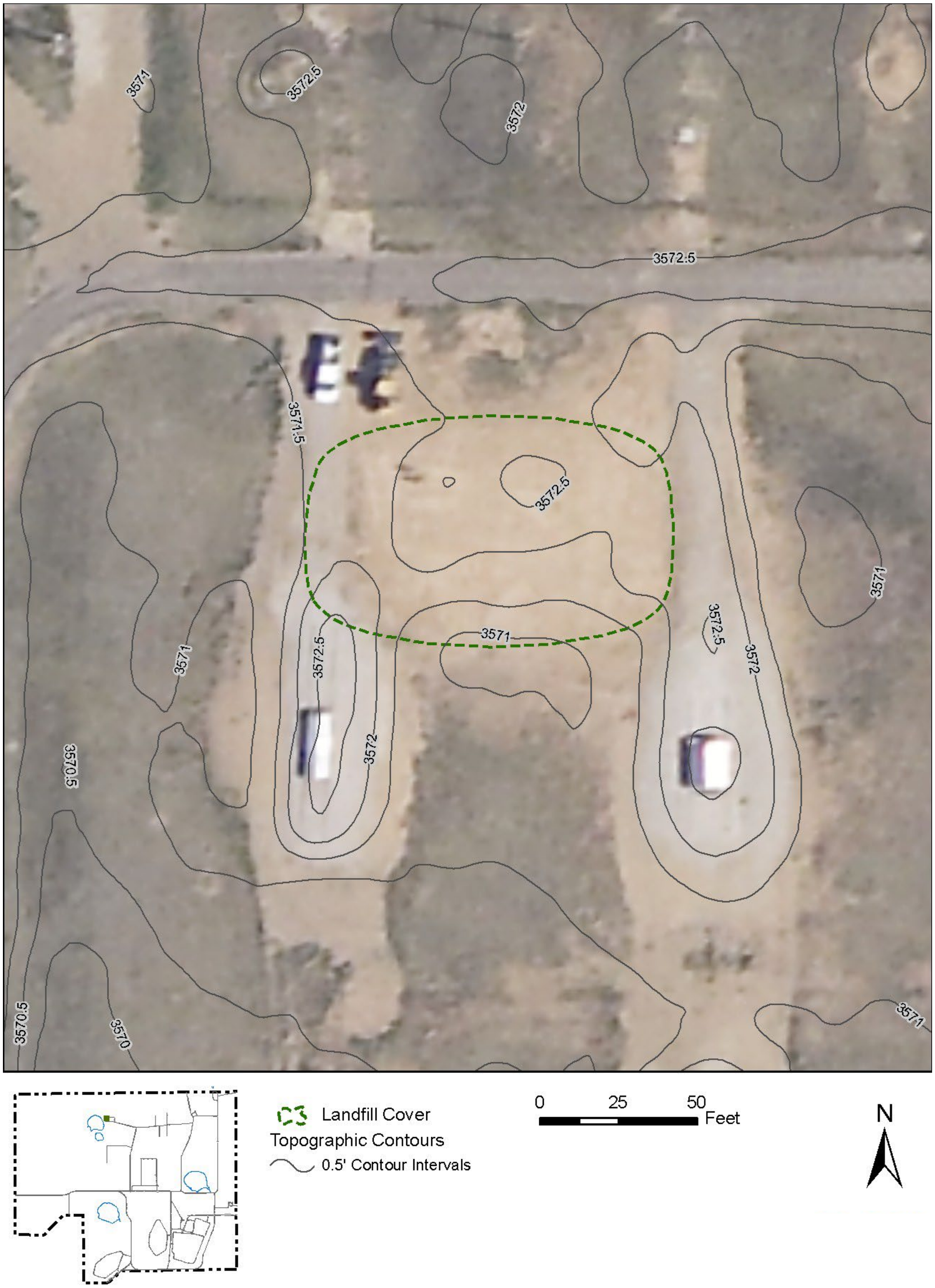

Figure 42. Baseline Survey of Cover for Former Burning Ground Ash Disposal Trench

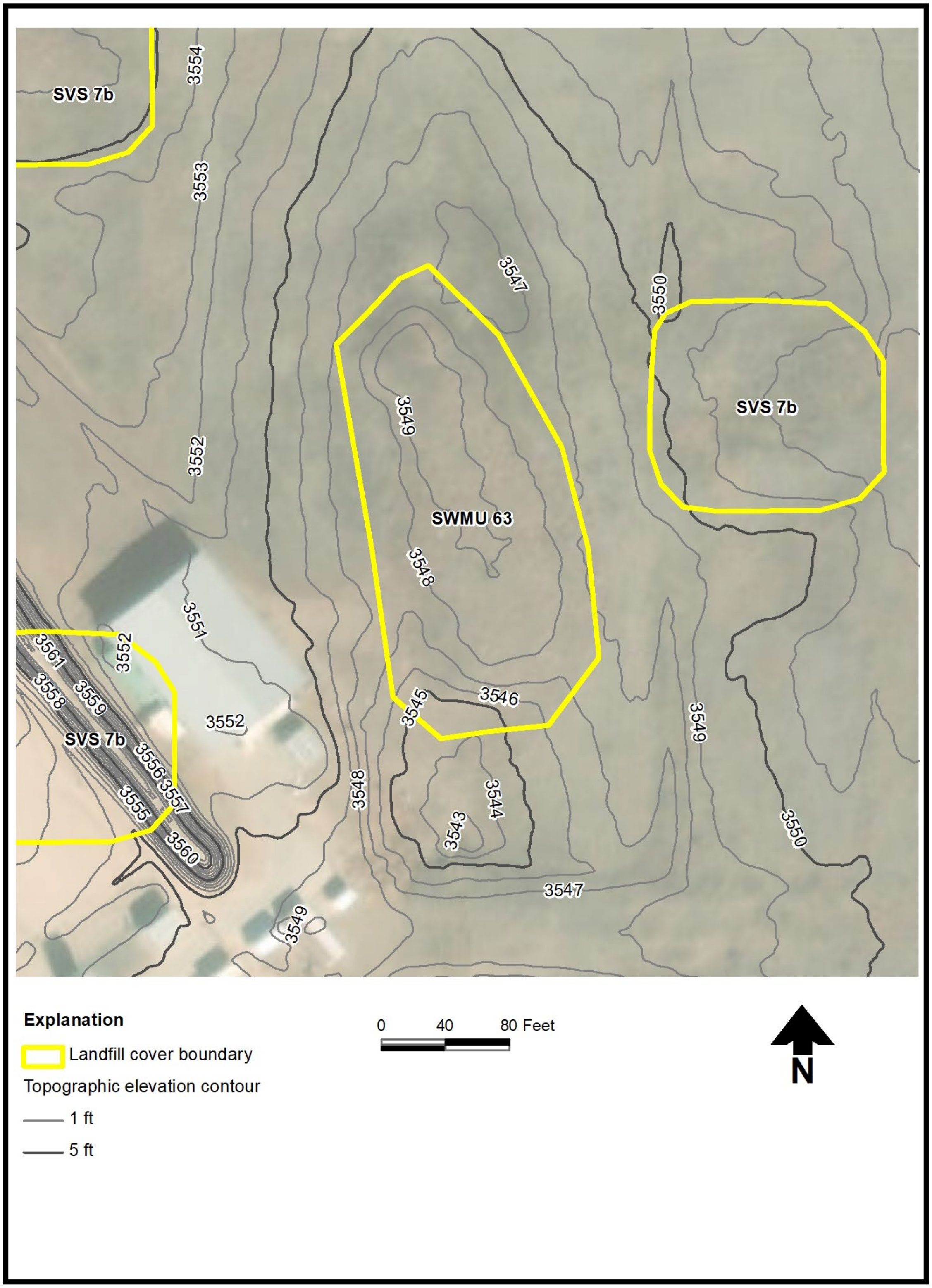

Figure 43. 2022 Cover for Landfill 12 (SWMU 63)

Figure 44. Baseline Survey of Cover for Landfill 12 (SWMU 63)

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Attachment 9

COC Concentration Maps, Trends, and Graphs for the Third Five-Year Review

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Table of Contents

List of Figures

List of Tables

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LIST OF ACRONYMS AND ABBREVIATIONS

ACCN	acetonitrile
AC	acetic Acid
ACE	acetone
ACETYLENE	acetylene
ACRL	acrolein
ACRN	acrylonitrile
AFCEC	Air Force Civil Engineer Center
AG	silver
AL	aluminum
ALK	alkalinity, total (as CaCO3)
ALLYLCH	allyl chloride
AMMONIA	ammonia
AS	arsenic
B	boron
BA	barium
BE	beryllium
BR	bromide
BRME	bromomethane
BTRA	butyric acid
BZ	benzene
BZME	toluene
C2H4	ethene
C2H6	ethane
CA	calcium
CD	cadmium
CDS	carbon disulfide
CH4	methane
CHLOROPRENE	2-chloro-1,3-butadiene
CL	chloride (as Cl)
CLBZ	chlorobenzene
CLEA	chloroethane
CLME	chloromethane
CO	cobalt
COC	contaminant of concern
CR	chromium, total
CR-6	chromium, hexavalent
CTCL	carbon tetrachloride
CU	copper
DBCME	dibromochloromethane
DBMA	dibromomethane
DCA11	1,1-dichloroethane
DCA12	1,2-dichloroethane

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

DCBE14T	trans-1,4-dichloro-2-butene
DCBZ12	1,2-dichlorobenzene
DCBZ13	1,3-dichlorobenzene
DCBZ14	1,4-dichlorobenzene
DCE11	1,1-dichloroethene
DCE12C	cis-1,2-dichloroethene
DCE12T	trans-1,2-dichloroethene
DCP13T	trans-1,3-dichloropropene
DCPA12	1,2-dichloropropane
DIOXANE14	1,4-dioxane
DNB13	1,3-dinitrobenzene
DNT24	2,4-dinitrotoluene
DNT26	2,6-dinitrotoluene
DNT2A	2-amino-4,6-dinitrotoluene
DNT4A	4-amino-2,6-dinitrotoluene
DNX	hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine)
DOC	dissolved organic carbon
EBZ	ethylbenzene
EMETHACRY	ethyl methacrylate
F	fluoride
FC11	trichlorofluoromethane
FC12	dichlorodifluoromethane
FE	iron
FE(FC)	ferric iron
FE(FS)	ferrous iron
FYR	Five-Year Review
GWPS	groundwater protection standard
HG	Mercury
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
HXA	hexanoic acid
HXO2	2-hexanone
IHXA	i-hexanoic acid
IME	iodomethane (methyl iodide)
IPTNA	i-pentanoic acid
ISOBTOH	isobutanol
K	potassium
LCTA	lactic acid and α-hydroxyisobutyric acid
LTM	Long Term Monitoring

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

MAROS	Monitoring and Remediation Optimization System
MEK	methyl ethyl ketone (2-butanone)
METHACRN	methylacrylonitrile
MG	magnesium
MIBK	methyl isobutyl ketone (4-methyl-2-pentanone)
MMETHACRY	methyl methacrylate
MN	manganese
MN2	divalent manganese
MNX	hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine)
MO	molybdenum
MTLNCL	methylene chloride
NA	sodium
NI	nickel
NITRATE	nitrate as N
NITRITEASN	nitrite as N
P	phosphorus, total (as P)
PACN	propane nitrile (propionitrile)
PB	lead
PCA	1,1,2,2-tetrachloroethane
PCE	tetrachloroethene
PCLEA	pentachloroethane
PERC	perchlorate
PRPA	propionic acid
PTNA	pentanoic acid
PYRA	pyruvic acid
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine)
ROD	Record of Decision
S	sulfide
SB	antimony
SE	selenium
SN	tin
SO4	sulfate (as SO4)
STY	styrene
TBME	bromoform
TC1112	1,1,1,2-tetrachloroethane
TCA111	1,1,1-trichloroethane
TCA112	1,1,2-trichloroethane
TCE	trichloroethene
TCLME	chloroform

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

TCPR123	1,2,3-trichloropropane
TDS	total dissolved solids (residue, filterable)
TKN	total kjeldahl nitrogen
TL	thallium
TNB135	1,3,5-trinitrobenzene
TNT	2,4,6-trinitrotoluene
TNX	hexahydro-1,3,5-trinitroso-1,3,5-triazine
TOC	total organic carbon
U	uranium, total
U-233/234	uranium-233/234
U-235/236	uranium-235/236
U-238	uranium-238
V	vanadium
VA	vinyl acetate
VC	xinyl chloride
XYLENES	xylenes, total
ZN	zinc

1 COC Trending for the Five-Year Review

This Attachment describes all perched and Ogallala Aquifer contaminant of concern (COC) trends evaluated for the third Five-Year Review (FYR) and includes the following:

- Maps of trends for select COCs in the perched groundwater, and
- Summary Tables of all COC trends by well.

COC trends were performed for the following groups of contaminants:

- Priority COCs identified in the Record of Decision (ROD);
- Secondary metals that are naturally present in the subsurface and may be mobilized by ISB amendments; and
- Appendix IX analytes listed in 40 CFR 264 that are not specifically cited in the ROD, but that might be contributed by the source areas.

Currently, a single well in the Ogallala Aquifer has a COC above the groundwater protection standard (GWPS) (PTX06-1056 had an exceedance of DNT4A in 2022). Trends have been evaluated for Ogallala wells to determine whether there are signs of impact that may require further evaluation. Two COCs identified in the perched groundwater have been detected in the Ogallala Aquifer at levels below the GWPS during the current five-year period, DNT4A and RDX. These COCs were detected in PTX06-1056, PTX06-1076, and PTX07-1R01 at some point during the current five-year period. Only PTX06-1056 and PTX06-1076 had multiple detections of DNT4A. Pantex continues to evaluate those detections and has performed a high-volume purge in PTX06-1056 that showed rapidly declining DNT4A concentrations indicating that if there is a plume of DNT4A in the Ogallala Aquifer, then PTX06-1056 is near the edge.

The following electronic files are provided with this report:

- Perched Groundwater COC Trends Detailed Summary Table,
- Ogallala Aquifer COC Trends Detailed Summary Table, and
- Perched Groundwater Long Term Monitoring (LTM) Well Trend Graphs.

On Table 1 through Table 8, a yellow highlighted cell indicates increasing concentration trends, and a green highlighted cell indicates probably increasing trends.

2 Statistical Methods

COC concentration trends were calculated using both the non-parametric Mann-Kendall statistical method and parametric linear regression method adapted from the Air Force Civil Engineer Center (AFCEC) Monitoring and Remediation Optimization System (MAROS) Software (AFCEC, 2012). Trends were calculated for the entire dataset for each LTM network well, as well as data from the start of the remedial action (July 1, 2009), the current Five-Year Review period (2017-2021), and the last four samples collected at each LTM network well.

Linear regression is a parametric statistical procedure that relies on the assumption of a specific data distribution and is typically used for analyzing trends in data over time. However, with the usual approach of interpreting the log slope of the regression line, concentration trends may often be obscured by data scatter arising from non-ideal hydrogeologic or sampling and analysis conditions. The Mann-Kendall test is a non-parametric statistical procedure that is well suited for analyzing trends in data over time (Gilbert, 1987). The Mann-Kendall test can be viewed as a non-parametric test for zero slope of the first-order regression of time-ordered concentration data versus time. The Mann-Kendall test does not require any assumptions as to the statistical distribution of the data (e.g., normal, lognormal, etc.) and can be used with datasets that include irregular sampling intervals and missing data (i.e., non-detects). Therefore, these evaluations focus more on the Mann-Kendall trends than linear regression. More information on these statistical methods can be found in the LTM Design Report (B&W Pantex, 2009 and 2014).

Evaluation of select trends is included in the Groundwater Data Evaluation (Attachment 13 of the Third FYR).

3 References

AFCEC, 2012. *Monitoring and Remediation Optimization System (MAROS) Software Version 3.0 User's Guide*, Air Force Civil Engineer Center.

B&W Pantex, 2009. *Long-Term Monitoring System Design Report, Amarillo, TX*, B&W Pantex for U.S. Department of Energy and National Nuclear Security Administration.

B&W Pantex, 2014. *Update to the Long-Term Monitoring System Design Report*, B&W Pantex for U.S. Department of Energy.

Gilbert, 1987. *Statistical Methods for Environmental Pollution Monitoring*. Wiley, New York.

FIGURES

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Perched Groundwater COC Trend Maps

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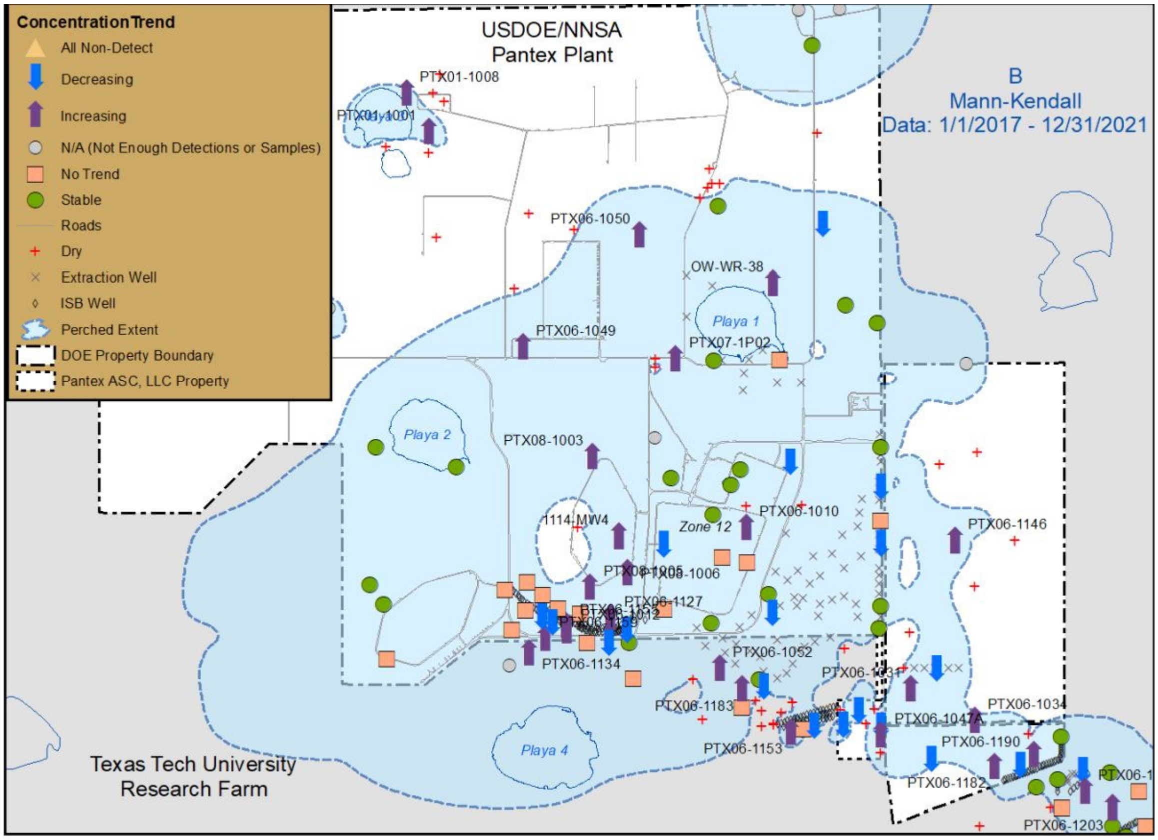

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All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
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Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
B
Mann-Kendall
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Texas Tech University
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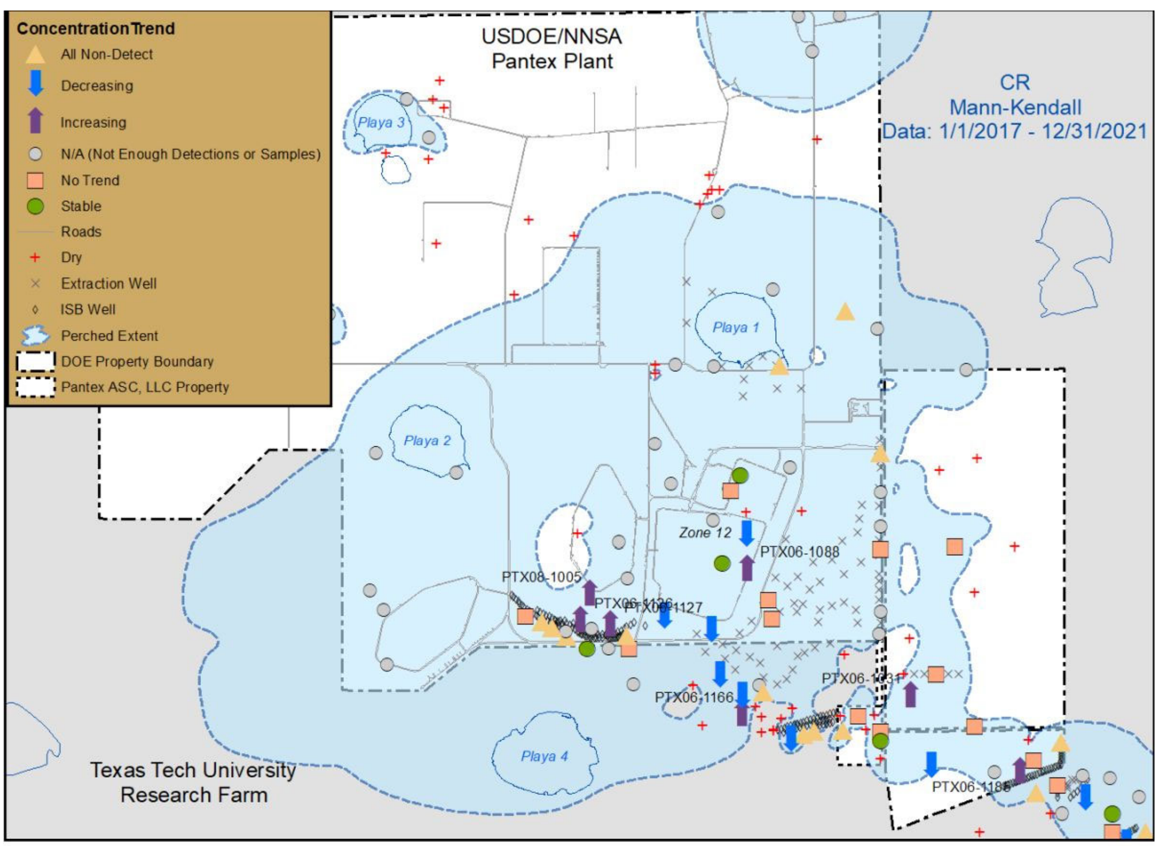

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Texas Tech University
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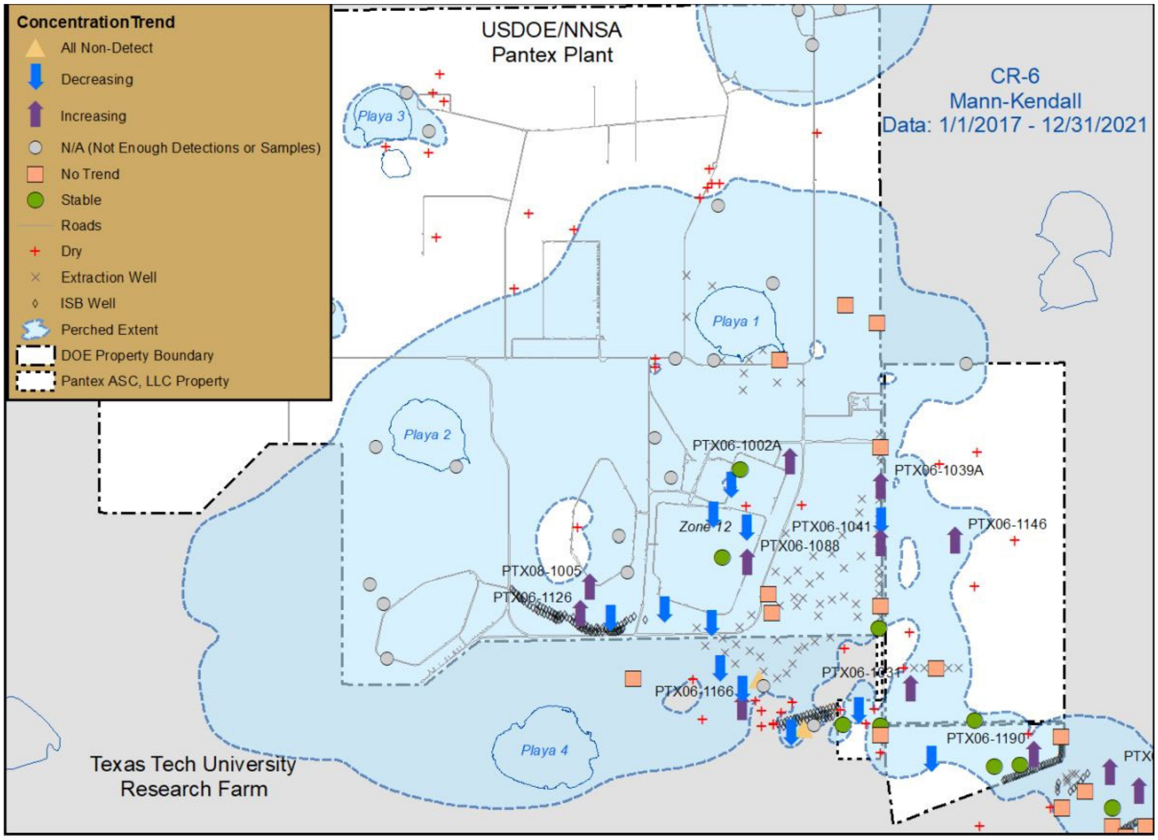

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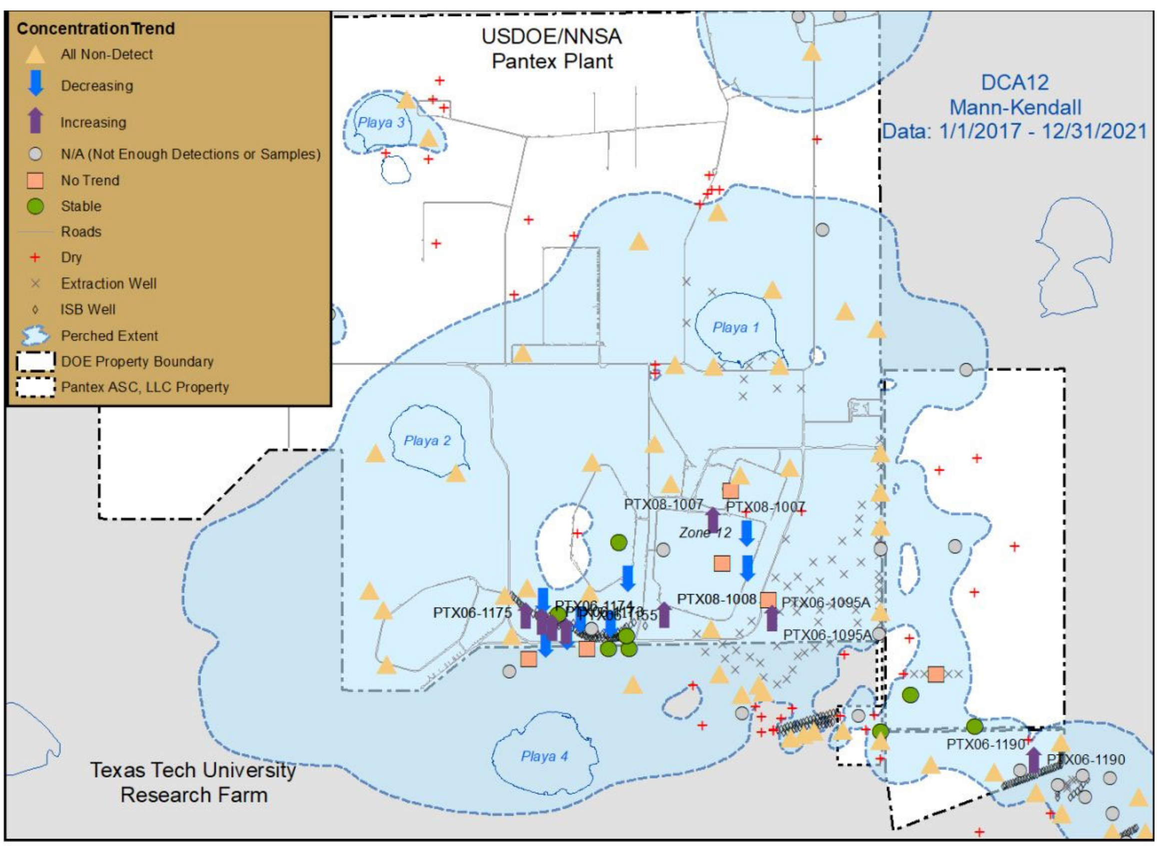

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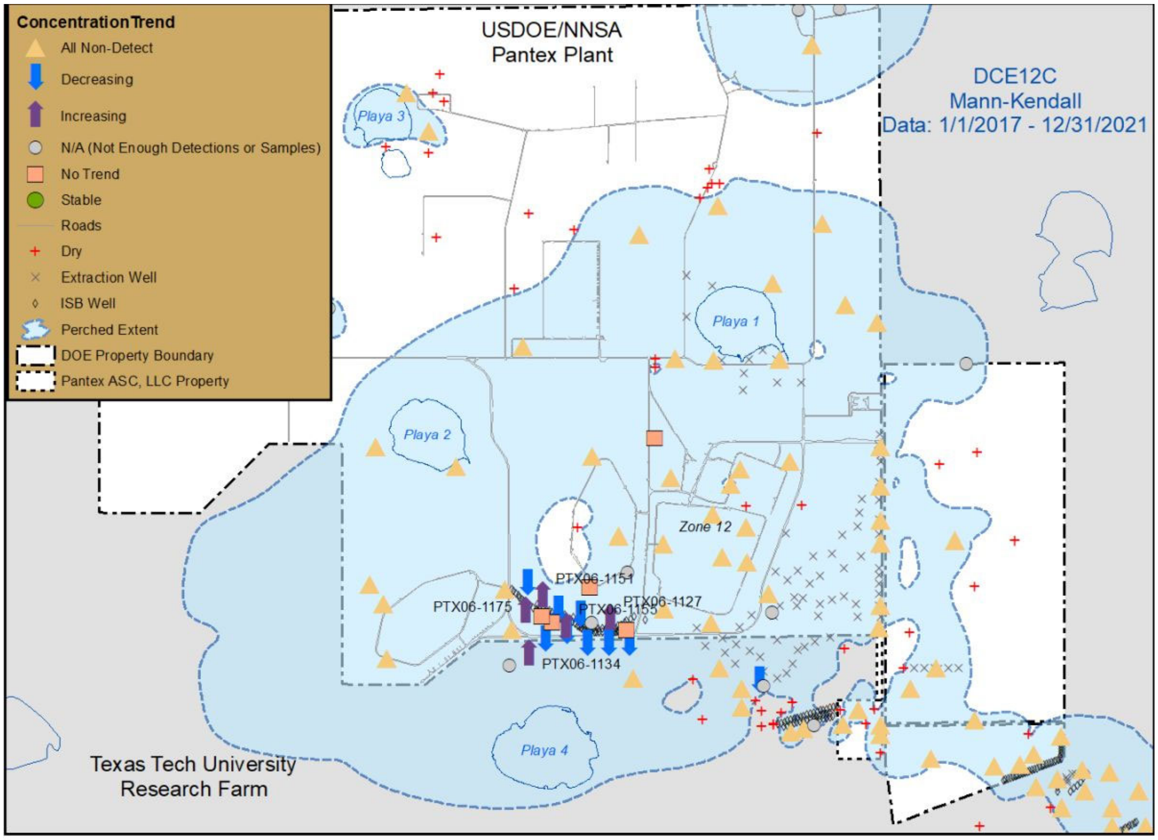
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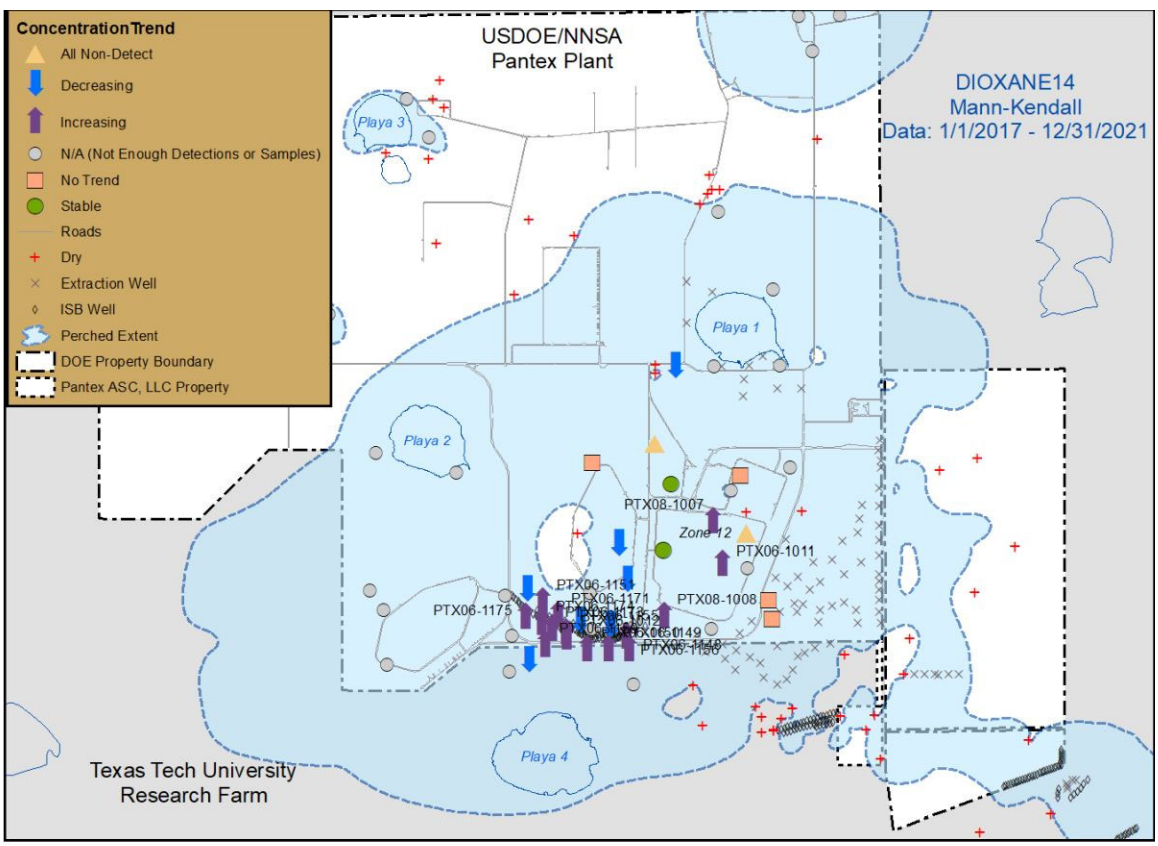
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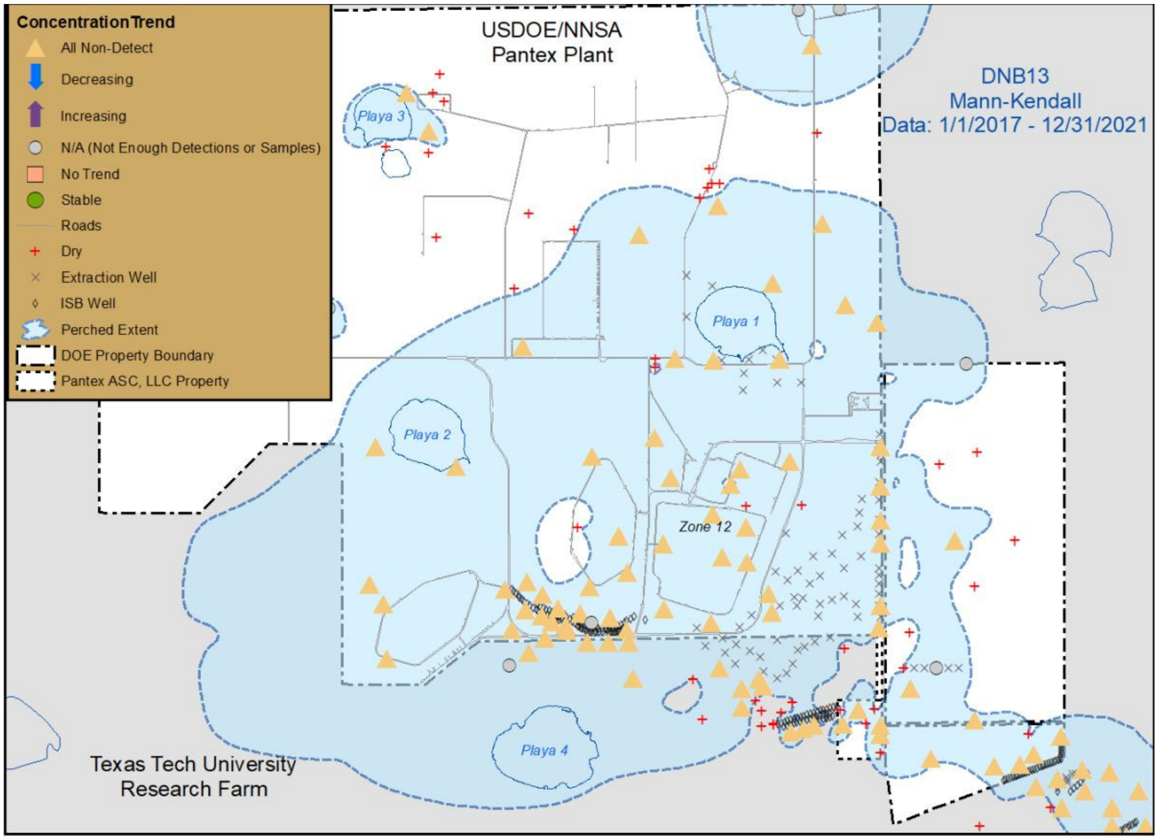

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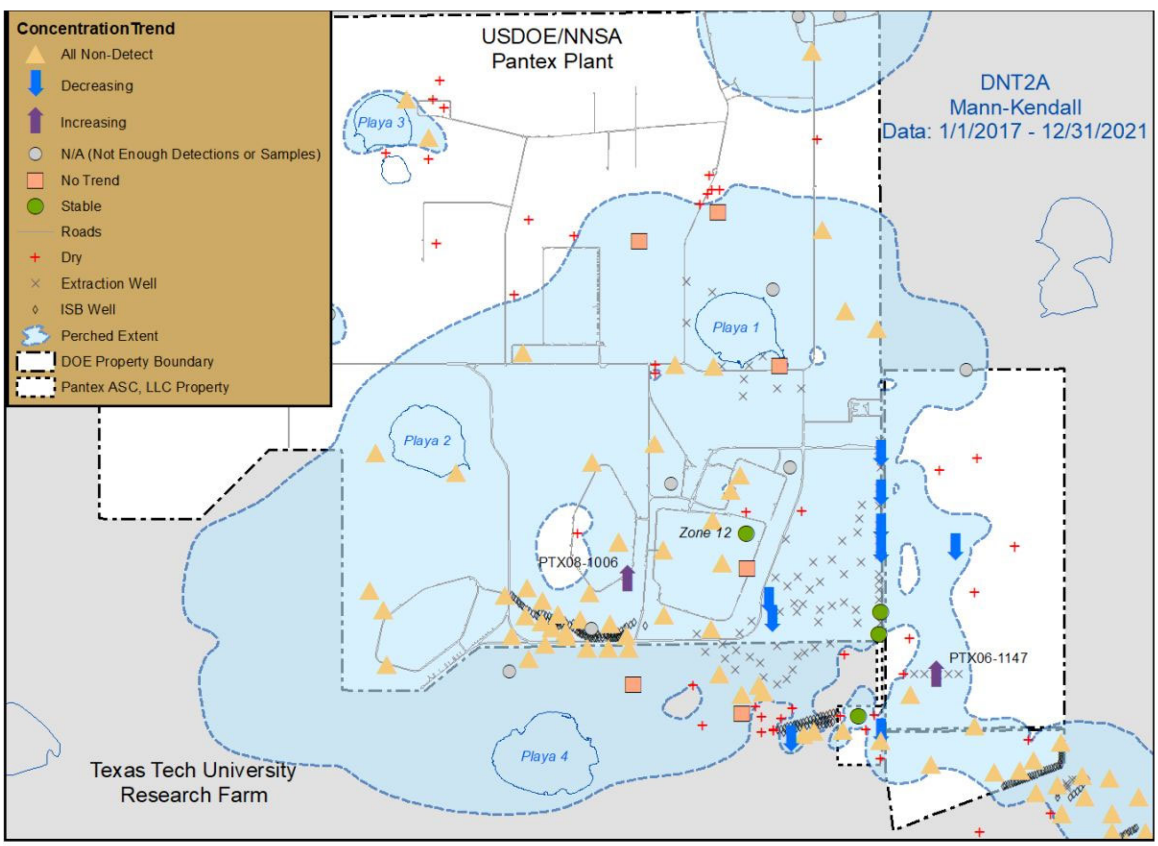

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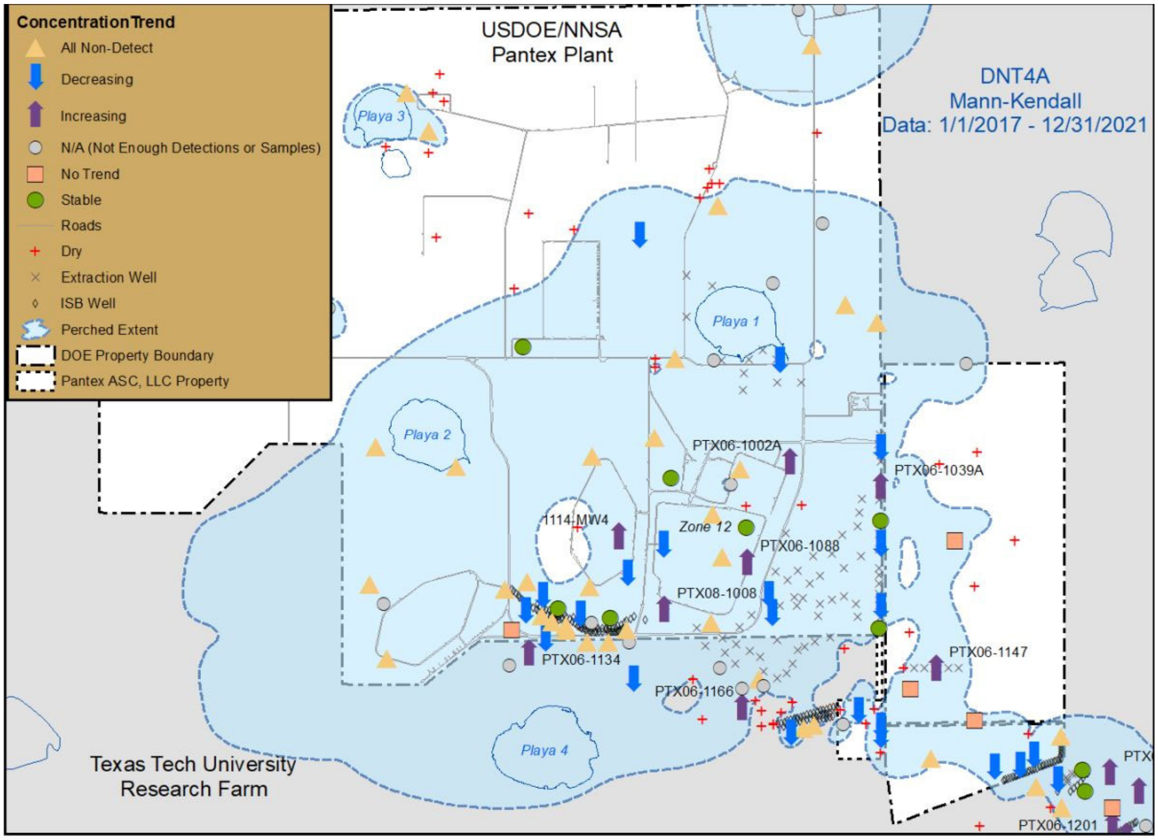
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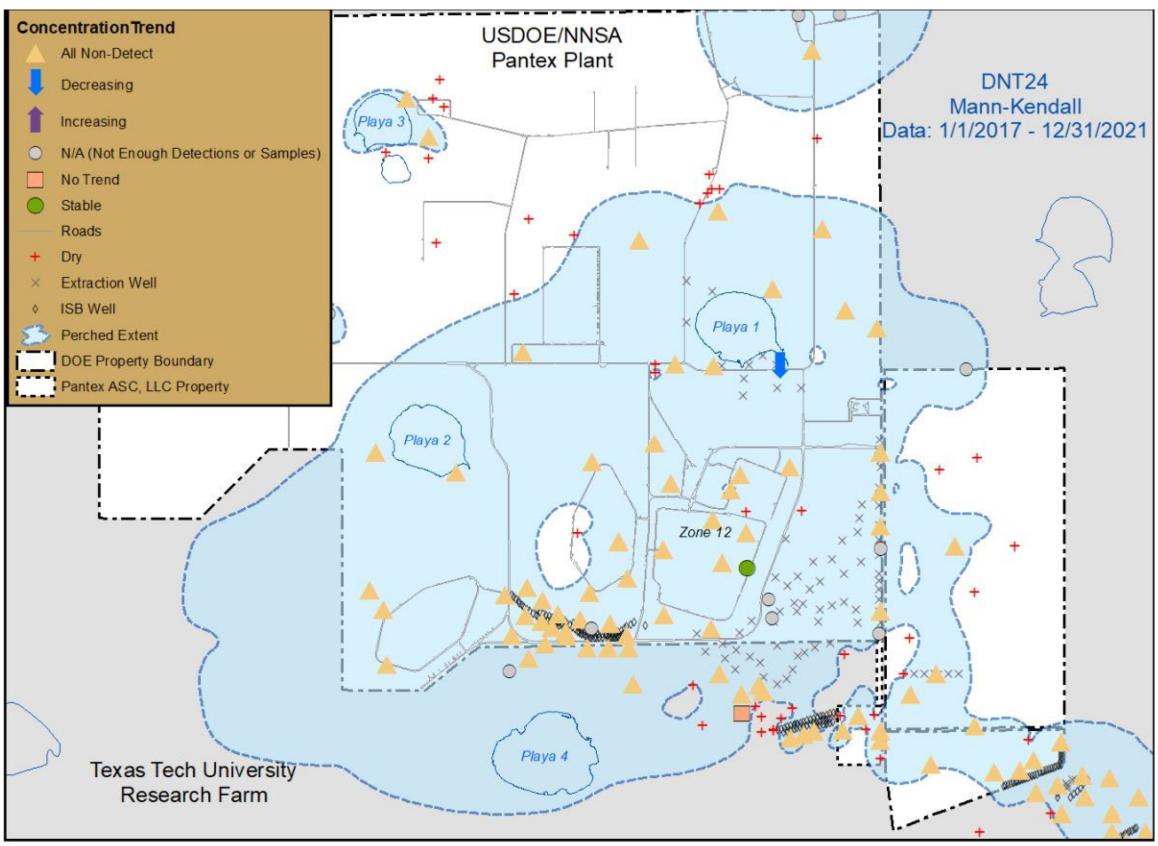
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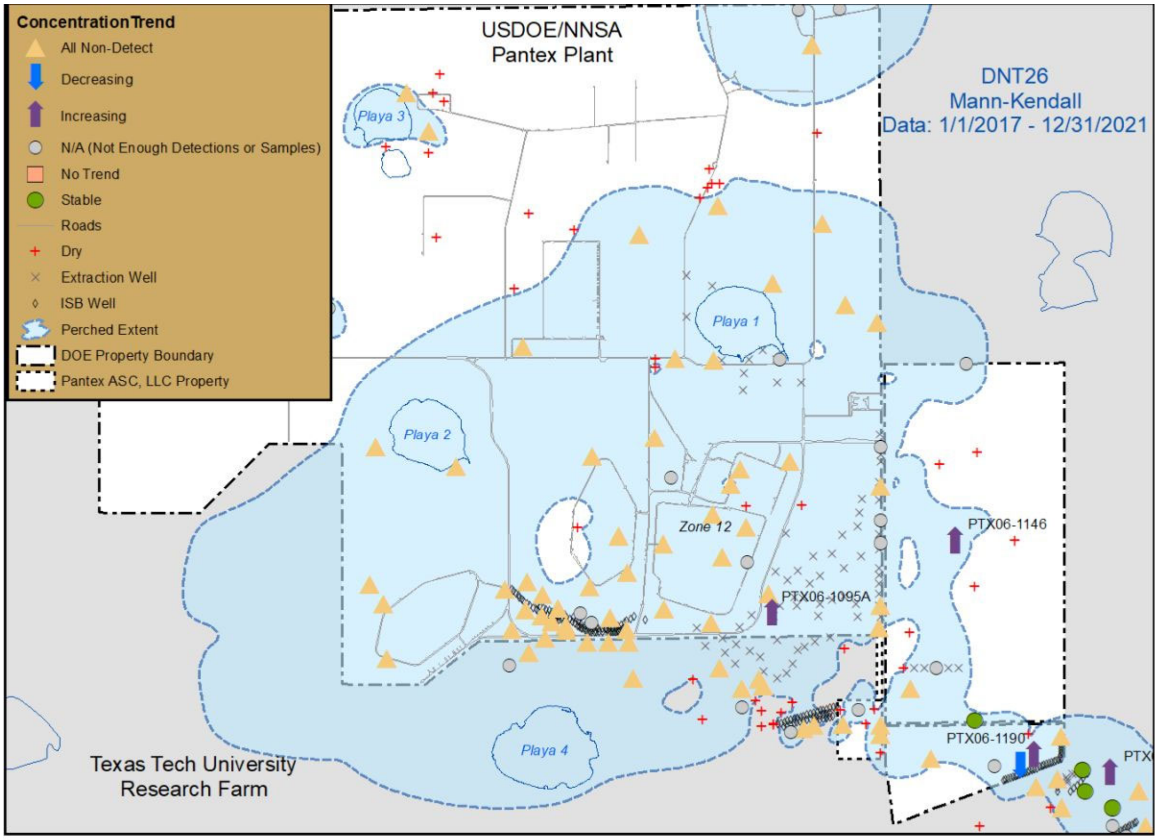

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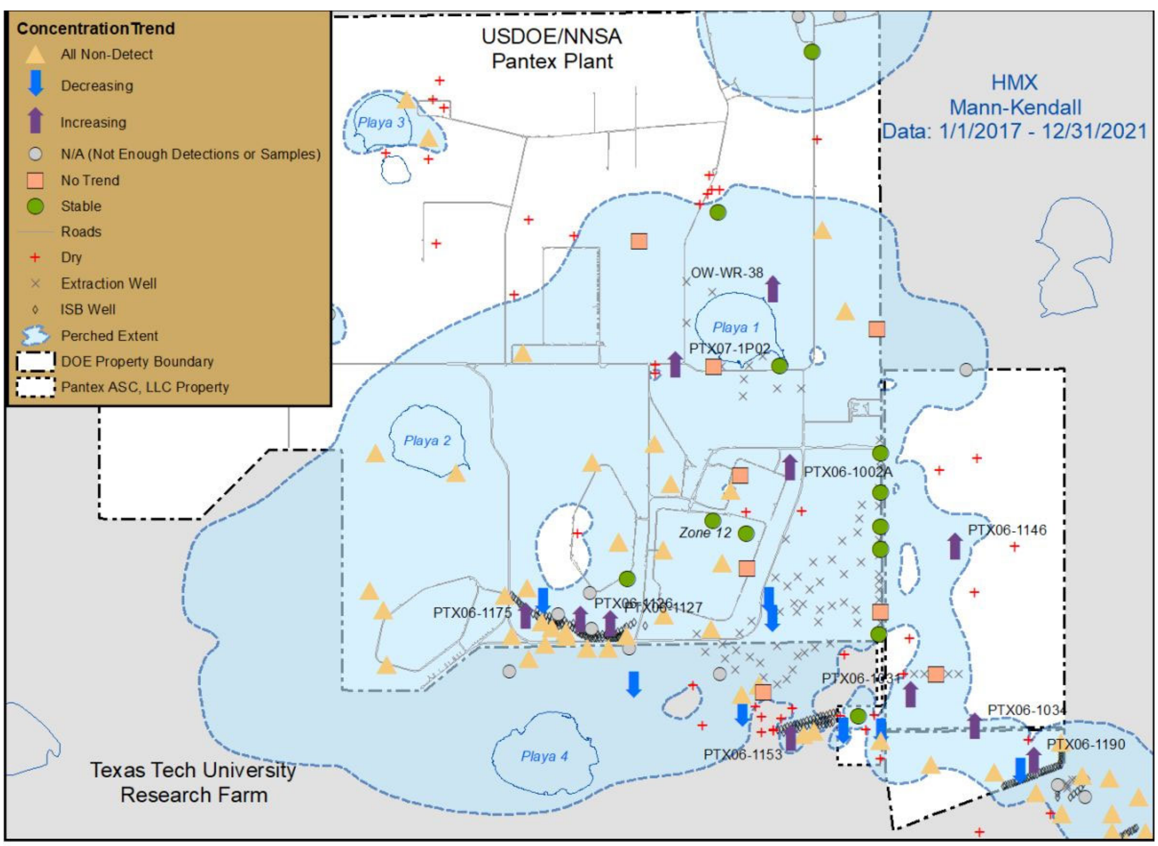

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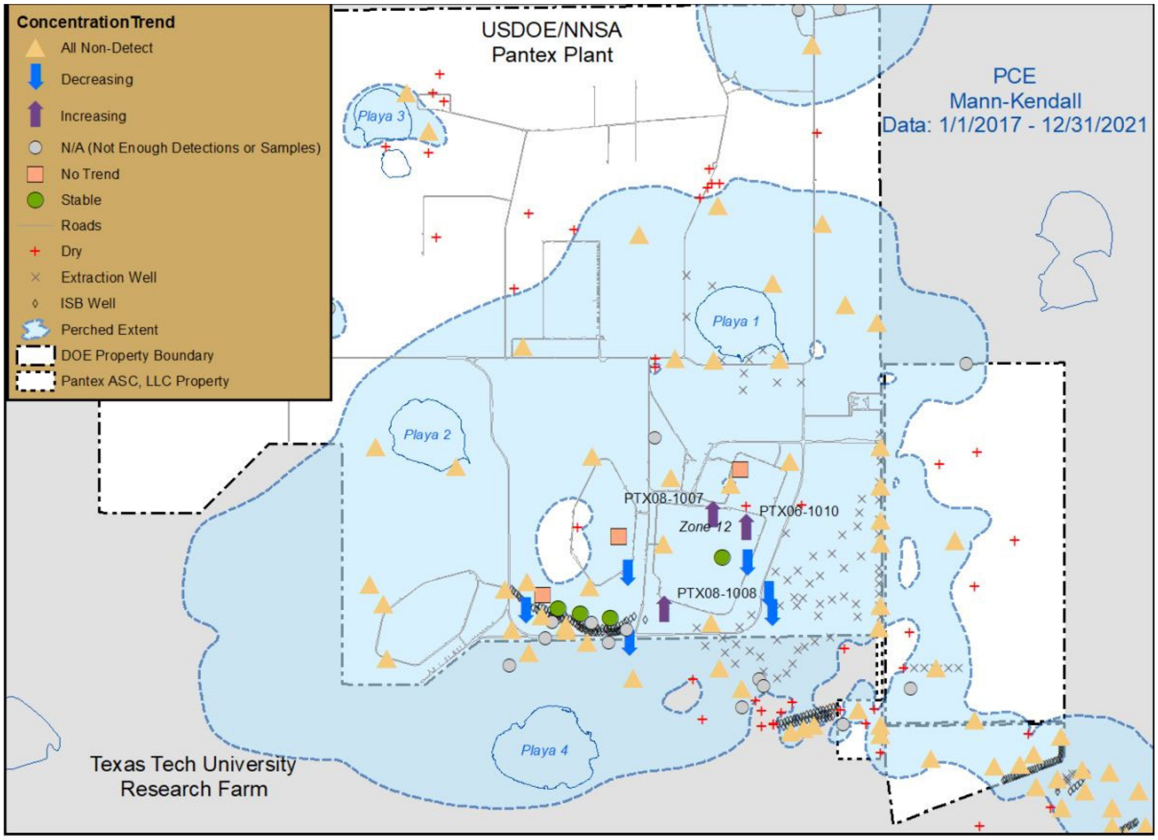
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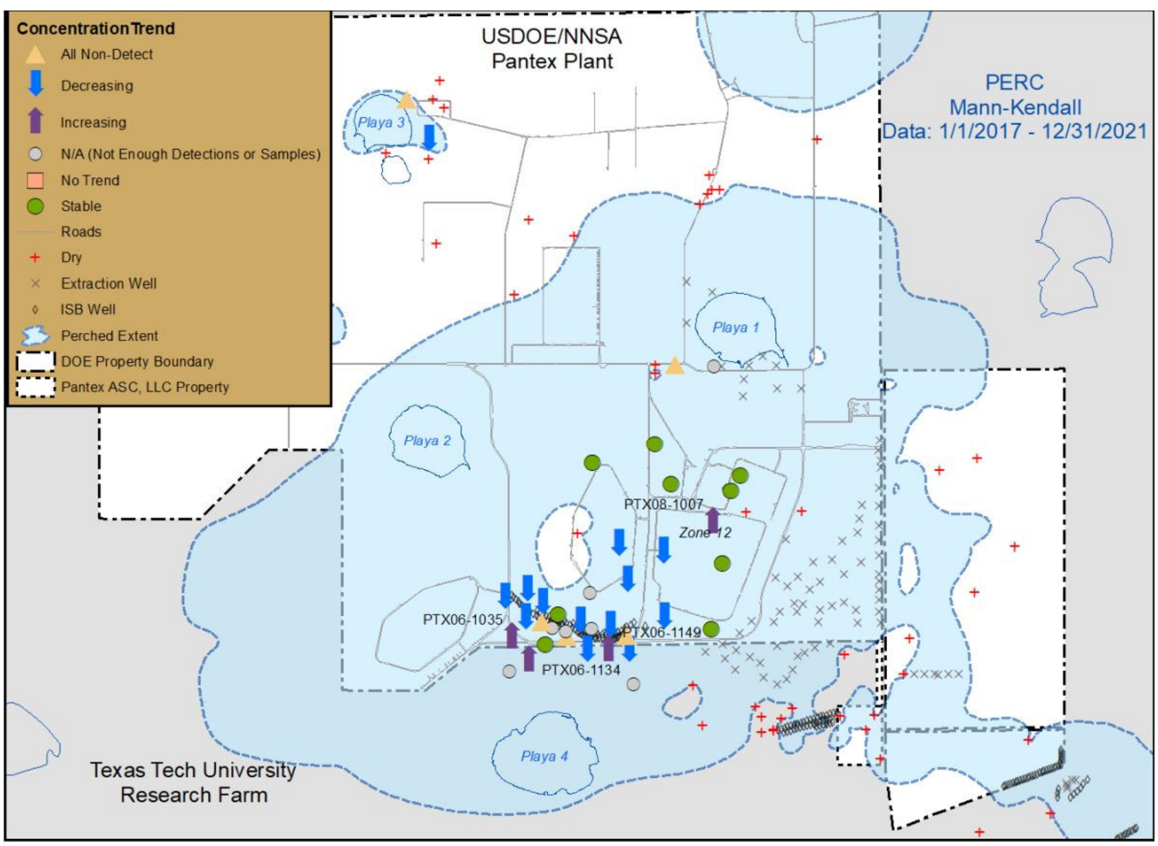
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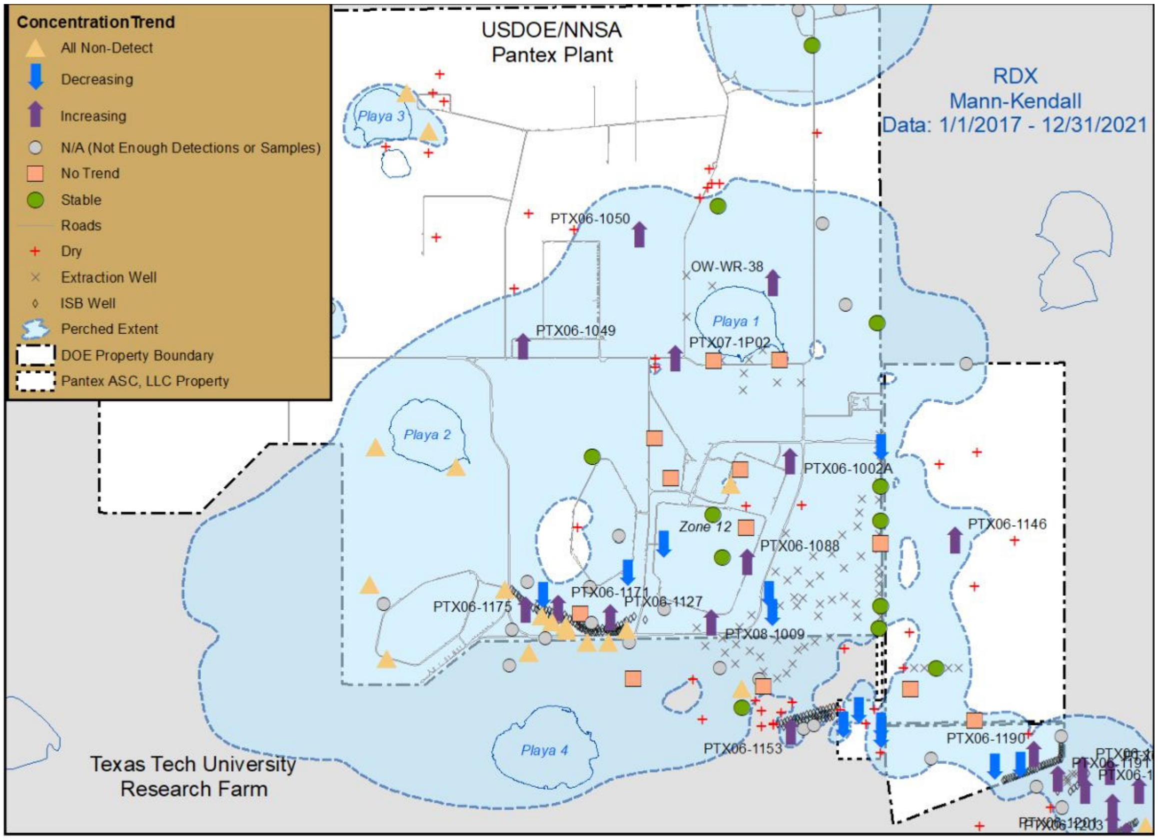
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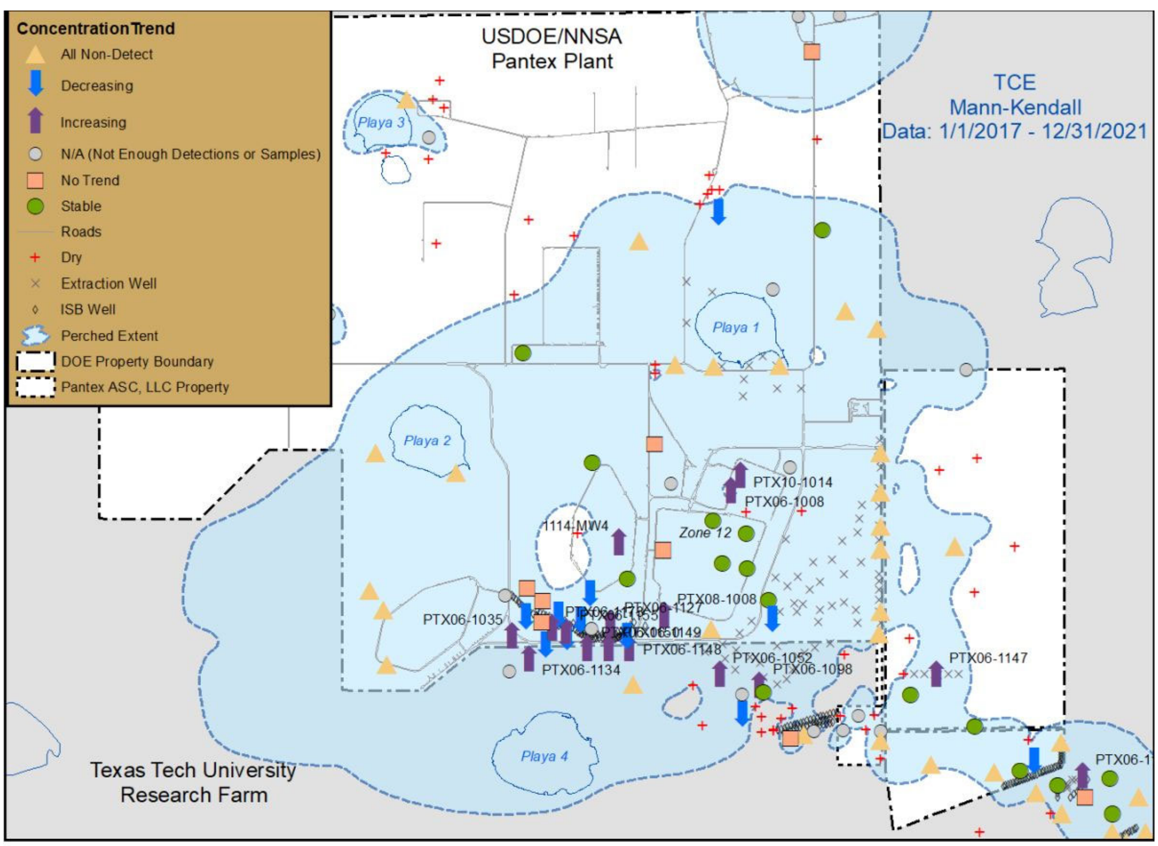
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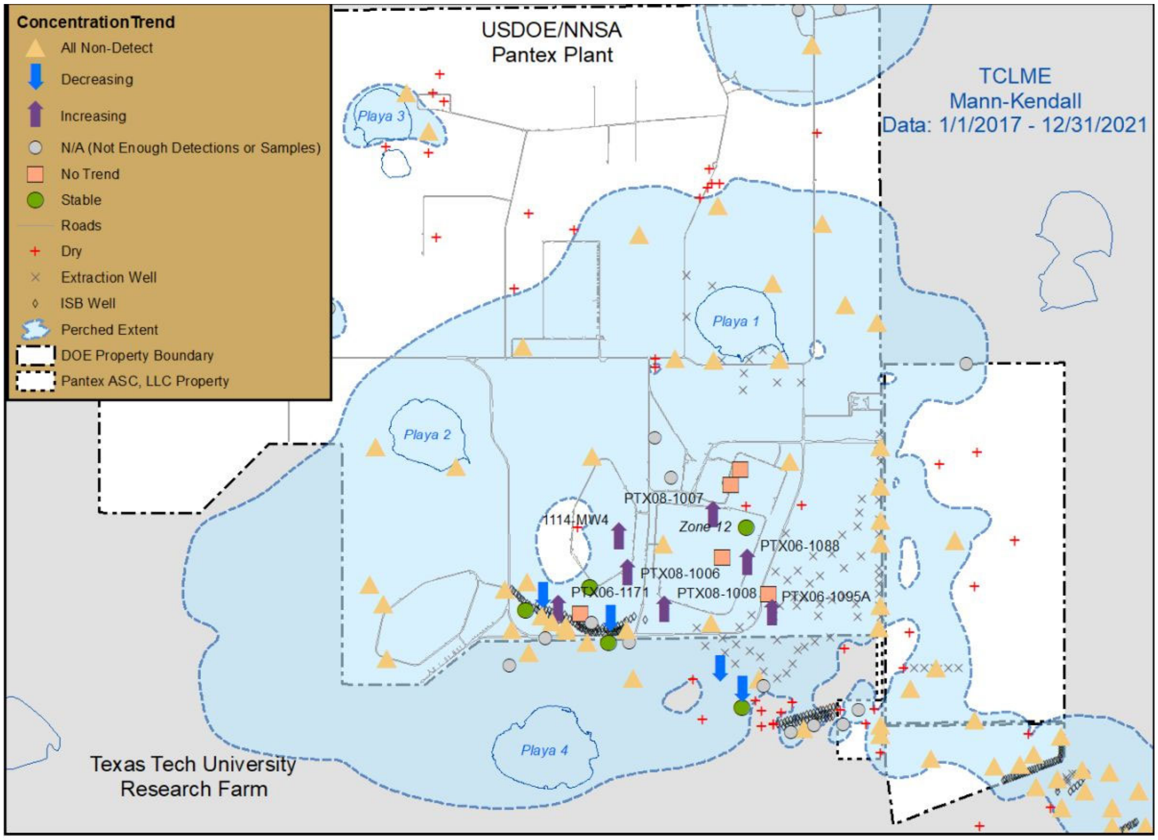

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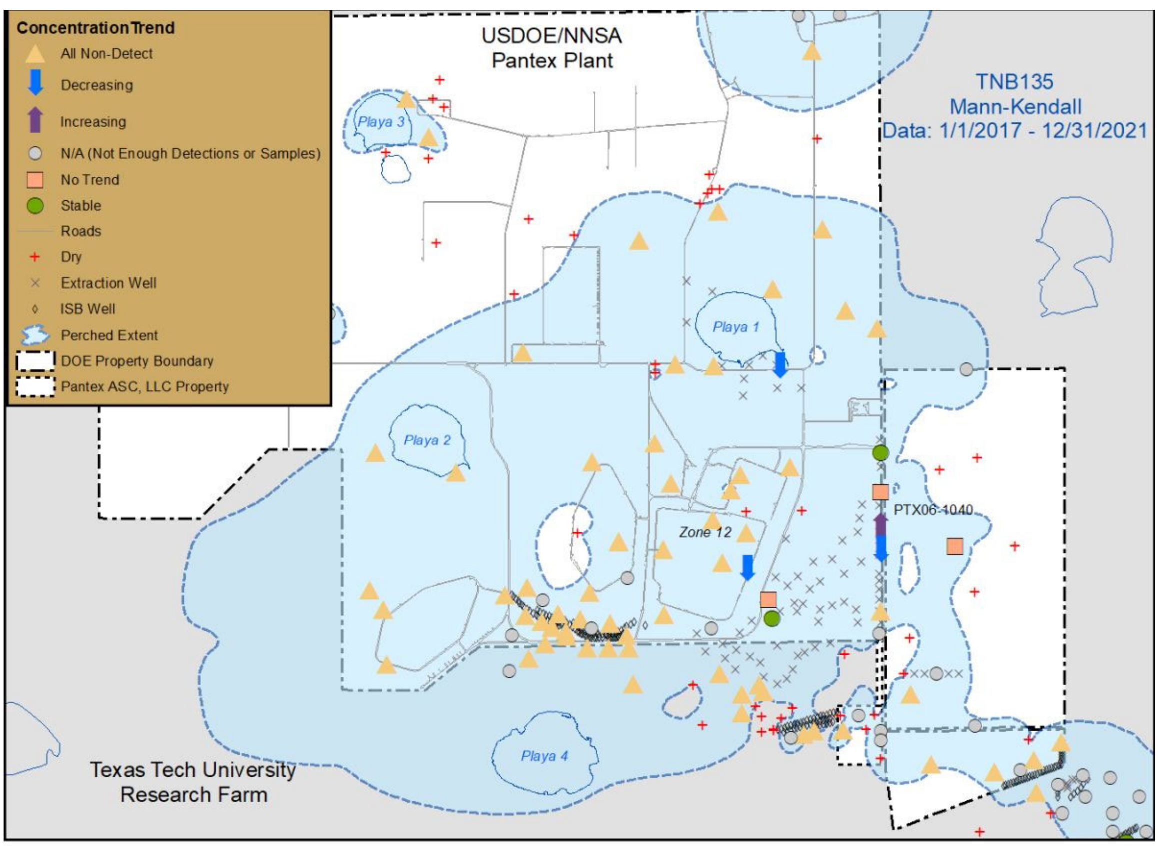

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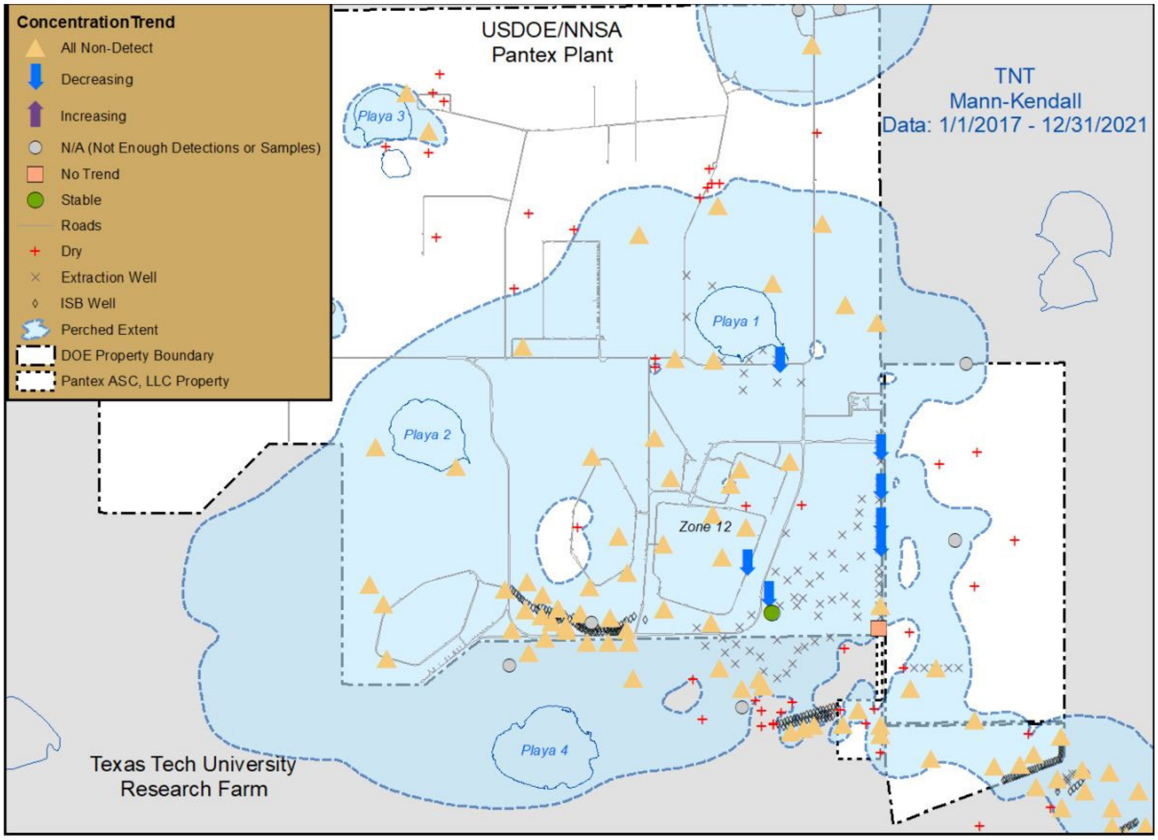
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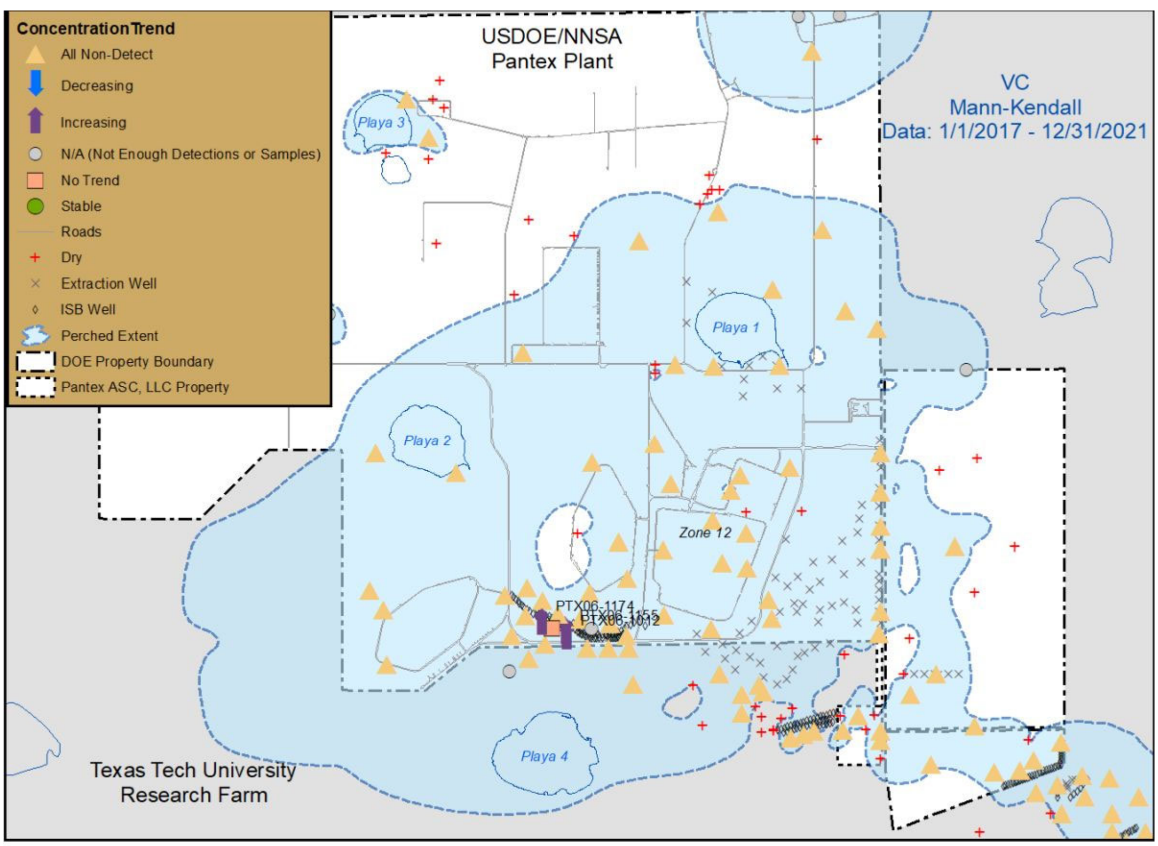
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Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
VC
Mann-Kendall
Data: 1/1/2017 - 12/31/2021
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Playa 2
Zone 12
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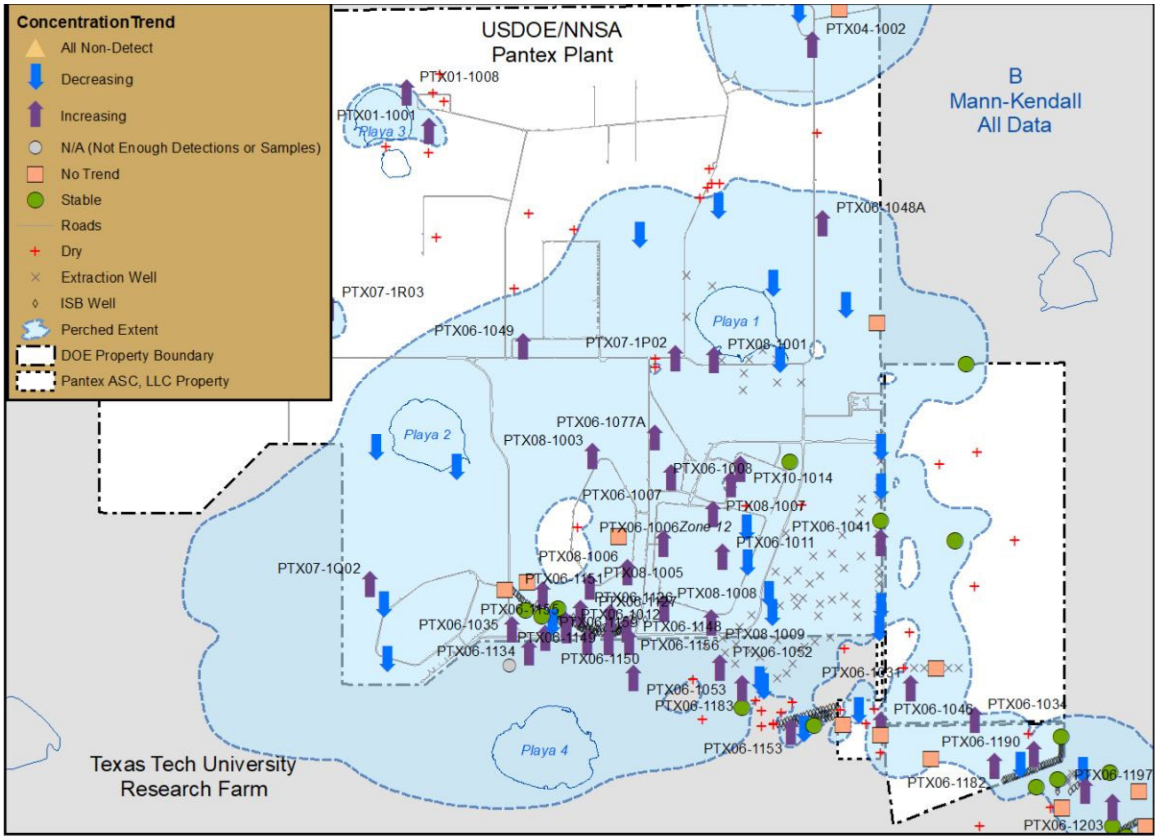
Playa 4
Texas Tech University
Research Farm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Increasing
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Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
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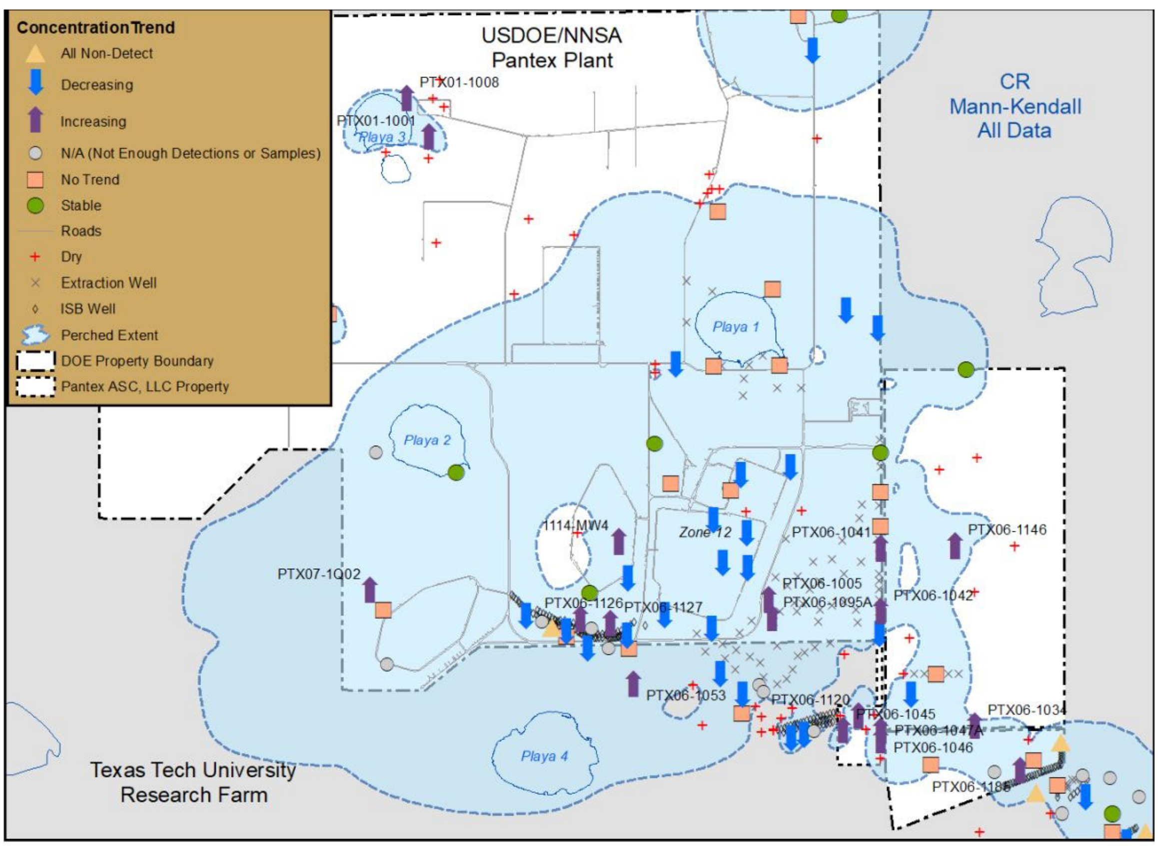
All Data
Texas Tech University
Research Farm
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12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Roads
Dry
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Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
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All Data
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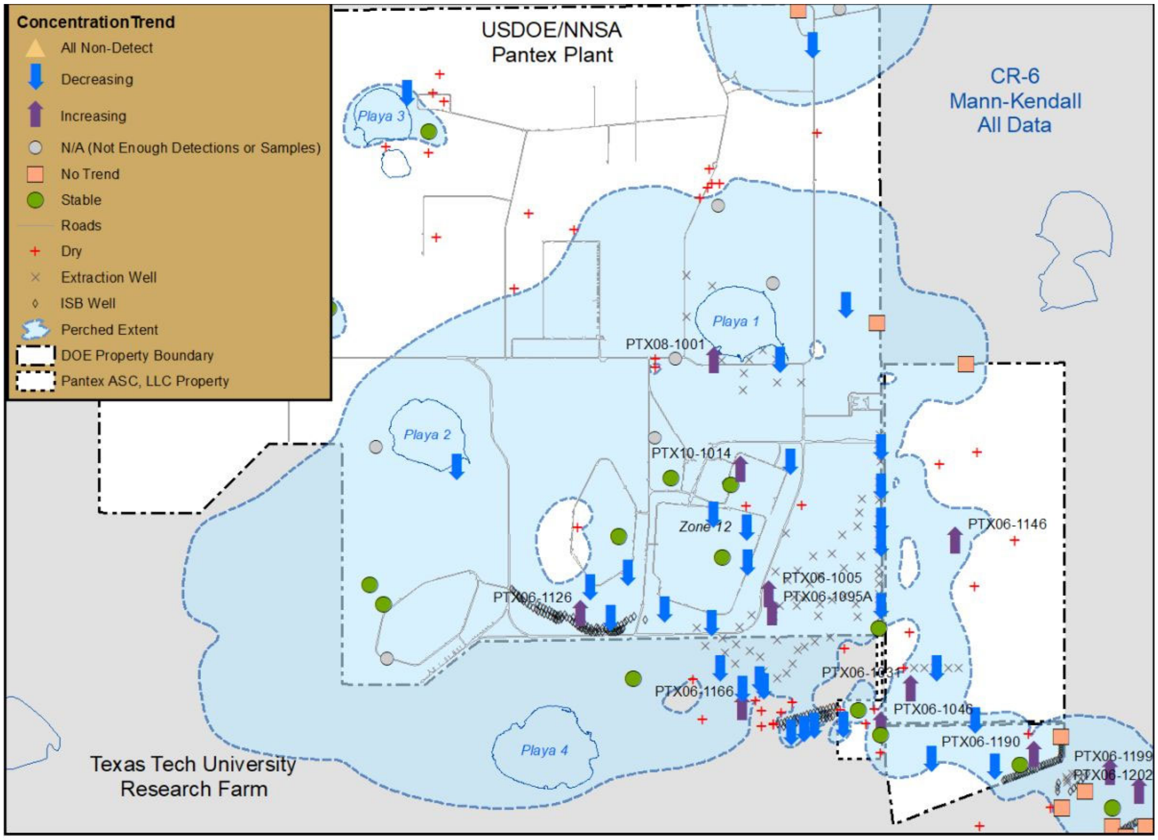
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Increasing
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Dry
Extraction Well
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Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
CR-6
Mann-Kendall
All Data
Playa 3
Playa 1
Playa 2
Playa 4
Zone 12
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PTX06-1095A
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PTX06-1199
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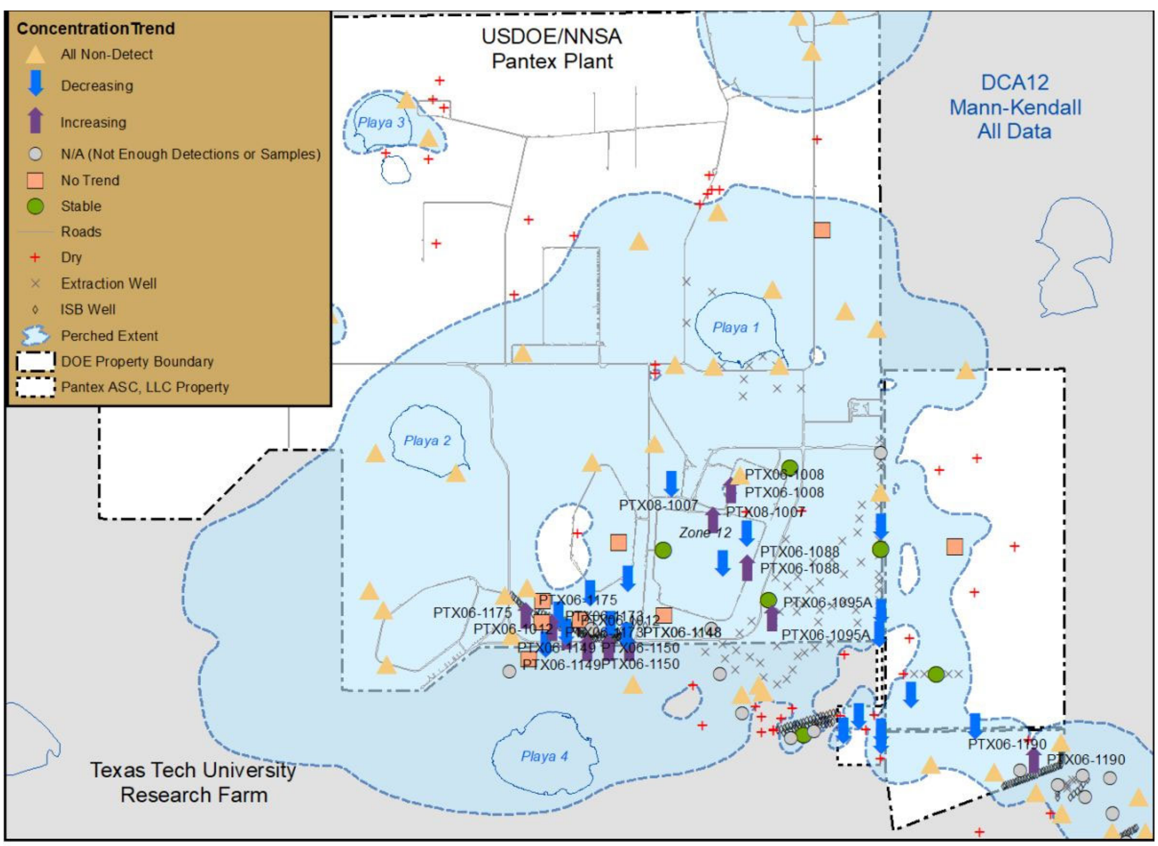
Texas Tech University
Research Farm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Increasing
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Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
DCA12
Mann-Kendall
All Data
Playa 3
Playa 1
Playa 2
Playa 4
Zone 12
PTX06-1008
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PTX08-1007
PTX08-1007
PTX06-1088
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PTX06-1175
PTX06-1175
PTX06-1148
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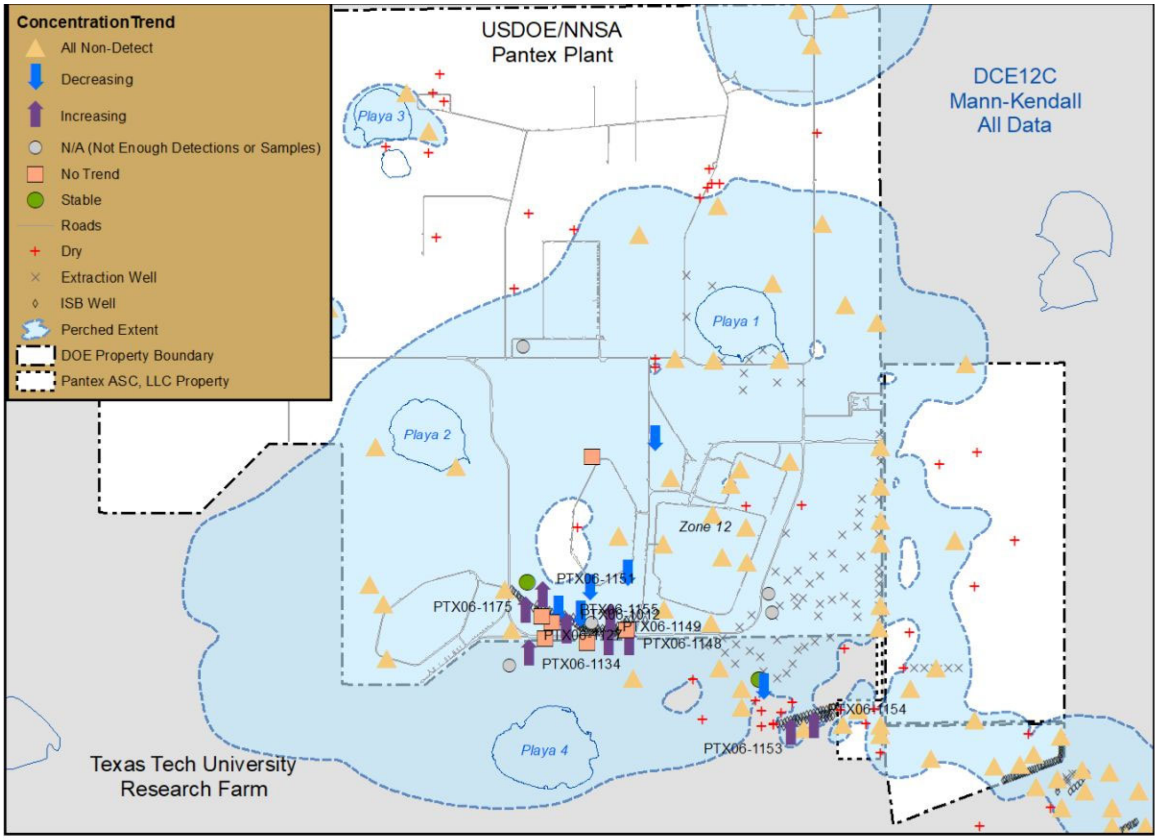
Texas Tech University
Research Farm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All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
DCE12C
Mann-Kendall
All Data
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12
PTX06-1175
PTX06-1151
PTX06-1155
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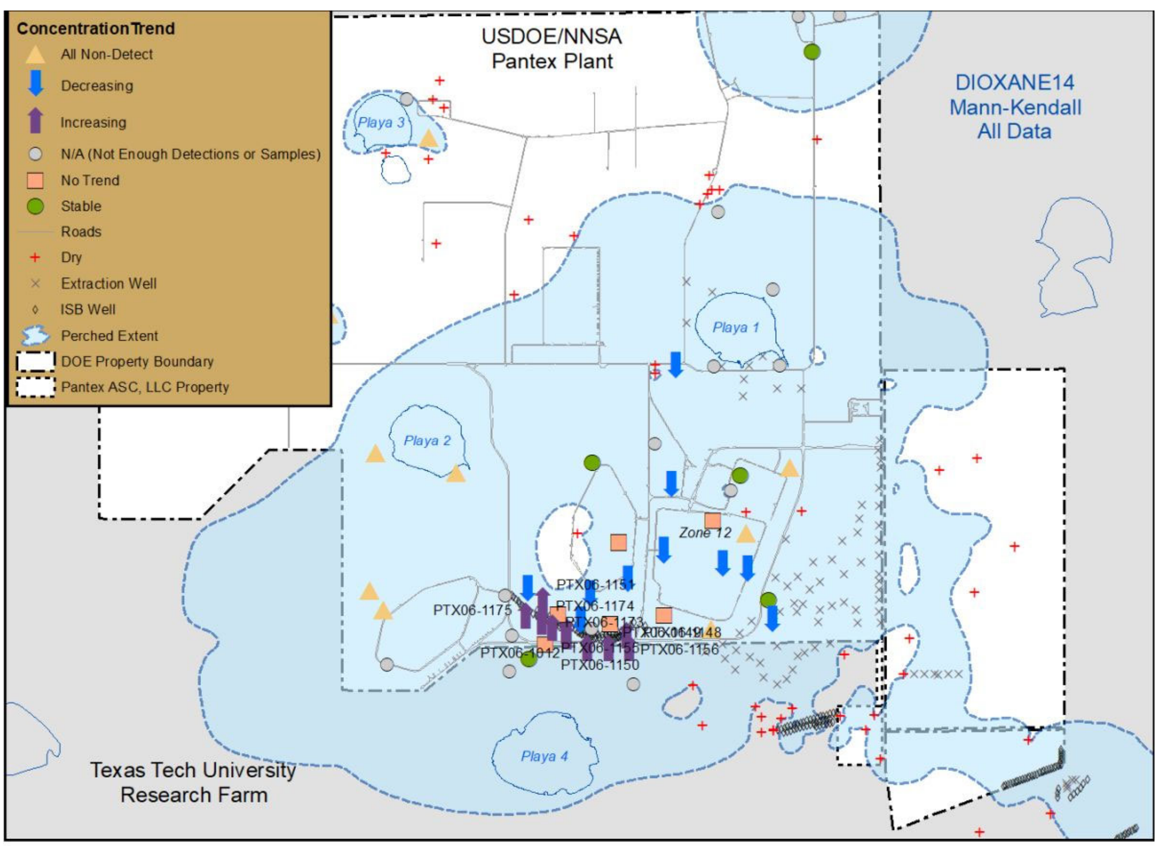
PTX06-1153
Texas Tech University
Research Farm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Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
DIOXANE14
Mann-Kendall
All Data
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12
PTX06-1175
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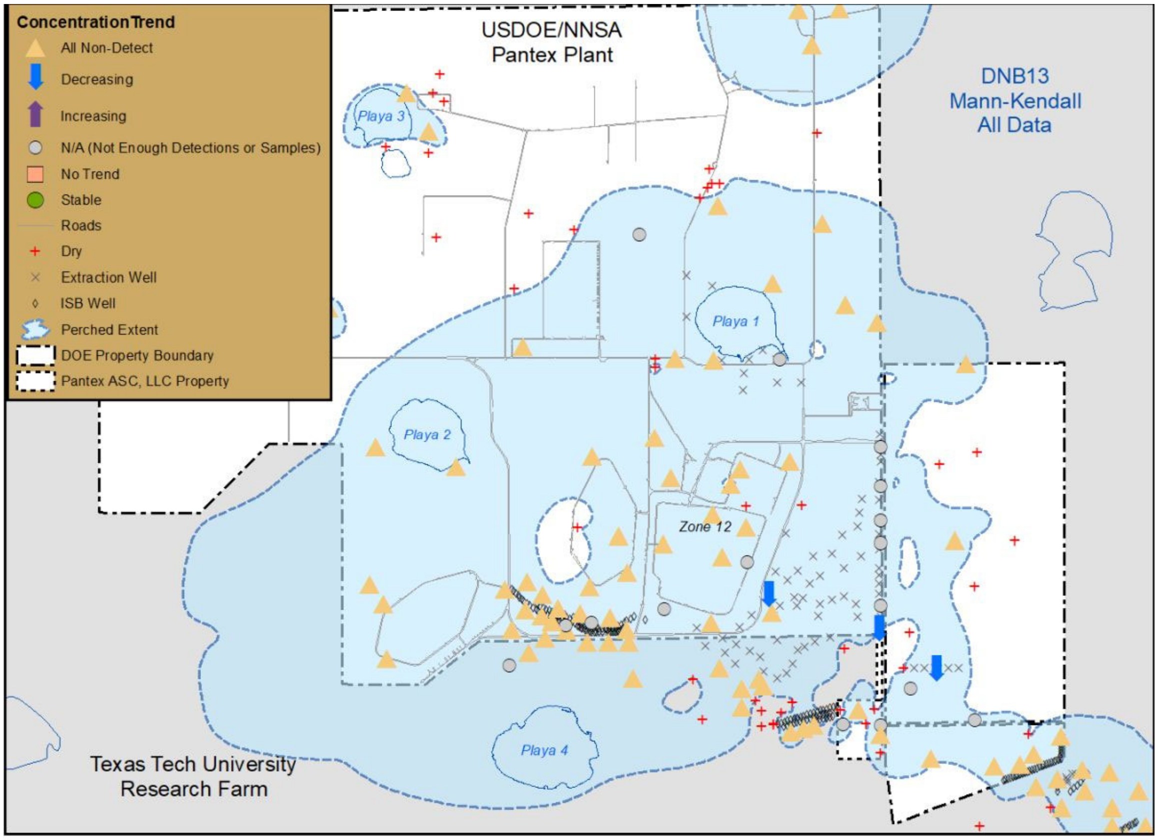
PTX06-1150
Texas Tech University
Research Farm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Increasing
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No Trend
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Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
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Mann-Kendall
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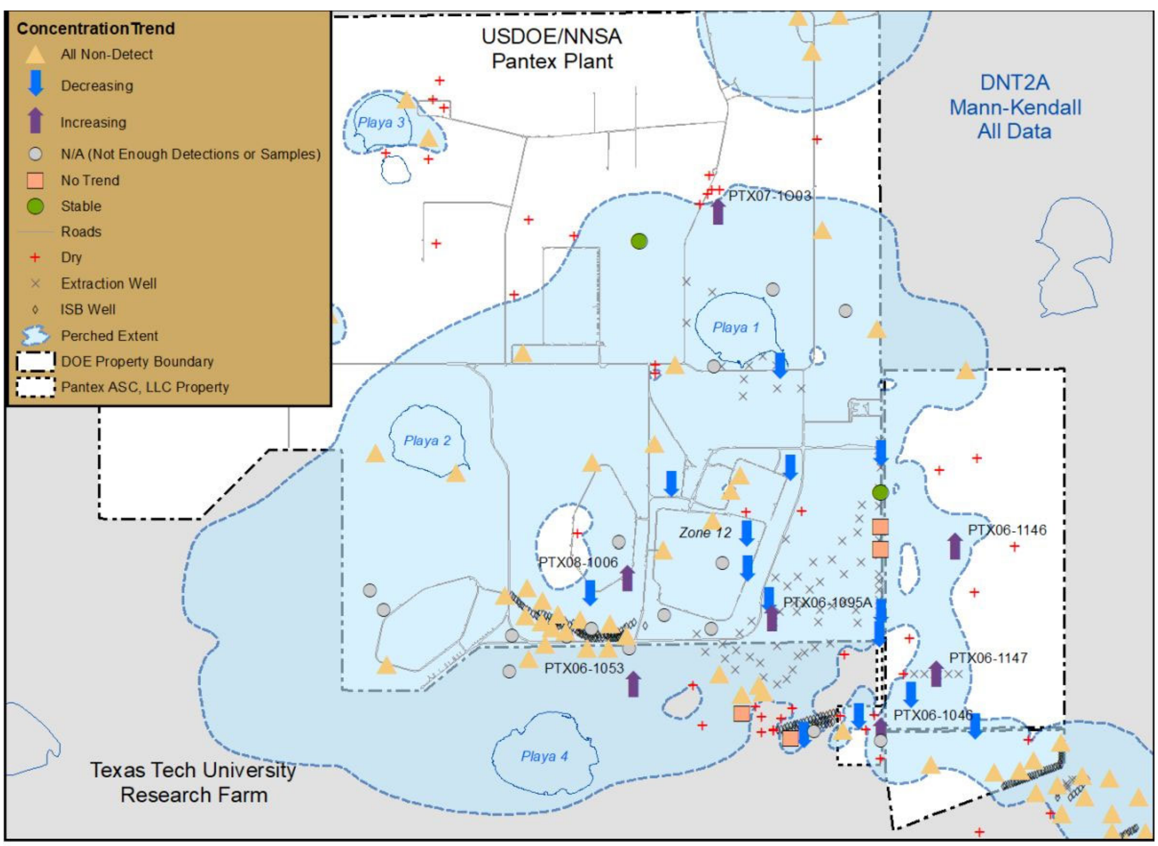
Playa 2
Zone 12
Playa 4
Texas Tech University
Research Farm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Decreasing
Increasing
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No Trend
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Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
DNT2A
Mann-Kendall
All Data
PTX07-1O03
Playa 3
Playa 1
Playa 2
Zone 12
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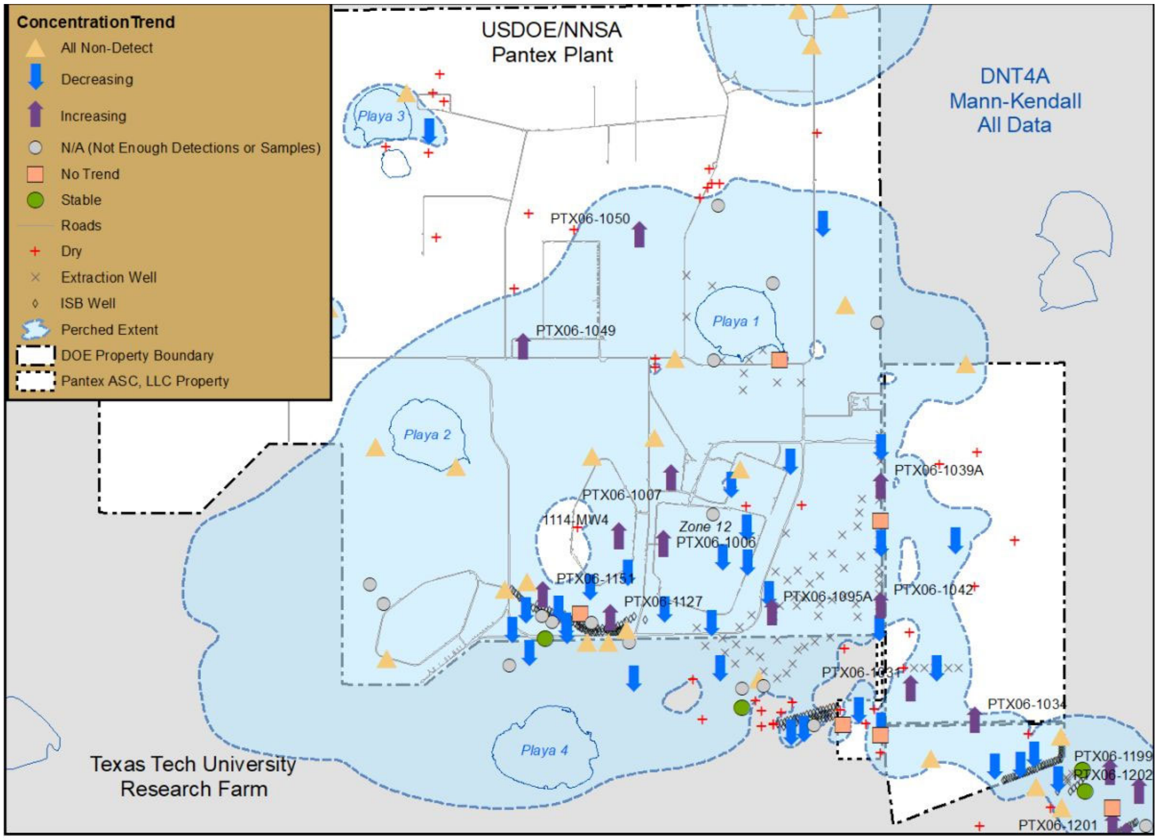
PTX06-1046
Playa 4
Texas Tech University
Research Farm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All Non-Detect
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Increasing
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No Trend
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Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
DNT4A
Mann-Kendall
All Data
Playa 3
Playa 1
Playa 2
Playa 4
Zone 12
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PTX06-1049
PTX06-1039A
PTX06-1007
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PTX06-1006
PTX06-1151
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PTX06-1095A
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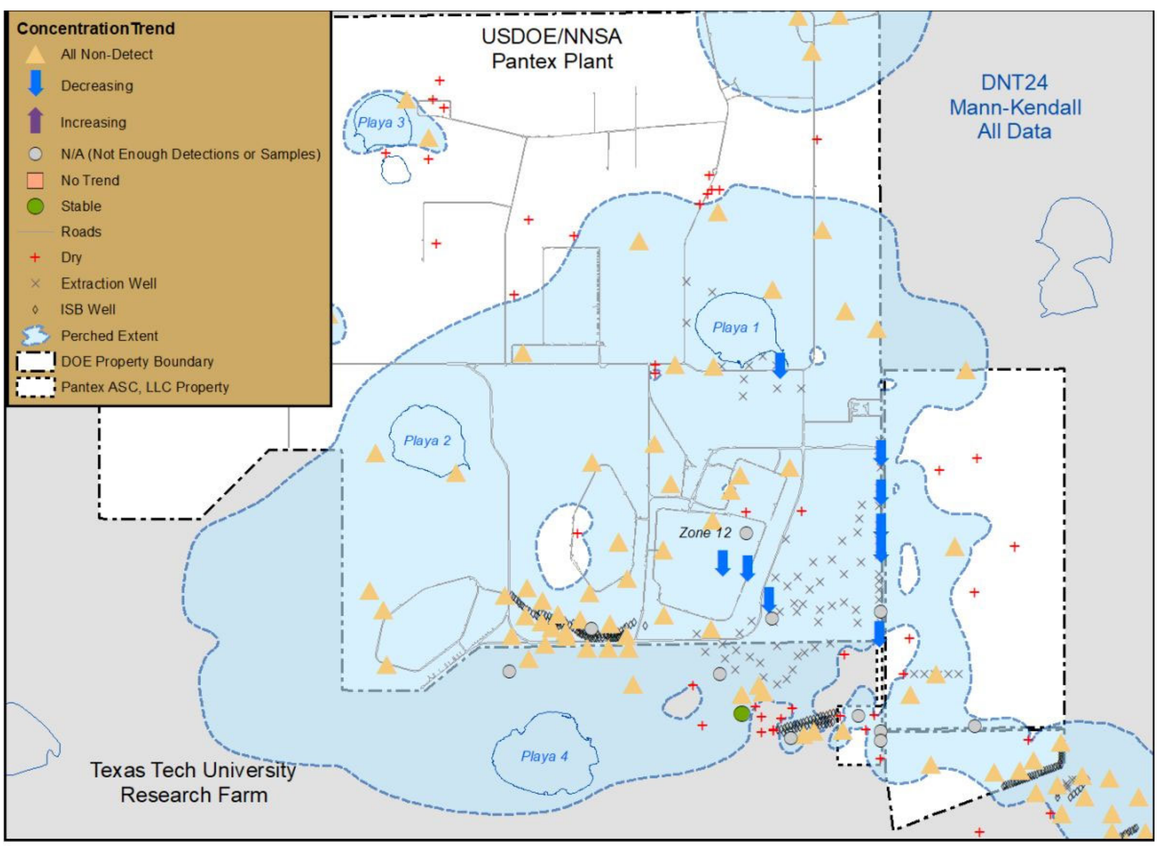
PTX06-1201
Texas Tech University
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
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Mann-Kendall
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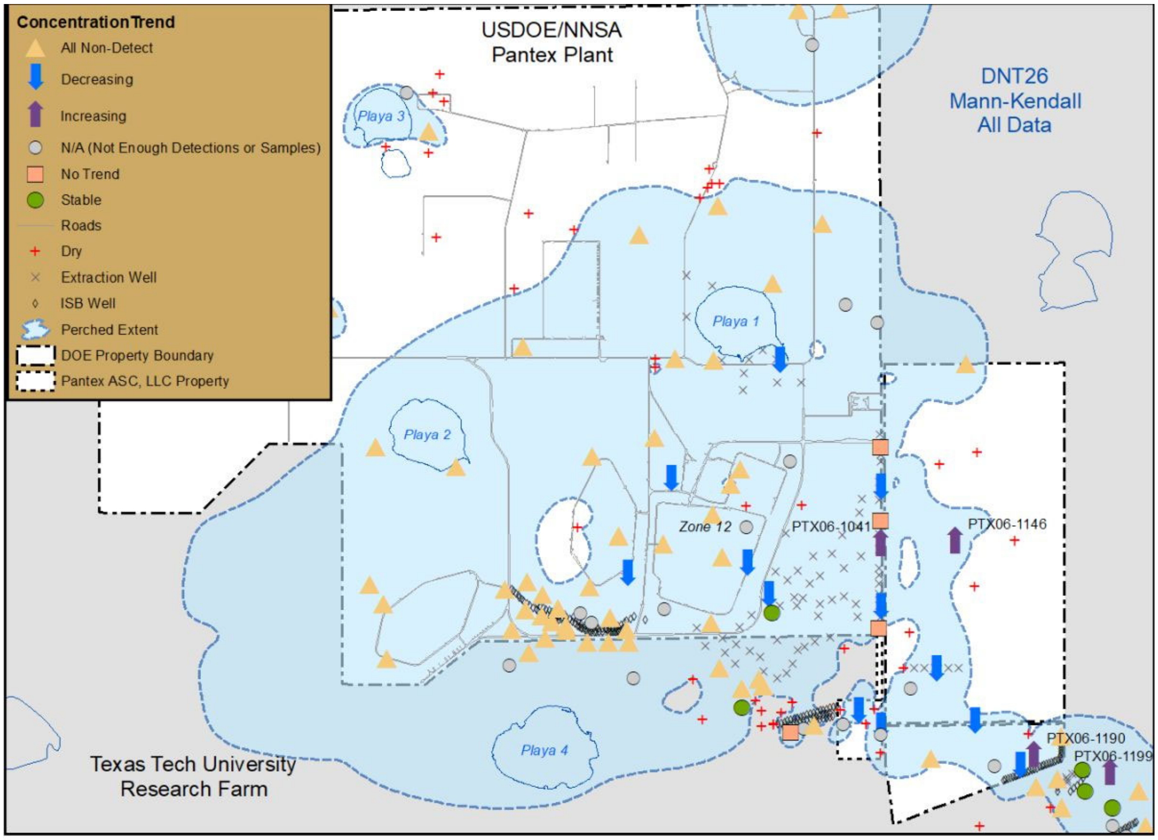
Playa 2
Playa 4
Zone 12
Texas Tech University
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
DNT26
Mann-Kendall
All Data
Playa 3
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Playa 2
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Playa 4
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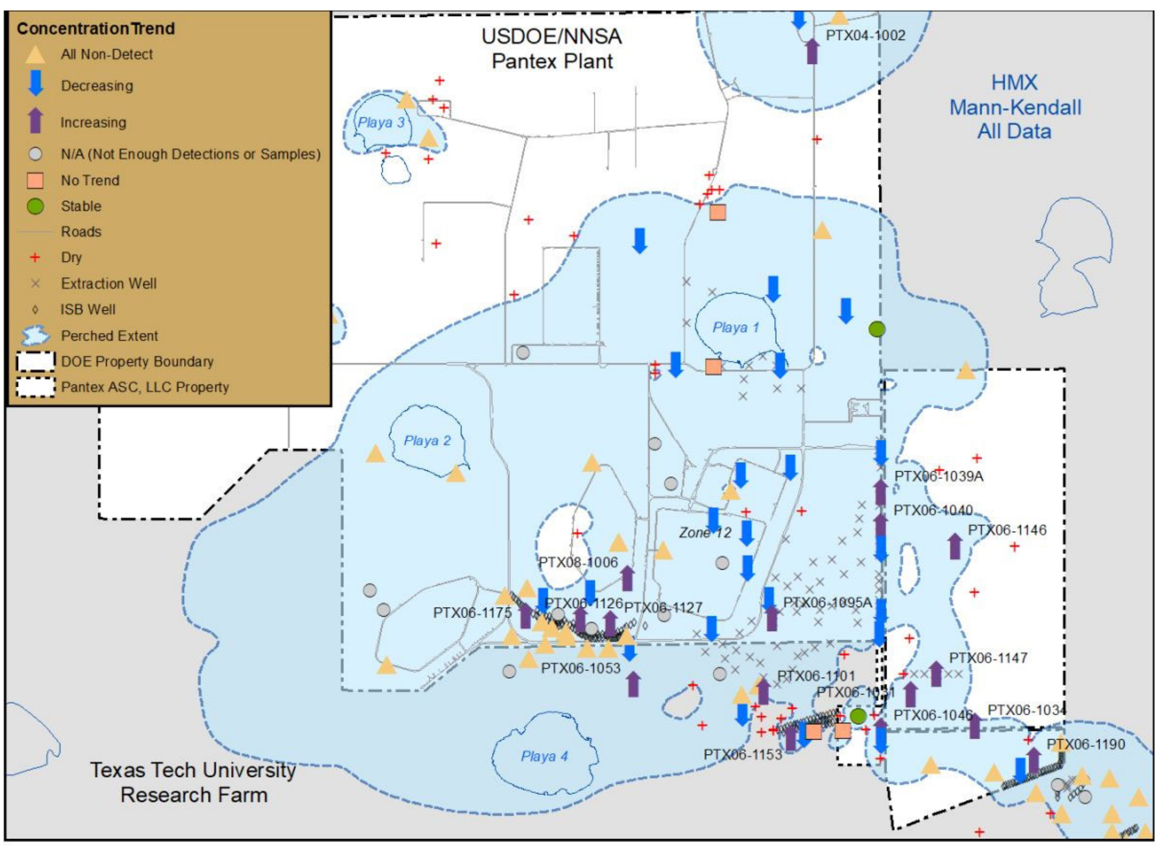
Texas Tech University
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
PTX04-1002
HMX
Mann-Kendall
All Data
Playa 3
Playa 1
Playa 2
PTX06-1039A
PTX06-1040
PTX06-1146
Zone 12
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PTX06-1126
PTX06-1127
PTX06-1095A
PTX06-1053
PTX06-1147
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Playa 4
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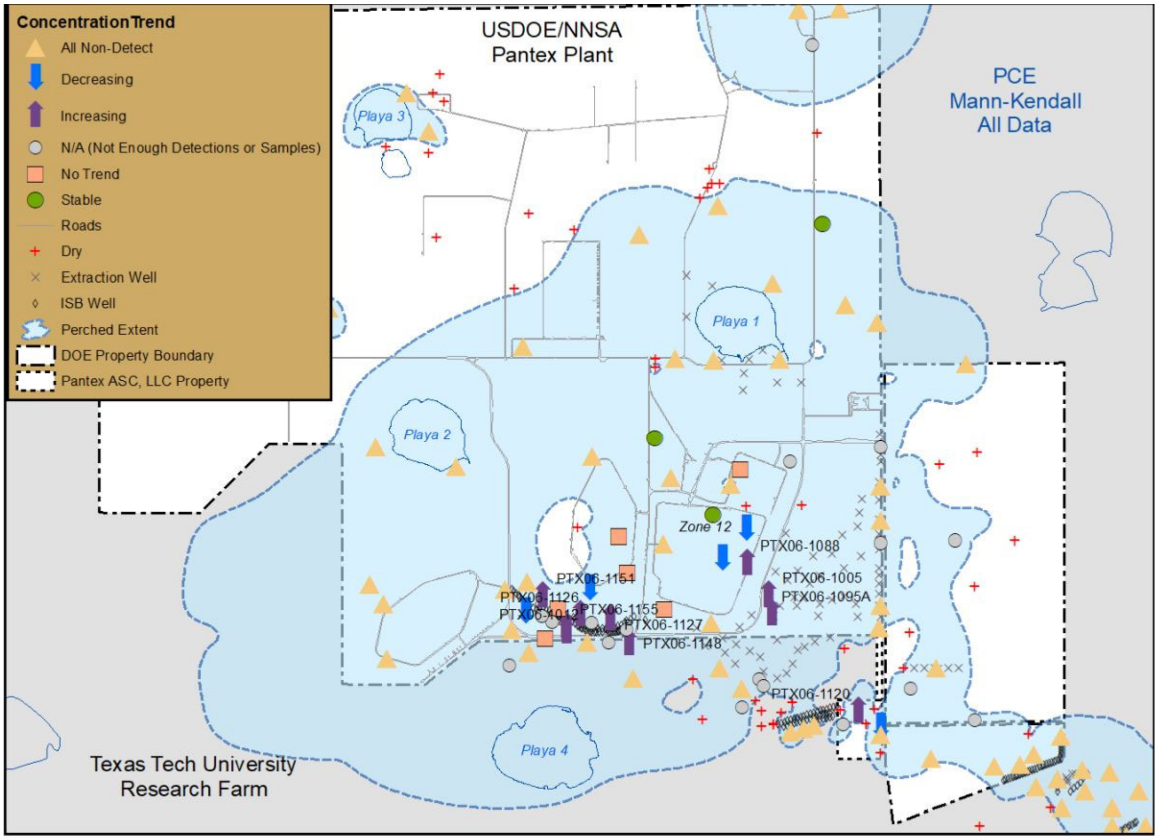
Texas Tech University
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
PCE
Mann-Kendall
All Data
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12
PTX06-1088
PTX06-1151
PTX06-1126
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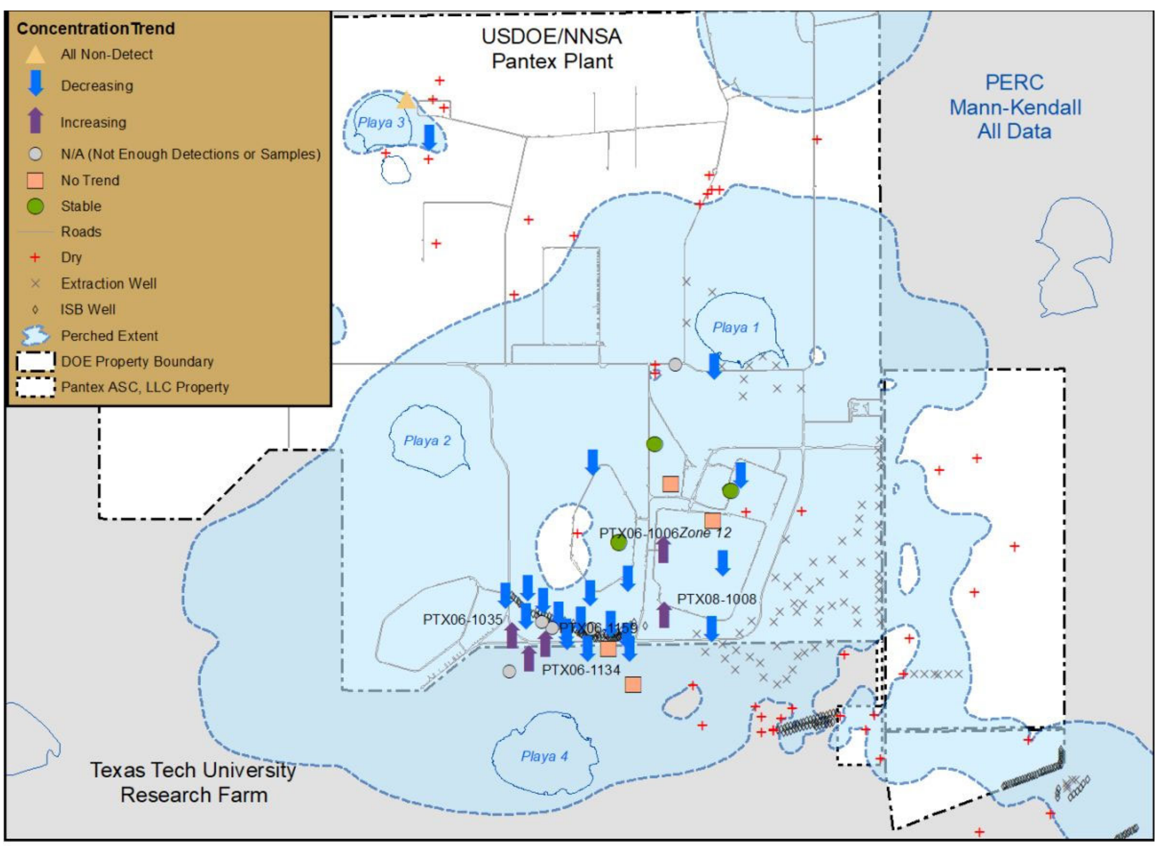
Texas Tech University
Research Farm


Concentration Trend
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Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
PERC
Mann-Kendall
All Data
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Playa 2
Playa 3
Playa 4
PTX06-1006
Zone 12
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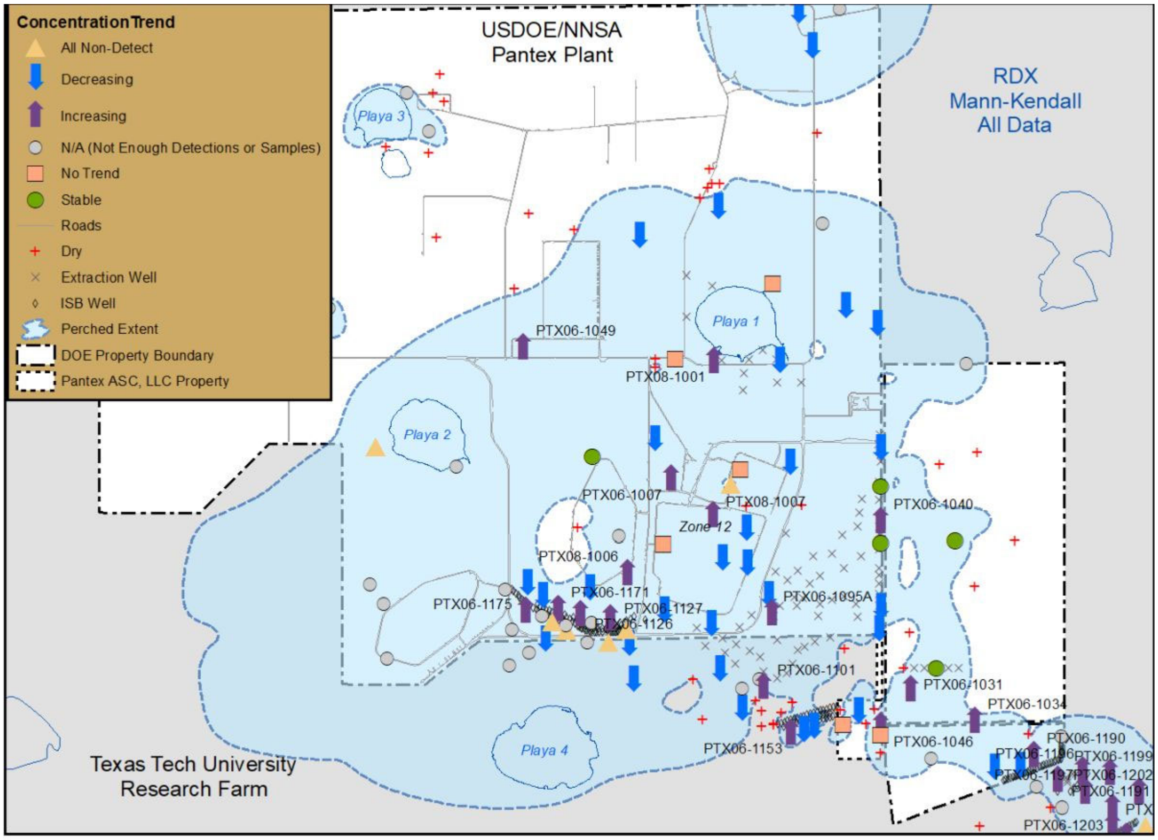
Texas Tech University
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
RDX
Mann-Kendall
All Data
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12
Texas Tech University
Research Farm
PTX06-1049
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PTX06-1007
PTX08-1007
PTX06-1040
PTX08-1006
PTX06-1171
PTX06-1175
PTX06-1127
PTX06-1126
PTX06-1095A
PTX06-1101
PTX06-1031
PTX06-1034
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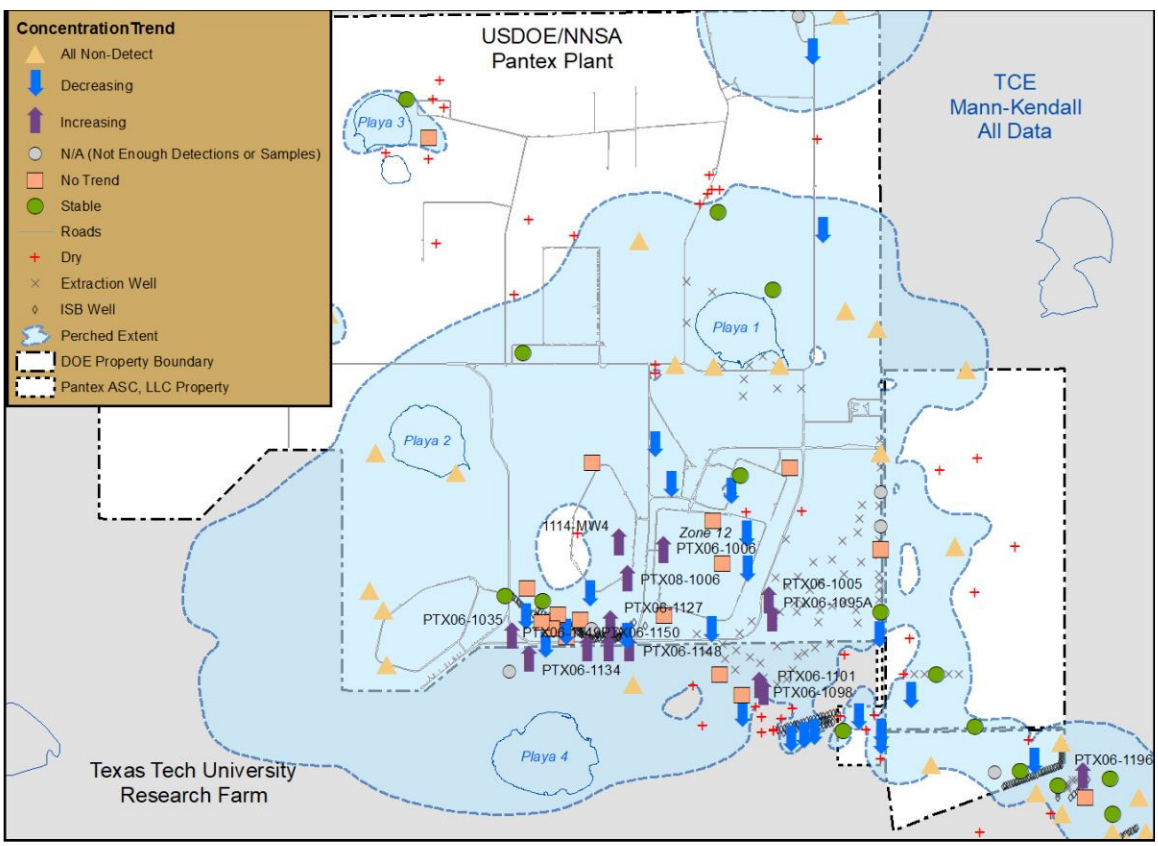
PTX06-1203


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
TCE
Mann-Kendall
All Data
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12
Texas Tech University
Research Farm
1114-MW4
PTX06-1006
PTX08-1006
PTX06-1005
PTX06-1095A
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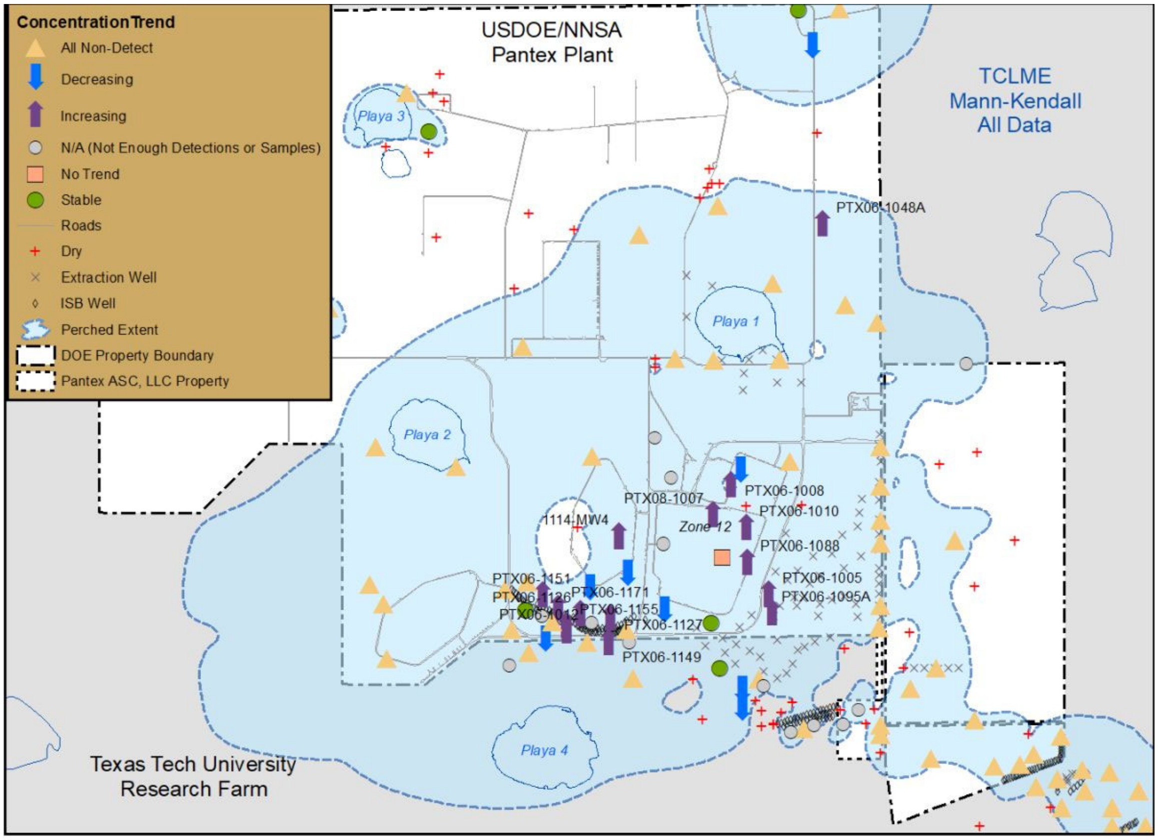

Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
TCLME
Mann-Kendall
All Data
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Playa 1
Playa 2
Playa 4
Zone 12
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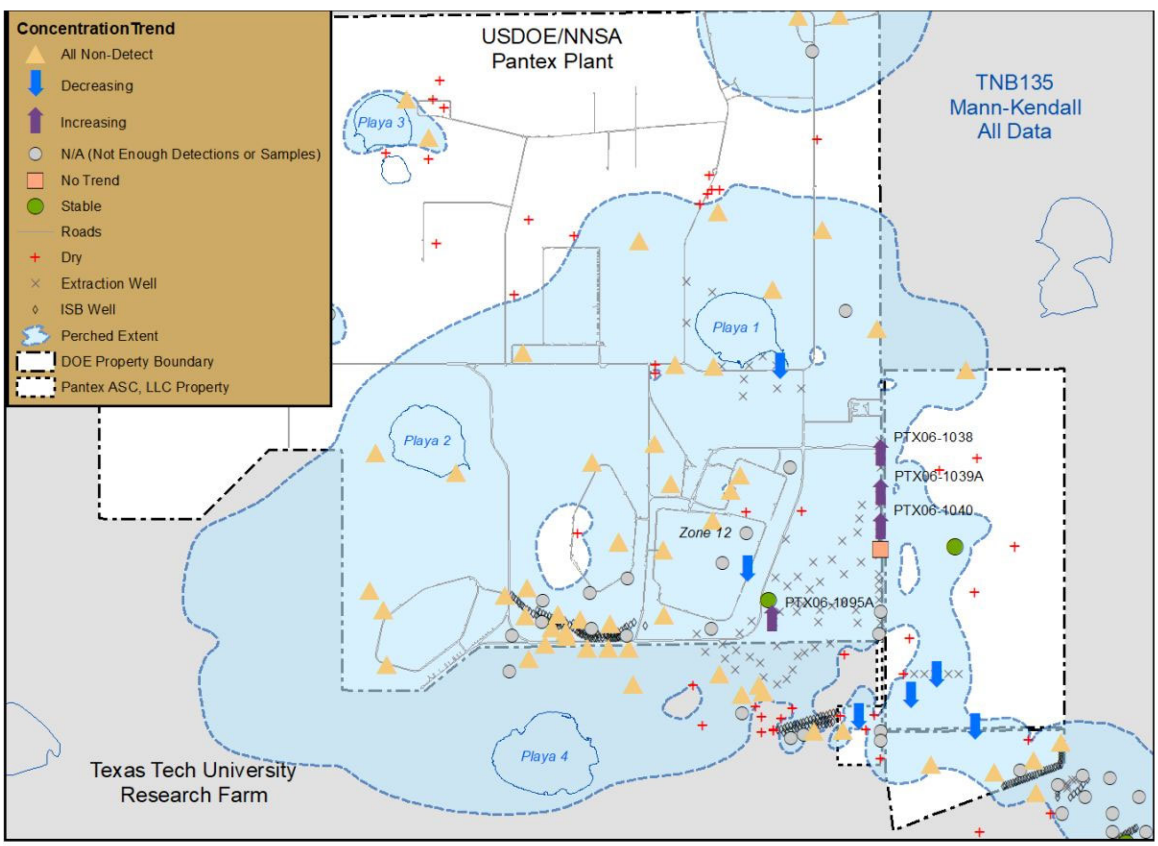
Texas Tech University
Research Farm



Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
TNB135
Mann-Kendall
All Data
Playa 3
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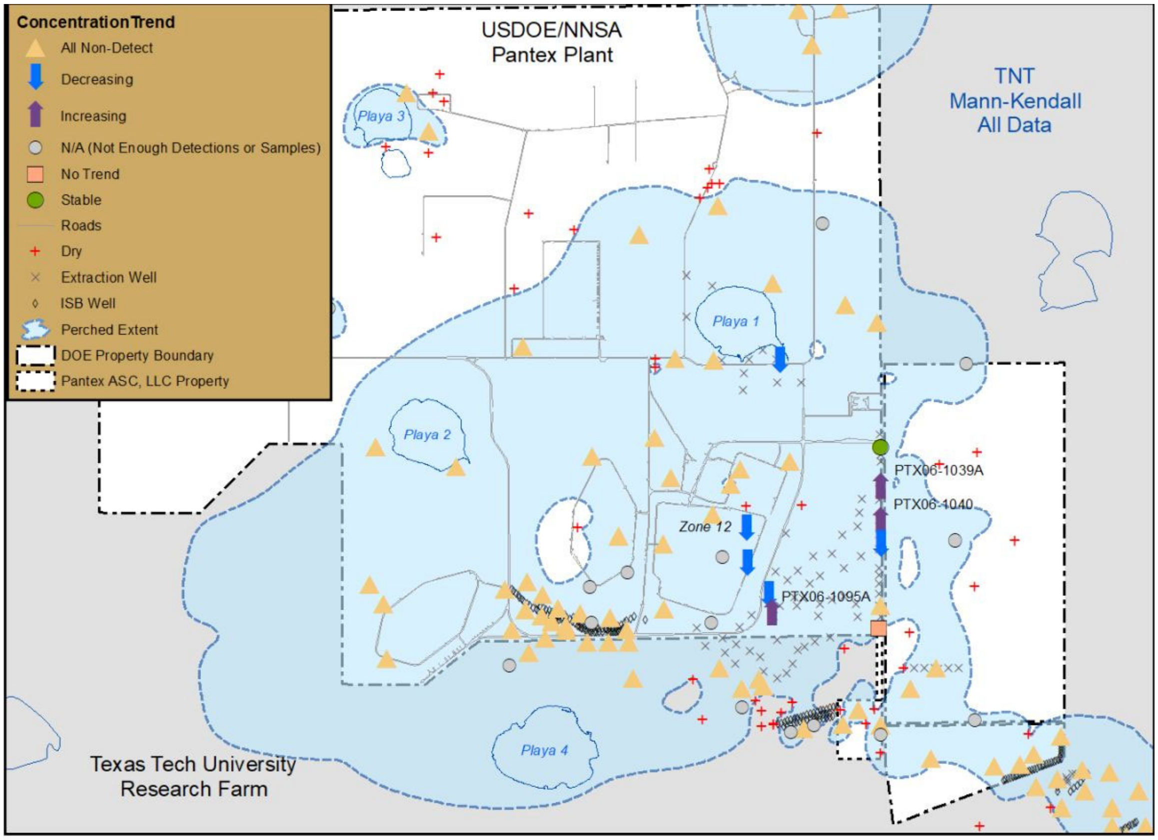
Texas Tech University
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
TNT
Mann-Kendall
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Playa 3
Playa 4
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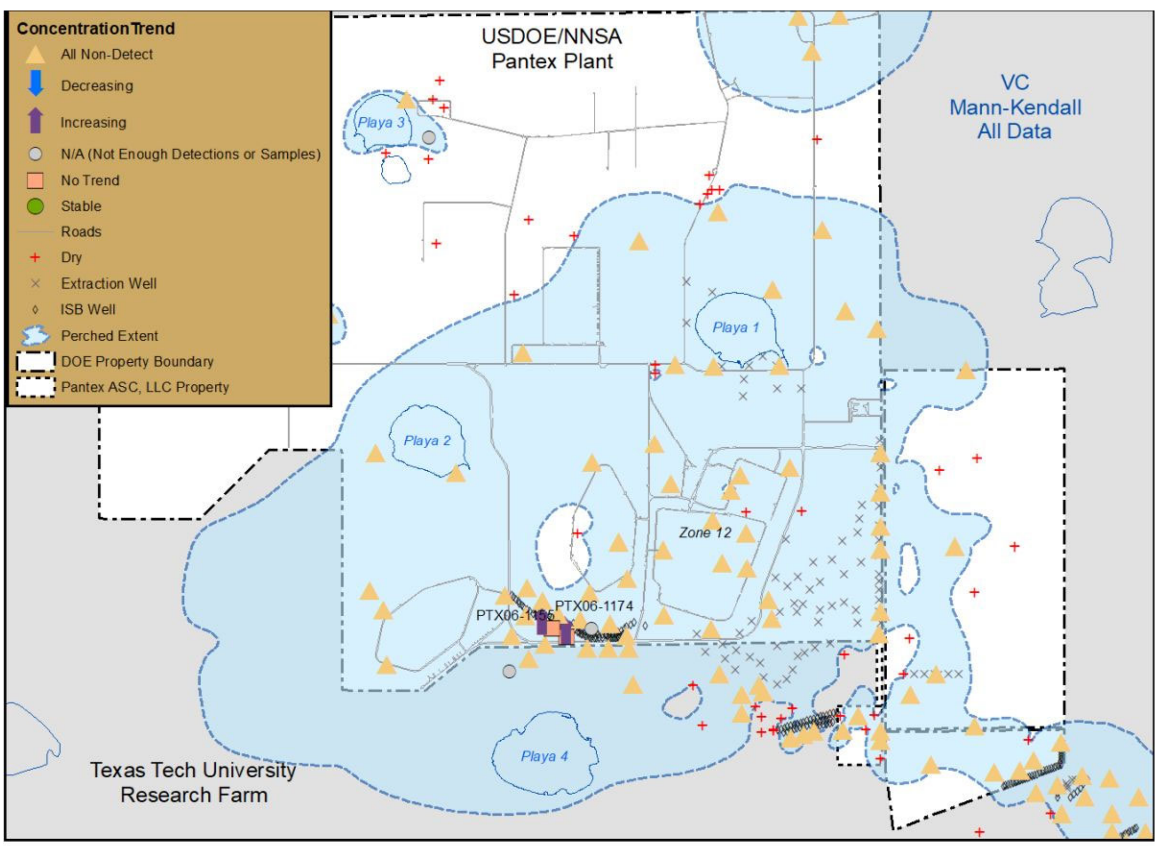
Research Farm


Concentration Trend
All Non-Detect
Decreasing
Increasing
N/A (Not Enough Detections or Samples)
No Trend
Stable
Roads
Dry
Extraction Well
ISB Well
Perched Extent
DOE Property Boundary
Pantex ASC, LLC Property
USDOE/NNSA
Pantex Plant
VC
Mann-Kendall
All Data
Playa 1
Playa 2
Playa 3
Playa 4
Zone 12
PTX06-1155
PTX06-1174
Texas Tech University
Research Farm

TABLES

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Perched Groundwater Trends Summary Tables

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Table 1
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
1114-MW4	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	DCA12	No Trend	Decreasing	Stable
1114-MW4	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DIOXANE14	No Trend	No Trend	Probably Decreasing
1114-MW4	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
1114-MW4	DNT4A	Increasing	No Trend	Increasing
1114-MW4	PCE	No Trend	No Trend	No Trend
1114-MW4	PERC	Stable	No Trend	Decreasing
1114-MW4	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
1114-MW4	TCE	Increasing	No Trend	Increasing
1114-MW4	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	TNT	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	PCE	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	RDX	No Trend	No Trend	Increasing
OW-WR-38	TCE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1001	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX01-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	PERC	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX01-1001	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX01-1001	TCE	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX01-1001	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	CR-6	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX01-1008	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	PERC	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX01-1008	TCE	Stable	All Non-Detect	All Non-Detect
PTX01-1008	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DIOXANE14	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX04-1002	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX04-1002	RDX	Decreasing	No Trend	Stable
PTX04-1002	TCE	Decreasing	No Trend	No Trend

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX04-1002	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX04-1002	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	CR-6	Decreasing	No Trend	Increasing
PTX06-1002A	DCA12	Stable	All Non-Detect	All Non-Detect
PTX06-1002A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1002A	DNT2A	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	DNT4A	Decreasing	No Trend	Increasing
PTX06-1002A	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1002A	RDX	Probably Decreasing	No Trend	Probably Increasing
PTX06-1002A	TCE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1002A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1005	CR	Increasing	No Trend	No Trend
PTX06-1005	CR-6	Increasing	Decreasing	No Trend
PTX06-1005	DCA12	Stable	No Trend	No Trend
PTX06-1005	DCE12C	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1005	DIOXANE14	Stable	No Trend	No Trend
PTX06-1005	DNT24	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1005	DNT26	Decreasing	All Non-Detect	All Non-Detect
PTX06-1005	DNT2A	Probably Decreasing	No Trend	Decreasing
PTX06-1005	DNT4A	Decreasing	Increasing	Decreasing
PTX06-1005	PCE	Increasing	No Trend	Probably Decreasing
PTX06-1005	RDX	Decreasing	No Trend	Probably Decreasing
PTX06-1005	TCE	Increasing	Decreasing	Stable
PTX06-1005	TNB135	Stable	No Trend	No Trend
PTX06-1005	TNT	Decreasing	No Trend	Decreasing
PTX06-1006	DCA12	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1006	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DIOXANE14	Probably Decreasing	Decreasing	Stable
PTX06-1006	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DNT4A	Probably Increasing	No Trend	Decreasing
PTX06-1006	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	PERC	Increasing	No Trend	Decreasing

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1006	RDX	No Trend	No Trend	Decreasing
PTX06-1006	TCE	Increasing	No Trend	No Trend
PTX06-1006	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	CR	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1007	CR-6	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1007	DCA12	Decreasing	All Non-Detect	All Non-Detect
PTX06-1007	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	DIOXANE14	Decreasing	No Trend	Stable
PTX06-1007	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	DNT26	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	DNT2A	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	DNT4A	Increasing	No Trend	Stable
PTX06-1007	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	PERC	No Trend	No Trend	Stable
PTX06-1007	RDX	Increasing	No Trend	No Trend
PTX06-1007	TCE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	CR	No Trend	No Trend	No Trend
PTX06-1008	CR-6	Stable	Decreasing	Decreasing
PTX06-1008	DCA12	Increasing	No Trend	No Trend
PTX06-1008	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1008	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DNT4A	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	PERC	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1008	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	TCE	Decreasing	No Trend	Increasing
PTX06-1008	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	CR	Decreasing	No Trend	Decreasing
PTX06-1010	CR-6	Decreasing	No Trend	Decreasing
PTX06-1010	DCA12	Decreasing	No Trend	Probably Decreasing
PTX06-1010	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1010	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1010	DNT2A	Decreasing	No Trend	Stable
PTX06-1010	DNT4A	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1010	PCE	Probably Decreasing	No Trend	Probably Increasing
PTX06-1010	RDX	Decreasing	No Trend	No Trend
PTX06-1010	TCE	Decreasing	No Trend	Stable
PTX06-1010	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1010	TNT	Decreasing	All Non-Detect	All Non-Detect
PTX06-1011	CR	Decreasing	No Trend	Stable
PTX06-1011	CR-6	Stable	No Trend	Stable
PTX06-1011	DCA12	Decreasing	No Trend	No Trend
PTX06-1011	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	DIOXANE14	Decreasing	No Trend	Increasing
PTX06-1011	DNT24	Decreasing	All Non-Detect	All Non-Detect
PTX06-1011	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1011	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1011	PCE	Probably Decreasing	No Trend	Stable
PTX06-1011	PERC	Decreasing	No Trend	Stable
PTX06-1011	RDX	Decreasing	No Trend	Stable
PTX06-1011	TCE	No Trend	No Trend	Stable
PTX06-1011	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1011	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1012	CR	No Trend	All Non-Detect	All Non-Detect
PTX06-1012	DCA12	Increasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1012	DCE12C	Increasing	Decreasing	Decreasing
PTX06-1012	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1012	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1012	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1012	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1012	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1012	PCE	Increasing	All Non-Detect	All Non-Detect
PTX06-1012	PERC	Decreasing	All Non-Detect	All Non-Detect
PTX06-1012	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1012	TCE	No Trend	No Trend	Decreasing
PTX06-1012	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1012	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1013	CR-6	No Trend	No Trend	No Trend
PTX06-1013	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DNT24	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1013	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1013	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1013	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	RDX	Decreasing	No Trend	Stable
PTX06-1013	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	CR	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1014	CR-6	Stable	No Trend	Stable
PTX06-1014	DCA12	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1014	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	DNT24	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1014	DNT26	No Trend	All Non-Detect	All Non-Detect
PTX06-1014	DNT2A	Decreasing	No Trend	Stable
PTX06-1014	DNT4A	Decreasing	No Trend	Stable
PTX06-1014	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	RDX	Decreasing	No Trend	Stable
PTX06-1014	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1014	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1014	TNT	No Trend	No Trend	No Trend
PTX06-1023	CR	Decreasing	All Non-Detect	All Non-Detect
PTX06-1023	CR-6	Decreasing	No Trend	No Trend
PTX06-1023	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1023	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1023	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	RDX	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1023	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1023	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	CR	Decreasing	No Trend	Probably Increasing
PTX06-1031	CR-6	Increasing	No Trend	Increasing
PTX06-1031	DCA12	Decreasing	Decreasing	Stable
PTX06-1031	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1031	DNT2A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1031	DNT4A	Increasing	No Trend	No Trend
PTX06-1031	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1031	RDX	Increasing	No Trend	No Trend
PTX06-1031	TCE	Decreasing	No Trend	Stable
PTX06-1031	TNB135	Decreasing	All Non-Detect	All Non-Detect
PTX06-1031	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	CR	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1034	CR-6	Probably Decreasing	No Trend	Stable
PTX06-1034	DCA12	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1034	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1034	DNT26	Decreasing	No Trend	Stable
PTX06-1034	DNT2A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1034	DNT4A	Increasing	No Trend	No Trend
PTX06-1034	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1034	RDX	Increasing	No Trend	No Trend
PTX06-1034	TCE	Stable	No Trend	Stable
PTX06-1034	TNB135	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1034	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1035	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1035	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1035	DNT4A	Decreasing	No Trend	No Trend
PTX06-1035	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	PERC	Increasing	No Trend	Increasing
PTX06-1035	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1035	TCE	Increasing	No Trend	Increasing
PTX06-1035	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1035	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	CR	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	CR-6	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	DCA12	Stable	All Non-Detect	All Non-Detect
PTX06-1037	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	DNT24	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1037	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1037	DNT2A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	RDX	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1037	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1037	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	CR	Stable	All Non-Detect	All Non-Detect
PTX06-1038	CR-6	Decreasing	No Trend	No Trend
PTX06-1038	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1038	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	DNT24	Decreasing	All Non-Detect	All Non-Detect
PTX06-1038	DNT26	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1038	DNT2A	Decreasing	Decreasing	Decreasing
PTX06-1038	DNT4A	Decreasing	Decreasing	Decreasing
PTX06-1038	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1038	RDX	Decreasing	No Trend	Decreasing
PTX06-1038	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	TNB135	Increasing	No Trend	Stable
PTX06-1038	TNT	Stable	No Trend	Decreasing
PTX06-1039A	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1039A	CR-6	Decreasing	No Trend	Increasing
PTX06-1039A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	DNT24	Decreasing	All Non-Detect	All Non-Detect
PTX06-1039A	DNT26	Decreasing	All Non-Detect	All Non-Detect
PTX06-1039A	DNT2A	Stable	No Trend	Decreasing
PTX06-1039A	DNT4A	Increasing	No Trend	Probably Increasing
PTX06-1039A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	RDX	Stable	No Trend	Stable
PTX06-1039A	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1039A	TNB135	Increasing	No Trend	No Trend
PTX06-1039A	TNT	Increasing	No Trend	Decreasing
PTX06-1040	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1040	CR-6	Decreasing	No Trend	Decreasing
PTX06-1040	DCA12	Probably Decreasing	All Non-Detect	All Non-Detect
PTX06-1040	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	DNT24	Decreasing	All Non-Detect	All Non-Detect
PTX06-1040	DNT26	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1040	DNT2A	No Trend	Decreasing	Decreasing

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1040	DNT4A	No Trend	No Trend	Stable
PTX06-1040	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	RDX	Probably Increasing	No Trend	Stable
PTX06-1040	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1040	TNB135	Increasing	No Trend	Increasing
PTX06-1040	TNT	Increasing	Decreasing	Decreasing
PTX06-1041	CR	Probably Increasing	Increasing	No Trend
PTX06-1041	CR-6	Decreasing	Increasing	Increasing
PTX06-1041	DCA12	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1041	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	DNT24	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1041	DNT26	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1041	DNT2A	No Trend	Decreasing	Decreasing
PTX06-1041	DNT4A	Decreasing	No Trend	Probably Decreasing
PTX06-1041	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1041	RDX	Stable	Increasing	No Trend
PTX06-1041	TCE	No Trend	All Non-Detect	All Non-Detect
PTX06-1041	TNB135	No Trend	Decreasing	Decreasing
PTX06-1041	TNT	Decreasing	Decreasing	Decreasing
PTX06-1042	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1042	CR-6	Decreasing	No Trend	No Trend
PTX06-1042	DCA12	Decreasing	All Non-Detect	All Non-Detect
PTX06-1042	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1042	DNT26	Decreasing	All Non-Detect	All Non-Detect
PTX06-1042	DNT2A	Decreasing	No Trend	Stable
PTX06-1042	DNT4A	Probably Increasing	No Trend	Probably Decreasing
PTX06-1042	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	RDX	Decreasing	No Trend	Stable
PTX06-1042	TCE	Stable	All Non-Detect	All Non-Detect
PTX06-1042	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1042	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	CR	Increasing	All Non-Detect	All Non-Detect
PTX06-1045	CR-6	Probably Decreasing	No Trend	Stable
PTX06-1045	DCA12	Decreasing	All Non-Detect	All Non-Detect
PTX06-1045	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1045	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	DNT4A	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1045	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	RDX	No Trend	Decreasing	Decreasing
PTX06-1045	TCE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	CR	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1046	CR-6	Increasing	Decreasing	Stable
PTX06-1046	DCA12	Decreasing	All Non-Detect	Stable
PTX06-1046	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1046	DNT26	Decreasing	All Non-Detect	All Non-Detect
PTX06-1046	DNT2A	Increasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1046	DNT4A	Decreasing	Decreasing	Decreasing
PTX06-1046	PCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1046	RDX	Increasing	Decreasing	Decreasing
PTX06-1046	TCE	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1046	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1046	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	CR	Increasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1047A	CR-6	Stable	No Trend	No Trend
PTX06-1047A	DCA12	Decreasing	All Non-Detect	All Non-Detect
PTX06-1047A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1047A	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1047A	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1047A	DNT4A	No Trend	Decreasing	Probably Decreasing
PTX06-1047A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	RDX	No Trend	Decreasing	Probably Decreasing
PTX06-1047A	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1047A	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1047A	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1048A	DCA12	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1048A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1048A	DNT4A	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1048A	PCE	Stable	All Non-Detect	All Non-Detect
PTX06-1048A	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1048A	TCE	Decreasing	No Trend	Stable
PTX06-1048A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1049	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DCE12C	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1049	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DNT4A	Increasing	No Trend	Stable
PTX06-1049	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	RDX	Increasing	No Trend	Increasing
PTX06-1049	TCE	Stable	No Trend	Stable
PTX06-1049	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DNT2A	Stable	No Trend	No Trend
PTX06-1050	DNT4A	Increasing	No Trend	Decreasing
PTX06-1050	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	RDX	Decreasing	No Trend	Increasing
PTX06-1050	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	CR	Decreasing	Decreasing	Decreasing
PTX06-1052	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1052	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1052	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1052	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DNT4A	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1052	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	RDX	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1052	TCE	No Trend	Increasing	Increasing
PTX06-1052	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1053	CR	Increasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1053	CR-6	Stable	No Trend	No Trend
PTX06-1053	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1053	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1053	DNT2A	Increasing	No Trend	No Trend
PTX06-1053	DNT4A	Decreasing	No Trend	Probably Decreasing
PTX06-1053	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	PERC	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1053	RDX	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1053	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1069	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	CR-6	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1071	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DCE12C	Decreasing	No Trend	No Trend
PTX06-1077A	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1077A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	PCE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	PERC	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1077A	RDX	Probably Decreasing	No Trend	No Trend
PTX06-1077A	TCE	Decreasing	No Trend	No Trend
PTX06-1077A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1082	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1082	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	RDX	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CR	Probably Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CR-6	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	RDX	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1085	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1086	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	CR	Decreasing	No Trend	Increasing
PTX06-1088	CR-6	Decreasing	No Trend	Increasing
PTX06-1088	DCA12	Increasing	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX06-1088	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	DIOXANE14	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	DNT24	Decreasing	No Trend	Stable
PTX06-1088	DNT26	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	DNT2A	Decreasing	No Trend	No Trend
PTX06-1088	DNT4A	Decreasing	No Trend	Increasing
PTX06-1088	PCE	Increasing	No Trend	Decreasing
PTX06-1088	RDX	Decreasing	Decreasing	Increasing
PTX06-1088	TCE	Decreasing	No Trend	Stable
PTX06-1088	TNB135	Decreasing	Decreasing	Decreasing
PTX06-1088	TNT	Decreasing	No Trend	Decreasing

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1095A	CR	Increasing	No Trend	No Trend
PTX06-1095A	CR-6	Increasing	No Trend	No Trend
PTX06-1095A	DCA12	Increasing	No Trend	Increasing
PTX06-1095A	DCE12C	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1095A	DIOXANE14	Probably Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1095A	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1095A	DNT26	Stable	No Trend	Increasing
PTX06-1095A	DNT2A	Increasing	No Trend	Decreasing
PTX06-1095A	DNT4A	Increasing	No Trend	Decreasing
PTX06-1095A	PCE	Increasing	Decreasing	Decreasing
PTX06-1095A	RDX	Increasing	No Trend	Decreasing
PTX06-1095A	TCE	Increasing	Decreasing	Decreasing
PTX06-1095A	TNB135	Increasing	No Trend	Stable
PTX06-1095A	TNT	Increasing	No Trend	Stable
PTX06-1098	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	CR-6	Decreasing	All Non-Detect	All Non-Detect
PTX06-1098	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	DCE12C	Stable	No Trend	Decreasing
PTX06-1098	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	TCE	Increasing	Increasing	Increasing
PTX06-1098	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	CR	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1101	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	DCE12C	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	RDX	Increasing	No Trend	No Trend
PTX06-1101	TCE	Probably Increasing	No Trend	Stable
PTX06-1101	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1120	CR	Increasing	No Trend	No Trend
PTX06-1120	CR-6	Stable	Decreasing	Decreasing
PTX06-1120	DCA12	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1120	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1120	DNT26	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	DNT2A	Decreasing	No Trend	Stable
PTX06-1120	DNT4A	Decreasing	Decreasing	Decreasing
PTX06-1120	PCE	Probably Increasing	All Non-Detect	All Non-Detect
PTX06-1120	RDX	Decreasing	Decreasing	Decreasing
PTX06-1120	TCE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	TNB135	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	CR	Increasing	No Trend	Probably Increasing
PTX06-1126	CR-6	Probably Increasing	No Trend	Increasing
PTX06-1126	DCA12	No Trend	No Trend	Probably Decreasing
PTX06-1126	DCE12C	Decreasing	No Trend	Decreasing
PTX06-1126	DIOXANE14	Decreasing	No Trend	Decreasing
PTX06-1126	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1126	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	DNT4A	No Trend	Decreasing	Decreasing
PTX06-1126	PCE	Increasing	No Trend	Stable
PTX06-1126	PERC	Decreasing	No Trend	Decreasing
PTX06-1126	RDX	Increasing	No Trend	No Trend
PTX06-1126	TCE	No Trend	No Trend	Probably Decreasing
PTX06-1126	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	CR	Increasing	No Trend	Increasing
PTX06-1127	CR-6	Decreasing	No Trend	Decreasing
PTX06-1127	DCA12	Decreasing	No Trend	Decreasing
PTX06-1127	DCE12C	Increasing	Decreasing	Increasing
PTX06-1127	DIOXANE14	No Trend	No Trend	Decreasing
PTX06-1127	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DNT4A	Increasing	No Trend	Stable
PTX06-1127	PCE	Increasing	Decreasing	Stable
PTX06-1127	PERC	Decreasing	No Trend	Decreasing
PTX06-1127	RDX	Increasing	Increasing	Increasing
PTX06-1127	TCE	Increasing	No Trend	Increasing
PTX06-1127	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1131	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CR-6	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1131	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	CR	No Trend	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX06-1133A	CR-6	Decreasing	No Trend	Decreasing
PTX06-1133A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1133A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DCA12	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1134	DCE12C	Increasing	Decreasing	Increasing
PTX06-1134	DIOXANE14	Stable	No Trend	Decreasing
PTX06-1134	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DNT4A	Decreasing	No Trend	Probably Increasing
PTX06-1134	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	PERC	Increasing	No Trend	Increasing
PTX06-1134	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1134	TCE	Increasing	Decreasing	Probably Increasing
PTX06-1134	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	CR	Increasing	No Trend	No Trend
PTX06-1146	CR-6	Increasing	No Trend	Increasing

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1146	DCA12	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1146	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	DNT26	Probably Increasing	No Trend	Increasing
PTX06-1146	DNT2A	Increasing	No Trend	Decreasing
PTX06-1146	DNT4A	Decreasing	No Trend	No Trend
PTX06-1146	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1146	RDX	Stable	Increasing	Probably Increasing
PTX06-1146	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	TNB135	Stable	N/A (<4 Detections in Dataset)	No Trend
PTX06-1146	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1147	CR	No Trend	No Trend	No Trend
PTX06-1147	CR-6	Decreasing	No Trend	No Trend
PTX06-1147	DCA12	Stable	N/A (<4 Detections in Dataset)	No Trend
PTX06-1147	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	DNT26	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1147	DNT2A	Increasing	No Trend	Increasing
PTX06-1147	DNT4A	Probably Decreasing	No Trend	Increasing
PTX06-1147	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	RDX	Stable	No Trend	Stable
PTX06-1147	TCE	Stable	No Trend	Increasing
PTX06-1147	TNB135	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1147	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	CR	No Trend	No Trend	No Trend
PTX06-1148	DCA12	Increasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1148	DCE12C	Increasing	No Trend	Decreasing
PTX06-1148	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1148	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1148	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1148	PCE	Probably Increasing	No Trend	Decreasing
PTX06-1148	PERC	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1148	RDX	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1148	TCE	Increasing	Increasing	Increasing
PTX06-1148	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1149	CR	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1149	DCA12	Increasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1149	DCE12C	Increasing	No Trend	Decreasing
PTX06-1149	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1149	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1149	PERC	No Trend	No Trend	Increasing
PTX06-1149	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	TCE	Increasing	Increasing	Increasing
PTX06-1149	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	CR	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1150	DCA12	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1150	DCE12C	No Trend	Increasing	Probably Decreasing
PTX06-1150	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1150	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	PERC	Decreasing	No Trend	Decreasing
PTX06-1150	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1150	TCE	Increasing	Increasing	Increasing
PTX06-1150	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DCA12	No Trend	No Trend	Decreasing
PTX06-1151	DCE12C	Increasing	No Trend	Probably Increasing
PTX06-1151	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1151	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DNT4A	Increasing	No Trend	Probably Decreasing
PTX06-1151	PCE	Increasing	No Trend	No Trend
PTX06-1151	PERC	Decreasing	Decreasing	Decreasing
PTX06-1151	RDX	Decreasing	Decreasing	Decreasing
PTX06-1151	TCE	Stable	No Trend	No Trend
PTX06-1151	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1151	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	CR	Decreasing	No Trend	Decreasing
PTX06-1153	CR-6	Decreasing	No Trend	Decreasing

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1153	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1153	DCE12C	Increasing	All Non-Detect	All Non-Detect
PTX06-1153	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1153	DNT26	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1153	DNT2A	No Trend	Decreasing	Decreasing
PTX06-1153	DNT4A	Decreasing	No Trend	Decreasing
PTX06-1153	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	RDX	Increasing	No Trend	Probably Increasing
PTX06-1153	TCE	Decreasing	All Non-Detect	No Trend
PTX06-1153	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1153	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1154	CR	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1154	CR-6	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1154	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1154	DCE12C	Probably Increasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1154	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1154	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1154	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	RDX	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1154	TCE	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1154	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1155	CR	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1155	DCA12	Decreasing	Increasing	Increasing
PTX06-1155	DCE12C	Increasing	No Trend	Increasing
PTX06-1155	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1155	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1155	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1155	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1155	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX06-1155	PCE	Probably Increasing	All Non-Detect	All Non-Detect
PTX06-1155	PERC	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1155	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1155	TCE	Decreasing	No Trend	Increasing
PTX06-1155	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1155	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	CR	Probably Decreasing	All Non-Detect	All Non-Detect
PTX06-1156	DCA12	Probably Decreasing	No Trend	Stable
PTX06-1156	DCE12C	No Trend	Increasing	No Trend
PTX06-1156	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1156	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1156	PERC	Decreasing	All Non-Detect	All Non-Detect
PTX06-1156	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	TCE	Decreasing	Increasing	Probably Decreasing
PTX06-1156	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1156	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DCA12	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1159	DCE12C	No Trend	Decreasing	Decreasing
PTX06-1159	DIOXANE14	No Trend	No Trend	Increasing
PTX06-1159	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DNT4A	Stable	No Trend	Probably Decreasing
PTX06-1159	PCE	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1159	PERC	Increasing	No Trend	Stable
PTX06-1159	RDX	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1159	TCE	Decreasing	No Trend	Decreasing
PTX06-1159	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1160	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	PERC	Decreasing	No Trend	Probably Decreasing
PTX06-1160	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1160	TCE	Stable	All Non-Detect	N/A (<4 Detections in Dataset)

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1160	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	CR	No Trend	No Trend	Increasing
PTX06-1166	CR-6	Increasing	No Trend	Increasing
PTX06-1166	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1166	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	DNT24	Stable	N/A (<4 Detections in Dataset)	No Trend
PTX06-1166	DNT26	Stable	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1166	DNT2A	No Trend	No Trend	No Trend
PTX06-1166	DNT4A	Stable	No Trend	Probably Increasing
PTX06-1166	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1166	RDX	Decreasing	No Trend	Stable
PTX06-1166	TCE	Decreasing	Decreasing	Decreasing
PTX06-1166	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1166	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1171	DCA12	Probably Decreasing	Stable	Stable
PTX06-1171	DCE12C	Decreasing	Stable	Decreasing
PTX06-1171	DIOXANE14	No Trend	No Trend	Increasing
PTX06-1171	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DNT4A	Decreasing	Stable	Stable
PTX06-1171	PCE	No Trend	Decreasing	Stable
PTX06-1171	PERC	Decreasing	Stable	Stable
PTX06-1171	RDX	Increasing	No Trend	Increasing
PTX06-1171	TCE	No Trend	Stable	Decreasing
PTX06-1171	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	DCA12	Increasing	Decreasing	Increasing
PTX06-1173	DCE12C	No Trend	No Trend	No Trend
PTX06-1173	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1173	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1173	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1173	PERC	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1173	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	TCE	No Trend	Decreasing	Probably Increasing
PTX06-1173	TNB135	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1173	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1174	CR	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	DCA12	No Trend	N/A (<4 Detections in Dataset)	Increasing
PTX06-1174	DCE12C	No Trend	Decreasing	No Trend
PTX06-1174	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1174	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1174	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1174	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1174	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	PERC	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	TCE	No Trend	No Trend	No Trend
PTX06-1174	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	CR	Probably Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1175	DCA12	Increasing	No Trend	Increasing
PTX06-1175	DCE12C	Increasing	No Trend	Increasing
PTX06-1175	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1175	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	DNT4A	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1175	PCE	Decreasing	No Trend	Decreasing
PTX06-1175	PERC	Decreasing	No Trend	Decreasing
PTX06-1175	RDX	Increasing	No Trend	Probably Increasing
PTX06-1175	TCE	Decreasing	Decreasing	Decreasing
PTX06-1175	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DCE12C	Stable	Decreasing	Probably Decreasing
PTX06-1180	DIOXANE14	Decreasing	No Trend	Decreasing
PTX06-1180	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	PERC	Decreasing	No Trend	Decreasing
PTX06-1180	RDX	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1180	TCE	No Trend	No Trend	No Trend
PTX06-1180	TNB135	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1180	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	CR	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1182	CR-6	Probably Decreasing	No Trend	Stable
PTX06-1182	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1182	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DNT4A	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1182	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	RDX	Decreasing	No Trend	Decreasing
PTX06-1182	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1182	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	CR	Decreasing	Decreasing	Decreasing
PTX06-1183	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1183	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1183	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1183	TCE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1183	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	CR	Increasing	No Trend	Increasing
PTX06-1185	CR-6	Stable	No Trend	Stable
PTX06-1185	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1185	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DNT26	Decreasing	No Trend	Decreasing
PTX06-1185	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DNT4A	Decreasing	No Trend	Decreasing
PTX06-1185	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	RDX	Decreasing	Decreasing	Decreasing
PTX06-1185	TCE	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1185	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1185	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1190	CR	No Trend	No Trend	No Trend
PTX06-1190	CR-6	Increasing	No Trend	Increasing
PTX06-1190	DCA12	Increasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-1190	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DNT26	Probably Increasing	No Trend	Probably Increasing
PTX06-1190	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DNT4A	Decreasing	No Trend	Decreasing
PTX06-1190	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	RDX	Increasing	No Trend	Increasing
PTX06-1190	TCE	Decreasing	No Trend	Decreasing
PTX06-1190	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	CR	No Trend	Stable	No Trend
PTX06-1191	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1191	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	DNT4A	Decreasing	Decreasing	Decreasing
PTX06-1191	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	RDX	Probably Increasing	No Trend	Probably Increasing
PTX06-1191	TCE	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1191	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1191	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	CR	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1192	CR-6	No Trend	No Trend	No Trend
PTX06-1192	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1192	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1192	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1194	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1194	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR-6	No Trend	Stable	No Trend
PTX06-1195	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1195	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1196	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1196	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	DNT26	Stable	Stable	Stable
PTX06-1196	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	DNT4A	Stable	Stable	Stable
PTX06-1196	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	RDX	Increasing	No Trend	Increasing
PTX06-1196	TCE	Increasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-1196	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1196	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	CR	Probably Decreasing	Stable	Probably Decreasing
PTX06-1197	CR-6	No Trend	Stable	No Trend
PTX06-1197	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1197	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DNT26	Stable	No Trend	Stable
PTX06-1197	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DNT4A	Stable	Stable	Stable
PTX06-1197	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	RDX	Increasing	Increasing	Increasing
PTX06-1197	TCE	No Trend	N/A (<4 Detections in Dataset)	No Trend

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1197	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1197	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	CR-6	Increasing	No Trend	Increasing
PTX06-1199	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DNT26	Increasing	No Trend	Increasing
PTX06-1199	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DNT4A	Increasing	No Trend	Increasing
PTX06-1199	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	RDX	Increasing	No Trend	Increasing
PTX06-1199	TCE	Stable	Stable	Stable
PTX06-1199	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR-6	No Trend	Stable	No Trend
PTX06-1200	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1200	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1200	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	CR	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1201	CR-6	No Trend	Stable	No Trend
PTX06-1201	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1201	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DNT4A	Increasing	No Trend	Increasing
PTX06-1201	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	RDX	Increasing	No Trend	Increasing
PTX06-1201	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1201	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1202	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1202	CR-6	Increasing	No Trend	Increasing
PTX06-1202	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT4A	Increasing	No Trend	Increasing
PTX06-1202	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	RDX	Probably Increasing	No Trend	Probably Increasing
PTX06-1202	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1202	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	CR	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1203	CR-6	Stable	Stable	Stable
PTX06-1203	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1203	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DNT26	Stable	No Trend	Stable
PTX06-1203	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DNT4A	No Trend	Stable	No Trend
PTX06-1203	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	RDX	Increasing	Increasing	Increasing
PTX06-1203	TCE	Stable	Stable	Stable
PTX06-1203	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1203	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	CR	Decreasing	Stable	Decreasing
PTX06-1204	CR-6	No Trend	Stable	No Trend
PTX06-1204	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1204	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1204	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DNT4A	Increasing	Increasing	Increasing
PTX06-1204	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	RDX	Probably Increasing	Increasing	Probably Increasing
PTX06-1204	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	TNB135	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1204	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1207	DCA12	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1207	DCE12C	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DNT24	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DNT26	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DNT2A	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DNT4A	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	PCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	PERC	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	RDX	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	TCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	TNB135	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	TNT	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	CR-6	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DCA12	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DCE12C	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DNT24	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DNT26	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DNT2A	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DNT4A	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	PCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	RDX	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	TCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	TNB135	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	TNT	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1211	DCA12	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DCE12C	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DNT24	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DNT26	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DNT2A	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DNT4A	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	PCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	PERC	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	RDX	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	TCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	TNB135	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	TNT	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	CR	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1O03	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DNT2A	Increasing	No Trend	No Trend
PTX07-1O03	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX07-1O03	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	RDX	Decreasing	No Trend	Stable
PTX07-1O03	TCE	Stable	Decreasing	Decreasing
PTX07-1O03	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1P02	DIOXANE14	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX07-1P02	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	PERC	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX07-1P02	RDX	No Trend	Increasing	Increasing
PTX07-1P02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX07-1Q01	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	CR	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX07-1Q02	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX07-1Q02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX07-1Q02	TCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1Q02	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R03	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	CR-6	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX08-1001	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1001	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	PERC	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX08-1001	RDX	Increasing	No Trend	No Trend
PTX08-1001	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1002	CR	No Trend	All Non-Detect	All Non-Detect
PTX08-1002	CR-6	Probably Decreasing	No Trend	No Trend
PTX08-1002	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	DNT24	Decreasing	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX08-1002	DNT26	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1002	DNT2A	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX08-1002	DNT4A	No Trend	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX08-1002	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	RDX	Decreasing	No Trend	No Trend
PTX08-1002	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	TNB135	Decreasing	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX08-1002	TNT	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX08-1003	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DCE12C	No Trend	All Non-Detect	All Non-Detect
PTX08-1003	DIOXANE14	Stable	No Trend	No Trend
PTX08-1003	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	PERC	Decreasing	No Trend	Stable
PTX08-1003	RDX	Stable	No Trend	Stable
PTX08-1003	TCE	No Trend	N/A (<4 Detections in Dataset)	Stable
PTX08-1003	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	CR	Stable	No Trend	Probably Increasing
PTX08-1005	CR-6	Decreasing	Increasing	Probably Increasing
PTX08-1005	DCA12	Decreasing	All Non-Detect	All Non-Detect
PTX08-1005	DCE12C	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX08-1005	DIOXANE14	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX08-1005	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	DNT2A	Decreasing	All Non-Detect	All Non-Detect
PTX08-1005	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX08-1005	PCE	Decreasing	All Non-Detect	All Non-Detect
PTX08-1005	PERC	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1005	RDX	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1005	TCE	Decreasing	Decreasing	Decreasing
PTX08-1005	TNB135	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1005	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1006	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	DCA12	Decreasing	No Trend	Decreasing
PTX08-1006	DCE12C	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	DIOXANE14	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX08-1006	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1006	DNT26	Decreasing	All Non-Detect	All Non-Detect
PTX08-1006	DNT2A	Increasing	No Trend	Increasing
PTX08-1006	DNT4A	Decreasing	No Trend	Decreasing
PTX08-1006	PCE	No Trend	N/A (<4 Detections in Dataset)	Decreasing
PTX08-1006	PERC	Decreasing	No Trend	Decreasing
PTX08-1006	RDX	Increasing	No Trend	Decreasing
PTX08-1006	TCE	Increasing	No Trend	Stable
PTX08-1006	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1007	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1007	CR-6	Decreasing	Decreasing	Decreasing
PTX08-1007	DCA12	Increasing	Increasing	Increasing
PTX08-1007	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DIOXANE14	No Trend	Increasing	Increasing
PTX08-1007	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DNT4A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1007	PCE	Stable	Increasing	Increasing
PTX08-1007	PERC	No Trend	No Trend	Increasing
PTX08-1007	RDX	Probably Increasing	No Trend	Stable
PTX08-1007	TCE	No Trend	No Trend	Stable
PTX08-1007	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	CR	Decreasing	Decreasing	Decreasing
PTX08-1008	CR-6	Decreasing	Decreasing	Decreasing
PTX08-1008	DCA12	No Trend	No Trend	Probably Increasing
PTX08-1008	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DIOXANE14	No Trend	No Trend	Increasing
PTX08-1008	DNT24	All Non-Detect	All Non-Detect	All Non-Detect

Table 1 (continued)
Perched Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1008	DNT26	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1008	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1008	DNT4A	Probably Decreasing	Increasing	Increasing
PTX08-1008	PCE	No Trend	No Trend	Increasing
PTX08-1008	PERC	Increasing	No Trend	Decreasing
PTX08-1008	RDX	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1008	TCE	No Trend	No Trend	Increasing
PTX08-1008	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	CR	Decreasing	No Trend	Decreasing
PTX08-1009	CR-6	Decreasing	No Trend	Decreasing
PTX08-1009	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1009	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DNT2A	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1009	DNT4A	Decreasing	All Non-Detect	All Non-Detect
PTX08-1009	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	PERC	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX08-1009	RDX	Decreasing	N/A (<4 Detections in Dataset)	Probably Increasing
PTX08-1009	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX08-1009	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1009	TNT	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX08-1010	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	CR-6	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 1 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1010	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	RDX	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CR	Decreasing	No Trend	Stable
PTX10-1014	CR-6	Probably Increasing	No Trend	Stable
PTX10-1014	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DIOXANE14	Stable	No Trend	No Trend
PTX10-1014	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	PCE	No Trend	No Trend	No Trend
PTX10-1014	PERC	Decreasing	No Trend	Stable
PTX10-1014	RDX	No Trend	No Trend	No Trend
PTX10-1014	TCE	Stable	No Trend	Increasing
PTX10-1014	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Notes

CR	Chromium, Total
CR-6	Hexavalent Chromium
DCA12	1,2-Dichloroethane
DCE12C	cis-1,2-Dichloroethene
DIOXANE14	1,4-Dioxane
DNT24	2,4-Dinitrotoluene
DNT26	2,6-Dinitrotoluene
DNT2A	2-Amino, 4,6-dinitrotoluene
DNT4A	4-Amino, 2,6-dinitrotoluene
PCE	Tetrachloroethene
PERC	Perchlorate
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
TCE	Trichloroethene
TNB135	1,3,5-Dinitrobenzene
TNT	Trinitrotoluene

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Table 2
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
1114-MW4	CR	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
1114-MW4	CR-6	Decreasing	No Trend	N/A (<4 Detections in Dataset)
1114-MW4	DCA12	Decreasing	Decreasing	No Trend
1114-MW4	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DIOXANE14	Decreasing	Stable	Decreasing
1114-MW4	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
1114-MW4	DNT4A	Probably Decreasing	No Trend	Increasing
1114-MW4	PCE	Decreasing	Decreasing	Probably Increasing
1114-MW4	PERC	Decreasing	Probably Decreasing	Decreasing
1114-MW4	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
1114-MW4	TCE	Increasing	No Trend	Increasing
1114-MW4	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	TNT	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	CR	No Trend	No Trend	N/A (<4 Samples in Dataset)
OW-WR-38	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	PCE	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	RDX	Probably Increasing	No Trend	Increasing
OW-WR-38	TCE	Increasing	No Trend	N/A (<4 Detections in Dataset)
OW-WR-38	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	CR	Increasing	Decreasing	N/A (<4 Samples in Dataset)
PTX01-1001	CR-6	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX01-1001	DCA12	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX01-1001	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DNT4A	Stable	Stable	All Non-Detect
PTX01-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	PERC	Decreasing	Decreasing	Decreasing
PTX01-1001	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX01-1001	TCE	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX01-1001	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	CR	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX01-1008	CR-6	Probably Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX01-1008	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX01-1008	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	PERC	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX01-1008	TCE	Decreasing	Decreasing	All Non-Detect
PTX01-1008	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX04-1002	CR-6	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX04-1002	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DIOXANE14	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX04-1002	DNT24	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX04-1002	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX04-1002	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX04-1002	RDX	Stable	No Trend	Stable
PTX04-1002	TCE	Decreasing	No Trend	No Trend
PTX04-1002	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX04-1002	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1002A	CR-6	No Trend	Stable	Increasing
PTX06-1002A	DCA12	No Trend	No Trend	All Non-Detect
PTX06-1002A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1002A	DNT2A	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1002A	DNT4A	Decreasing	Increasing	No Trend
PTX06-1002A	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1002A	RDX	Probably Decreasing	Stable	Increasing
PTX06-1002A	TCE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1002A	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1002A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1005	CR	Increasing	Stable	Probably Increasing
PTX06-1005	CR-6	Increasing	Stable	No Trend
PTX06-1005	DCA12	Probably Decreasing	Probably Increasing	No Trend
PTX06-1005	DCE12C	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1005	DIOXANE14	No Trend	Probably Increasing	Probably Increasing
PTX06-1005	DNT24	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1005	DNT26	No Trend	Probably Increasing	All Non-Detect
PTX06-1005	DNT2A	Decreasing	Decreasing	Decreasing
PTX06-1005	DNT4A	Decreasing	No Trend	Decreasing
PTX06-1005	PCE	Increasing	No Trend	Decreasing
PTX06-1005	RDX	Decreasing	No Trend	Decreasing

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1005	TCE	Increasing	Decreasing	Probably Decreasing
PTX06-1005	TNB135	Stable	Stable	No Trend
PTX06-1005	TNT	Decreasing	Stable	Decreasing
PTX06-1006	DCA12	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1006	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DIOXANE14	Stable	Decreasing	Decreasing
PTX06-1006	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DNT4A	No Trend	Decreasing	Decreasing
PTX06-1006	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	PERC	Probably Increasing	Stable	Decreasing
PTX06-1006	RDX	Decreasing	Probably Decreasing	Decreasing
PTX06-1006	TCE	Increasing	Probably Increasing	Increasing
PTX06-1006	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	CR	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1007	CR-6	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1007	DCA12	Decreasing	Probably Decreasing	All Non-Detect
PTX06-1007	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	DIOXANE14	Decreasing	Probably Decreasing	Decreasing
PTX06-1007	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	DNT26	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1007	DNT2A	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1007	DNT4A	Increasing	Stable	Decreasing
PTX06-1007	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	PERC	No Trend	No Trend	Stable
PTX06-1007	RDX	Increasing	Probably Increasing	No Trend
PTX06-1007	TCE	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1007	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	CR	No Trend	No Trend	Probably Increasing
PTX06-1008	CR-6	Decreasing	Probably Decreasing	Probably Decreasing
PTX06-1008	DCA12	Increasing	No Trend	Probably Increasing
PTX06-1008	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1008	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1008	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DNT4A	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	PERC	Stable	No Trend	No Trend
PTX06-1008	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	TCE	Decreasing	No Trend	Increasing
PTX06-1008	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	CR	Decreasing	Stable	Decreasing
PTX06-1010	CR-6	Decreasing	Stable	Decreasing
PTX06-1010	DCA12	Decreasing	Stable	Stable
PTX06-1010	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1010	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1010	DNT2A	Decreasing	No Trend	No Trend
PTX06-1010	DNT4A	Decreasing	No Trend	Increasing
PTX06-1010	PCE	Decreasing	No Trend	No Trend
PTX06-1010	RDX	Decreasing	Stable	No Trend
PTX06-1010	TCE	Decreasing	Stable	Stable
PTX06-1010	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1010	TNT	Decreasing	Stable	All Non-Detect
PTX06-1011	CR	Decreasing	Stable	Stable
PTX06-1011	CR-6	Probably Decreasing	Stable	Stable
PTX06-1011	DCA12	Decreasing	No Trend	No Trend
PTX06-1011	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	DIOXANE14	Decreasing	No Trend	Increasing
PTX06-1011	DNT24	Decreasing	Decreasing	All Non-Detect
PTX06-1011	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1011	DNT4A	Decreasing	Decreasing	All Non-Detect
PTX06-1011	PCE	Decreasing	No Trend	Stable
PTX06-1011	PERC	Probably Decreasing	Stable	Decreasing

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1011	RDX	Decreasing	Stable	Stable
PTX06-1011	TCE	No Trend	Stable	Stable
PTX06-1011	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1011	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1013	CR	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1013	CR-6	No Trend	Increasing	Probably Increasing
PTX06-1013	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1013	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1013	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	RDX	Decreasing	Probably Decreasing	Stable
PTX06-1013	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	CR	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1014	CR-6	Decreasing	Stable	Decreasing
PTX06-1014	DCA12	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1014	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	DNT24	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1014	DNT26	Probably Increasing	No Trend	All Non-Detect
PTX06-1014	DNT2A	Decreasing	Stable	Stable
PTX06-1014	DNT4A	Decreasing	Increasing	Stable
PTX06-1014	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	RDX	Decreasing	Stable	Stable
PTX06-1014	TCE	Decreasing	Decreasing	All Non-Detect
PTX06-1014	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1014	TNT	No Trend	Increasing	Increasing
PTX06-1023	CR	Decreasing	Stable	All Non-Detect
PTX06-1023	CR-6	Decreasing	No Trend	No Trend
PTX06-1023	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1023	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1023	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1023	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	RDX	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1023	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1023	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	CR	Decreasing	No Trend	No Trend
PTX06-1031	CR-6	Increasing	Increasing	No Trend
PTX06-1031	DCA12	Decreasing	Stable	No Trend
PTX06-1031	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1031	DNT2A	Probably Increasing	Stable	All Non-Detect
PTX06-1031	DNT4A	Increasing	Stable	No Trend
PTX06-1031	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1031	RDX	Increasing	No Trend	No Trend
PTX06-1031	TCE	Decreasing	Probably Decreasing	Stable
PTX06-1031	TNB135	Stable	Stable	All Non-Detect
PTX06-1031	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	CR	Increasing	Stable	Increasing
PTX06-1034	CR-6	No Trend	Probably Decreasing	Stable
PTX06-1034	DCA12	Decreasing	Stable	Stable
PTX06-1034	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1034	DNT26	Decreasing	Probably Increasing	Increasing
PTX06-1034	DNT2A	Probably Increasing	No Trend	All Non-Detect
PTX06-1034	DNT4A	Increasing	Probably Increasing	Stable
PTX06-1034	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1034	RDX	Increasing	No Trend	No Trend
PTX06-1034	TCE	No Trend	Probably Increasing	Stable
PTX06-1034	TNB135	Stable	Probably Increasing	N/A (<4 Detections in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1034	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1035	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1035	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1035	DNT4A	Decreasing	No Trend	Probably Increasing
PTX06-1035	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	PERC	Increasing	Stable	Increasing
PTX06-1035	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1035	TCE	Increasing	Probably Increasing	Increasing
PTX06-1035	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1035	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	CR	Probably Decreasing	No Trend	All Non-Detect
PTX06-1038	CR-6	Decreasing	Stable	Decreasing
PTX06-1038	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1038	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	DNT24	Decreasing	No Trend	All Non-Detect
PTX06-1038	DNT26	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1038	DNT2A	Decreasing	Decreasing	Decreasing
PTX06-1038	DNT4A	Decreasing	Decreasing	Decreasing
PTX06-1038	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1038	RDX	Decreasing	Probably Decreasing	Decreasing
PTX06-1038	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	TNB135	Increasing	Stable	Stable
PTX06-1038	TNT	No Trend	Decreasing	Decreasing
PTX06-1039A	CR	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1039A	CR-6	Decreasing	No Trend	Increasing
PTX06-1039A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	DNT24	Decreasing	Decreasing	All Non-Detect
PTX06-1039A	DNT26	No Trend	Probably Increasing	All Non-Detect
PTX06-1039A	DNT2A	Probably Decreasing	Stable	Decreasing

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1039A	DNT4A	Increasing	No Trend	Increasing
PTX06-1039A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	RDX	Probably Decreasing	Stable	Stable
PTX06-1039A	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1039A	TNB135	Increasing	No Trend	No Trend
PTX06-1039A	TNT	Increasing	Decreasing	Decreasing
PTX06-1040	CR	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1040	CR-6	Decreasing	No Trend	No Trend
PTX06-1040	DCA12	Stable	Stable	All Non-Detect
PTX06-1040	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	DNT24	Stable	Decreasing	All Non-Detect
PTX06-1040	DNT26	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1040	DNT2A	Probably Decreasing	Decreasing	Decreasing
PTX06-1040	DNT4A	No Trend	No Trend	No Trend
PTX06-1040	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	RDX	Increasing	No Trend	Stable
PTX06-1040	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1040	TNB135	Increasing	Stable	Increasing
PTX06-1040	TNT	Increasing	Probably Decreasing	Decreasing
PTX06-1041	CR	Increasing	Probably Increasing	Probably Increasing
PTX06-1041	CR-6	Stable	Increasing	Increasing
PTX06-1041	DCA12	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1041	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	DNT24	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1041	DNT26	Increasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1041	DNT2A	Stable	Decreasing	Decreasing
PTX06-1041	DNT4A	Decreasing	No Trend	Decreasing
PTX06-1041	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1041	RDX	Increasing	Increasing	No Trend
PTX06-1041	TCE	Stable	Stable	All Non-Detect
PTX06-1041	TNB135	Decreasing	Stable	Decreasing
PTX06-1041	TNT	Decreasing	Stable	Decreasing
PTX06-1042	CR	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1042	CR-6	Probably Decreasing	No Trend	Probably Increasing

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1042	DCA12	Decreasing	Stable	All Non-Detect
PTX06-1042	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1042	DNT26	Stable	No Trend	All Non-Detect
PTX06-1042	DNT2A	Decreasing	Stable	Stable
PTX06-1042	DNT4A	No Trend	Probably Decreasing	Stable
PTX06-1042	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	RDX	Decreasing	No Trend	Stable
PTX06-1042	TCE	Decreasing	Decreasing	All Non-Detect
PTX06-1042	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1042	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	CR	Increasing	No Trend	No Trend
PTX06-1046	CR-6	Increasing	Decreasing	Stable
PTX06-1046	DCA12	Decreasing	Decreasing	Decreasing
PTX06-1046	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1046	DNT26	Decreasing	Probably Decreasing	All Non-Detect
PTX06-1046	DNT2A	No Trend	Stable	Decreasing
PTX06-1046	DNT4A	Stable	Decreasing	Decreasing
PTX06-1046	PCE	Stable	Stable	All Non-Detect
PTX06-1046	RDX	No Trend	Decreasing	Decreasing
PTX06-1046	TCE	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1046	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1046	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	CR	Increasing	Stable	Stable
PTX06-1047A	CR-6	Increasing	Stable	No Trend
PTX06-1047A	DCA12	Decreasing	Decreasing	All Non-Detect
PTX06-1047A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1047A	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1047A	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1047A	DNT4A	Decreasing	Decreasing	Decreasing
PTX06-1047A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	RDX	No Trend	Decreasing	Stable
PTX06-1047A	TCE	Decreasing	Probably Decreasing	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1047A	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1047A	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1048A	DCA12	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1048A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DNT4A	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1048A	PCE	No Trend	No Trend	All Non-Detect
PTX06-1048A	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1048A	TCE	Stable	Stable	Stable
PTX06-1048A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1049	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DCE12C	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1049	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DNT4A	Decreasing	No Trend	Stable
PTX06-1049	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	RDX	Increasing	Probably Increasing	Increasing
PTX06-1049	TCE	Stable	No Trend	Stable
PTX06-1049	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DNT2A	Stable	No Trend	Probably Increasing
PTX06-1050	DNT4A	Increasing	No Trend	Decreasing
PTX06-1050	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	RDX	Decreasing	No Trend	Increasing
PTX06-1050	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1052	CR	Decreasing	Probably Decreasing	Decreasing
PTX06-1052	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1052	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1052	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1052	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DNT4A	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1052	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	RDX	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1052	TCE	No Trend	Increasing	Increasing
PTX06-1052	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	CR	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1053	CR-6	No Trend	Stable	No Trend
PTX06-1053	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1053	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1053	DNT2A	Increasing	Stable	Stable
PTX06-1053	DNT4A	Decreasing	No Trend	Probably Decreasing
PTX06-1053	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	PERC	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1053	RDX	Decreasing	Increasing	No Trend
PTX06-1053	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1069	CR	Increasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1069	CR-6	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1069	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1069	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CR	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1071	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1071	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CR	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1077A	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DCE12C	Decreasing	Probably Increasing	No Trend
PTX06-1077A	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1077A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	PCE	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1077A	PERC	Decreasing	Decreasing	Decreasing
PTX06-1077A	RDX	Decreasing	No Trend	No Trend
PTX06-1077A	TCE	Decreasing	No Trend	Increasing
PTX06-1077A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1077A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1082	CR	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1082	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	RDX	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CR	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1083	CR-6	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1083	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	RDX	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DNT26	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1085	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	CR	Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1086	CR-6	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1086	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1086	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	CR	Decreasing	No Trend	Increasing
PTX06-1088	CR-6	Decreasing	No Trend	Increasing
PTX06-1088	DCA12	Increasing	No Trend	Stable
PTX06-1088	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	DIOXANE14	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1088	DNT24	Decreasing	No Trend	Decreasing
PTX06-1088	DNT26	Probably Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1088	DNT2A	Decreasing	Stable	Probably Increasing
PTX06-1088	DNT4A	Decreasing	Probably Decreasing	Increasing
PTX06-1088	PCE	Increasing	No Trend	Decreasing
PTX06-1088	RDX	Decreasing	Decreasing	Increasing
PTX06-1088	TCE	Decreasing	No Trend	Stable
PTX06-1088	TNB135	Decreasing	Decreasing	Decreasing
PTX06-1088	TNT	Decreasing	No Trend	Decreasing
PTX06-1095A	CR	Increasing	No Trend	No Trend
PTX06-1095A	CR-6	No Trend	Stable	No Trend

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1095A	DCA12	Increasing	No Trend	Increasing
PTX06-1095A	DCE12C	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1095A	DIOXANE14	Decreasing	No Trend	No Trend
PTX06-1095A	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1095A	DNT26	No Trend	Stable	Stable
PTX06-1095A	DNT2A	Probably Increasing	Stable	Decreasing
PTX06-1095A	DNT4A	Stable	No Trend	Decreasing
PTX06-1095A	PCE	No Trend	Decreasing	Decreasing
PTX06-1095A	RDX	Increasing	Stable	Decreasing
PTX06-1095A	TCE	Increasing	Probably Decreasing	Decreasing
PTX06-1095A	TNB135	Increasing	Probably Decreasing	Stable
PTX06-1095A	TNT	Increasing	Stable	Stable
PTX06-1120	CR	Increasing	No Trend	No Trend
PTX06-1120	CR-6	Decreasing	Probably Decreasing	Decreasing
PTX06-1120	DCA12	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1120	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1120	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1120	DNT26	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1120	DNT2A	Decreasing	Probably Decreasing	Decreasing
PTX06-1120	DNT4A	Stable	Decreasing	Decreasing
PTX06-1120	PCE	Stable	Stable	All Non-Detect
PTX06-1120	RDX	Decreasing	Decreasing	Decreasing
PTX06-1120	TCE	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1120	TNB135	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1120	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	CR	No Trend	Probably Increasing	Increasing
PTX06-1126	CR-6	Probably Increasing	No Trend	Increasing
PTX06-1126	DCA12	No Trend	Stable	Decreasing
PTX06-1126	DCE12C	Decreasing	Stable	Decreasing
PTX06-1126	DIOXANE14	Decreasing	Stable	Decreasing
PTX06-1126	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1126	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	DNT4A	Stable	Decreasing	Decreasing
PTX06-1126	PCE	Increasing	Stable	Stable

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1126	PERC	Decreasing	No Trend	Decreasing
PTX06-1126	RDX	Increasing	Stable	Probably Decreasing
PTX06-1126	TCE	No Trend	Probably Decreasing	Decreasing
PTX06-1126	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	CR	Increasing	Stable	Increasing
PTX06-1127	CR-6	Decreasing	Stable	Decreasing
PTX06-1127	DCA12	Decreasing	Stable	Decreasing
PTX06-1127	DCE12C	Increasing	Decreasing	Increasing
PTX06-1127	DIOXANE14	Probably Increasing	Stable	Decreasing
PTX06-1127	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DNT4A	Increasing	Stable	Stable
PTX06-1127	PCE	Increasing	Decreasing	Stable
PTX06-1127	PERC	Decreasing	No Trend	Decreasing
PTX06-1127	RDX	Increasing	Increasing	Increasing
PTX06-1127	TCE	Increasing	No Trend	Increasing
PTX06-1127	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1131	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	CR	No Trend	No Trend	No Trend
PTX06-1133A	CR-6	Decreasing	No Trend	Decreasing
PTX06-1133A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1133A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1133A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DCA12	No Trend	No Trend	No Trend
PTX06-1134	DCE12C	Increasing	Probably Decreasing	Increasing
PTX06-1134	DIOXANE14	Stable	Probably Decreasing	Decreasing
PTX06-1134	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DNT4A	Stable	Stable	Increasing
PTX06-1134	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	PERC	Increasing	No Trend	Increasing
PTX06-1134	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1134	TCE	Increasing	Decreasing	Increasing
PTX06-1134	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	CR	No Trend	No Trend	Stable
PTX06-1146	CR-6	Increasing	No Trend	Increasing
PTX06-1146	DCA12	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1146	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	DNT26	Increasing	No Trend	Increasing
PTX06-1146	DNT2A	Increasing	Stable	Decreasing
PTX06-1146	DNT4A	No Trend	No Trend	No Trend
PTX06-1146	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1146	RDX	Stable	Increasing	Increasing
PTX06-1146	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	TNB135	Increasing	Stable	No Trend
PTX06-1146	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1147	CR	Decreasing	No Trend	No Trend
PTX06-1147	CR-6	Stable	Stable	Increasing
PTX06-1147	DCA12	Stable	Stable	Increasing
PTX06-1147	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	DNT26	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1147	DNT2A	Increasing	No Trend	Increasing
PTX06-1147	DNT4A	No Trend	No Trend	Increasing
PTX06-1147	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	RDX	No Trend	Probably Increasing	Stable
PTX06-1147	TCE	Decreasing	Decreasing	Increasing
PTX06-1147	TNB135	Probably Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1147	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DCA12	Increasing	Decreasing	Decreasing
PTX06-1151	DCE12C	Increasing	Probably Increasing	Increasing
PTX06-1151	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1151	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DNT4A	No Trend	Probably Decreasing	Decreasing
PTX06-1151	PCE	Increasing	Decreasing	No Trend
PTX06-1151	PERC	Decreasing	Decreasing	Decreasing
PTX06-1151	RDX	Decreasing	Decreasing	Decreasing
PTX06-1151	TCE	Probably Decreasing	No Trend	No Trend
PTX06-1151	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1151	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DCA12	Decreasing	Decreasing	Decreasing
PTX06-1159	DCE12C	No Trend	Decreasing	Decreasing
PTX06-1159	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1159	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DNT4A	Stable	No Trend	Decreasing
PTX06-1159	PCE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1159	PERC	Increasing	Probably Decreasing	Decreasing
PTX06-1159	RDX	Decreasing	Decreasing	N/A (<4 Detections in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1159	TCE	Decreasing	Stable	Decreasing
PTX06-1159	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1160	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	PERC	Probably Decreasing	Probably Increasing	Probably Decreasing
PTX06-1160	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1160	TCE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1160	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	CR	Increasing	No Trend	Increasing
PTX06-1166	CR-6	Increasing	No Trend	Increasing
PTX06-1166	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1166	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	DNT24	Decreasing	Decreasing	Decreasing
PTX06-1166	DNT26	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX06-1166	DNT2A	No Trend	No Trend	No Trend
PTX06-1166	DNT4A	Stable	No Trend	Increasing
PTX06-1166	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1166	RDX	Decreasing	Stable	Stable
PTX06-1166	TCE	Decreasing	Decreasing	Decreasing
PTX06-1166	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1166	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1171	DCA12	Decreasing	Stable	Decreasing
PTX06-1171	DCE12C	Decreasing	Probably Decreasing	Decreasing
PTX06-1171	DIOXANE14	No Trend	Probably Increasing	Increasing
PTX06-1171	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1171	DNT4A	Decreasing	Stable	Stable
PTX06-1171	PCE	Increasing	Decreasing	Stable
PTX06-1171	PERC	Decreasing	Stable	Probably Decreasing
PTX06-1171	RDX	Increasing	Probably Increasing	Increasing
PTX06-1171	TCE	No Trend	Probably Decreasing	Decreasing
PTX06-1171	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DCE12C	Stable	Decreasing	Decreasing
PTX06-1180	DIOXANE14	Decreasing	Stable	Decreasing
PTX06-1180	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	PERC	Increasing	Increasing	Increasing
PTX06-1180	RDX	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1180	TCE	Probably Increasing	Stable	Decreasing
PTX06-1180	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1182	CR-6	Stable	Stable	Stable
PTX06-1182	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1182	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DNT4A	Decreasing	Stable	Decreasing
PTX06-1182	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	RDX	Decreasing	Stable	Decreasing
PTX06-1182	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1182	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	CR	Decreasing	Decreasing	Decreasing
PTX06-1183	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1183	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1183	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1183	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1183	TCE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1183	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	CR	Increasing	No Trend	Increasing
PTX06-1185	CR-6	Decreasing	Stable	Decreasing
PTX06-1185	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1185	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DNT26	Decreasing	No Trend	Decreasing
PTX06-1185	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DNT4A	Decreasing	Stable	Decreasing
PTX06-1185	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	RDX	Decreasing	Decreasing	Decreasing
PTX06-1185	TCE	Stable	Decreasing	Stable
PTX06-1185	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1185	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	CR	Probably Increasing	Probably Decreasing	Probably Increasing
PTX06-1190	CR-6	Increasing	Stable	Increasing
PTX06-1190	DCA12	No Trend	No Trend	No Trend
PTX06-1190	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DNT26	Probably Increasing	No Trend	Probably Increasing
PTX06-1190	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DNT4A	Decreasing	Probably Decreasing	Decreasing
PTX06-1190	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	RDX	Increasing	No Trend	Increasing
PTX06-1190	TCE	Stable	Stable	Stable
PTX06-1190	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1192	CR-6	No Trend	Probably Decreasing	No Trend
PTX06-1192	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1192	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1192	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR-6	No Trend	Stable	No Trend
PTX06-1195	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1195	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	CR	Decreasing	No Trend	Decreasing
PTX06-1197	CR-6	No Trend	Stable	No Trend
PTX06-1197	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1197	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DNT26	No Trend	No Trend	No Trend
PTX06-1197	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DNT4A	Stable	Stable	Stable
PTX06-1197	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	RDX	Increasing	Increasing	Increasing
PTX06-1197	TCE	No Trend	No Trend	No Trend

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1197	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1197	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	CR-6	No Trend	Probably Decreasing	No Trend
PTX06-1199	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DNT26	Increasing	Probably Increasing	Increasing
PTX06-1199	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DNT4A	Increasing	Increasing	Increasing
PTX06-1199	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	RDX	Increasing	Probably Increasing	Increasing
PTX06-1199	TCE	Stable	No Trend	Stable
PTX06-1199	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR-6	Probably Increasing	No Trend	Probably Increasing
PTX06-1200	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1200	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1200	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	CR	Stable	Stable	Stable
PTX06-1201	CR-6	Probably Increasing	Stable	Probably Increasing
PTX06-1201	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1201	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1201	DNT4A	Increasing	Probably Increasing	Increasing
PTX06-1201	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	RDX	Increasing	Increasing	Increasing
PTX06-1201	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1201	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1202	CR-6	Increasing	No Trend	Increasing
PTX06-1202	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DNT4A	Increasing	No Trend	Increasing
PTX06-1202	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	RDX	No Trend	No Trend	No Trend
PTX06-1202	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1202	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	CR	Stable	Stable	Stable
PTX06-1203	CR-6	Stable	Stable	Stable
PTX06-1203	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1203	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DNT26	Stable	No Trend	Stable
PTX06-1203	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DNT4A	No Trend	Decreasing	No Trend
PTX06-1203	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	RDX	Increasing	Increasing	Increasing
PTX06-1203	TCE	No Trend	Stable	No Trend
PTX06-1203	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1203	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	CR	Decreasing	Probably Decreasing	Decreasing
PTX06-1204	CR-6	Increasing	Stable	Increasing
PTX06-1204	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1204	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1204	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1204	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DNT4A	Increasing	Increasing	Increasing
PTX06-1204	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	RDX	Increasing	Increasing	Increasing
PTX06-1204	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	TNB135	Stable	Stable	Stable
PTX06-1204	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1207	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	RDX	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1208	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1208	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	RDX	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1211	CR	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	DCE12C	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1O03	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1O03	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1O03	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DNT2A	No Trend	No Trend	No Trend
PTX07-1O03	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX07-1O03	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	RDX	Decreasing	Stable	Stable
PTX07-1O03	TCE	Stable	Decreasing	Decreasing
PTX07-1O03	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	CR	Probably Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX07-1P02	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1P02	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1P02	DIOXANE14	Decreasing	Stable	Decreasing
PTX07-1P02	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX07-1P02	RDX	Decreasing	Increasing	Increasing
PTX07-1P02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	CR	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q01	CR-6	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q01	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX07-1Q01	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	CR	Stable	Stable	N/A (<4 Samples in Dataset)
PTX07-1Q02	CR-6	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX07-1Q02	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX07-1Q02	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX07-1Q02	PCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q02	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX07-1Q02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R03	CR	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX07-1R03	CR-6	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX07-1R03	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	CR	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1001	CR-6	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1001	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1001	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	PERC	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1001	RDX	Increasing	Decreasing	No Trend
PTX08-1001	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	CR	No Trend	Decreasing	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1002	CR-6	Decreasing	Increasing	No Trend
PTX08-1002	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	DNT24	Decreasing	No Trend	Probably Decreasing
PTX08-1002	DNT26	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1002	DNT2A	Decreasing	No Trend	No Trend
PTX08-1002	DNT4A	Stable	No Trend	Stable
PTX08-1002	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	RDX	Decreasing	No Trend	No Trend
PTX08-1002	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	TNB135	Probably Decreasing	No Trend	Stable
PTX08-1002	TNT	Decreasing	No Trend	Decreasing
PTX08-1003	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DCE12C	Decreasing	Probably Decreasing	All Non-Detect
PTX08-1003	DIOXANE14	No Trend	No Trend	Probably Increasing
PTX08-1003	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	PERC	Decreasing	Stable	Stable
PTX08-1003	RDX	No Trend	Stable	Probably Decreasing
PTX08-1003	TCE	Decreasing	Decreasing	Decreasing
PTX08-1003	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	CR	Stable	Probably Increasing	Increasing
PTX08-1005	CR-6	Decreasing	Probably Increasing	Increasing
PTX08-1005	DCA12	Decreasing	Decreasing	All Non-Detect
PTX08-1005	DCE12C	Decreasing	Stable	Probably Decreasing
PTX08-1005	DIOXANE14	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1005	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	DNT2A	Decreasing	Stable	All Non-Detect
PTX08-1005	DNT4A	No Trend	Stable	All Non-Detect
PTX08-1005	PCE	Stable	Probably Decreasing	All Non-Detect
PTX08-1005	PERC	Decreasing	No Trend	N/A (<4 Detections in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1005	RDX	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1005	TCE	Decreasing	Decreasing	Decreasing
PTX08-1005	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1005	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1006	CR	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1006	CR-6	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX08-1006	DCA12	Decreasing	No Trend	Decreasing
PTX08-1006	DCE12C	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1006	DIOXANE14	Decreasing	Stable	Decreasing
PTX08-1006	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1006	DNT26	Decreasing	Decreasing	All Non-Detect
PTX08-1006	DNT2A	No Trend	No Trend	Increasing
PTX08-1006	DNT4A	Decreasing	No Trend	Decreasing
PTX08-1006	PCE	Decreasing	No Trend	Probably Decreasing
PTX08-1006	PERC	Decreasing	Stable	Decreasing
PTX08-1006	RDX	Increasing	No Trend	Decreasing
PTX08-1006	TCE	Increasing	No Trend	No Trend
PTX08-1006	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1007	CR	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1007	CR-6	No Trend	Decreasing	Probably Decreasing
PTX08-1007	DCA12	Increasing	Increasing	Increasing
PTX08-1007	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DIOXANE14	Probably Increasing	Increasing	Increasing
PTX08-1007	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1007	PCE	Decreasing	No Trend	Increasing
PTX08-1007	PERC	Stable	Probably Increasing	Increasing
PTX08-1007	RDX	Increasing	Decreasing	Probably Decreasing
PTX08-1007	TCE	Probably Increasing	Stable	Decreasing
PTX08-1007	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1008	CR	Decreasing	Decreasing	Decreasing
PTX08-1008	CR-6	Decreasing	Decreasing	Decreasing
PTX08-1008	DCA12	Increasing	No Trend	Increasing
PTX08-1008	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DIOXANE14	Increasing	No Trend	Increasing
PTX08-1008	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DNT26	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1008	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1008	DNT4A	Increasing	Probably Increasing	Increasing
PTX08-1008	PCE	No Trend	No Trend	No Trend
PTX08-1008	PERC	Increasing	Stable	Decreasing
PTX08-1008	RDX	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1008	TCE	Increasing	No Trend	Increasing
PTX08-1008	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	CR	Decreasing	Stable	Decreasing
PTX08-1009	CR-6	Decreasing	Stable	Decreasing
PTX08-1009	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1009	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DNT2A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1009	DNT4A	No Trend	Decreasing	All Non-Detect
PTX08-1009	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	PERC	Stable	Stable	Stable
PTX08-1009	RDX	Decreasing	No Trend	Probably Increasing
PTX08-1009	TCE	Decreasing	Stable	All Non-Detect
PTX08-1009	TNB135	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1009	TNT	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX08-1010	CR	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1010	CR-6	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1010	DCA12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCE12C	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 2 (continued)
Perched Groundwater Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1010	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	DNT24	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DNT26	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DNT2A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DNT4A	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	RDX	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	TNB135	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TNT	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CR	Decreasing	Stable	Stable
PTX10-1014	CR-6	Decreasing	Probably Decreasing	Probably Decreasing
PTX10-1014	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DIOXANE14	Stable	Stable	No Trend
PTX10-1014	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	PCE	Stable	No Trend	No Trend
PTX10-1014	PERC	Decreasing	Stable	Stable
PTX10-1014	RDX	Decreasing	No Trend	No Trend
PTX10-1014	TCE	Decreasing	Probably Increasing	Increasing
PTX10-1014	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Notes

CR	Chromium, Total
CR-6	Hexavalent Chromium
DCA12	1,2-Dichloroethane
DCE12C	cis-1,2-Dichloroethene
DIOXANE14	1,4-Dioxane
DNT24	2,4-Dinitrotoluene
DNT26	2,6-Dinitrotoluene
DNT2A	2-Amino, 4,6-dinitrotoluene
DNT4A	4-Amino, 2,6-dinitrotoluene
PCE	Tetrachloroethene
PERC	Perchlorate
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
TCE	Trichloroethene
TNB135	1,3,5-Dinitrobenzene
TNT	Trinitrotoluene

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Table 3
Perched Groundwater Mann-Kendall Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1012	AS	Increasing	No Trend	Increasing
PTX06-1012	BA	Increasing	No Trend	Increasing
PTX06-1012	MN	No Trend	No Trend	No Trend
PTX06-1037	AS	Increasing	Decreasing	Decreasing
PTX06-1037	BA	Increasing	No Trend	No Trend
PTX06-1037	MN	Increasing	No Trend	Decreasing
PTX06-1045	AS	Stable	All Non-Detect	All Non-Detect
PTX06-1045	BA	Increasing	Decreasing	Decreasing
PTX06-1045	MN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	AS	Stable	No Trend	Stable
PTX06-1098	BA	Decreasing	Decreasing	Decreasing
PTX06-1098	MN	Decreasing	No Trend	No Trend
PTX06-1101	AS	Decreasing	No Trend	Stable
PTX06-1101	BA	Decreasing	Decreasing	Decreasing
PTX06-1101	MN	Decreasing	No Trend	No Trend
PTX06-1148	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1148	BA	Increasing	No Trend	Probably Decreasing
PTX06-1148	MN	Increasing	No Trend	Stable
PTX06-1149	AS	Stable	No Trend	Decreasing
PTX06-1149	BA	Stable	Increasing	Decreasing
PTX06-1149	MN	Stable	No Trend	Decreasing
PTX06-1150	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1150	BA	Increasing	No Trend	Increasing
PTX06-1150	MN	No Trend	No Trend	Probably Increasing
PTX06-1153	AS	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1153	BA	Stable	No Trend	Increasing
PTX06-1153	MN	Decreasing	No Trend	Increasing
PTX06-1154	AS	Increasing	No Trend	Stable
PTX06-1154	BA	Increasing	No Trend	Probably Decreasing
PTX06-1154	MN	Decreasing	No Trend	Increasing
PTX06-1155	AS	Increasing	No Trend	Stable
PTX06-1155	BA	Increasing	Decreasing	Decreasing
PTX06-1155	MN	Stable	No Trend	Decreasing
PTX06-1156	AS	Increasing	No Trend	Increasing
PTX06-1156	BA	Increasing	No Trend	Decreasing
PTX06-1156	MN	No Trend	No Trend	Decreasing
PTX06-1164	AS	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1164	BA	Probably Increasing	No Trend	No Trend
PTX06-1164	MN	No Trend	Stable	No Trend
PTX06-1169	AS	Decreasing	Stable	Decreasing
PTX06-1169	BA	Decreasing	Stable	Decreasing
PTX06-1169	MN	Stable	No Trend	Stable

Table 3 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1170	AS	Decreasing	Increasing	No Trend
PTX06-1170	BA	Increasing	Increasing	Increasing
PTX06-1170	MN	Increasing	Increasing	Increasing
PTX06-1173	AS	Stable	Increasing	Stable
PTX06-1173	BA	Decreasing	Increasing	Decreasing
PTX06-1173	MN	Decreasing	No Trend	Decreasing
PTX06-1174	AS	No Trend	No Trend	Stable
PTX06-1174	BA	Probably Decreasing	No Trend	Decreasing
PTX06-1174	MN	No Trend	No Trend	Decreasing
PTX06-1175	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1175	MN	No Trend	No Trend	Probably Increasing
PTX06-1176	AS	Increasing	Stable	Increasing
PTX06-1176	BA	Increasing	No Trend	Increasing
PTX06-1176	MN	Increasing	Decreasing	No Trend
PTX06-1177	AS	Increasing	Stable	Increasing
PTX06-1177	BA	Increasing	No Trend	No Trend
PTX06-1177	MN	No Trend	Stable	Decreasing
PTX06-1191	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	BA	No Trend	Increasing	No Trend
PTX06-1191	MN	Stable	No Trend	Stable
PTX06-1194	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	BA	No Trend	Increasing	No Trend
PTX06-1194	MN	No Trend	No Trend	No Trend
PTX06-1196	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	BA	No Trend	No Trend	No Trend
PTX06-1196	MN	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1209	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1209	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1209	MN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1210	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1210	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1210	MN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1213	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1213	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1213	MN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1214	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1214	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 3 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1214	MN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB030B	AS	Increasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-ISB030B	BA	Increasing	No Trend	No Trend
PTX06-ISB030B	MN	Decreasing	Stable	No Trend
PTX06-ISB038	AS	Increasing	Stable	Increasing
PTX06-ISB038	BA	Stable	No Trend	No Trend
PTX06-ISB038	MN	Decreasing	Decreasing	No Trend
PTX06-ISB046	AS	Increasing	Decreasing	Increasing
PTX06-ISB046	BA	Stable	Increasing	Increasing
PTX06-ISB046	MN	Decreasing	No Trend	Increasing
PTX06-ISB048	AS	Decreasing	No Trend	Decreasing
PTX06-ISB048	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB048	MN	Decreasing	No Trend	Probably Increasing
PTX06-ISB055	AS	Decreasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-ISB055	BA	No Trend	Stable	No Trend
PTX06-ISB055	MN	Decreasing	Increasing	No Trend
PTX06-ISB059	AS	Decreasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-ISB059	BA	No Trend	Stable	No Trend
PTX06-ISB059	MN	Decreasing	No Trend	No Trend
PTX06-ISB073	AS	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-ISB073	BA	Stable	Stable	Stable
PTX06-ISB073	MN	Decreasing	Decreasing	Increasing
PTX06-ISB075	AS	Increasing	No Trend	No Trend
PTX06-ISB075	BA	No Trend	Stable	No Trend
PTX06-ISB075	MN	Decreasing	No Trend	Stable
PTX06-ISB079	AS	Increasing	Stable	Increasing
PTX06-ISB079	BA	Stable	Stable	Decreasing
PTX06-ISB079	MN	Decreasing	Stable	Decreasing
PTX06-ISB082	AS	Increasing	No Trend	Increasing
PTX06-ISB082	BA	Probably Decreasing	No Trend	Decreasing
PTX06-ISB082	MN	Decreasing	Stable	Decreasing
PTX06-ISB302	AS	Probably Increasing	Stable	Probably Increasing
PTX06-ISB302	BA	No Trend	Stable	No Trend
PTX06-ISB302	MN	No Trend	No Trend	No Trend
PTX06-ISB307	AS	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-ISB307	BA	No Trend	Stable	No Trend
PTX06-ISB307	MN	No Trend	No Trend	No Trend
PTX06-ISB317	AS	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-ISB317	BA	No Trend	No Trend	No Trend
PTX06-ISB317	MN	No Trend	No Trend	No Trend
PTX06-ISB321	AS	Stable	N/A (<4 Detections in Dataset)	Stable

Table 3 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-ISB321	BA	Stable	Decreasing	Stable
PTX06-ISB321	MN	No Trend	Stable	No Trend
PTX06-ISB325	AS	Stable	Stable	Stable
PTX06-ISB325	BA	No Trend	No Trend	No Trend
PTX06-ISB325	MN	No Trend	No Trend	No Trend
PTX06-ISB331	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB331	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB331	MN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB407	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB407	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-ISB407	MN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Notes

AS Arsenic
BA Barium
MN Manganese

Table 4
Perched Groundwater Linear Regression Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1012	AS	Increasing	Stable	Increasing
PTX06-1012	BA	Increasing	Stable	Increasing
PTX06-1012	MN	Decreasing	Stable	No Trend
PTX06-1037	AS	Increasing	Stable	Decreasing
PTX06-1037	BA	Increasing	Stable	No Trend
PTX06-1037	MN	Increasing	Stable	Decreasing
PTX06-1045	AS	No Trend	No Trend	All Non-Detect
PTX06-1045	BA	Increasing	Decreasing	Probably Decreasing
PTX06-1045	MN	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1098	AS	Decreasing	No Trend	No Trend
PTX06-1098	BA	Decreasing	Decreasing	Decreasing
PTX06-1098	MN	Decreasing	Stable	No Trend
PTX06-1101	AS	Decreasing	Stable	Stable
PTX06-1101	BA	Decreasing	Decreasing	Decreasing
PTX06-1101	MN	Probably Decreasing	Stable	Stable
PTX06-1148	AS	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1148	BA	Increasing	Increasing	Probably Decreasing
PTX06-1148	MN	Probably Increasing	Probably Decreasing	Probably Increasing
PTX06-1149	AS	Decreasing	Decreasing	Decreasing
PTX06-1149	BA	Probably Increasing	No Trend	Decreasing
PTX06-1149	MN	Increasing	Probably Decreasing	Stable
PTX06-1150	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1150	BA	Probably Increasing	Stable	Probably Increasing
PTX06-1150	MN	No Trend	No Trend	No Trend
PTX06-1153	AS	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1153	BA	Decreasing	No Trend	Increasing
PTX06-1153	MN	Decreasing	Stable	Increasing
PTX06-1154	AS	Increasing	No Trend	Stable
PTX06-1154	BA	Increasing	No Trend	Decreasing
PTX06-1154	MN	Decreasing	No Trend	Increasing
PTX06-1155	AS	Increasing	Decreasing	Decreasing
PTX06-1155	BA	Increasing	Decreasing	Decreasing
PTX06-1155	MN	Increasing	Stable	Decreasing
PTX06-1156	AS	Increasing	No Trend	Increasing
PTX06-1156	BA	Increasing	Stable	Decreasing
PTX06-1156	MN	Increasing	No Trend	Decreasing
PTX06-1164	AS	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1164	BA	Increasing	No Trend	No Trend
PTX06-1164	MN	Increasing	No Trend	Increasing
PTX06-1169	AS	Decreasing	Stable	Decreasing
PTX06-1169	BA	Decreasing	Probably Decreasing	Decreasing
PTX06-1169	MN	Stable	No Trend	Stable

Table 4 (continued)
Perched Groundwater Linear Regression Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1170	AS	Probably Decreasing	Increasing	No Trend
PTX06-1170	BA	Increasing	Increasing	Increasing
PTX06-1170	MN	Increasing	Increasing	Increasing
PTX06-1173	AS	Probably Increasing	Increasing	Stable
PTX06-1173	BA	Decreasing	Probably Increasing	Decreasing
PTX06-1173	MN	No Trend	Probably Increasing	Decreasing
PTX06-1174	AS	Increasing	Probably Decreasing	No Trend
PTX06-1174	BA	Stable	Decreasing	Decreasing
PTX06-1174	MN	No Trend	Stable	Decreasing
PTX06-1175	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1175	BA	Increasing	Increasing	Increasing
PTX06-1175	MN	No Trend	No Trend	Increasing
PTX06-1176	AS	Increasing	Probably Increasing	Increasing
PTX06-1176	BA	Increasing	Increasing	Increasing
PTX06-1176	MN	Increasing	Decreasing	No Trend
PTX06-1177	AS	Increasing	No Trend	Increasing
PTX06-1177	BA	Increasing	No Trend	Increasing
PTX06-1177	MN	No Trend	No Trend	Decreasing
PTX06-1191	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	BA	No Trend	Probably Increasing	No Trend
PTX06-1191	MN	Stable	No Trend	Stable
PTX06-1194	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	BA	No Trend	Probably Increasing	No Trend
PTX06-1194	MN	No Trend	No Trend	No Trend
PTX06-1196	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	BA	Stable	No Trend	Stable
PTX06-1196	MN	Probably Decreasing	Stable	Probably Decreasing
PTX06-1209	AS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1209	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1209	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1210	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1210	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1210	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1213	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1213	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1214	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1214	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1214	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 4 (continued)
Perched Groundwater Linear Regression Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-ISB030B	AS	Increasing	Increasing	Increasing
PTX06-ISB030B	BA	No Trend	No Trend	Increasing
PTX06-ISB030B	MN	Decreasing	Stable	Increasing
PTX06-ISB038	AS	Increasing	No Trend	Increasing
PTX06-ISB038	BA	Stable	No Trend	No Trend
PTX06-ISB038	MN	Decreasing	Decreasing	Increasing
PTX06-ISB046	AS	Increasing	Decreasing	Increasing
PTX06-ISB046	BA	Decreasing	Probably Increasing	Increasing
PTX06-ISB046	MN	Decreasing	Probably Decreasing	Increasing
PTX06-ISB048	AS	Decreasing	No Trend	Decreasing
PTX06-ISB048	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-ISB048	MN	Decreasing	No Trend	Increasing
PTX06-ISB055	AS	Decreasing	No Trend	Increasing
PTX06-ISB055	BA	Stable	Decreasing	Stable
PTX06-ISB055	MN	No Trend	No Trend	Increasing
PTX06-ISB059	AS	No Trend	Probably Increasing	Increasing
PTX06-ISB059	BA	No Trend	Stable	No Trend
PTX06-ISB059	MN	Probably Decreasing	No Trend	Increasing
PTX06-ISB073	AS	No Trend	Increasing	Increasing
PTX06-ISB073	BA	No Trend	Stable	No Trend
PTX06-ISB073	MN	No Trend	Decreasing	Increasing
PTX06-ISB075	AS	Increasing	No Trend	No Trend
PTX06-ISB075	BA	Stable	No Trend	Stable
PTX06-ISB075	MN	Decreasing	No Trend	Stable
PTX06-ISB079	AS	Increasing	Stable	Increasing
PTX06-ISB079	BA	Increasing	Stable	Decreasing
PTX06-ISB079	MN	No Trend	Probably Decreasing	Decreasing
PTX06-ISB082	AS	Probably Increasing	No Trend	Increasing
PTX06-ISB082	BA	Increasing	Stable	Decreasing
PTX06-ISB082	MN	Decreasing	Decreasing	Decreasing
PTX06-ISB302	AS	No Trend	Probably Decreasing	No Trend
PTX06-ISB302	BA	No Trend	Probably Decreasing	No Trend
PTX06-ISB302	MN	No Trend	Increasing	No Trend
PTX06-ISB307	AS	Stable	Decreasing	Stable
PTX06-ISB307	BA	No Trend	Probably Decreasing	No Trend
PTX06-ISB307	MN	Probably Increasing	No Trend	Probably Increasing
PTX06-ISB317	AS	No Trend	Stable	No Trend
PTX06-ISB317	BA	Probably Increasing	No Trend	Probably Increasing
PTX06-ISB317	MN	Increasing	No Trend	Increasing
PTX06-ISB317	MN	Increasing	No Trend	Increasing
PTX06-ISB321	AS	Probably Decreasing	Stable	Probably Decreasing
PTX06-ISB321	MN	Increasing	No Trend	Increasing
PTX06-ISB321	MN	Increasing	No Trend	Increasing
PTX06-ISB325	AS	Probably Increasing	Stable	Probably Increasing
PTX06-ISB325	MN	No Trend	Increasing	No Trend
PTX06-ISB325	MN	No Trend	Increasing	No Trend

Table 4 (continued)
Perched Groundwater Linear Regression Concentration Trends
Secondary Metals
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-ISB331	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-ISB331	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-ISB407	AS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-ISB407	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-ISB407	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Notes

AS Arsenic
BA Barium
MN Manganese

Table 5
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
1114-MW4	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	AS	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	BA	Increasing	Decreasing	N/A (<4 Samples in Dataset)
1114-MW4	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CD	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CDS	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CTCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CU	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DIOXANE14	No Trend	No Trend	Probably Decreasing
1114-MW4	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	FC11	Increasing	No Trend	N/A (<4 Samples in Dataset)
1114-MW4	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	HG	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
1114-MW4	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	NI	Increasing	No Trend	N/A (<4 Samples in Dataset)
1114-MW4	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	PCE	No Trend	No Trend	No Trend
1114-MW4	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	SE	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TCE	Increasing	No Trend	Increasing
1114-MW4	TCLME	Increasing	No Trend	Increasing
1114-MW4	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
1114-MW4	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
1114-MW4	V	Decreasing	No Trend	N/A (<4 Samples in Dataset)
1114-MW4	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	VC	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	BA	Increasing	Increasing	N/A (<4 Samples in Dataset)
OW-WR-38	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
OW-WR-38	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CO	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
OW-WR-38	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	FC12	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	HG	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	NI	No Trend	Decreasing	N/A (<4 Samples in Dataset)
OW-WR-38	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	PCE	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
OW-WR-38	SE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TCE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	U-233/234	Increasing	No Trend	N/A (<4 Samples in Dataset)
OW-WR-38	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
OW-WR-38	V	Increasing	Increasing	N/A (<4 Samples in Dataset)
OW-WR-38	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	VC	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ZN	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ACE	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	AS	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	BA	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CD	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	CTCL	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1001	CU	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBZ14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MTLNCL	Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	NI	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	PB	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	SE	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TCA111	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TCE	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX01-1001	TCLME	Stable	All Non-Detect	All Non-Detect
PTX01-1001	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TL	Decreasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	U-235/236	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX01-1001	U-238	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	V	Increasing	Decreasing	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1001	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	VC	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX01-1001	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	AS	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	BA	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX01-1008	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	BRME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CD	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	CDS	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	CR-6	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	CTCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	CU	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1008	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	PB	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	SE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	TCE	Stable	All Non-Detect	All Non-Detect
PTX01-1008	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	TL	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1008	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX01-1008	U-235/236	Stable	Stable	N/A (<4 Samples in Dataset)
PTX01-1008	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX01-1008	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX01-1008	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1008	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1008	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX04-1002	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CU	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DIOXANE14	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	NI	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	PB	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX04-1002	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX04-1002	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	SE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TCE	Decreasing	No Trend	No Trend
PTX04-1002	TCLME	Decreasing	All Non-Detect	All Non-Detect
PTX04-1002	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	U-233/234	Stable	Stable	N/A (<4 Samples in Dataset)
PTX04-1002	U-235/236	Stable	Stable	N/A (<4 Samples in Dataset)
PTX04-1002	U-238	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	V	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	AS	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	BA	Decreasing	Increasing	N/A (<4 Samples in Dataset)
PTX06-1002A	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	BRME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	CR-6	Decreasing	No Trend	Increasing
PTX06-1002A	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1002A	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	NI	Decreasing	No Trend	Probably Increasing
PTX06-1002A	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1002A	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	SE	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TCE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1002A	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1002A	V	Decreasing	No Trend	Increasing
PTX06-1002A	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1002A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ZN	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	AS	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	BA	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1005	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	BRME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	CR	Increasing	No Trend	No Trend
PTX06-1005	CR-6	Increasing	Decreasing	No Trend
PTX06-1005	CTCL	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCE11	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1005	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1005	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DIOXANE14	Stable	No Trend	No Trend
PTX06-1005	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	FC11	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	HG	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1005	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MTLNCL	Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	NI	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1005	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	PCE	Increasing	No Trend	Probably Decreasing
PTX06-1005	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	SE	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1005	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TCE	Increasing	Decreasing	Stable
PTX06-1005	TCLME	Increasing	Increasing	No Trend
PTX06-1005	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1005	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	U-238	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1005	V	Decreasing	No Trend	Probably Decreasing
PTX06-1005	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1005	XYLENES	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1006	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1006	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DIOXANE14	Probably Decreasing	Decreasing	Stable
PTX06-1006	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	S	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1006	TCE	Increasing	No Trend	No Trend
PTX06-1006	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1006	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1007	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	AS	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	BA	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1007	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	CR	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1007	CR-6	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1007	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CU	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1007	DBCME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DIOXANE14	Decreasing	No Trend	Stable
PTX06-1007	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	HG	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	NI	Stable	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1007	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1007	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	SE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TCE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1007	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	U-238	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1007	V	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1007	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	BA	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1008	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1008	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	CR	No Trend	No Trend	No Trend
PTX06-1008	CR-6	Stable	Decreasing	Decreasing
PTX06-1008	CTCL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1008	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	FC11	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MTLNCL	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	NI	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1008	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	SE	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TCE	Decreasing	No Trend	Increasing

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1008	TCLME	Increasing	No Trend	No Trend
PTX06-1008	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	U-233/234	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX06-1008	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	U-238	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX06-1008	V	Increasing	No Trend	Increasing
PTX06-1008	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	AS	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	BA	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX06-1010	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CD	No Trend	All Non-Detect	All Non-Detect
PTX06-1010	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CO	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	CR	Decreasing	No Trend	Decreasing
PTX06-1010	CR-6	Decreasing	No Trend	Decreasing
PTX06-1010	CTCL	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	DBCME	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1010	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	NI	Decreasing	No Trend	Stable
PTX06-1010	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	PB	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	PCE	Probably Decreasing	No Trend	Probably Increasing
PTX06-1010	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	SB	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	SE	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TBME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TCE	Decreasing	No Trend	Stable
PTX06-1010	TCLME	Increasing	No Trend	Stable
PTX06-1010	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	U-233/234	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX06-1010	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	U-238	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	V	Decreasing	No Trend	Stable
PTX06-1010	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	AS	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	BA	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX06-1011	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1011	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	CR	Decreasing	No Trend	Stable
PTX06-1011	CR-6	Stable	No Trend	Stable
PTX06-1011	CTCL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCE11	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DIOXANE14	Decreasing	No Trend	Increasing
PTX06-1011	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	FC11	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	NI	Decreasing	No Trend	No Trend
PTX06-1011	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	PB	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	PCE	Probably Decreasing	No Trend	Stable
PTX06-1011	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1011	SE	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TCE	No Trend	No Trend	Stable
PTX06-1011	TCLME	No Trend	No Trend	No Trend
PTX06-1011	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TL	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	U-233/234	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	V	Stable	No Trend	Stable
PTX06-1011	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1012	AS	Increasing	No Trend	Increasing
PTX06-1012	BA	Increasing	No Trend	Increasing
PTX06-1012	CR	No Trend	All Non-Detect	All Non-Detect
PTX06-1012	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1012	DCE12T	No Trend	N/A (<4 Detections in Dataset)	Stable
PTX06-1012	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1012	NI	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1012	PCE	Increasing	All Non-Detect	All Non-Detect
PTX06-1012	TCE	No Trend	No Trend	Decreasing
PTX06-1012	TCLME	Increasing	All Non-Detect	All Non-Detect
PTX06-1012	V	Probably Increasing	All Non-Detect	All Non-Detect
PTX06-1012	VC	No Trend	N/A (<4 Detections in Dataset)	Probably Increasing
PTX06-1013	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1013	CR-6	No Trend	No Trend	No Trend
PTX06-1013	DCE11	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1013	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	NI	Decreasing	No Trend	Stable
PTX06-1013	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1013	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	V	Stable	No Trend	Stable
PTX06-1013	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	CR	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1014	CR-6	Stable	No Trend	Stable
PTX06-1014	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1014	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	NI	Decreasing	Decreasing	Decreasing
PTX06-1014	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1014	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1014	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	V	Decreasing	No Trend	No Trend
PTX06-1014	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	CR	Decreasing	All Non-Detect	All Non-Detect
PTX06-1023	CR-6	Decreasing	No Trend	No Trend
PTX06-1023	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1023	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	NI	Decreasing	No Trend	Stable
PTX06-1023	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1023	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	V	Increasing	No Trend	Stable
PTX06-1023	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	CR	Decreasing	No Trend	Probably Increasing
PTX06-1031	CR-6	Increasing	No Trend	Increasing
PTX06-1031	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	NI	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1031	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1031	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1031	TCE	Decreasing	No Trend	Stable
PTX06-1031	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	V	Stable	No Trend	No Trend
PTX06-1031	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	CR	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1034	CR-6	Probably Decreasing	No Trend	Stable
PTX06-1034	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1034	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1034	TCE	Stable	No Trend	Stable
PTX06-1034	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	AS	No Trend	No Trend	No Trend
PTX06-1035	BA	Decreasing	No Trend	Increasing
PTX06-1035	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1035	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1035	TCE	Increasing	No Trend	Increasing
PTX06-1035	TCLME	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1035	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	AS	Increasing	Decreasing	Decreasing
PTX06-1037	BA	Increasing	No Trend	No Trend
PTX06-1037	CR	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	CR-6	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	NI	Increasing	No Trend	No Trend
PTX06-1037	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1037	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1037	V	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1037	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	CR	Stable	All Non-Detect	All Non-Detect
PTX06-1038	CR-6	Decreasing	No Trend	No Trend
PTX06-1038	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1038	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1038	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1038	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1039A	CR-6	Decreasing	No Trend	Increasing
PTX06-1039A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1039A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1039A	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1039A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1040	CR-6	Decreasing	No Trend	Decreasing
PTX06-1040	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1040	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1040	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	CR	Probably Increasing	Increasing	No Trend
PTX06-1041	CR-6	Decreasing	Increasing	Increasing
PTX06-1041	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1041	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1041	TCE	No Trend	All Non-Detect	All Non-Detect
PTX06-1041	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1042	CR-6	Decreasing	No Trend	No Trend
PTX06-1042	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1042	TCE	Stable	All Non-Detect	All Non-Detect
PTX06-1042	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	AS	Stable	All Non-Detect	All Non-Detect
PTX06-1045	BA	Increasing	Decreasing	Decreasing
PTX06-1045	CR	Increasing	All Non-Detect	All Non-Detect
PTX06-1045	CR-6	Probably Decreasing	No Trend	Stable
PTX06-1045	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1045	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	NI	No Trend	All Non-Detect	All Non-Detect
PTX06-1045	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	TCE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	V	Stable	No Trend	Stable
PTX06-1045	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	CR	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1046	CR-6	Increasing	Decreasing	Stable
PTX06-1046	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	PCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1046	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1046	TCE	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1046	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	CR	Increasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1047A	CR-6	Stable	No Trend	No Trend
PTX06-1047A	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1047A	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1047A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1048A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	PCE	Stable	All Non-Detect	All Non-Detect
PTX06-1048A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1048A	TCE	Decreasing	No Trend	Stable
PTX06-1048A	TCLME	Increasing	All Non-Detect	All Non-Detect
PTX06-1048A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1049	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1049	TCE	Stable	No Trend	Stable
PTX06-1049	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1050	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1050	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	CR	Decreasing	Decreasing	Decreasing
PTX06-1052	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1052	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1052	TCE	No Trend	Increasing	Increasing
PTX06-1052	TCLME	Stable	All Non-Detect	Decreasing
PTX06-1052	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	CR	Increasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1053	CR-6	Stable	No Trend	No Trend
PTX06-1053	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1053	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1053	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1053	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1069	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	CR-6	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1071	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	BA	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1071	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CU	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBZ14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1071	NI	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PB	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	SE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	V	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1071	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	ZN	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX06-1077A	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	AS	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1077A	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1077A	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CO	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CU	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1077A	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1077A	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	NI	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1077A	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	PB	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	PCE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1077A	TCE	Decreasing	No Trend	No Trend
PTX06-1077A	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1077A	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ZN	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	AS	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	BA	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX06-1082	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CO	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1082	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	NI	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TL	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	V	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1082	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	ZN	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1083	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1083	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	CR	Probably Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CR-6	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1083	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	SE	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1083	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1083	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1085	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1085	CU	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	HG	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	PB	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	SE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	V	Stable	No Trend	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1085	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	AS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BA	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX06-1086	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CR	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CU	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	HG	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1086	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	NI	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	PB	Probably Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	SE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1086	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	BA	No Trend	Increasing	N/A (<4 Samples in Dataset)
PTX06-1088	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CD	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1088	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1088	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CO	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	CR	Decreasing	No Trend	Increasing
PTX06-1088	CR-6	Decreasing	No Trend	Increasing
PTX06-1088	CTCL	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1088	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	DBCME	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCE11	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1088	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DIOXANE14	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	FC11	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	HG	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	NI	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1088	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	PB	Probably Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	PCE	Increasing	No Trend	Decreasing
PTX06-1088	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	SE	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1088	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1088	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TCE	Decreasing	No Trend	Stable
PTX06-1088	TCLME	Increasing	No Trend	Probably Increasing
PTX06-1088	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	V	No Trend	Decreasing	Decreasing
PTX06-1088	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	ZN	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1095A	CR	Increasing	No Trend	No Trend
PTX06-1095A	CR-6	Increasing	No Trend	No Trend
PTX06-1095A	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1095A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1095A	DIOXANE14	Probably Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1095A	NI	Increasing	No Trend	Stable
PTX06-1095A	PCE	Increasing	Decreasing	Decreasing
PTX06-1095A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1095A	TCE	Increasing	Decreasing	Decreasing
PTX06-1095A	TCLME	Increasing	No Trend	Increasing
PTX06-1095A	V	Increasing	No Trend	Increasing
PTX06-1095A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	AS	Stable	No Trend	Stable
PTX06-1098	BA	Decreasing	Decreasing	Decreasing
PTX06-1098	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	CR-6	Decreasing	All Non-Detect	All Non-Detect
PTX06-1098	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1098	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	NI	Decreasing	No Trend	No Trend
PTX06-1098	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	TCE	Increasing	Increasing	Increasing
PTX06-1098	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	V	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	AS	Decreasing	No Trend	Stable
PTX06-1101	BA	Decreasing	Decreasing	Decreasing
PTX06-1101	CR	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1101	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1101	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	NI	No Trend	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1101	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	TCE	Probably Increasing	No Trend	Stable
PTX06-1101	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	V	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1120	CR	Increasing	No Trend	No Trend
PTX06-1120	CR-6	Stable	Decreasing	Decreasing
PTX06-1120	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1120	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1120	NI	No Trend	No Trend	No Trend
PTX06-1120	PCE	Probably Increasing	All Non-Detect	All Non-Detect
PTX06-1120	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1120	TCE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	V	No Trend	No Trend	Stable
PTX06-1120	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	CR	Increasing	No Trend	Probably Increasing
PTX06-1126	CR-6	Probably Increasing	No Trend	Increasing
PTX06-1126	DCE11	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1126	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	DIOXANE14	Decreasing	No Trend	Decreasing
PTX06-1126	PCE	Increasing	No Trend	Stable
PTX06-1126	TCE	No Trend	No Trend	Probably Decreasing
PTX06-1126	TCLME	Increasing	No Trend	No Trend
PTX06-1126	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	CR	Increasing	No Trend	Increasing
PTX06-1127	CR-6	Decreasing	No Trend	Decreasing
PTX06-1127	DCE11	No Trend	Decreasing	Decreasing
PTX06-1127	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DIOXANE14	No Trend	No Trend	Decreasing
PTX06-1127	PCE	Increasing	Decreasing	Stable
PTX06-1127	TCE	Increasing	No Trend	Increasing
PTX06-1127	TCLME	Increasing	Decreasing	Probably Decreasing
PTX06-1127	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	ACCN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	ACE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	ACRL	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	ACRN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	ALLYLCH	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	BA	Stable	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1131	BE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	BRME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	BZ	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	BZME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CD	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CDS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1131	CHLOROPRENE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CLBZ	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CLEA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CLME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CO	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CR-6	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CTCL	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CU	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DBCME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DBMA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCA11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCBE14T	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCBZ12	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCBZ13	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCBZ14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DCP13T	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	EBZ	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	EMETHACRY	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	FC11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	FC12	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	HG	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	HXO2	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	IME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	ISOBTOH	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	MEK	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	METHACRN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	MIBK	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	MMETHACRY	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	MTLNCL	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	NI	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	PACN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	PB	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	PCA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	PCLEA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	SB	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	SE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	STY	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	TBME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	TC1112	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	TCA111	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	TCA112	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TCPR123	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	TL	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1131	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	V	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	VA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	XYLENES	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	ZN	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1133A	CR	No Trend	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX06-1133A	CR-6	Decreasing	No Trend	Decreasing
PTX06-1133A	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	NI	Decreasing	No Trend	Probably Decreasing
PTX06-1133A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1133A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	V	No Trend	No Trend	No Trend
PTX06-1133A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	AS	No Trend	No Trend	No Trend
PTX06-1134	BA	Decreasing	Decreasing	Stable
PTX06-1134	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DIOXANE14	Stable	No Trend	Decreasing
PTX06-1134	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1134	TCE	Increasing	Decreasing	Probably Increasing
PTX06-1134	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	CR	Increasing	No Trend	No Trend
PTX06-1146	CR-6	Increasing	No Trend	Increasing
PTX06-1146	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	NI	Decreasing	No Trend	Stable
PTX06-1146	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1146	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1146	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	V	No Trend	No Trend	No Trend
PTX06-1146	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	CR	No Trend	No Trend	No Trend
PTX06-1147	CR-6	Decreasing	No Trend	No Trend
PTX06-1147	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	NI	Stable	Decreasing	Decreasing
PTX06-1147	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1147	TCE	Stable	No Trend	Increasing
PTX06-1147	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	V	No Trend	No Trend	Increasing
PTX06-1147	VC	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1148	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1148	BA	Increasing	No Trend	Probably Decreasing
PTX06-1148	CR	No Trend	No Trend	No Trend
PTX06-1148	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1148	NI	Decreasing	Decreasing	Decreasing
PTX06-1148	PCE	Probably Increasing	No Trend	Decreasing
PTX06-1148	TCE	Increasing	Increasing	Increasing
PTX06-1148	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1148	V	Decreasing	No Trend	Decreasing
PTX06-1148	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	AS	Stable	No Trend	Decreasing
PTX06-1149	BA	Stable	Increasing	Decreasing
PTX06-1149	CR	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1149	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1149	NI	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1149	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1149	TCE	Increasing	Increasing	Increasing
PTX06-1149	TCLME	Increasing	Increasing	Stable
PTX06-1149	V	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1149	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1150	BA	Increasing	No Trend	Increasing
PTX06-1150	CR	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1150	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1150	NI	Stable	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1150	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	TCE	Increasing	Increasing	Increasing
PTX06-1150	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	V	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1150	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DCE11	Stable	Stable	Stable
PTX06-1151	DCE12T	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1151	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1151	PCE	Increasing	No Trend	No Trend
PTX06-1151	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1151	TCE	Stable	No Trend	No Trend

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1151	TCLME	Increasing	Decreasing	Decreasing
PTX06-1151	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	AS	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1153	BA	Stable	No Trend	Increasing
PTX06-1153	CR	Decreasing	No Trend	Decreasing
PTX06-1153	CR-6	Decreasing	No Trend	Decreasing
PTX06-1153	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	NI	Increasing	No Trend	Probably Increasing
PTX06-1153	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	TCE	Decreasing	All Non-Detect	No Trend
PTX06-1153	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1153	V	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1153	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	AS	Increasing	No Trend	Stable
PTX06-1154	BA	Increasing	No Trend	Probably Decreasing
PTX06-1154	CR	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1154	CR-6	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1154	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	NI	Increasing	No Trend	No Trend
PTX06-1154	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	TCE	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1154	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1154	V	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1154	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1155	AS	Increasing	No Trend	Stable
PTX06-1155	BA	Increasing	Decreasing	Decreasing
PTX06-1155	CR	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1155	DCE11	No Trend	No Trend	No Trend
PTX06-1155	DCE12T	Probably Decreasing	No Trend	No Trend
PTX06-1155	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1155	NI	No Trend	No Trend	Probably Increasing
PTX06-1155	PCE	Probably Increasing	All Non-Detect	All Non-Detect
PTX06-1155	TCE	Decreasing	No Trend	Increasing
PTX06-1155	TCLME	Probably Increasing	All Non-Detect	All Non-Detect
PTX06-1155	V	No Trend	All Non-Detect	All Non-Detect
PTX06-1155	VC	Increasing	Increasing	Increasing
PTX06-1156	AS	Increasing	No Trend	Increasing
PTX06-1156	BA	Increasing	No Trend	Decreasing
PTX06-1156	CR	Probably Decreasing	All Non-Detect	All Non-Detect
PTX06-1156	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	DCE12T	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1156	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1156	NI	No Trend	No Trend	No Trend
PTX06-1156	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1156	TCE	Decreasing	Increasing	Probably Decreasing
PTX06-1156	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	V	Probably Decreasing	All Non-Detect	All Non-Detect
PTX06-1156	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DIOXANE14	No Trend	No Trend	Increasing
PTX06-1159	PCE	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1159	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1159	TCE	Decreasing	No Trend	Decreasing
PTX06-1159	TCLME	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1159	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1160	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1160	TCE	Stable	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1160	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	CR	No Trend	No Trend	Increasing
PTX06-1166	CR-6	Increasing	No Trend	Increasing
PTX06-1166	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1166	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	NI	Probably Decreasing	No Trend	Stable
PTX06-1166	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1166	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1166	TCE	Decreasing	Decreasing	Decreasing
PTX06-1166	TCLME	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1166	V	Increasing	No Trend	Probably Increasing
PTX06-1166	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1171	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DIOXANE14	No Trend	No Trend	Increasing
PTX06-1171	PCE	No Trend	Decreasing	Stable
PTX06-1171	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1171	TCE	No Trend	Stable	Decreasing
PTX06-1171	TCLME	Increasing	No Trend	Increasing
PTX06-1171	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	AS	Stable	Increasing	Stable
PTX06-1173	BA	Decreasing	Increasing	Decreasing
PTX06-1173	CR	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1173	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1173	DCE12T	Stable	No Trend	Probably Decreasing
PTX06-1173	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1173	NI	Probably Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1173	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1173	TCE	No Trend	Decreasing	Probably Increasing
PTX06-1173	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	V	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1173	VC	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1174	AS	No Trend	No Trend	Stable
PTX06-1174	BA	Probably Decreasing	No Trend	Decreasing
PTX06-1174	CR	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1174	DCE12T	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1174	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1174	NI	Probably Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1174	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	TCE	No Trend	No Trend	No Trend
PTX06-1174	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1174	V	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1174	VC	Increasing	No Trend	Increasing
PTX06-1175	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1175	BA	Increasing	No Trend	Increasing
PTX06-1175	CR	Probably Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1175	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1175	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1175	NI	No Trend	No Trend	Probably Increasing
PTX06-1175	PCE	Decreasing	No Trend	Decreasing
PTX06-1175	TCE	Decreasing	Decreasing	Decreasing
PTX06-1175	TCLME	Stable	No Trend	Stable
PTX06-1175	V	Stable	No Trend	Stable
PTX06-1175	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1180	DCE12T	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1180	DIOXANE14	Decreasing	No Trend	Decreasing
PTX06-1180	PCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1180	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1180	TCE	No Trend	No Trend	No Trend
PTX06-1180	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	CR	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1182	CR-6	Probably Decreasing	No Trend	Stable
PTX06-1182	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1182	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1182	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	CR	Decreasing	Decreasing	Decreasing
PTX06-1183	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1183	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	NI	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1183	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1183	TCE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1183	TCLME	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX06-1183	V	No Trend	No Trend	No Trend
PTX06-1183	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	CR	Increasing	No Trend	Increasing
PTX06-1185	CR-6	Stable	No Trend	Stable
PTX06-1185	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1185	TCE	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1185	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	CR	No Trend	No Trend	No Trend
PTX06-1190	CR-6	Increasing	No Trend	Increasing
PTX06-1190	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1190	TCE	Decreasing	No Trend	Decreasing
PTX06-1190	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	BA	No Trend	Increasing	No Trend
PTX06-1191	CR	No Trend	Stable	No Trend
PTX06-1191	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1191	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1191	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	TCE	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1191	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1191	V	Stable	Stable	Stable
PTX06-1191	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	CR	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1192	CR-6	No Trend	No Trend	No Trend
PTX06-1192	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1192	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	BA	No Trend	Increasing	No Trend
PTX06-1194	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1194	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	V	No Trend	No Trend	No Trend
PTX06-1194	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR-6	No Trend	Stable	No Trend
PTX06-1195	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1195	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1195	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	BA	No Trend	No Trend	No Trend
PTX06-1196	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1196	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	NI	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	TCE	Increasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-1196	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	V	Stable	Stable	Stable
PTX06-1196	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	CR	Probably Decreasing	Stable	Probably Decreasing

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1197	CR-6	No Trend	Stable	No Trend
PTX06-1197	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1197	TCE	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1197	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	CR-6	Increasing	No Trend	Increasing
PTX06-1199	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1199	TCE	Stable	Stable	Stable
PTX06-1199	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR-6	No Trend	Stable	No Trend
PTX06-1200	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1200	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	CR	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1201	CR-6	No Trend	Stable	No Trend
PTX06-1201	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1201	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1202	CR-6	Increasing	No Trend	Increasing
PTX06-1202	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1202	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	CR	Stable	N/A (<4 Detections in Dataset)	Stable
PTX06-1203	CR-6	Stable	Stable	Stable
PTX06-1203	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1203	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1203	TCE	Stable	Stable	Stable
PTX06-1203	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	CR	Decreasing	Stable	Decreasing
PTX06-1204	CR-6	No Trend	Stable	No Trend
PTX06-1204	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1204	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1207	AS	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	BA	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DCE12T	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	PCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	TCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	TCLME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1207	VC	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	CR-6	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	DCE12T	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	PCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	TCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	TCLME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1208	VC	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DCE11	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DCE12T	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	DIOXANE14	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	NI	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	PCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	TCE	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	TCLME	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	V	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1211	VC	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	BA	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX07-1O03	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1O03	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	CR	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1O03	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	NI	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1O03	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1O03	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	SE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TCE	Stable	Decreasing	Decreasing
PTX07-1O03	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	U-233/234	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX07-1O03	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1O03	V	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1O03	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	AS	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1P02	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CO	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1P02	CU	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DIOXANE14	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX07-1P02	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	NI	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX07-1P02	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	S	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	SE	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1P02	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1P02	V	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1P02	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	BA	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q01	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CD	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1Q01	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	NI	Decreasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	SE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	U-233/234	Stable	Stable	N/A (<4 Samples in Dataset)
PTX07-1Q01	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	U-238	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q01	V	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX07-1Q01	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	AS	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	BA	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q02	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1Q02	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CR	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1Q02	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	SE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q02	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	U-238	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q02	V	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q02	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ZN	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	AS	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1R03	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	CR-6	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	CTCL	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1R03	CU	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1R03	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	NI	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1R03	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	SE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	TL	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	U-233/234	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	U-238	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1R03	V	Increasing	Increasing	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1R03	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1R03	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1001	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	BA	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1001	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CD	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	CR-6	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX08-1001	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1001	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	NI	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1001	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	PB	Probably Decreasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	SE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	U-233/234	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1001	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1001	U-238	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1001	V	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1001	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1002	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	AS	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1002	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1002	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	CR	No Trend	All Non-Detect	All Non-Detect
PTX08-1002	CR-6	Probably Decreasing	No Trend	No Trend
PTX08-1002	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1002	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	HG	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	NI	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1002	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	PB	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	SE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1002	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	U-233/234	Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX08-1002	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1002	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1002	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1003	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1003	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DIOXANE14	Stable	No Trend	No Trend
PTX08-1003	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1003	TCE	No Trend	N/A (<4 Detections in Dataset)	Stable
PTX08-1003	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	BA	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1005	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	BZ	Decreasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CLBZ	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	CR	Stable	No Trend	Probably Increasing
PTX08-1005	CR-6	Decreasing	Increasing	Probably Increasing
PTX08-1005	CTCL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1005	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCE11	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DIOXANE14	Decreasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX08-1005	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	FC11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	NI	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1005	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	PCE	Decreasing	All Non-Detect	All Non-Detect
PTX08-1005	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	SE	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1005	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TBME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TCE	Decreasing	Decreasing	Decreasing
PTX08-1005	TCLME	Probably Decreasing	No Trend	Stable
PTX08-1005	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	U-233/234	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX08-1005	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1005	U-238	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1005	V	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX08-1005	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ZN	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1006	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CLBZ	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CR-6	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1006	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DIOXANE14	Decreasing	N/A (<4 Detections in Dataset)	Decreasing
PTX08-1006	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1006	FC11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	HG	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MTLNCL	Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	PB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	PCE	No Trend	N/A (<4 Detections in Dataset)	Decreasing
PTX08-1006	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	SE	Probably Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX08-1006	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TCA112	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	TCE	Increasing	No Trend	Stable
PTX08-1006	TCLME	Decreasing	No Trend	Probably Increasing
PTX08-1006	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	U-233/234	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1006	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	U-238	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1006	V	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX08-1006	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1006	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1007	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	CR	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1007	CR-6	Decreasing	Decreasing	Decreasing
PTX08-1007	CTCL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCE11	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DIOXANE14	No Trend	Increasing	Increasing
PTX08-1007	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	FC11	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MTLNCL	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	NI	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1007	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	PCE	Stable	Increasing	Increasing
PTX08-1007	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	SE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TCA111	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TCE	No Trend	No Trend	Stable
PTX08-1007	TCLME	Increasing	Increasing	Increasing
PTX08-1007	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	V	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1007	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ZN	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	AS	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	BA	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	CR	Decreasing	Decreasing	Decreasing
PTX08-1008	CR-6	Decreasing	Decreasing	Decreasing
PTX08-1008	CTCL	Stable	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1008	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DIOXANE14	No Trend	No Trend	Increasing
PTX08-1008	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	NI	Decreasing	N/A (<4 Detections in Dataset)	Probably Decreasing
PTX08-1008	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	PB	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	PCE	No Trend	No Trend	Increasing
PTX08-1008	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	SB	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	SE	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TCE	No Trend	No Trend	Increasing
PTX08-1008	TCLME	Decreasing	No Trend	Increasing
PTX08-1008	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	U-233/234	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	U-235/236	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1008	U-238	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	V	Stable	No Trend	Stable
PTX08-1008	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	VC	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1008	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	AS	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	BA	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	CR	Decreasing	No Trend	Decreasing
PTX08-1009	CR-6	Decreasing	No Trend	Decreasing
PTX08-1009	CTCL	Decreasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	DBCME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1009	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MTLNCL	Increasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1009	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	SB	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	SE	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TBME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TCE	Decreasing	All Non-Detect	All Non-Detect
PTX08-1009	TCLME	Stable	All Non-Detect	All Non-Detect
PTX08-1009	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TL	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	U-233/234	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	U-238	Probably Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	V	Stable	No Trend	No Trend
PTX08-1009	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ZN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ACE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	BA	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CD	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1010	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CO	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	CR-6	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CU	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MTLNCL	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	NI	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PB	No Trend	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PCA	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	S	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	SB	Probably Decreasing	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	SE	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX08-1010	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCLME	Stable	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TL	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	U-233/234	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	U-235/236	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1010	U-238	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	XYLENES	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ZN	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	AS	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	BA	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX10-1014	BE	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	BZME	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CHLOROPREN E	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CO	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX10-1014	CR	Decreasing	No Trend	Stable
PTX10-1014	CR-6	Probably Increasing	No Trend	Stable
PTX10-1014	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX10-1014	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect

Table 5 (continued)
Perched Groundwater Mann-Kendall Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX10-1014	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DIOXANE14	Stable	No Trend	No Trend
PTX10-1014	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	FC11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	NI	Decreasing	No Trend	No Trend
PTX10-1014	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	PCE	No Trend	No Trend	No Trend
PTX10-1014	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	SB	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	SE	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX10-1014	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TCE	Stable	No Trend	Increasing
PTX10-1014	TCLME	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX10-1014	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TL	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	U	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	U-233/234	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX10-1014	U-235/236	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	U-238	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX10-1014	V	Decreasing	No Trend	Stable
PTX10-1014	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ZN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

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Table 6
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
1114-MW4	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	AS	No Trend	Stable	N/A (<4 Detections in Dataset)
1114-MW4	BA	Increasing	Decreasing	N/A (<4 Detections in Dataset)
1114-MW4	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CD	Increasing	Increasing	N/A (<4 Samples in Dataset)
1114-MW4	CDS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	CR	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
1114-MW4	CR-6	Decreasing	No Trend	N/A (<4 Detections in Dataset)
1114-MW4	CTCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
1114-MW4	CU	No Trend	No Trend	N/A (<4 Detections in Dataset)
1114-MW4	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	DIOXANE14	Decreasing	Stable	Decreasing
1114-MW4	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	FC11	No Trend	Stable	N/A (<4 Detections in Dataset)
1114-MW4	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	HG	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
1114-MW4	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	NI	Increasing	No Trend	N/A (<4 Detections in Dataset)
1114-MW4	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	PCE	Decreasing	Decreasing	Probably Increasing
1114-MW4	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	SE	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
1114-MW4	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TCE	Increasing	No Trend	Increasing
1114-MW4	TCLME	No Trend	No Trend	Increasing
1114-MW4	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
1114-MW4	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
1114-MW4	U-233/234	Increasing	Stable	N/A (<4 Detections in Dataset)
1114-MW4	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
1114-MW4	U-238	Decreasing	No Trend	N/A (<4 Detections in Dataset)
1114-MW4	V	Decreasing	Stable	N/A (<4 Detections in Dataset)
1114-MW4	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	VC	All Non-Detect	All Non-Detect	All Non-Detect
1114-MW4	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
1114-MW4	ZN	Stable	Stable	N/A (<4 Detections in Dataset)
OW-WR-38	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	AS	Decreasing	No Trend	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
OW-WR-38	BA	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
OW-WR-38	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CO	Decreasing	Stable	N/A (<4 Samples in Dataset)
OW-WR-38	CR	No Trend	No Trend	N/A (<4 Samples in Dataset)
OW-WR-38	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	CU	Probably Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
OW-WR-38	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	FC12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	HG	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	NI	Decreasing	No Trend	N/A (<4 Detections in Dataset)
OW-WR-38	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
OW-WR-38	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	PCE	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TCE	Increasing	No Trend	N/A (<4 Detections in Dataset)
OW-WR-38	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
OW-WR-38	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	U-233/234	Increasing	Stable	N/A (<4 Detections in Dataset)
OW-WR-38	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
OW-WR-38	U-238	Decreasing	Stable	N/A (<4 Detections in Dataset)
OW-WR-38	V	Increasing	Increasing	N/A (<4 Detections in Dataset)
OW-WR-38	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	VC	All Non-Detect	All Non-Detect	All Non-Detect
OW-WR-38	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
OW-WR-38	ZN	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX01-1001	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ACE	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	AS	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX01-1001	BA	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX01-1001	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	CD	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX01-1001	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX01-1001	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	CR	Increasing	Decreasing	N/A (<4 Samples in Dataset)
PTX01-1001	CR-6	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX01-1001	CTCL	Stable	Stable	N/A (<4 Samples in Dataset)
PTX01-1001	CU	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX01-1001	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCBZ14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	MTLNCL	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	NI	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX01-1001	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	PB	Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX01-1001	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1001	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1001	SE	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX01-1001	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TCA111	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX01-1001	TCE	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX01-1001	TCLME	Decreasing	Decreasing	All Non-Detect
PTX01-1001	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	TL	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX01-1001	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1001	U-233/234	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX01-1001	U-235/236	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX01-1001	U-238	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX01-1001	V	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX01-1001	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	VC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX01-1001	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX01-1001	ZN	Probably Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX04-1002	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX04-1002	BA	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX04-1002	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX04-1002	CR-6	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX04-1002	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	CU	Probably Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX04-1002	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX04-1002	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	DIOXANE14	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX04-1002	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX04-1002	NI	Stable	Stable	N/A (<4 Detections in Dataset)
PTX04-1002	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	PB	No Trend	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX04-1002	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX04-1002	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	SE	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TCE	Decreasing	No Trend	No Trend
PTX04-1002	TCLME	Stable	No Trend	All Non-Detect
PTX04-1002	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	TL	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX04-1002	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX04-1002	U-233/234	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX04-1002	U-235/236	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX04-1002	U-238	Increasing	Stable	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX04-1002	V	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX04-1002	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX04-1002	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX04-1002	ZN	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX06-1002A	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	AS	Probably Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1002A	BA	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1002A	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	BRME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CO	Stable	Stable	N/A (<4 Samples in Dataset)
PTX06-1002A	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1002A	CR-6	No Trend	Stable	Increasing
PTX06-1002A	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	CU	Stable	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1002A	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1002A	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	NI	Decreasing	Stable	Increasing
PTX06-1002A	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1002A	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	SE	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1002A	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TCE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1002A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1002A	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	U-233/234	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1002A	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1002A	U-238	Probably Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1002A	V	Decreasing	Increasing	Increasing
PTX06-1002A	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1002A	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1002A	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1005	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	AS	No Trend	Increasing	N/A (<4 Detections in Dataset)
PTX06-1005	BA	Increasing	No Trend	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1005	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	BRME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	CR	Increasing	Stable	Probably Increasing
PTX06-1005	CR-6	Increasing	Stable	No Trend
PTX06-1005	CTCL	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1005	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DCE11	Probably Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1005	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1005	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	DIOXANE14	No Trend	Probably Increasing	Probably Increasing
PTX06-1005	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	FC11	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1005	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	HG	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	MTLNCL	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1005	NI	Decreasing	Stable	Stable
PTX06-1005	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	PCE	Increasing	No Trend	Decreasing

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1005	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	SE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1005	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TCE	Increasing	Decreasing	Probably Decreasing
PTX06-1005	TCLME	Increasing	No Trend	No Trend
PTX06-1005	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1005	U-233/234	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1005	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1005	U-238	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1005	V	Stable	Stable	Probably Decreasing
PTX06-1005	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1005	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1005	XYLENES	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1005	ZN	Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX06-1006	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1006	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	DIOXANE14	Stable	Decreasing	Decreasing
PTX06-1006	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1006	S	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1006	TCE	Increasing	Probably Increasing	Increasing
PTX06-1006	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1006	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	AS	Stable	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1007	BA	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1007	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1007	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CO	No Trend	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1007	CR	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1007	CR-6	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1007	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	CU	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1007	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	DIOXANE14	Decreasing	Probably Decreasing	Decreasing
PTX06-1007	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	HG	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	NI	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1007	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1007	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1007	SE	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1007	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TCE	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1007	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	U-233/234	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1007	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1007	U-238	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1007	V	Increasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1007	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1007	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1007	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1008	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	AS	Probably Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1008	BA	No Trend	Increasing	N/A (<4 Detections in Dataset)
PTX06-1008	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	CR	No Trend	No Trend	Probably Increasing
PTX06-1008	CR-6	Decreasing	Probably Decreasing	Probably Decreasing

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1008	CTCL	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1008	CU	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1008	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1008	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	FC11	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1008	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	MTLNCL	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1008	NI	Decreasing	No Trend	No Trend
PTX06-1008	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1008	SE	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1008	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TCE	Decreasing	No Trend	Increasing
PTX06-1008	TCLME	Increasing	No Trend	No Trend
PTX06-1008	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1008	U-233/234	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1008	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1008	U-238	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1008	V	No Trend	Increasing	Increasing
PTX06-1008	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1008	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1008	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1010	BA	Stable	Probably Increasing	N/A (<4 Detections in Dataset)
PTX06-1010	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	CD	No Trend	Probably Decreasing	All Non-Detect
PTX06-1010	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	CO	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1010	CR	Decreasing	Stable	Decreasing
PTX06-1010	CR-6	Decreasing	Stable	Decreasing
PTX06-1010	CTCL	Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1010	CU	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1010	DBCME	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1010	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1010	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1010	NI	Decreasing	No Trend	No Trend
PTX06-1010	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	PB	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	PCE	Decreasing	No Trend	No Trend
PTX06-1010	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	SB	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1010	SE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1010	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TBME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TCE	Decreasing	Stable	Stable
PTX06-1010	TCLME	Increasing	Stable	No Trend
PTX06-1010	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1010	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1010	U-233/234	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1010	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1010	U-238	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1010	V	Decreasing	Probably Increasing	Stable
PTX06-1010	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1010	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1010	ZN	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1011	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1011	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1011	BA	No Trend	Increasing	N/A (<4 Detections in Dataset)
PTX06-1011	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	CO	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	CR	Decreasing	Stable	Stable
PTX06-1011	CR-6	Probably Decreasing	Stable	Stable
PTX06-1011	CTCL	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1011	CU	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1011	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DCE11	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1011	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	DIOXANE14	Decreasing	No Trend	Increasing
PTX06-1011	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	FC11	Stable	Increasing	N/A (<4 Detections in Dataset)
PTX06-1011	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1011	NI	Decreasing	No Trend	No Trend
PTX06-1011	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	PB	Stable	Probably Increasing	N/A (<4 Samples in Dataset)
PTX06-1011	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1011	PCE	Decreasing	No Trend	Stable
PTX06-1011	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1011	SE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1011	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TCE	No Trend	Stable	Stable
PTX06-1011	TCLME	Increasing	No Trend	Probably Increasing
PTX06-1011	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	TL	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1011	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1011	U-233/234	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1011	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1011	U-238	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1011	V	No Trend	Stable	Stable
PTX06-1011	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1011	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1011	ZN	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1012	AS	Increasing	Stable	Increasing
PTX06-1012	BA	Increasing	Stable	Increasing
PTX06-1012	CR	Decreasing	Probably Increasing	All Non-Detect
PTX06-1012	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1012	DCE12T	Decreasing	No Trend	Decreasing
PTX06-1012	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1012	NI	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1012	PCE	Decreasing	Stable	All Non-Detect
PTX06-1012	TCE	Decreasing	Stable	Decreasing
PTX06-1012	TCLME	Stable	Stable	All Non-Detect
PTX06-1012	TVFA	Decreasing	Stable	No Trend
PTX06-1012	V	Decreasing	Probably Increasing	All Non-Detect
PTX06-1012	VC	Increasing	No Trend	Increasing
PTX06-1013	CR	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1013	CR-6	No Trend	Increasing	Probably Increasing
PTX06-1013	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1013	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	NI	Decreasing	No Trend	Stable
PTX06-1013	PCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1013	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1013	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1013	V	Decreasing	Stable	Stable
PTX06-1013	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	CR	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1014	CR-6	Decreasing	Stable	Decreasing
PTX06-1014	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1014	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	NI	Decreasing	Decreasing	Decreasing
PTX06-1014	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1014	TCE	Decreasing	Decreasing	All Non-Detect
PTX06-1014	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1014	V	Decreasing	Increasing	No Trend
PTX06-1014	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	CR	Decreasing	Stable	All Non-Detect
PTX06-1023	CR-6	Decreasing	No Trend	No Trend
PTX06-1023	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1023	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	NI	Decreasing	No Trend	Stable
PTX06-1023	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1023	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1023	V	No Trend	Stable	Stable
PTX06-1023	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	CR	Decreasing	No Trend	No Trend
PTX06-1031	CR-6	Increasing	Increasing	No Trend
PTX06-1031	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	NI	Decreasing	No Trend	Decreasing
PTX06-1031	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1031	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1031	TCE	Decreasing	Probably Decreasing	Stable
PTX06-1031	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1031	V	Stable	No Trend	No Trend
PTX06-1031	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	CR	Increasing	Stable	Increasing
PTX06-1034	CR-6	No Trend	Probably Decreasing	Stable
PTX06-1034	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1034	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1034	TCE	No Trend	Probably Increasing	Stable
PTX06-1034	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1034	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	AS	Probably Increasing	Probably Decreasing	No Trend
PTX06-1035	BA	Decreasing	No Trend	Increasing
PTX06-1035	DCE11	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1035	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1035	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1035	TCE	Increasing	Probably Increasing	Increasing
PTX06-1035	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1035	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	CR	Probably Decreasing	No Trend	All Non-Detect
PTX06-1038	CR-6	Decreasing	Stable	Decreasing
PTX06-1038	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1038	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1038	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1038	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1038	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	CR	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1039A	CR-6	Decreasing	No Trend	Increasing
PTX06-1039A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1039A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1039A	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1039A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1039A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	CR	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1040	CR-6	Decreasing	No Trend	No Trend
PTX06-1040	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1040	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1040	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1040	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	CR	Increasing	Probably Increasing	Probably Increasing
PTX06-1041	CR-6	Stable	Increasing	Increasing
PTX06-1041	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1041	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1041	TCE	Stable	Stable	All Non-Detect
PTX06-1041	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1041	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	CR	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1042	CR-6	Probably Decreasing	No Trend	Probably Increasing
PTX06-1042	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1042	TCE	Decreasing	Decreasing	All Non-Detect
PTX06-1042	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1042	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	AS	No Trend	No Trend	All Non-Detect
PTX06-1045	BA	Increasing	Decreasing	Probably Decreasing
PTX06-1045	CR	Increasing	No Trend	All Non-Detect
PTX06-1045	CR-6	Decreasing	Stable	Decreasing
PTX06-1045	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1045	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1045	NI	No Trend	No Trend	All Non-Detect
PTX06-1045	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	TCE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1045	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	TVFA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1045	V	Stable	Stable	Stable
PTX06-1045	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	CR	Increasing	No Trend	No Trend
PTX06-1046	CR-6	Increasing	Decreasing	Stable
PTX06-1046	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	PCE	Stable	Stable	All Non-Detect
PTX06-1046	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1046	TCE	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1046	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1046	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	CR	Increasing	Stable	Stable
PTX06-1047A	CR-6	Increasing	Stable	No Trend
PTX06-1047A	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1047A	TCE	Decreasing	Probably Decreasing	All Non-Detect
PTX06-1047A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1047A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1048A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1048A	PCE	No Trend	No Trend	All Non-Detect
PTX06-1048A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1048A	TCE	Stable	Stable	Stable
PTX06-1048A	TCLME	No Trend	No Trend	All Non-Detect
PTX06-1048A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1049	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1049	TCE	Stable	No Trend	Stable
PTX06-1049	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1049	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1050	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1050	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1050	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	CR	Decreasing	Probably Decreasing	Decreasing
PTX06-1052	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1052	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1052	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1052	TCE	No Trend	Increasing	Increasing
PTX06-1052	TCLME	Stable	Decreasing	Decreasing
PTX06-1052	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	CR	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1053	CR-6	No Trend	Stable	No Trend
PTX06-1053	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1053	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1053	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1053	TCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1053	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1053	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1069	CR	Increasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1069	CR-6	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1069	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1069	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1069	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	AS	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1071	BA	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1071	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	CR	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1071	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1071	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	CU	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1071	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1071	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	NI	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1071	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PB	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1071	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	SE	Stable	Stable	N/A (<4 Samples in Dataset)
PTX06-1071	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1071	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1071	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1071	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1071	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1071	V	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1071	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1071	ZN	No Trend	Increasing	N/A (<4 Detections in Dataset)
PTX06-1077A	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1077A	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1077A	BA	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1077A	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CO	Probably Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1077A	CR	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1077A	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	CU	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1077A	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1077A	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1077A	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	NI	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1077A	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	PB	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX06-1077A	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	PCE	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1077A	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1077A	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TCE	Decreasing	No Trend	Increasing
PTX06-1077A	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1077A	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1077A	V	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1077A	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1077A	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1077A	ZN	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX06-1082	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	AS	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1082	BA	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1082	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1082	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CO	Probably Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1082	CR	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1082	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	NI	Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX06-1082	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1082	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1082	TL	Probably Increasing	Probably Increasing	N/A (<4 Samples in Dataset)
PTX06-1082	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1082	V	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1082	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1082	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1083	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1083	BA	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1083	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	CR	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX06-1083	CR-6	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1083	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1083	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	SE	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1083	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1083	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1083	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1083	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1083	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1083	V	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1083	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1083	ZN	No Trend	Probably Increasing	N/A (<4 Samples in Dataset)
PTX06-1085	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1085	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	BA	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1085	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	CU	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1085	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	NI	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1085	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	PB	Stable	Stable	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1085	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1085	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1085	V	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1085	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1085	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1085	ZN	Probably Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1086	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1086	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	AS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BA	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1086	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1086	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	CR	Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1086	CR-6	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1086	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	CU	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1086	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	NI	Stable	Stable	N/A (<4 Samples in Dataset)
PTX06-1086	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	PB	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1086	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1086	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1086	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1086	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1086	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1086	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1086	V	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1086	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1086	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1086	ZN	Stable	Stable	N/A (<4 Samples in Dataset)
PTX06-1088	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1088	BA	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1088	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1088	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	CO	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1088	CR	Decreasing	No Trend	Increasing
PTX06-1088	CR-6	Decreasing	No Trend	Increasing
PTX06-1088	CTCL	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1088	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	DBCME	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1088	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1088	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1088	DIOXANE14	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1088	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	FC11	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1088	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	NI	Probably Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1088	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	PB	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX06-1088	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	PCE	Increasing	No Trend	Decreasing
PTX06-1088	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	SE	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1088	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TCE	Decreasing	No Trend	Stable
PTX06-1088	TCLME	Increasing	Stable	Increasing
PTX06-1088	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1088	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1088	V	No Trend	Decreasing	Decreasing
PTX06-1088	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1088	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1088	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX06-1095A	CR	Increasing	No Trend	No Trend

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1095A	CR-6	No Trend	Stable	No Trend
PTX06-1095A	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1095A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1095A	DIOXANE14	Decreasing	No Trend	No Trend
PTX06-1095A	NI	Increasing	No Trend	Stable
PTX06-1095A	PCE	No Trend	Decreasing	Decreasing
PTX06-1095A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1095A	TCE	Increasing	Probably Decreasing	Decreasing
PTX06-1095A	TCLME	Increasing	Decreasing	Increasing
PTX06-1095A	V	No Trend	Stable	Increasing
PTX06-1095A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	AS	Decreasing	No Trend	No Trend
PTX06-1098	BA	Decreasing	Decreasing	Decreasing
PTX06-1098	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	CR-6	Decreasing	Decreasing	All Non-Detect
PTX06-1098	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1098	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	NI	Stable	Stable	Stable
PTX06-1098	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1098	TCE	Decreasing	Increasing	Probably Increasing
PTX06-1098	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	TVFA	Decreasing	No Trend	No Trend
PTX06-1098	V	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1098	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	AS	Decreasing	Stable	Stable
PTX06-1101	BA	Decreasing	Decreasing	Decreasing
PTX06-1101	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1101	CR-6	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1101	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	NI	Stable	Increasing	All Non-Detect
PTX06-1101	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1101	TCE	Probably Increasing	Stable	Decreasing
PTX06-1101	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1101	TVFA	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1101	V	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1101	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1120	CR	Increasing	No Trend	No Trend
PTX06-1120	CR-6	Decreasing	Probably Decreasing	Decreasing
PTX06-1120	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1120	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1120	NI	Probably Increasing	Probably Increasing	Increasing
PTX06-1120	PCE	Stable	Stable	All Non-Detect
PTX06-1120	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1120	TCE	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1120	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1120	V	Increasing	No Trend	No Trend
PTX06-1120	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1123	TVFA	No Trend	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX06-1126	CR	No Trend	Probably Increasing	Increasing
PTX06-1126	CR-6	Probably Increasing	No Trend	Increasing
PTX06-1126	DCE11	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1126	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1126	DIOXANE14	Decreasing	Stable	Decreasing
PTX06-1126	PCE	Increasing	Stable	Stable
PTX06-1126	TCE	No Trend	Probably Decreasing	Decreasing
PTX06-1126	TCLME	Increasing	Stable	Probably Decreasing
PTX06-1126	TVFA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1126	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	CR	Increasing	Stable	Increasing
PTX06-1127	CR-6	Decreasing	Stable	Decreasing
PTX06-1127	DCE11	Decreasing	Decreasing	Decreasing
PTX06-1127	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1127	DIOXANE14	Probably Increasing	Stable	Decreasing
PTX06-1127	PCE	Increasing	Decreasing	Stable
PTX06-1127	TCE	Increasing	No Trend	Increasing
PTX06-1127	TCLME	Increasing	Decreasing	Stable
PTX06-1127	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	BA	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1131	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1131	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1131	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	PB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1131	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	U-233/234	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	U-238	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	V	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1131	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1131	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1131	ZN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1133A	CR	No Trend	No Trend	No Trend
PTX06-1133A	CR-6	Decreasing	No Trend	Decreasing
PTX06-1133A	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	NI	Decreasing	Stable	Probably Decreasing
PTX06-1133A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1133A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1133A	V	Probably Decreasing	Stable	Increasing
PTX06-1133A	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	AS	No Trend	Probably Decreasing	No Trend
PTX06-1134	BA	Decreasing	Decreasing	Probably Decreasing
PTX06-1134	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	DIOXANE14	Stable	Probably Decreasing	Decreasing
PTX06-1134	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1134	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1134	TCE	Increasing	Decreasing	Increasing
PTX06-1134	TCLME	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1134	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	CR	No Trend	No Trend	Stable
PTX06-1146	CR-6	Increasing	No Trend	Increasing
PTX06-1146	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	NI	Decreasing	Stable	Stable
PTX06-1146	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1146	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1146	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1146	V	No Trend	No Trend	No Trend
PTX06-1146	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	CR	Decreasing	No Trend	No Trend
PTX06-1147	CR-6	Stable	Stable	Increasing
PTX06-1147	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	NI	Decreasing	Decreasing	Decreasing
PTX06-1147	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1147	TCE	Decreasing	Decreasing	Increasing
PTX06-1147	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1147	V	Probably Increasing	Probably Decreasing	Increasing
PTX06-1147	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	AS	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1148	BA	Increasing	Increasing	Probably Decreasing
PTX06-1148	CR	No Trend	No Trend	No Trend
PTX06-1148	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1148	DIOXANE14	Increasing	Stable	Increasing
PTX06-1148	NI	Stable	Probably Decreasing	Decreasing
PTX06-1148	PCE	Increasing	Probably Increasing	Increasing
PTX06-1148	TCE	Increasing	Increasing	Increasing
PTX06-1148	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1148	TVFA	Decreasing	Probably Decreasing	No Trend
PTX06-1148	V	Decreasing	No Trend	Decreasing
PTX06-1148	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	AS	Decreasing	Decreasing	Decreasing
PTX06-1149	BA	Probably Increasing	No Trend	Decreasing
PTX06-1149	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1149	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1149	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1149	NI	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1149	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1149	TCE	Increasing	Increasing	Increasing
PTX06-1149	TCLME	Increasing	Increasing	Increasing
PTX06-1149	TVFA	Decreasing	Stable	Decreasing

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1149	V	Probably Decreasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX06-1149	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1150	BA	Probably Increasing	Stable	Probably Increasing
PTX06-1150	CR	Stable	Probably Increasing	No Trend
PTX06-1150	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1150	NI	Increasing	No Trend	Decreasing
PTX06-1150	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	TCE	Increasing	Increasing	Increasing
PTX06-1150	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1150	TVFA	Decreasing	Decreasing	Stable
PTX06-1150	V	Decreasing	Probably Decreasing	Increasing
PTX06-1150	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1151	DCE11	Probably Decreasing	Probably Decreasing	Probably Decreasing
PTX06-1151	DCE12T	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1151	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1151	PCE	Increasing	Decreasing	No Trend
PTX06-1151	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1151	TCE	Probably Decreasing	No Trend	No Trend
PTX06-1151	TCLME	Increasing	Decreasing	Decreasing
PTX06-1151	TVFA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1151	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	AS	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1153	BA	Decreasing	No Trend	Increasing
PTX06-1153	CR	Decreasing	Stable	Decreasing
PTX06-1153	CR-6	Decreasing	Stable	Decreasing
PTX06-1153	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	NI	Increasing	Probably Decreasing	No Trend
PTX06-1153	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1153	TCE	Decreasing	Stable	Decreasing
PTX06-1153	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1153	TVFA	Decreasing	Stable	Probably Decreasing
PTX06-1153	V	Increasing	No Trend	Probably Increasing
PTX06-1153	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	AS	Increasing	No Trend	Stable
PTX06-1154	BA	Increasing	No Trend	Decreasing
PTX06-1154	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1154	CR-6	Probably Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX06-1154	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1154	NI	Increasing	Stable	No Trend
PTX06-1154	PCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1154	TCE	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1154	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1154	TVFA	Decreasing	No Trend	No Trend
PTX06-1154	V	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1154	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1155	AS	Increasing	Decreasing	Decreasing
PTX06-1155	BA	Increasing	Decreasing	Decreasing
PTX06-1155	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1155	DCE11	No Trend	No Trend	No Trend
PTX06-1155	DCE12T	Decreasing	No Trend	No Trend
PTX06-1155	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1155	NI	Decreasing	No Trend	Increasing
PTX06-1155	PCE	Decreasing	No Trend	All Non-Detect
PTX06-1155	TCE	Decreasing	Increasing	Increasing
PTX06-1155	TCLME	Decreasing	No Trend	All Non-Detect
PTX06-1155	TVFA	Decreasing	No Trend	Stable
PTX06-1155	V	Decreasing	No Trend	All Non-Detect
PTX06-1155	VC	Increasing	Increasing	Increasing
PTX06-1156	AS	Increasing	No Trend	Increasing
PTX06-1156	BA	Increasing	Stable	Decreasing
PTX06-1156	CR	No Trend	Stable	All Non-Detect
PTX06-1156	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	DCE12T	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1156	DIOXANE14	Increasing	Increasing	Increasing
PTX06-1156	NI	Probably Decreasing	No Trend	No Trend
PTX06-1156	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1156	TCE	Decreasing	Increasing	Increasing
PTX06-1156	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1156	TVFA	Decreasing	No Trend	Decreasing
PTX06-1156	V	Decreasing	Decreasing	All Non-Detect
PTX06-1156	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1159	DIOXANE14	Increasing	No Trend	Increasing
PTX06-1159	PCE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1159	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1159	TCE	Decreasing	Stable	Decreasing
PTX06-1159	TCLME	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1159	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1160	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1160	TCE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1160	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1160	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	CR	Increasing	No Trend	Increasing
PTX06-1166	CR-6	Increasing	No Trend	Increasing
PTX06-1166	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1166	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1166	NI	Probably Decreasing	Probably Decreasing	Stable
PTX06-1166	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1166	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1166	TCE	Decreasing	Decreasing	Decreasing
PTX06-1166	TCLME	Decreasing	No Trend	Stable
PTX06-1166	V	Increasing	Stable	Probably Increasing
PTX06-1166	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1171	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1171	DIOXANE14	No Trend	Probably Increasing	Increasing
PTX06-1171	PCE	Increasing	Decreasing	Stable
PTX06-1171	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1171	TCE	No Trend	Probably Decreasing	Decreasing
PTX06-1171	TCLME	Increasing	No Trend	Increasing
PTX06-1171	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	AS	Probably Increasing	Increasing	Stable
PTX06-1173	BA	Decreasing	Probably Increasing	Decreasing
PTX06-1173	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1173	DCE12T	Probably Increasing	No Trend	No Trend
PTX06-1173	DIOXANE14	Increasing	Probably Decreasing	Increasing
PTX06-1173	NI	Increasing	Stable	No Trend
PTX06-1173	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1173	TCE	No Trend	Decreasing	No Trend
PTX06-1173	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1173	TVFA	No Trend	Probably Decreasing	Decreasing
PTX06-1173	V	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1173	VC	No Trend	No Trend	No Trend
PTX06-1174	AS	Increasing	Probably Decreasing	No Trend
PTX06-1174	BA	Stable	Decreasing	Decreasing
PTX06-1174	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1174	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1174	DCE12T	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1174	DIOXANE14	Probably Increasing	Probably Decreasing	Increasing
PTX06-1174	NI	Increasing	Increasing	Increasing
PTX06-1174	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1174	TCE	No Trend	Stable	No Trend

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1174	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1174	TVFA	Probably Decreasing	No Trend	Decreasing
PTX06-1174	V	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1174	VC	Stable	Stable	Stable
PTX06-1175	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1175	BA	Increasing	Increasing	Increasing
PTX06-1175	CR	Increasing	No Trend	Increasing
PTX06-1175	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1175	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1175	DIOXANE14	Increasing	Probably Decreasing	Increasing
PTX06-1175	NI	No Trend	No Trend	Increasing
PTX06-1175	PCE	No Trend	Stable	No Trend
PTX06-1175	TCE	Decreasing	Stable	Decreasing
PTX06-1175	TCLME	Increasing	No Trend	No Trend
PTX06-1175	TVFA	Stable	Decreasing	Decreasing
PTX06-1175	V	Decreasing	No Trend	Stable
PTX06-1175	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1180	DCE12T	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1180	DIOXANE14	Decreasing	Stable	Decreasing
PTX06-1180	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1180	TCE	Probably Increasing	Stable	Decreasing
PTX06-1180	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1180	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1182	CR-6	Stable	Stable	Stable
PTX06-1182	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1182	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1182	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1182	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	CR	Decreasing	Decreasing	Decreasing
PTX06-1183	CR-6	Decreasing	Decreasing	Decreasing
PTX06-1183	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	NI	Decreasing	Decreasing	Decreasing
PTX06-1183	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1183	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1183	TCE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1183	TCLME	Decreasing	Decreasing	Decreasing
PTX06-1183	V	No Trend	Stable	No Trend

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1183	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	CR	Increasing	No Trend	Increasing
PTX06-1185	CR-6	Decreasing	Stable	Decreasing
PTX06-1185	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1185	TCE	Stable	Decreasing	Stable
PTX06-1185	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1185	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	CR	Probably Increasing	Probably Decreasing	Probably Increasing
PTX06-1190	CR-6	Increasing	Stable	Increasing
PTX06-1190	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1190	TCE	Stable	Stable	Stable
PTX06-1190	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1190	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1192	CR-6	No Trend	Probably Decreasing	No Trend
PTX06-1192	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1192	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1192	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	AS	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	BA	No Trend	Probably Increasing	No Trend
PTX06-1194	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1194	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1194	TVFA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1194	V	No Trend	No Trend	No Trend
PTX06-1194	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	CR-6	No Trend	Stable	No Trend
PTX06-1195	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1195	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1195	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1195	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	AS	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1196	BA	Stable	No Trend	Stable
PTX06-1196	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1196	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	NI	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	TCE	Increasing	Increasing	Increasing
PTX06-1196	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1196	TVFA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1196	V	Stable	Stable	Stable
PTX06-1196	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	CR	Decreasing	No Trend	Decreasing
PTX06-1197	CR-6	No Trend	Stable	No Trend
PTX06-1197	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1197	TCE	No Trend	No Trend	No Trend
PTX06-1197	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1197	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1199	CR-6	No Trend	Probably Decreasing	No Trend
PTX06-1199	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1199	TCE	Stable	No Trend	Stable
PTX06-1199	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1199	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	CR-6	Probably Increasing	No Trend	Probably Increasing
PTX06-1200	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1200	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1200	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	CR	Stable	Stable	Stable
PTX06-1201	CR-6	Probably Increasing	Stable	Probably Increasing
PTX06-1201	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1201	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1201	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1202	CR-6	Increasing	No Trend	Increasing

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1202	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1202	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1202	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	CR	Stable	Stable	Stable
PTX06-1203	CR-6	Stable	Stable	Stable
PTX06-1203	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1203	TCE	No Trend	Stable	No Trend
PTX06-1203	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1203	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	CR	Decreasing	Probably Decreasing	Decreasing
PTX06-1204	CR-6	Increasing	Stable	Increasing
PTX06-1204	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1204	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1204	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1207	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	BA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1207	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1207	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1208	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1208	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	TCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	TCLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1208	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	CR	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1211	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1211	V	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX06-1211	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1O03	BA	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX07-1O03	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CO	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX07-1O03	CR	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1O03	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1O03	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	CU	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX07-1O03	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1O03	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	NI	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX07-1O03	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1O03	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TCE	Stable	Decreasing	Decreasing
PTX07-1O03	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1O03	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1O03	U-233/234	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX07-1O03	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1O03	U-238	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX07-1O03	V	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX07-1O03	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1O03	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1O03	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1P02	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1P02	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	AS	Stable	Probably Increasing	N/A (<4 Detections in Dataset)
PTX07-1P02	BA	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1P02	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CO	Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX07-1P02	CR	Probably Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX07-1P02	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1P02	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	CU	Stable	Stable	N/A (<4 Samples in Dataset)
PTX07-1P02	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	DIOXANE14	Decreasing	Stable	Decreasing
PTX07-1P02	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	MTLNCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	NI	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX07-1P02	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1P02	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	S	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	SE	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX07-1P02	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1P02	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1P02	U-233/234	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX07-1P02	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1P02	U-238	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX07-1P02	V	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1P02	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1P02	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1P02	ZN	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	AS	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX07-1Q01	BA	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q01	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q01	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	CR	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q01	CR-6	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q01	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	CU	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q01	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	NI	Probably Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX07-1Q01	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q01	SE	Probably Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX07-1Q01	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q01	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	U-233/234	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q01	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q01	U-238	Stable	Probably Increasing	N/A (<4 Detections in Dataset)
PTX07-1Q01	V	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX07-1Q01	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q01	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q01	ZN	Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q02	BA	Probably Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q02	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q02	CR	Stable	Stable	N/A (<4 Samples in Dataset)
PTX07-1Q02	CR-6	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX07-1Q02	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	CU	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX07-1Q02	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q02	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q02	NI	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX07-1Q02	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	SE	Stable	Stable	N/A (<4 Samples in Dataset)
PTX07-1Q02	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX07-1Q02	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q02	U-233/234	No Trend	Increasing	N/A (<4 Detections in Dataset)
PTX07-1Q02	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1Q02	U-238	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q02	V	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX07-1Q02	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX07-1Q02	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1Q02	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX07-1Q02	ZN	Stable	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX08-1001	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	AS	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	BA	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1001	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CD	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1001	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CO	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1001	CR	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1001	CR-6	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1001	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	CU	Stable	Stable	N/A (<4 Detections in Dataset)
PTX08-1001	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1001	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	NI	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1001	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	PB	Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX08-1001	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	SE	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX08-1001	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	TL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	U-233/234	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1001	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1001	U-238	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1001	V	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1001	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1001	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1001	ZN	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1002	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	AS	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1002	BA	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1002	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1002	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	CR	No Trend	Decreasing	All Non-Detect
PTX08-1002	CR-6	Decreasing	Increasing	No Trend
PTX08-1002	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	CU	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1002	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	HG	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	NI	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1002	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	PB	Probably Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX08-1002	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	SE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1002	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1002	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1002	U-233/234	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX08-1002	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1002	U-238	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1002	V	Stable	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1002	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1002	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1002	ZN	Stable	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1003	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1003	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	DIOXANE14	No Trend	No Trend	Probably Increasing
PTX08-1003	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1003	TCE	Decreasing	Decreasing	Decreasing
PTX08-1003	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1003	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	AS	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1005	BA	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1005	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	BZ	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX08-1005	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CLBZ	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX08-1005	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	CO	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1005	CR	Stable	Probably Increasing	Increasing
PTX08-1005	CR-6	Decreasing	Probably Increasing	Increasing

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1005	CTCL	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX08-1005	CU	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1005	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DCE11	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX08-1005	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	DIOXANE14	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1005	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	FC11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	NI	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1005	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	PCE	Stable	Probably Decreasing	All Non-Detect
PTX08-1005	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	SB	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	SE	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1005	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TBME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1005	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TCE	Decreasing	Decreasing	Decreasing
PTX08-1005	TCLME	Decreasing	Probably Decreasing	Stable
PTX08-1005	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1005	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1005	U-233/234	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1005	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1005	U-238	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1005	V	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX08-1005	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1005	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1005	ZN	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1006	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	AS	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX08-1006	BA	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1006	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CLBZ	Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX08-1006	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	CR	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1006	CR-6	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX08-1006	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	CU	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1006	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1006	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1006	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	DIOXANE14	Decreasing	Stable	Decreasing
PTX08-1006	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	FC11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	HG	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	MTLNCL	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1006	NI	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1006	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	PCE	Decreasing	No Trend	Probably Decreasing
PTX08-1006	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	SE	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1006	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TCA112	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	TCE	Increasing	No Trend	No Trend
PTX08-1006	TCLME	Probably Decreasing	Stable	Increasing
PTX08-1006	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1006	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	U-233/234	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1006	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1006	U-238	Probably Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1006	V	Decreasing	Increasing	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1006	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1006	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1006	ZN	No Trend	Probably Increasing	N/A (<4 Samples in Dataset)
PTX08-1007	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	AS	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	BA	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CD	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1007	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	CO	No Trend	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1007	CR	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1007	CR-6	No Trend	Decreasing	Probably Decreasing
PTX08-1007	CTCL	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1007	CU	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DCE11	Stable	Stable	N/A (<4 Detections in Dataset)
PTX08-1007	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	DIOXANE14	Probably Increasing	Increasing	Increasing
PTX08-1007	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	FC11	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1007	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	MTLNCL	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1007	NI	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX08-1007	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	PCE	Decreasing	No Trend	Increasing
PTX08-1007	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	SE	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1007	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TCA111	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TCE	Probably Increasing	Stable	Decreasing
PTX08-1007	TCLME	Increasing	Probably Increasing	Increasing
PTX08-1007	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	TL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1007	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1007	U-233/234	Probably Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1007	U-238	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	V	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1007	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1007	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1007	ZN	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1008	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	AS	Stable	No Trend	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1008	BA	Probably Decreasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1008	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	CO	Decreasing	Stable	N/A (<4 Samples in Dataset)
PTX08-1008	CR	Decreasing	Decreasing	Decreasing
PTX08-1008	CR-6	Decreasing	Decreasing	Decreasing
PTX08-1008	CTCL	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	CU	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX08-1008	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DCE11	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	DIOXANE14	Increasing	No Trend	Increasing
PTX08-1008	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1008	NI	Decreasing	Decreasing	Probably Decreasing
PTX08-1008	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	PB	Probably Decreasing	Probably Decreasing	N/A (<4 Samples in Dataset)
PTX08-1008	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	PCE	No Trend	No Trend	No Trend
PTX08-1008	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	SB	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	SE	No Trend	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1008	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1008	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TCE	Increasing	No Trend	Increasing
PTX08-1008	TCLME	Stable	No Trend	No Trend
PTX08-1008	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	TL	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1008	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1008	U-233/234	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1008	U-235/236	Stable	Stable	N/A (<4 Detections in Dataset)
PTX08-1008	U-238	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1008	V	No Trend	Probably Decreasing	Stable
PTX08-1008	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1008	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1008	ZN	Stable	Probably Increasing	N/A (<4 Samples in Dataset)
PTX08-1009	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	AS	No Trend	Increasing	N/A (<4 Detections in Dataset)
PTX08-1009	BA	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1009	BE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	CO	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	CR	Decreasing	Stable	Decreasing
PTX08-1009	CR-6	Decreasing	Stable	Decreasing
PTX08-1009	CTCL	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1009	CU	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	DBCME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1009	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	DIOXANE14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	MTLNCL	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	NI	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX08-1009	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX08-1009	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	SB	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1009	SE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1009	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TBME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1009	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TCE	Decreasing	Stable	All Non-Detect
PTX08-1009	TCLME	Stable	Stable	All Non-Detect
PTX08-1009	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	TL	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1009	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1009	U-233/234	Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX08-1009	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1009	U-238	Probably Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1009	V	Increasing	Stable	No Trend
PTX08-1009	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	VC	All Non-Detect	All Non-Detect	All Non-Detect

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1009	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1009	ZN	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ACE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	AS	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1010	BA	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1010	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	BZME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CD	Stable	Increasing	N/A (<4 Samples in Dataset)
PTX08-1010	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CO	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1010	CR	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1010	CR-6	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX08-1010	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	CU	Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1010	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCE11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCE12T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	FC11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	ISOBTOH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX08-1010	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	NI	Stable	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX08-1010	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PB	Stable	Decreasing	N/A (<4 Samples in Dataset)
PTX08-1010	PCA	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	PCE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	SB	Stable	Stable	N/A (<4 Samples in Dataset)
PTX08-1010	SE	Probably Increasing	Stable	N/A (<4 Samples in Dataset)
PTX08-1010	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	TCLME	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	TL	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX08-1010	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX08-1010	U-233/234	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1010	U-235/236	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX08-1010	U-238	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX08-1010	V	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX08-1010	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	VC	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX08-1010	XYLENES	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX08-1010	ZN	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX10-1014	ACCN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ACE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ACRL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ALLYLCH	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	AS	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX10-1014	BA	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX10-1014	BE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	BRME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	BZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX10-1014	BZME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	CD	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CDS	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CHLOROPRENE	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CLBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CLME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CO	Probably Decreasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX10-1014	CR	Decreasing	Stable	Stable
PTX10-1014	CR-6	Decreasing	Probably Decreasing	Probably Decreasing
PTX10-1014	CTCL	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	CU	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX10-1014	DBCME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DBMA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCA11	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBE14T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBZ12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBZ13	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCBZ14	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DCE11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX10-1014	DCE12T	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	DCP13T	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	DIOXANE14	Stable	Stable	No Trend
PTX10-1014	EBZ	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	EMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	FC11	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX10-1014	FC12	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	HG	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	HXO2	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	IME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MEK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	METHACRN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MIBK	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MMETHACRY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	MTLNCL	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX10-1014	NI	Decreasing	No Trend	No Trend
PTX10-1014	PACN	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	PB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	PCA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	PCE	Stable	No Trend	No Trend
PTX10-1014	PCLEA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	S	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	SB	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX10-1014	SE	No Trend	Stable	N/A (<4 Detections in Dataset)

Table 6 (continued)
Perched Groundwater Linear Regression Concentration Trends
Appendix IX Analytes
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX10-1014	STY	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TBME	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TC1112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TCA111	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TCA112	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TCE	Decreasing	Probably Increasing	Increasing
PTX10-1014	TCLME	Decreasing	No Trend	No Trend
PTX10-1014	TCPR123	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	TL	Decreasing	Decreasing	N/A (<4 Samples in Dataset)
PTX10-1014	U	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX10-1014	U-233/234	Increasing	Probably Decreasing	N/A (<4 Detections in Dataset)
PTX10-1014	U-235/236	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX10-1014	U-238	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX10-1014	V	Decreasing	No Trend	Stable
PTX10-1014	VA	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	VC	All Non-Detect	All Non-Detect	All Non-Detect
PTX10-1014	XYLENES	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)
PTX10-1014	ZN	Stable	No Trend	N/A (<4 Samples in Dataset)

Ogallala Aquifer COC Trends Summary Table

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Table 7
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1010	AS	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX01-1010	B	Decreasing	No Trend	Stable
PTX01-1010	BA	No Trend	Decreasing	Decreasing
PTX01-1010	CR	Probably Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1010	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1010	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	MN	No Trend	No Trend	Stable
PTX01-1010	NI	Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX01-1010	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	PERC	Decreasing	No Trend	Decreasing
PTX01-1010	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX01-1010	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	V	Stable	No Trend	N/A (<4 Samples in Dataset)
PTX01-1011	AS	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX01-1011	B	Stable	No Trend	No Trend
PTX01-1011	BA	Decreasing	No Trend	Probably Increasing
PTX01-1011	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1011	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1011	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1011	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	MN	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1011	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX01-1011	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	PERC	Decreasing	No Trend	Decreasing
PTX01-1011	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX01-1011	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	V	Probably Decreasing	No Trend	N/A (<4 Samples in Dataset)
PTX01-1012	AS	Increasing	N/A (<4 Detections in Dataset)	Probably Increasing
PTX01-1012	B	No Trend	No Trend	No Trend
PTX01-1012	BA	Decreasing	No Trend	No Trend
PTX01-1012	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	MN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1012	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1012	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	AS	Increasing	N/A (<4 Detections in Dataset)	Probably Increasing
PTX01-1013	B	Stable	No Trend	Stable
PTX01-1013	BA	Decreasing	No Trend	No Trend
PTX01-1013	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	MN	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX01-1013	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX01-1013	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1013	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	AS	Increasing	No Trend	No Trend
PTX06-1043	B	Probably Increasing	No Trend	Stable
PTX06-1043	BA	Increasing	No Trend	No Trend
PTX06-1043	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1043	CR-6	Decreasing	No Trend	Probably Decreasing
PTX06-1043	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNT24	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1043	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	FE	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1043	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	MN	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1043	MO	No Trend	No Trend	No Trend
PTX06-1043	NI	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1043	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1043	PERC	Probably Decreasing	No Trend	Decreasing
PTX06-1043	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	V	Increasing	No Trend	Increasing
PTX06-1044	AS	Increasing	No Trend	No Trend
PTX06-1044	B	Increasing	No Trend	Probably Increasing
PTX06-1044	BA	Decreasing	No Trend	Stable
PTX06-1044	CR	Decreasing	Decreasing	Decreasing
PTX06-1044	CR-6	Decreasing	No Trend	Stable
PTX06-1044	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	FE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1044	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	MN	Decreasing	All Non-Detect	All Non-Detect
PTX06-1044	MO	Decreasing	No Trend	Stable
PTX06-1044	NI	Decreasing	N/A (<4 Detections in Dataset)	Probably Decreasing

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1044	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	PERC	No Trend	No Trend	Decreasing
PTX06-1044	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	V	Increasing	Decreasing	Stable
PTX06-1056	AS	Increasing	N/A (<4 Detections in Dataset)	Probably Increasing
PTX06-1056	B	Stable	No Trend	Probably Decreasing
PTX06-1056	BA	Increasing	No Trend	No Trend
PTX06-1056	CR	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1056	CR-6	Decreasing	Increasing	Increasing
PTX06-1056	DCA12	Increasing	No Trend	Increasing
PTX06-1056	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT4A	Increasing	No Trend	Increasing
PTX06-1056	FE	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1056	HMX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1056	MN	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1056	MO	Probably Increasing	No Trend	Stable
PTX06-1056	NI	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1056	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1056	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1056	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	V	No Trend	No Trend	Increasing
PTX06-1057A	AS	Stable	No Trend	Stable
PTX06-1057A	B	Stable	No Trend	No Trend
PTX06-1057A	BA	Decreasing	No Trend	Stable
PTX06-1057A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	MN	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1057A	PCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1057A	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1057A	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	AS	No Trend	No Trend	No Trend
PTX06-1058	B	No Trend	Decreasing	Stable
PTX06-1058	BA	No Trend	No Trend	No Trend
PTX06-1058	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1058	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1058	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	FE	Increasing	No Trend	No Trend
PTX06-1058	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	MN	No Trend	No Trend	No Trend
PTX06-1058	MO	Stable	Decreasing	Decreasing
PTX06-1058	NI	Stable	N/A (<4 Detections in Dataset)	No Trend
PTX06-1058	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1058	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1058	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	V	Probably Decreasing	No Trend	No Trend
PTX06-1059	AS	Probably Increasing	No Trend	No Trend
PTX06-1059	B	No Trend	Increasing	Increasing
PTX06-1059	BA	Stable	No Trend	Decreasing
PTX06-1059	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	MN	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1059	PCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1059	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1059	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	AS	Stable	No Trend	No Trend
PTX06-1060	B	Decreasing	No Trend	No Trend
PTX06-1060	BA	Decreasing	No Trend	No Trend
PTX06-1060	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	MN	Decreasing	All Non-Detect	All Non-Detect
PTX06-1060	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1060	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	AS	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1061	B	No Trend	No Trend	No Trend
PTX06-1061	BA	Stable	No Trend	No Trend
PTX06-1061	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	MN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1061	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1061	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	AS	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1062A	B	Stable	No Trend	Stable

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1062A	BA	Decreasing	No Trend	No Trend
PTX06-1062A	CR	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1062A	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1062A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	MN	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1062A	NI	No Trend	Increasing	N/A (<4 Samples in Dataset)
PTX06-1062A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	PERC	Decreasing	No Trend	Decreasing
PTX06-1062A	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1062A	TCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1062A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	V	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1064	AS	Probably Increasing	No Trend	Probably Increasing
PTX06-1064	B	No Trend	No Trend	No Trend
PTX06-1064	BA	Stable	No Trend	Stable
PTX06-1064	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	MN	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1064	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1064	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	AS	Increasing	No Trend	No Trend
PTX06-1068	B	Stable	Decreasing	Increasing
PTX06-1068	BA	Decreasing	Decreasing	Probably Decreasing

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1068	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1068	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	MN	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1068	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1068	PERC	Probably Decreasing	No Trend	Decreasing
PTX06-1068	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	AS	Increasing	No Trend	No Trend
PTX06-1072	B	Probably Increasing	No Trend	No Trend
PTX06-1072	BA	Decreasing	No Trend	Stable
PTX06-1072	CR	Increasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1072	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1072	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	MN	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1072	NI	Probably Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1072	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	PERC	Decreasing	No Trend	Decreasing
PTX06-1072	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1072	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	V	Probably Increasing	Increasing	N/A (<4 Samples in Dataset)
PTX06-1075	AS	No Trend	No Trend	No Trend
PTX06-1075	B	Decreasing	No Trend	Stable
PTX06-1075	BA	Probably Increasing	No Trend	No Trend
PTX06-1075	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1075	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	HMX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1075	MN	Probably Decreasing	All Non-Detect	All Non-Detect
PTX06-1075	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1075	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	AS	Increasing	No Trend	No Trend
PTX06-1076	B	Decreasing	No Trend	No Trend
PTX06-1076	BA	Increasing	No Trend	Increasing
PTX06-1076	CR	Increasing	All Non-Detect	All Non-Detect
PTX06-1076	CR-6	Decreasing	No Trend	Stable
PTX06-1076	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1076	FE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1076	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	MN	Stable	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1076	MO	Stable	No Trend	Stable
PTX06-1076	NI	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1076	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1076	PERC	Decreasing	No Trend	Decreasing
PTX06-1076	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	V	No Trend	No Trend	Stable
PTX06-1137A	AS	Increasing	No Trend	No Trend
PTX06-1137A	B	No Trend	Decreasing	No Trend
PTX06-1137A	BA	Stable	No Trend	Stable
PTX06-1137A	CR	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1137A	CR-6	Decreasing	No Trend	No Trend
PTX06-1137A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1137A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	FE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1137A	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	MN	No Trend	No Trend	No Trend
PTX06-1137A	MO	Stable	No Trend	Stable
PTX06-1137A	NI	Decreasing	N/A (<4 Detections in Dataset)	Increasing
PTX06-1137A	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1137A	RDX	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1137A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	TCLME	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1137A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	V	No Trend	No Trend	Stable
PTX06-1138	AS	No Trend	No Trend	Stable
PTX06-1138	B	Stable	Decreasing	Stable
PTX06-1138	BA	No Trend	No Trend	Decreasing
PTX06-1138	CR	No Trend	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1138	CR-6	Decreasing	No Trend	No Trend
PTX06-1138	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	FE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1138	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	MN	No Trend	No Trend	No Trend
PTX06-1138	MO	Probably Increasing	No Trend	Stable
PTX06-1138	NI	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1138	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	V	Stable	No Trend	No Trend
PTX06-1139	AS	Increasing	No Trend	Stable
PTX06-1139	B	Stable	No Trend	Stable
PTX06-1139	BA	Decreasing	No Trend	Stable
PTX06-1139	CR	No Trend	All Non-Detect	All Non-Detect
PTX06-1139	CR-6	Decreasing	No Trend	Decreasing

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1139	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1139	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	FE	Decreasing	All Non-Detect	All Non-Detect
PTX06-1139	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	MN	Decreasing	No Trend	Decreasing
PTX06-1139	MO	No Trend	No Trend	Increasing
PTX06-1139	NI	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1139	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	V	No Trend	No Trend	Stable
PTX06-1140	AS	Increasing	No Trend	No Trend
PTX06-1140	B	Probably Increasing	No Trend	No Trend
PTX06-1140	BA	Increasing	No Trend	Stable
PTX06-1140	CR	Probably Increasing	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1140	CR-6	Decreasing	No Trend	No Trend
PTX06-1140	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	FE	Decreasing	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1140	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	MN	No Trend	All Non-Detect	All Non-Detect
PTX06-1140	MO	Stable	No Trend	No Trend
PTX06-1140	NI	No Trend	N/A (<4 Detections in Dataset)	No Trend
PTX06-1140	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	V	Probably Increasing	No Trend	No Trend
PTX06-1141	AS	Increasing	No Trend	Increasing
PTX06-1141	B	Stable	No Trend	Probably Increasing
PTX06-1141	BA	Stable	No Trend	No Trend
PTX06-1141	CR	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1141	CR-6	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1141	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1141	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	MN	Decreasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1141	NI	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1141	PCE	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1141	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1141	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	V	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1143	AS	Increasing	No Trend	No Trend
PTX06-1143	B	Probably Increasing	Decreasing	No Trend
PTX06-1143	BA	Increasing	No Trend	Increasing
PTX06-1143	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1143	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1143	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	MN	N/A (<4 Detections in Dataset)	All Non-Detect	All Non-Detect
PTX06-1143	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1143	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	PERC	Decreasing	No Trend	Decreasing
PTX06-1143	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX06-1143	V	No Trend	Stable	N/A (<4 Samples in Dataset)
PTX06-1144	AS	Increasing	No Trend	No Trend
PTX06-1144	B	Increasing	Decreasing	No Trend
PTX06-1144	BA	Stable	No Trend	Probably Decreasing
PTX06-1144	CR	No Trend	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1144	CR-6	Decreasing	No Trend	Stable
PTX06-1144	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	MN	No Trend	N/A (<4 Detections in Dataset)	Stable
PTX06-1144	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	PERC	Decreasing	No Trend	Decreasing
PTX06-1144	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	AS	Probably Increasing	No Trend	No Trend
PTX06-1157	B	Increasing	No Trend	No Trend
PTX06-1157	BA	Probably Decreasing	No Trend	No Trend
PTX06-1157	CR	Increasing	N/A (<4 Detections in Dataset)	No Trend
PTX06-1157	CR-6	Decreasing	No Trend	Stable
PTX06-1157	DCA12	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX06-1157	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	FE	Decreasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1157	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	MN	Probably Increasing	N/A (<4 Detections in Dataset)	Stable
PTX06-1157	MO	No Trend	No Trend	Stable
PTX06-1157	NI	Decreasing	No Trend	Stable
PTX06-1157	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	V	Increasing	No Trend	No Trend
PTX07-1R01	AS	No Trend	Decreasing	No Trend
PTX07-1R01	B	No Trend	No Trend	No Trend
PTX07-1R01	BA	Probably Decreasing	No Trend	Stable

Table 7 (continued)
Ogalala Aquifer Mann-Kendall Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	MK Trend All Data	MK Trend Recent 4 Samples	MK Trend Third FYR Period
PTX07-1R01	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DIOXANE14	N/A (<4 Detections in Dataset)	All Non-Detect	N/A (<4 Detections in Dataset)
PTX07-1R01	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	MN	Decreasing	All Non-Detect	All Non-Detect
PTX07-1R01	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1R01	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1R01	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Notes

AS	Arsenic
B	Boron
BA	Barium
CR	Chromium, Total
CR-6	Hexavalent Chromium
DCA12	1,2-Dichloroethane
DCE12C	cis-1,2-Dichloroethene
DIOXANE14	1,4-Dioxane
DNB13	1,3-Dinitrobenzene
DNT24	2,4-Dinitrotototoluene
DNT26	2,6-Dinitrotototoluene
DNT2A	2-Amino, 4,6-dinitrotoluene
DNT4A	4-Amino, 2,6-dinitrotoluene
FE	Iron
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
MN	Manganese
MO	Molybdenum
NI	Nickel
PCE	Tetrachloroethene
PERC	Perchlorate
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
TCE	Trichloroethene
TCLME	Chloroform
TNB135	1,3,5-Dinitrobenzene
TNT	Trinitrotoluene
V	Vanadium

Table 8
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX01-1010	AS	Decreasing	Stable	No Trend
PTX01-1010	B	Decreasing	Stable	Decreasing
PTX01-1010	BA	Increasing	Decreasing	Probably Decreasing
PTX01-1010	CR	Probably Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX01-1010	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1010	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	MN	No Trend	No Trend	Stable
PTX01-1010	NI	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX01-1010	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	PERC	No Trend	No Trend	No Trend
PTX01-1010	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX01-1010	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1010	V	Probably Increasing	Increasing	N/A (<4 Detections in Dataset)
PTX01-1011	AS	Increasing	No Trend	Increasing
PTX01-1011	B	Decreasing	Stable	Stable
PTX01-1011	BA	Decreasing	Stable	Increasing
PTX01-1011	CR	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX01-1011	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1011	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX01-1011	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	MN	No Trend	Decreasing	N/A (<4 Detections in Dataset)
PTX01-1011	NI	No Trend	No Trend	N/A (<4 Samples in Dataset)
PTX01-1011	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	PERC	Probably Decreasing	Stable	Probably Decreasing
PTX01-1011	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1011	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1011	V	Stable	Stable	N/A (<4 Detections in Dataset)
PTX01-1012	AS	Decreasing	No Trend	Probably Increasing
PTX01-1012	B	Increasing	No Trend	No Trend
PTX01-1012	BA	Decreasing	No Trend	Increasing
PTX01-1012	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	MN	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX01-1012	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1012	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1012	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	AS	Decreasing	No Trend	No Trend
PTX01-1013	B	Decreasing	No Trend	Stable
PTX01-1013	BA	Decreasing	Probably Increasing	No Trend
PTX01-1013	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX01-1013	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	MN	Decreasing	Stable	Stable
PTX01-1013	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1013	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX01-1013	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX01-1013	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	AS	Increasing	Stable	No Trend
PTX06-1043	B	Increasing	Stable	No Trend
PTX06-1043	BA	Increasing	Stable	No Trend
PTX06-1043	CR	Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1043	CR-6	Decreasing	Decreasing	Probably Decreasing
PTX06-1043	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNT24	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1043	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	FE	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1043	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	MN	Probably Decreasing	No Trend	No Trend
PTX06-1043	MO	Decreasing	Stable	No Trend
PTX06-1043	NI	Decreasing	No Trend	No Trend
PTX06-1043	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1043	PERC	Decreasing	Stable	Probably Decreasing
PTX06-1043	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1043	V	Increasing	No Trend	Increasing
PTX06-1044	AS	No Trend	No Trend	No Trend
PTX06-1044	B	Increasing	Stable	Probably Increasing
PTX06-1044	BA	Decreasing	Stable	Stable
PTX06-1044	CR	Decreasing	Decreasing	Decreasing
PTX06-1044	CR-6	Decreasing	Increasing	No Trend
PTX06-1044	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNB13	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1044	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	FE	No Trend	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1044	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	MN	Decreasing	No Trend	All Non-Detect
PTX06-1044	MO	Decreasing	Probably Decreasing	No Trend
PTX06-1044	NI	Decreasing	Probably Decreasing	Stable
PTX06-1044	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	PERC	Decreasing	Probably Increasing	No Trend
PTX06-1044	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1044	V	Increasing	Decreasing	Decreasing
PTX06-1056	AS	Increasing	Stable	No Trend
PTX06-1056	B	Decreasing	No Trend	Probably Decreasing
PTX06-1056	BA	Increasing	No Trend	No Trend
PTX06-1056	CR	Increasing	No Trend	No Trend
PTX06-1056	CR-6	Probably Increasing	No Trend	Increasing
PTX06-1056	DCA12	Increasing	Stable	Increasing
PTX06-1056	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	DNT4A	Increasing	Probably Increasing	Increasing
PTX06-1056	FE	No Trend	Stable	N/A (<4 Detections in Dataset)
PTX06-1056	HMX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1056	MN	Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1056	MO	Decreasing	Decreasing	Decreasing
PTX06-1056	NI	Decreasing	No Trend	No Trend
PTX06-1056	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1056	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1056	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1056	V	Increasing	No Trend	Increasing

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1057A	AS	Decreasing	Stable	No Trend
PTX06-1057A	B	Decreasing	Stable	No Trend
PTX06-1057A	BA	Decreasing	Probably Decreasing	Increasing
PTX06-1057A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	MN	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1057A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1057A	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1057A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	AS	No Trend	No Trend	Probably Increasing
PTX06-1058	B	Probably Increasing	Decreasing	Stable
PTX06-1058	BA	Increasing	No Trend	Probably Increasing
PTX06-1058	CR	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1058	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1058	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	FE	No Trend	No Trend	No Trend
PTX06-1058	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	MN	Probably Decreasing	No Trend	No Trend
PTX06-1058	MO	Decreasing	Probably Decreasing	Decreasing
PTX06-1058	NI	Stable	No Trend	No Trend
PTX06-1058	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1058	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	TCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1058	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1058	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1058	V	Stable	No Trend	Increasing
PTX06-1059	AS	Probably Increasing	No Trend	Stable
PTX06-1059	B	Probably Increasing	Probably Increasing	Increasing
PTX06-1059	BA	Decreasing	Stable	Decreasing
PTX06-1059	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	MN	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1059	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1059	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1059	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	AS	No Trend	Stable	Stable
PTX06-1060	B	Decreasing	No Trend	No Trend
PTX06-1060	BA	Decreasing	Probably Increasing	Decreasing
PTX06-1060	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	MN	Decreasing	Stable	All Non-Detect
PTX06-1060	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1060	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1060	TNB135	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1060	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	AS	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1061	B	Probably Increasing	No Trend	No Trend
PTX06-1061	BA	Decreasing	No Trend	No Trend
PTX06-1061	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	MN	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1061	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1061	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1061	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	AS	Increasing	Stable	Increasing
PTX06-1062A	B	Decreasing	Stable	Probably Decreasing
PTX06-1062A	BA	Decreasing	Stable	Increasing
PTX06-1062A	CR	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1062A	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1062A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	MN	Decreasing	Increasing	No Trend
PTX06-1062A	NI	No Trend	Probably Increasing	N/A (<4 Detections in Dataset)
PTX06-1062A	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	PERC	Stable	Stable	Stable
PTX06-1062A	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1062A	TCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1062A	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1062A	V	Increasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1064	AS	No Trend	Stable	Stable
PTX06-1064	B	Increasing	Stable	No Trend
PTX06-1064	BA	Decreasing	Stable	Stable
PTX06-1064	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	MN	Stable	No Trend	N/A (<4 Detections in Dataset)
PTX06-1064	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1064	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1064	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	AS	Stable	Increasing	Increasing
PTX06-1068	B	Decreasing	Decreasing	Increasing
PTX06-1068	BA	Decreasing	Decreasing	Probably Decreasing
PTX06-1068	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1068	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	MN	Stable	No Trend	No Trend
PTX06-1068	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1068	PERC	Probably Increasing	Probably Increasing	Probably Increasing
PTX06-1068	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1068	TNB135	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1068	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	AS	No Trend	Stable	Increasing
PTX06-1072	B	Increasing	Stable	Stable
PTX06-1072	BA	Decreasing	No Trend	Decreasing
PTX06-1072	CR	Increasing	No Trend	N/A (<4 Samples in Dataset)
PTX06-1072	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1072	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	MN	No Trend	Stable	Stable
PTX06-1072	NI	No Trend	Probably Increasing	N/A (<4 Samples in Dataset)
PTX06-1072	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	PERC	No Trend	No Trend	No Trend
PTX06-1072	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1072	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1072	V	Increasing	Probably Increasing	N/A (<4 Detections in Dataset)
PTX06-1075	AS	Increasing	No Trend	No Trend
PTX06-1075	B	Decreasing	Stable	Stable
PTX06-1075	BA	Increasing	No Trend	Probably Increasing
PTX06-1075	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	HMX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1075	MN	Decreasing	No Trend	All Non-Detect
PTX06-1075	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1075	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TCE	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1075	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1075	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	AS	Increasing	No Trend	No Trend
PTX06-1076	B	Decreasing	Stable	No Trend
PTX06-1076	BA	Increasing	Stable	Probably Increasing
PTX06-1076	CR	No Trend	No Trend	All Non-Detect
PTX06-1076	CR-6	Decreasing	Increasing	No Trend
PTX06-1076	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	DNT4A	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1076	FE	Stable	Stable	N/A (<4 Detections in Dataset)
PTX06-1076	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	MN	Decreasing	Increasing	N/A (<4 Detections in Dataset)
PTX06-1076	MO	Decreasing	Stable	Stable
PTX06-1076	NI	Probably Decreasing	Stable	Stable
PTX06-1076	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1076	PERC	Stable	Stable	Stable
PTX06-1076	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1076	V	Decreasing	Stable	No Trend
PTX06-1137A	AS	Increasing	No Trend	Decreasing
PTX06-1137A	B	Decreasing	Decreasing	Increasing
PTX06-1137A	BA	Stable	Stable	Decreasing
PTX06-1137A	CR	Probably Decreasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1137A	CR-6	No Trend	No Trend	Increasing
PTX06-1137A	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	FE	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1137A	HMX	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1137A	MN	No Trend	No Trend	No Trend
PTX06-1137A	MO	Decreasing	Stable	Stable
PTX06-1137A	NI	Decreasing	Increasing	Increasing
PTX06-1137A	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1137A	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1137A	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	TCLME	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1137A	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1137A	V	Decreasing	Stable	Stable
PTX06-1138	AS	No Trend	Stable	Stable
PTX06-1138	B	Decreasing	Decreasing	No Trend
PTX06-1138	BA	Decreasing	Increasing	Decreasing
PTX06-1138	CR	Probably Increasing	No Trend	N/A (<4 Detections in Dataset)
PTX06-1138	CR-6	Probably Decreasing	No Trend	No Trend
PTX06-1138	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	FE	Decreasing	Stable	All Non-Detect
PTX06-1138	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	MN	No Trend	Stable	No Trend
PTX06-1138	MO	Probably Increasing	Increasing	Decreasing
PTX06-1138	NI	Decreasing	Stable	Stable
PTX06-1138	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1138	V	Decreasing	Probably Decreasing	No Trend
PTX06-1139	AS	Probably Increasing	Stable	Stable
PTX06-1139	B	Decreasing	Stable	Stable
PTX06-1139	BA	Decreasing	No Trend	Stable
PTX06-1139	CR	Stable	Stable	All Non-Detect
PTX06-1139	CR-6	Decreasing	Stable	Decreasing
PTX06-1139	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1139	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT24	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1139	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	FE	Decreasing	Probably Decreasing	All Non-Detect
PTX06-1139	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	MN	Decreasing	No Trend	Stable
PTX06-1139	MO	Increasing	Decreasing	Increasing
PTX06-1139	NI	Stable	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1139	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1139	V	Increasing	Probably Increasing	Stable
PTX06-1140	AS	Probably Increasing	Stable	No Trend
PTX06-1140	B	Probably Increasing	Probably Decreasing	No Trend
PTX06-1140	BA	Increasing	Stable	Decreasing
PTX06-1140	CR	No Trend	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1140	CR-6	Decreasing	No Trend	Increasing
PTX06-1140	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	FE	Decreasing	Stable	N/A (<4 Detections in Dataset)
PTX06-1140	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	MN	Stable	No Trend	All Non-Detect
PTX06-1140	MO	Stable	No Trend	No Trend
PTX06-1140	NI	Stable	Stable	Stable
PTX06-1140	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1140	V	Probably Increasing	Stable	Probably Increasing
PTX06-1141	AS	Increasing	Stable	Increasing
PTX06-1141	B	Stable	Probably Decreasing	Probably Increasing
PTX06-1141	BA	Stable	Stable	No Trend
PTX06-1141	CR	All Non-Detect	All Non-Detect	N/A (<4 Samples in Dataset)

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1141	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1141	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1141	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	MN	Decreasing	Stable	No Trend
PTX06-1141	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1141	PCE	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1141	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1141	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1141	V	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1143	AS	Increasing	Stable	Stable
PTX06-1143	B	Probably Increasing	Probably Decreasing	Increasing
PTX06-1143	BA	Increasing	Decreasing	Increasing
PTX06-1143	CR	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1143	CR-6	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1143	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	MN	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	All Non-Detect
PTX06-1143	NI	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Samples in Dataset)
PTX06-1143	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	PERC	No Trend	No Trend	No Trend
PTX06-1143	RDX	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1143	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1143	V	Decreasing	Decreasing	N/A (<4 Detections in Dataset)
PTX06-1144	AS	Increasing	No Trend	No Trend
PTX06-1144	B	Increasing	Probably Decreasing	No Trend
PTX06-1144	BA	Stable	Stable	Stable
PTX06-1144	CR	No Trend	No Trend	N/A (<4 Detections in Dataset)
PTX06-1144	CR-6	Decreasing	No Trend	Probably Increasing
PTX06-1144	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DIOXANE14	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	MN	Stable	Stable	Stable
PTX06-1144	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	PERC	No Trend	No Trend	No Trend
PTX06-1144	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1144	TNT	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	AS	Decreasing	Stable	No Trend
PTX06-1157	B	Increasing	No Trend	No Trend
PTX06-1157	BA	Probably Decreasing	No Trend	Probably Increasing
PTX06-1157	CR	No Trend	Stable	No Trend
PTX06-1157	CR-6	Decreasing	Increasing	Stable
PTX06-1157	DCA12	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX06-1157	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	FE	Probably Decreasing	Increasing	No Trend
PTX06-1157	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	MN	Probably Increasing	Probably Increasing	No Trend
PTX06-1157	MO	Probably Increasing	No Trend	Stable
PTX06-1157	NI	Decreasing	No Trend	Stable
PTX06-1157	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	RDX	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX06-1157	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Table 8 (continued)
Ogalala Aquifer Linear Regression Concentration Trends
Priority COCs
Third Five-Year Review

Well	COC	LR Trend All Data	LR Trend Recent 4 Samples	LR Trend Third FYR Period
PTX06-1157	V	Increasing	Decreasing	No Trend
PTX07-1R01	AS	No Trend	Decreasing	Decreasing
PTX07-1R01	B	Increasing	No Trend	No Trend
PTX07-1R01	BA	Decreasing	No Trend	Stable
PTX07-1R01	DCA12	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DCE12C	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DIOXANE14	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1R01	DNB13	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT24	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT26	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT2A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	DNT4A	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	HMX	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	MN	Decreasing	No Trend	All Non-Detect
PTX07-1R01	PCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	PERC	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1R01	RDX	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)	N/A (<4 Detections in Dataset)
PTX07-1R01	TCE	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	TCLME	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	TNB135	All Non-Detect	All Non-Detect	All Non-Detect
PTX07-1R01	TNT	All Non-Detect	All Non-Detect	All Non-Detect

Notes

AS	Arsenic
B	Boron
BA	Barium
CR	Chromium, Total
CR-6	Hexavalent Chromium
DCA12	1,2-Dichloroethane
DCE12C	cis-1,2-Dichloroethene
DIOXANE14	1,4-Dioxane
DNB13	1,3-Dinitrobenzene
DNT24	2,4-Dinitrotoluene
DNT26	2,6-Dinitrotoluene
DNT2A	2-Amino, 4,6-dinitrotoluene
DNT4A	4-Amino, 2,6-dinitrotoluene
FE	Iron
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
MN	Manganese
MO	Molybdenum
NI	Nickel
PCE	Tetrachloroethene
PERC	Perchlorate
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
TCE	Trichloroethene
TCLME	Chloroform
TNB135	1,3,5-Dinitrobenzene
TNT	Trinitrotoluene
V	Vanadium

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Attachment 10

Groundwater Hydrographs, Trends, and Comparison to Expected Conditions
Third Five-Year Review

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Table of Contents

List of Figures

List of Tables

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1 Water Level Evaluation for the Five-Year Review

This Attachment includes a discussion of all water level data evaluated for the Third Five-Year Review (FYR). Data for the perched groundwater and Ogallala Aquifer were evaluated separately.

1.1 Perched Groundwater Data

Figure 1 and **Figure 2** summarize the net changes in water level and linear regression trends on groundwater elevation in the perched groundwater, and **Table 1** compares the trends to expected conditions defined in the Long Term Monitoring (LTM) Design Report (B&W Pantex, 2009). Water level trends and net changes in water levels were calculated using the following datasets:

- All historical water level data,
- Water level data from the last five years (2017-2021), and
- Linear regression trends of perched water levels over the FYR period (2017-2021).

The following electronic files (referenced in **Attachment 6** of the Third FYR) are provided with this report:

- Tabulated trend results for all wells, and
- Hydrographs for all wells.

As summarized in **Table 1**, about 75 percent of the historical trends match the expected condition as defined in the LTM Design Report (B&W Pantex, 2009); however, only about 33 percent of the trends during the Third FYR period match expected conditions. Those trends assessed during the FYR period that are not consistent with expected conditions are a result of decreased pumping in the P1PTS and SEPTS over the FYR period and discharge of treated water to Playa 1 that resulted from a failure of the subsurface irrigation system.

Trends for the FYR period depicted on **Figure 2** indicate that the largest *increasing* trends are focused around Playa 1. Water levels in wells near the SEPTS indicate *no trend* to minor *decreasing* trends, likely resulting from pumping at the SEPTS being prioritized over the P1PTS during the later part of the FYR period. Near the John C. Drummond Center (JCDC) and SEISB, water levels have minor *increasing* trends. Trends near the JCDC are likely related to retention ponds surrounding the JCDC parking lot and trends near the SEISB may be related to operational changes of the SEPTS resulting from a failure of the subsurface irrigation system. Additional *increasing* trends during the FYR period were located on the western end of the Zone 11 ISB, south of Playa 2, near Playa 3, near Pratt Playa, and near the SEISB Extension. Increasing trends near the Playa lakes may be associated with longer term rebound in perched groundwater caused by annual precipitation returning to near average rates during the current FYR period after several years of below average annual precipitation between 2011 and 2014. Although, some of these additional *increasing* trends (e.g., around Playa 2, Pratt Playa, and the SEISB Extension) are minor (less than 1 foot of change during the FYR period) as illustrated on **Figure 1**.

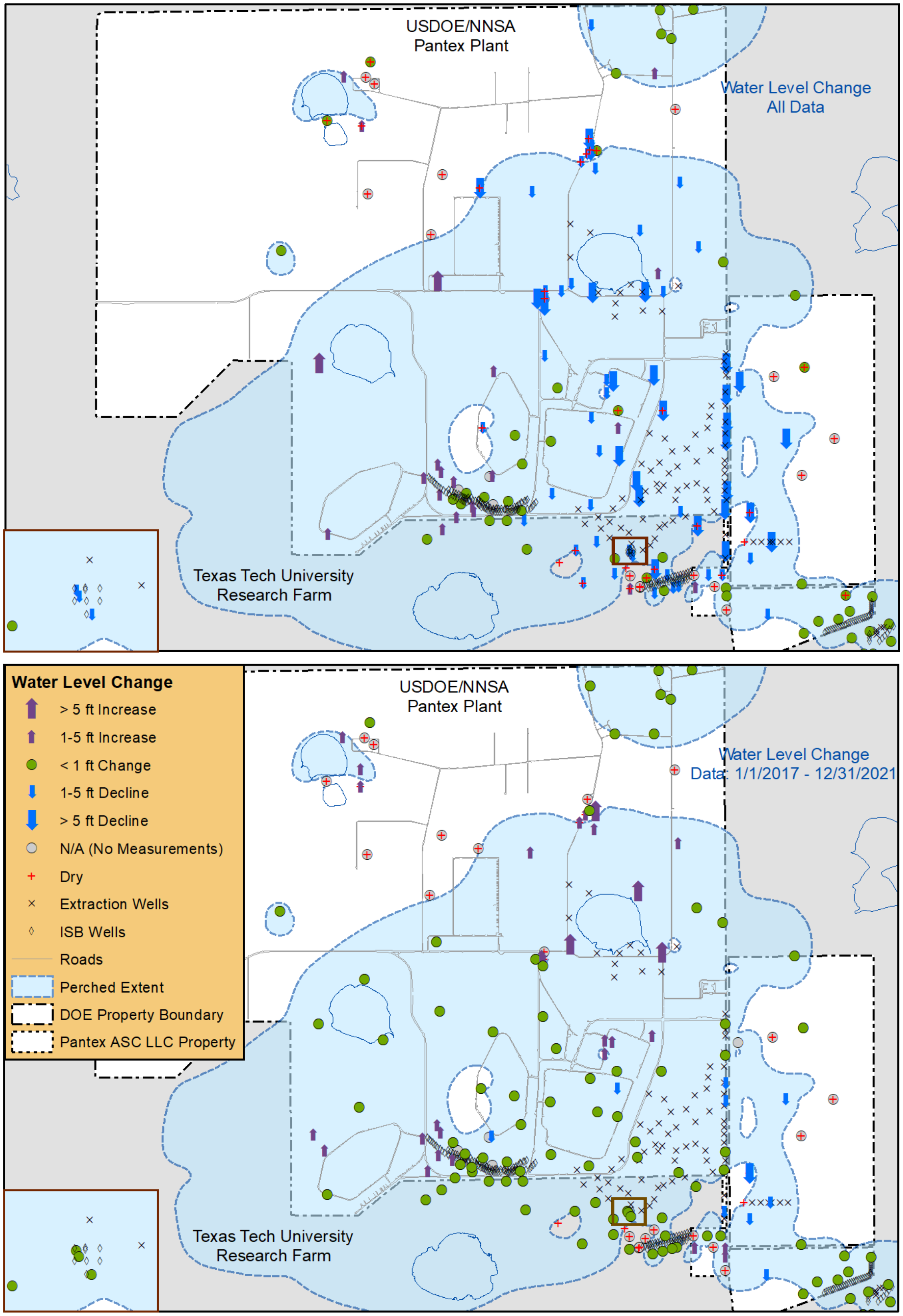

Figure 1. Water Level Changes in the Perched Groundwater

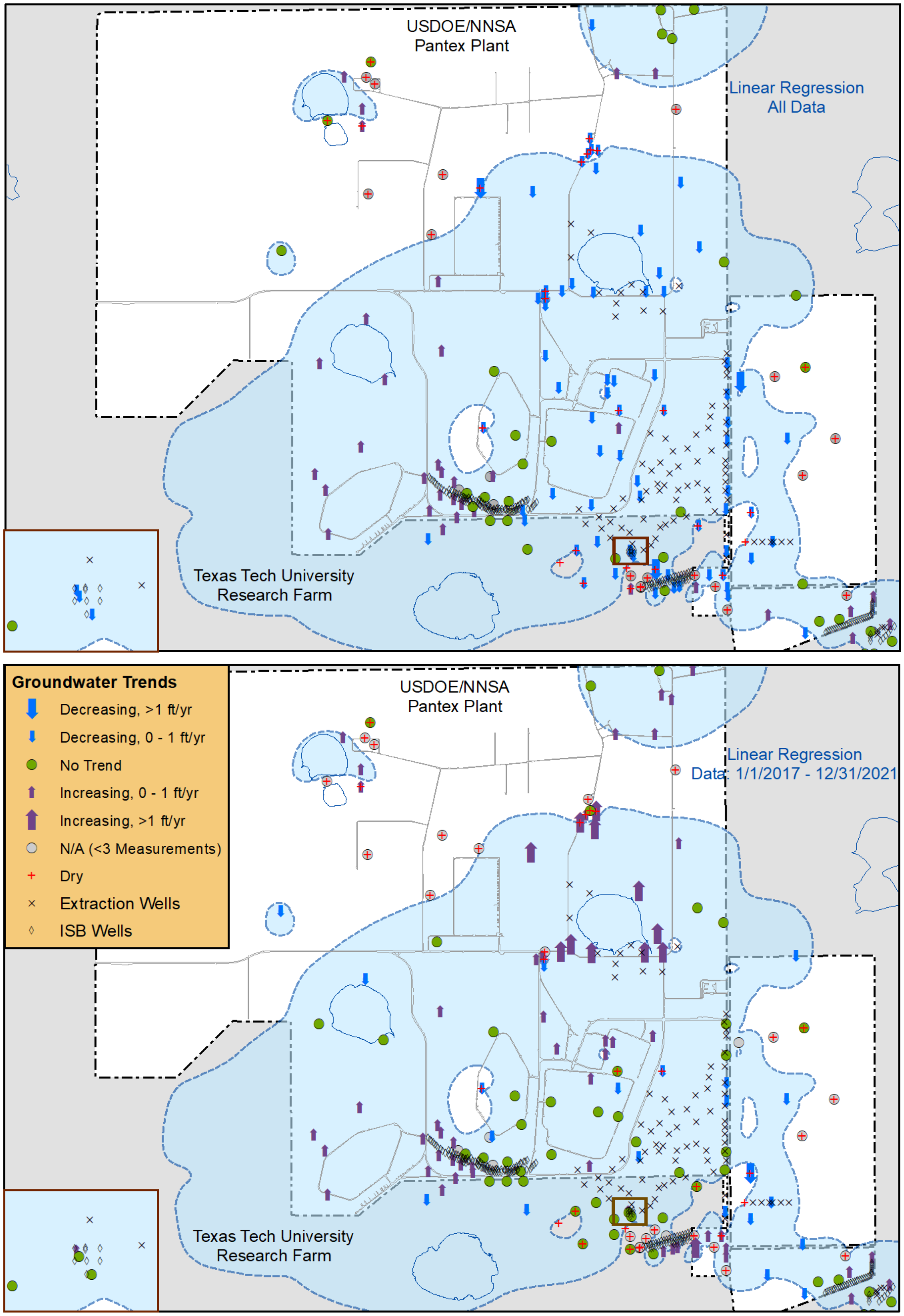

Figure 2. Water Level Trends in the Perched Groundwater

Table 1. Comparison of Perched Groundwater Level Trends to Expected Conditions

Well ID	LTM Objectives	Water Level Expected Condition - LTM Design	Historical Water Level Trend	Water Level Trend FYR Period
OW-WR-38	**UM, RAE**	**Decreasing water levels**	**Increasing**	**Increasing**
PTX01-1004	PS	Remain dry	Dry	Dry
PTX01-1009	PS	Remain dry	Increasing	Increasing
PTX06-1002A	**UM, RAE**	**Decreasing water levels**	**Decreasing**	**Increasing**
PTX06-1005	UM, RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1013	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1014	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1015	RAE	Decreasing water levels	Decreasing	Decreasing
PTX06-1023	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1038	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1039A	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1040	RAE	Decreasing water levels	Decreasing	Decreasing
PTX06-1041	RAE	Decreasing water levels	Decreasing	Decreasing
PTX06-1042	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1045	**RAE**	**Limited Water**	**Increasing**	**Increasing**
PTX06-1046	**RAE**	**Decreasing water levels**	**Decreasing**	**Increasing**
PTX06-1047A	**RAE**	**Decreasing water levels**	**Decreasing**	**Increasing**
PTX06-1050	**UM, RAE**	**Decreasing water levels**	**Decreasing**	**Increasing**
PTX06-1051	PS	Remain dry	Increasing	No Trend
PTX06-1052	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1073A	UM	Limited Water	Decreasing	Decreasing
PTX06-1088	UM, RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1089	PS	Remain dry	No Trend	No Trend
PTX06-1090	PS	Remain dry	Dry	Dry
PTX06-1091	PS	Remain dry	Dry	Dry
PTX06-1093	PS	Remain dry	Dry	Dry
PTX06-1095A	UM, RAE	Decreasing water levels	Decreasing	Decreasing
PTX06-1097	PS, UM	Remain dry	Dry	Dry
PTX06-1102	RAE	Decreasing water levels	Decreasing	No Trend
PTX06-1103	RAE	Limited Water	Decreasing	Dry
PTX06-1120	**PS**	**Limited Water**	**Decreasing**	**Increasing**
PTX06-1121	**PS**	**Remain dry**	**Decreasing**	**Increasing**
PTX06-1122	PS	Remain dry	Dry	Dry
PTX06-1125	PS	Remain dry	Dry	Dry
PTX06-1130	RAE	Decreasing water levels	Decreasing	Dry
PTX06-1133A	PS	Limited Water	Increasing	Decreasing
PTX06-1158	PS	Limited Water	Dry	N/A (<3 Measurements)
PTX06-1184	PS	Remain dry	Decreasing	Decreasing
PTX06-1193	PS	Remain dry	Decreasing	Decreasing
PTX08-1001	**UM, RAE**	**Decreasing water levels**	**Increasing**	**Increasing**
PTX08-1002	**UM, RAE**	**Decreasing water levels**	**Increasing**	**Increasing**
PTX08-1008	UM, RAE	Decreasing water levels	Decreasing	No Trend
PTX08-1009	**UM, RAE**	**Decreasing water levels**	**Decreasing**	**Increasing**

Notes:
N/A = Not Applicable
PS = Plume Stability
RAE = Remedial Action Effectiveness
Bold = Unexpected Trend
UM = Uncertainty Management
WL = Water Level

1.2 Ogallala Aquifer Groundwater Data

Figure 3 and Figure 4 summarize the water level changes in the Ogallala Aquifer near Pantex. No expected conditions were defined for Ogallala Aquifer wells in the LTM Design Report (B&W Pantex, 2009). The following electronic files are provided with this report:

- Tabulated trend results for all wells, and
- Hydrographs for all wells.

Water level trends and net changes in water levels were calculated using the following datasets:

- All historical water level data,
- Water level data from the last five years (2017-2021), and
- Linear regression trends of Ogallala water levels over the FYR period (2017-2021).

Nearly all Ogallala Aquifer wells are exhibiting *decreasing* trends in water level greater than 1 foot per year (ft/yr). Declining water levels in the Ogallala Aquifer are a result of pumping from the City of Amarillo's well field located north of the Pantex Plant and have been noted in the First and Second FYR Reports (B&W Pantex, 2013; HGL, 2018). Declining Ogallala water levels are expected to continue as water demands continue to rise.

Ogallala Aquifer wells exhibiting an *increasing* overall groundwater trend (using all historical data) are PTX06-1060, PTX06-1075, and PTX06-1076. PTX06-1060 is west of the main plant, beyond the edge of the main perched groundwater units. The water levels in PTX06-1060 have increased by about 4 ft since 2002 at a rate of about 0.17 ft/yr; during the Third FYR period, water levels increased at a slightly faster rate of 0.27 ft/yr. PTX06-1075 is located northwest of Playa 4 and PTX06-1076 is located northeast of Playa 4 in an area of limited perched saturation. Water levels in both PTX06-1075 and PTX06-1076 have increased by about 3 ft since 2003 (a rate of about 0.1 ft/yr). PTX06-1075 and PTX06-1076 are screened in an interval that is thought to intersect the upper Dockum formation with groundwater potentially under confined or semi-confined conditions. Groundwater elevations at these locations will continue to be measured and trended over the next FYR period.

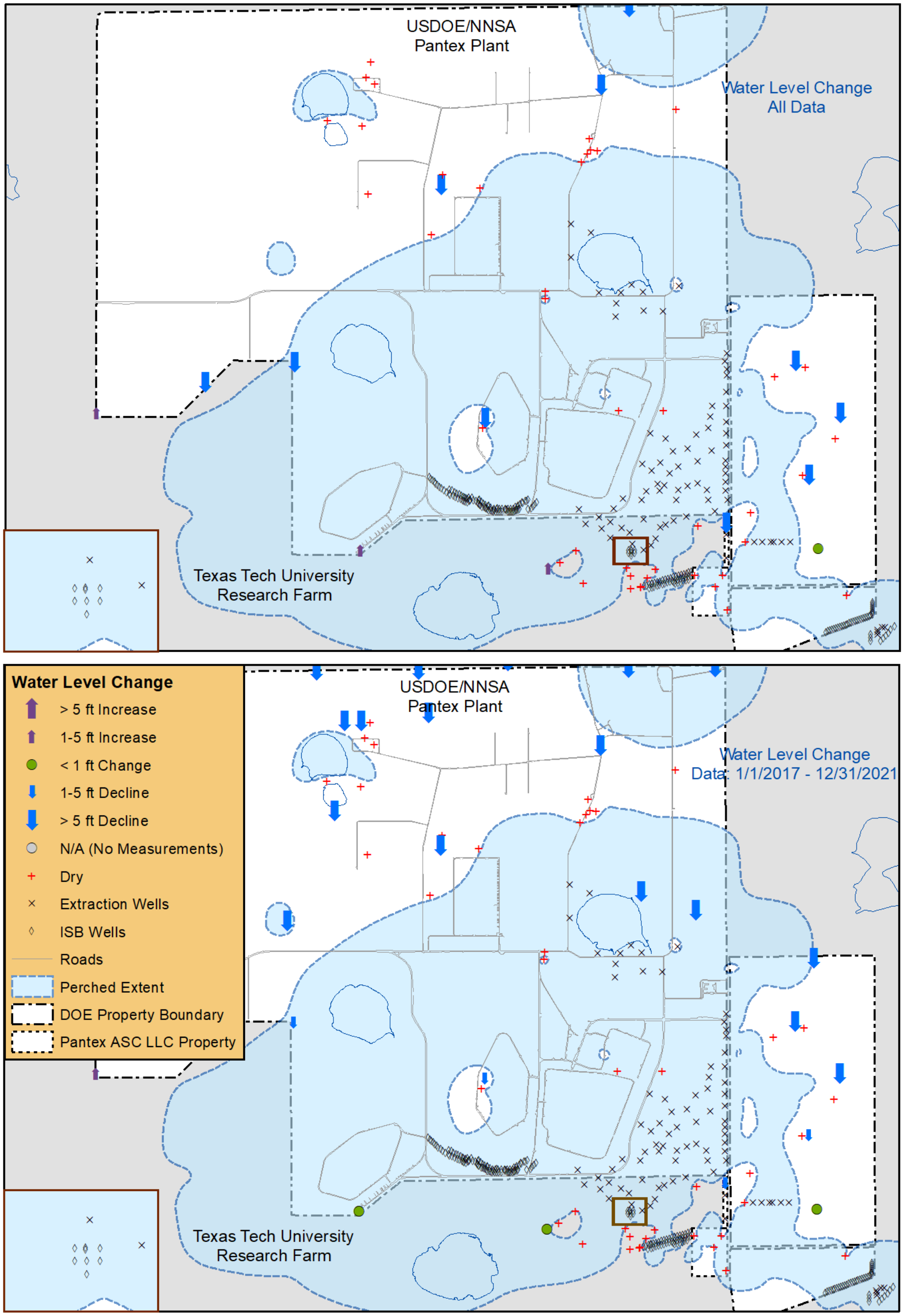

Figure 3. Water Level Changes in Ogallala Aquifer

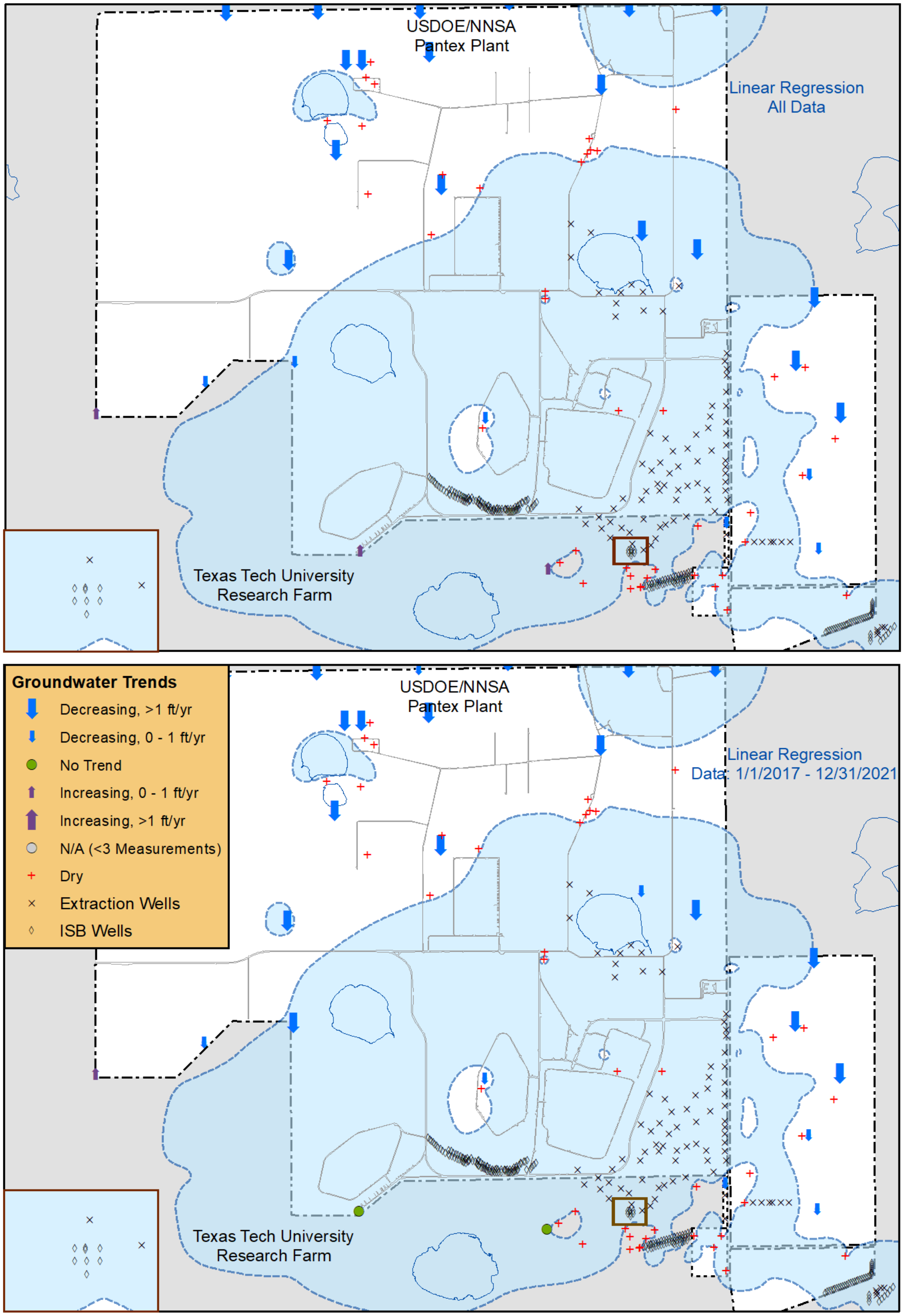

Figure 4. Water Level Trends in Ogallala Aquifer

2 References

B&W Pantex, 2009. *Long-Term Monitoring System Design Report, Amarillo, TX*, B&W Pantex for U.S. Department of Energy and National Nuclear Security Administration.

B&W Pantex, 2013. *First Five-Year Review Report Remedial Action Progress Pantex Plant*, B&W Pantex for the National Nuclear Security Administration.

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Attachment 11

Perched Groundwater Monitoring Network Evaluation for the Third Five-Year Review

1 Monitoring and Remediation Optimization System Evaluation

In 2008 and 2012, GSI Environmental, Inc (GSI) used the Monitoring and Remediation Optimization System (MAROS) to evaluate the Pantex Plant Perched Aquifer monitoring network. The results of these analyses were used to aid in establishing:

- The wells that would be included in the long-term monitoring (LTM) program;
- The frequency of sampling; and,
- The constituents to be analyzed.

In 2017 and 2022, MAROS version 3.0 was used by HydroGeoLogic, Inc. (HGL) to evaluate the perched unit monitoring network in support of the Second and Third FYR Reports, including the data collected since the last MAROS evaluation. MAROS was configured to calculate trends at locations using nondetect values set to half the detection limit if at least one detection was observed within the specified timeframe. Additionally, duplicate values (i.e., values at the same location and date) were averaged for analyses with MAROS.

HGL recommends installation of additional wells in the southeast area of the perched unit to assess remedial performance and manage uncertainty of the HE plume in this area. An additional well was recommended for the area downgradient from the Zone 11 ISB system, if downgradient concentration trends do not stabilize. Additional analysis and recommendations are provided in the evaluation titled *Long-Term Monitoring Optimization Perched Groundwater Unit Pantex Plant, Carson County*, HGL, 2022, included as part of this attachment.

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LONG-TERM MONITORING OPTIMIZATION REVIEW
PERCHED GROUNDWATER UNIT
PANTEX PLANT
CARSON COUNTY, TEXAS

Final

Issued: October 27, 2022

Prepared for:

Consolidated Nuclear Security, LLC
P.O. Box 30020
Pantex Plant
Amarillo, TX 79120-0020

Managed and Operated by Consolidated Nuclear Security, LLC

Purchase Order No. 0000088047 / Contract No. DE-NA0001942

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FINAL
Long-Term Monitoring Optimization Review
PANTEX PLANT, CARSON COUNTY, TX

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EXECUTIVE SUMMARY

SITE-SPECIFIC BACKGROUND

The Pantex Plant Site (site) is located approximately 17 miles northeast of Amarillo, Texas in Carson County in U.S. Environmental Protection Agency (EPA) Region VI. The site covers roughly 10,000 acres with additional property consisting of a 1,000-acre tract at Pantex Lake. The primary mission of the Pantex Plant is to assemble, disassemble, and evaluate nuclear weapons from the U.S. stockpile, to develop, fabricate, and test explosives and explosive components, and to provide secure storage for material from the above activities. Historical Plant waste management activities have resulted in impacts to soil and perched groundwater above risk-based, human health standards.

The site was added to the National Priorities List under the Comprehensive Environmental Response, Compensation, and Liability Act in 1994. A corrective action program has been developed to address unacceptable risks for a perched groundwater unit at the facility. The purpose of the following study is to review the current groundwater monitoring network for the perched unit relative to the stated monitoring objectives and provide recommendations for improving the efficiency and accuracy of the network for supporting site management decisions.

SUMMARY OF CONCEPTUAL SITE MODEL AND KEY FINDINGS

The Pantex Plant lies on the High Plains portion of the Great Plains Physiographic Province in the Texas Panhandle. The area is a flat plateau with topographic elevation across the site ranging between 3,501 feet above mean sea level (ft amsl) to 3,595 ft amsl. A distinguishing feature of the surface of the plain is the presence of numerous shallow circular basins called *playas*. Playas are ephemerally moist depressions that are the location of much of the recharge to groundwater in the region. The hydrostratigraphy below the Pantex Plant consists of the Blackwater Draw underlain by the Ogallala Formation. Within the Ogallala Formation are an upper perched saturated unit and a lower groundwater unit. Permeable units within the Ogallala are composed of coarse-grained fluvial sequences including channel sands and gravels overlain by finer overbank deposits.

The perched groundwater unit is present between about 215 and 280 feet below ground surface (ft bgs) and is underlain by a Fine-Grained Zone (FGZ). The FGZ is composed of silts and clays and separates the upper perched zone from the lower Ogallala Formation. Below the FGZ is an unsaturated zone of variable thickness. The lower Ogallala Aquifer is present between about 400 to 500 ft bgs and is the primary source of drinking water for the city of Amarillo, Texas.

Because of mounding in the main perched unit near Playa 1 and the topography of the FGZ, groundwater flow tends to be radial, with the surface sloping to the southeast, south and east. The thickness of the perched unit varies between a maximum of about 60 ft under Playa 1 to trace levels of saturation at the edges. Smaller, isolated areas of perched groundwater are present under other playa formations at the Plant.

The primary sources of constituents of concern (COCs) to groundwater at the Pantex Plant arose from infiltration of historical wastewater discharges through areas of focused recharge to the vadose zone and perched groundwater unit. Historically, effluent from industrial processes, sanitary wastewater, cooling water discharge and storm water runoff were released to unlined ditches and directed to playas.

Primary COCs affecting the perched unit include trichloroethene (TCE), perchlorate, hexavalent chromium [Cr (VI)] and the high explosives (HE) RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) and trinitrotoluene (TNT) as well as degradation products such as 4-amino-2,6-dinitrotoluene (DNT4A).

Remedies selected in the 2008 Record of Decision (ROD) include groundwater extraction and treatment and injection of amendments to enhance anaerobic degradation of COCs. Two groundwater pump and treat (P&T) systems are currently operational. The Southeast Pump and Treat System (SEPTS) consists of 65 active groundwater extraction wells (EWs), 1 active injection well, and a 300-gallon-per-minute (gpm) treatment plant. The Playa 1 Pump and Treat System (P1PTS) consists of 11 EWs and a 250-gpm treatment plant. Treated groundwater has historically been discharged through a crop irrigation system, but an irrigation system filter bank break in June 2017 reduced operation for the SEPTS and P1PTS with reduced discharge to Playa 1 from the Pantex Plant Wastewater Treatment Facility as a result of discharge permit constraints. Four in situ bioremediation (ISB) systems have been installed. The Southeast ISB (SEISB) is located along the southeast edge of the perched unit to treat RDX and other COCs in an area where the FGZ thins. The SEISB Extension is located along the southeastern boundary of the Pantex Plant property, along the fence line and north of Highway 60, to act as a barrier for offsite RDX and other COC migration. The Offsite ISB is located southeast of the SEISB Extension on a neighboring property to treat COC-impacted perched groundwater that has already migrated off site. The final ISB system, the Zone 11 ISB (Z11ISB) is located south of industrial Zone 11 to treat TCE and perchlorate migrating to the south/southwest. Groundwater monitoring is part of the selected remedy for the site.

The SEISB Extension and Offsite ISB were installed in 2017 and 2020, respectively, subsequent to the previous Five-Year Review (FYR). The first injections into the SEISB Extension were completed in February 2019, with additional injections conducted in September 2019, August 2020, and May 2021. The first injections into the Offsite ISB occurred in June 2021.

The primary goal of the monitoring network is to confirm progress toward Remedial Action Objectives. Data collected from the monitoring network are used to evaluate the performance and efficacy of the remedies and are used to compare actual conditions to expected site conditions. The three primary monitoring objectives for the perched groundwater network are to manage uncertainty, evaluate plume stability, and evaluate remedial efficacy. All monitoring wells are assigned monitoring objectives.

Evaluation of the groundwater monitoring network for the Pantex Plant consisted of both quantitative and qualitative methods. A quantitative statistical evaluation of the site was conducted using tools in the Monitoring and Remediation Optimization System (MAROS) software. All results returned by the MAROS software were reviewed for consistency with the goals and objectives of the monitoring program and the conceptual site model (CSM). Final recommendations for the monitoring network are a combination of quantitative and qualitative review.

Groundwater analytical data collected between 2017 and 2021 from the Pantex Plant long-term monitoring (LTM) network were supplied in a site database. Received data include geographic coordinates of the wells, sample dates, analytical results, detection limits, and data flags. Analytical data from the previous LTM investigations (2000 through 2016) were used to supplement analyses of long-term trends.

For the current report, analytical data from 214 different sampling locations were received including data from investigation monitoring wells (IW), EW and ISB wells. Only data from the 122 active perched zone IWs were used in the statistical analyses. Data from the Lower Ogallala Aquifer were not evaluated for this report. The database contained data for 23 different COC analytes. As in the previous analyses, IWs were grouped by sector of dominant groundwater flow direction. IWs were grouped into North, Southeast and Southwest Sectors. Statistical findings for each sector are summarized below.

SOUTHEAST SECTOR FINDINGS

- RDX was identified as the priority COC at 40 of the 61 monitoring locations in the Southeast Sector based on the magnitude of the exceedance of remedial goals. Perchlorate and Cr (VI) were prioritized in the area south of industrial Zones 11 and 12. DNT4A was selected as a priority COC for optimizing the monitoring network due to its wide distribution in the Southeast Sector. Other monitoring locations show priority exceedances for 1,2-dichloroethane, total chromium, TCE, RDX degradation products, barium, and boron.
- Individual well concentrations for priority COCs showed largely *stable/no trend* to *decreasing* statistical trends within the Plant property and *increasing* trends southeast of Highway 60 in the offsite area. Overall RDX trend results from 2017 through 2021 include proportionally fewer *decreasing* and more *increasing* statistical trend results for the Southeast Sector relative to the 2016 analysis.
- Source area wells showed largely *stable* to *decreasing* trends indicating a reduction in mass export from primary release areas. Tools in the MAROS software estimated that less than 1 percent of RDX mass and about 2 percent of DNT4A mass remains in the Zone 12 source area.
- None of the SEPTS monitoring wells show an *increasing* trend for RDX or DNT4A, although PTX06-1147, south of the other SEPTS monitoring wells, shows an *increasing* trend for DNT4A in an area where the FGZ thins. Data indicate that the SEPTS has stabilized plume migration downgradient from primary sources.
- The far southeastern area of the perched unit shows *increasing* individual well trends for RDX and increasing trends for DNT4A at wells near the recently installed Offsite ISB.
- Monitoring wells immediately downgradient from the SEISB remedy show *decreasing* trends for RDX and are primarily non-detect for RDX degradation products TNX, DNX, and MNX, indicating that the ISB remedy is successfully removing contaminant mass. However, well PTX06-1153, the westernmost ISB monitoring well, has an *increasing* trend for RDX with persistent high concentrations (200 to 300 µg/L) that spiked suddenly in 2019 (>800 µg/L) before returning to relatively consistent concentrations of 200 to 300 µg/L.

- Total dissolved mass of RDX and DNT4A showed *stable* statistical trends from 2017 through 2021 and *decreasing* statistical trends when data from 2012 through 2021 was considered. These results indicate that recent additional monitoring wells in the southeast did not increase the estimate of total dissolved mass significantly. Centers of plume mass remained in the area of the SEPTS, with some migration of the center of the RDX and DNT4A plumes to the southeast when including data from 2012 through 2021. This indicates that contaminant mass is moving from the source area toward the SEPTS and is also likely influenced by the additional plume delineation to the southeast.
- The results of the MAROS spatial analyses indicate overall low concentration uncertainty and low variability between monitoring locations in the Southeast Sector. Evenly spaced monitoring locations, low concentration uncertainty and relatively low variability, along with the *stable* individual well trend and moment analysis results indicate that the network is well designed to address priority monitoring goals of plume stability and uncertainty assessment.
- The MAROS software recommended an overall biennial (every two years) monitoring frequency based on the rate of concentration change for most wells and mass within the network as a whole.

SOUTHWEST SECTOR FINDINGS

- TCE is the priority COC at 22 of 51 sampling locations, and perchlorate is the priority at 6 of the 43 wells sampled for perchlorate in the Southwest Sector. Priority COCs at individual wells other than TCE and perchlorate include RDX, Cr (VI), and degradation products of TCE and RDX. 1,4-Dioxane was detected above remedial goals at 19 sampling locations in the Southwest Sector.
- The Southwest Sector monitoring well network has several wells that have been installed since 2017, many in the eastern Z11ISB area for remedial action monitoring (PTX06-1209, PTX06-1210, and PTX06-1211). New wells and uncertainty management (UM) wells that are sampled infrequently do not have a sufficiently large dataset for statistical trend analysis.
- For TCE, *decreasing* statistical trends were found in the central and western Z11ISB areas. Other ISB wells have variable concentration results. Some downgradient wells (PTX06-1035, PTX06-1155, PTX06-1150, and PTX06-1149) had *increasing* statistical trends that may be the result of ISB injection timing where pulses of TCE have moved through the ISB between injections.
- Wells PTX06-1035 and PTX06-1134, and PTX06-1159, also show *increasing* trends for perchlorate.
- Results for the moment analyses for both TCE and perchlorate plumes indicate statistically *stable* and *decreasing* trends for total dissolved mass within the network. Centers of mass for TCE and perchlorate had *stable* trends. While individual wells within the network may show strong trends, the plumes are not migrating or significantly changing distribution on a larger sector scale.

- Unlike the Southeast Sector, more contaminant mass is present in the Zone 11 source area. The MAROS tool estimated that 23 percent of TCE mass and 70 percent of perchlorate mass remain in the source area.
- In the spatial analysis, uncertainty and variability between sampling locations was found to be low. Wells PTX06-1156 and PTX06-1148 had slightly higher uncertainty and variability when compared to other wells, and a new downgradient monitoring well is recommended to better delineate perchlorate and 1,4-dioxane to the southeast and track plume movement toward the SEPTS.
- The software identified the area outside of the monitoring network south of the ISB as potentially requiring additional monitoring. *Increasing* concentration trends at leading edge wells PTX06-1035, PTX06-1134 and PTX06-1159 indicate that at least one additional monitoring well may be required to the southwest to delineate the edge of the plume and confirm flow to the east if TCE concentrations in PTX06-1207 have an *increasing* or *probably increasing* trend once additional sampling has been completed.
- Most wells in the program were recommended by the software for biennial sampling for both TCE (36 of 51 wells) and perchlorate (36 of 43 wells). The biennial recommendation is consistent with the finding that concentrations are not changing rapidly, and plumes are largely stable.

NORTH SECTOR MONITORING NETWORK

- RDX is the only priority COC on a sector-wide basis in the north. Constituents that exceed remedial goals at individual wells are RDX, boron, DNT4A, and total chromium. Many wells north of Zones 11 and 12 are UM wells and have low to no detections of site COCs.
- North of Playa 1, PTX06-1050 monitors groundwater with historical high concentrations of RDX, boron, and DNT4A. PTX06-1050 showed *decreasing* and *probably decreasing* trends between 2008 and 2011 and between 2012 and 2016. The most recent data shows *increasing* RDX trends in PTX06-1050, which may be related to increased treatment plant discharge to Playa 1 because irrigation system failures in 2017 have not been successfully repaired. Well PTX06-1136, downgradient from PTX06-1050, has recently been dry, and a new monitoring well between PTX06-1136 and PTX06-1050 may be necessary to maintain delineation of RDX northwest of Playa 1.
- Total dissolved mass for RDX was found to have *no trend* within the network, and the center of mass was found to be *decreasing*. DNT4A was found to have a decreasing total dissolved mass and stable center of mass between 2017 and 2021.
- The North Sector show significant spatial uncertainty between monitoring locations, which is consistent with the finding that the North Sector has variable groundwater flow and source locations, as well as disconnected saturated zones.
- As with Southeast and Southwest Sectors, concentration trends in the North Sector are not changing rapidly. Overall, most wells in the North Sector were recommended for biennial sampling by the MAROS algorithm

RECOMMENDATIONS

SOUTHEAST SECTOR RECOMMENDATIONS

- At least two additional monitoring wells are recommended for the area east of the SEISB Extension: one between PTX06-1195 and PTX06-1196, and one northeast of PTX06-1199 to reduce uncertainty and identify the northeastern plume boundary near Highway 60.
- An additional monitoring well is recommended east of PTX06-1042 to track higher RDX concentrations moving towards the SEISB Extension and line of extraction wells located around PTX06-1147.
- Planned new monitoring wells in the area of the Offsite ISB are likely sufficient to assess the performance of the Offsite ISB and to delineate the extent of offsite plume migration to the southeast based on concentrations in existing offsite monitoring wells PTX06-1200, PTX06-1204, and PTX06-1208.
- Continued investigation of the area around in situ performance monitoring well PTX06-1153 is recommended to address uncertainty related to RDX concentration trends in this area. Additional monitoring wells are not recommended, but periodic sampling of previously dry wells is recommended along with data review to update the CSM in this area.
- No wells are recommended for removal from the Southeast Sector routine monitoring program, at this time. Monitoring locations with very low spatial uncertainty (e.g., where the nearest neighboring wells can predict concentrations at a well node) were considered for reduced sampling frequency.
- While the MAROS results indicate that a biennial sampling frequency would be sufficient to evaluate the rate of concentration change in the network and at most wells, an overall annual sampling frequency is recommended for most locations in the Southeast Sector. Semiannual sampling is recommended at wells used to evaluate the ISB and SEPTS remedies and potential plume migration along the east and southeast edges of the perched unit.

SOUTHWEST SECTOR RECOMMENDATIONS

- One additional monitoring well is recommended for the area downgradient from the Z11ISB to manage uncertainty about migration of the TCE and perchlorate plumes downgradient of PTX06-1035 if TCE concentrations in PTX06-1207 have an *increasing* or *probably increasing* trend once additional sampling has been completed.
- Site data indicate high and increasing concentrations of perchlorate at PTX08-1008, cross gradient from the ISB remedy, and increasing concentrations of 1,4-dioxane in PTX06-1156 and PTX06-1148. An additional well south of PTX08-1008 and between PTX06-1156 and PTX06-1052 is recommended to monitor the movement of perchlorate and 1,4-dioxane toward the SEPTS. Additionally, it is recommended to monitor PTX08-1009, PTX06-1052, and PTX06-1183 for 1,4-dioxane.

- Overall, there is very low spatial uncertainty within the network, and no wells in the routine sampling network are recommended for elimination.
- Monitoring wells in the Zone 11 and Zone 12 source areas show largely *stable* trends resulting in recommendations for annual sampling. ISB area wells are recommended for a semiannual sampling frequency. Wells outside of the main plumes to the west are minimally affected by site COCs and are recommended for sampling once before each FYR (or as regulatory permitting requires).

NORTH SECTOR RECOMMENDATIONS

- No additional monitoring wells are recommended in the North Sector at this time. RDX and perched unit water levels in PTX06-1050 should be watched and PTX06-1136 should be checked periodically to ensure that it remains dry. No additional wells are recommended for the isolated perched water units at the Burning Ground or along the northern Plant boundary.
- For the northern perched unit, a largely annual sampling frequency is recommended for the Playa 1 area based on the rate of concentration change and the outstanding remedy management questions. Perched groundwater in the Burning Ground and northern boundary are recommended for 5-year sampling frequency except for POC wells that are recommended for annual sampling.

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TABLE OF CONTENTS

Page

TABLE OF CONTENTS (continued)

LIST OF TABLES

Page

LIST OF FIGURES

LIST OF APPENDICES

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LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

AEC	Atomic Energy Commission
amsl	above mean sea level
bgs	below ground surface
BDF	Blackwater Draw Formation
C	Carcinogenic
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS	corrective measure study
CNS	Consolidated Nuclear Security, L.L.C.
COC	constituent of concern
COV	coefficient of variation
Cr (III)	trivalent chromium
Cr (VI)	hexavalent chromium
CSM	conceptual site model
DOE	U.S. Department of Energy
DNT2A	2-Amino, 4,6-dinitrotoluene
DNT4A	4-Amino, 2,6-dinitrotoluene
DNX	Hexahydro-1,3-Dinitroso-5-Nitro-1,3,5-Triazine
EM	DOE Environmental Management
EPA	U.S. Environmental Protection Agency
EW	Extraction Well
FGZ	Fine-Grained Zone
FS	Feasibility Study
FYR	Five-Year Review
GAC	granular activated carbon
GW-Res	TCEQ Standard No. 2 Groundwater MSC for Residential Use
HA	Hazard Assessment
HE	high explosive
HMX	High melting explosive (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
IAG	Interagency Agreement
IC	Institutional Control
ICM	Interim Corrective Measures
ISB	*In Situ* Bioremediation
ISM	Interim Stabilization Measure
ISPM	In Situ Performance Monitoring Well
IW	Investigation Well

LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS (continued)

LTM	Long-Term Monitoring
LTMO	Long-Term Monitoring Optimization
MAROS	Monitoring and Remediation Optimization System
MCL	maximum contaminant level
MNX	Hexahydro-1-Nitroso-3,5-Dinitro-1,3,5-Triazine
MK	Mann-Kendall Trend
MSC	Medium Specific Concentration
N/A	Not Analyzed/Not Applicable
NC	Non-carcinogenic
NNSA	National Nuclear Security Administration
NPL	National Priorities List
P1PTS	Playa 1 Pump and Treat System
POC	point of compliance
PQL	Practical Quantitation Limit
PS	Plume Stability
R^2	Coefficient of Determination
RA	Response Action
RAO	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RDX	Research Department Explosive (Hexahydro-1,3,5-trinitro-1,3,5-triazine)
RFI	RCRA Facility Investigation
ROD	Record of Decision
RRR	Risk Reduction Rules
SAP	Sampling and Analysis Plan
SEISB	Southeast In Situ Bioremediation
SEPTS	Southeast Pump and Treat System
SF	Slope Factor
SVE	soil vapor extraction
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TNT	trinitrotoluene
TNX	Hexahydro-1,3,5-Trinitroso-1,3,5-Triazine
TTU	Texas Tech University
UM	Uncertainty Management
VOC	Volatile Organic Compound

WWTF	Wastewater Treatment Facility
Z11ISB	Zone 11 In Situ Bioremediation

Statistical Trends

D	*decreasing*
PD	*probably decreasing*
S	*stable*
PI	*probably increasing*
I	*increasing*
ND	non-detect
NT	*no trend*

Units

µg/L	micrograms per liter
mg/L	milligrams per liter
gpd	gallons per day
gpm	gallons per minute
ft	feet

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LONG-TERM MONITORING OPTIMIZATION REVIEW
PERCHED GROUNDWATER UNIT, PANTEX PLANT
CARSON COUNTY, TEXAS

1.0 OBJECTIVES OF THE OPTIMIZATION REVIEW

The Pantex Plant Site (site) is located approximately 17 miles northeast of Amarillo, Texas in Carson County in U.S. Environmental Protection Agency (EPA) Region VI. The site covers roughly 10,000 acres with additional property consisting of a 1,000-acre tract at Pantex Lake. Over 5,000 acres are owned by Texas Tech University (TTU) as a buffer around the site. Industrial operations occur on approximately 2,000 acres of the Plant (**Figure 1**).

The Pantex Plant is currently managed as a government-owned, contractor-operated facility, overseen by the Department of Energy/National Nuclear Security Administration (DOE/NNSA) and operated by Consolidated Nuclear Security, L.L.C. (CNS). As the prime contractor, CNS also directs environmental activities including investigation, construction and operation and maintenance of remedial systems.

Historical Plant waste management activities have resulted in impacts to soil and perched groundwater above risk-based, human health standards. A corrective action program has been developed to address unacceptable risks for soil and perched groundwater at the facility. Corrective measures for perched groundwater have been implemented to stabilize and control contaminant migration while reducing the contaminant mass.

This report focuses on optimization strategies for long-term monitoring (LTM) of remedial response actions (RAs) for the perched groundwater unit at the Pantex Plant. Groundwater monitoring plays a critical role in long-term environmental restoration of the Pantex Plant site. Long-term monitoring optimization (LTMO) is part of overall remediation optimization for affected groundwater. The perched groundwater network was the subject of LTMO reviews in 2007, 2012, and 2017 with results published in reports (GSI, 2008; GSI, 2012; HGL, 2017).

The purpose of this study is to review the current groundwater monitoring network relative to the stated monitoring objectives and provide recommendations for improving the efficiency and accuracy of the network for supporting site management decisions. The evaluation includes new groundwater data collected from 2017 to 2021 as well as historical site characterization and monitoring data collected from 2012 through 2016. Documents and data sources used in the analysis are listed in Appendix A.

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2.0 SITE BACKGROUND

2.1 SITE BACKGROUND

The primary mission of the Pantex Plant is to assemble, disassemble, and evaluate nuclear weapons from the U.S. stockpile, to develop, fabricate, and test explosives and explosive components, and to provide secure storage for material from the above activities. Pantex Plant operations began in 1942 under the Army Ordnance Corps, manufacturing conventional munitions and high explosives (HE) such as trinitrotoluene (TNT). The Plant was briefly deactivated at the end of the World War II, and the property sold to TTU. In 1951, the site was reclaimed for use by the Atomic Energy Commission (AEC) to produce both nuclear weapons and HE compounds. Radioactive materials have not been manufactured at the facility but components containing radioactive materials are managed at the site. Compounds such as TNT, High Melting Explosive (HMX, octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine) and Research Department Explosive (RDX, hexahydro-1,3,5-trinitro-1,3,5-triazine) have been manufactured, tested, and disposed of at the site.

In 1988, the EPA conducted a *Resource Conservation and Recovery Act (RCRA) Facility Assessment* of the Pantex Plant, identifying Solid Waste Management Units and areas of concern containing environmental media possibly subject to interim corrective measures (ICMs). The RCRA Facility Investigation (RFI) identified operational areas at the site and groupings of corrective action units in common watersheds termed waste management groups. The Pantex Plant was proposed for addition to the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1991 and formally listed in 1994. The Pantex Plant is, therefore, subject to the provisions of CERCLA in addition to RCRA and State of Texas requirements.

In 2008, an Interagency Agreement (IAG) went into effect between EPA, DOE/NNSA and Texas Commission on Environmental Quality (TCEQ), setting forth the roles and responsibilities of each of the agencies for performance and oversight of remedial activities. The IAG is a binding agreement between the parties outlining procedures to ensure that remediation is accomplished pursuant to requirements under CERCLA and related statutes. The DOE/NNSA is the lead federal agency to investigate, assess, plan and remediate affected media at the Pantex Plant. The TCEQ and EPA share oversight of remedial requirements under a 1994 Memorandum of Agreement and the IAG. All non-radiological environmental restoration activities under both state and federally-authorized programs at the Pantex Plant are conducted under the State of Texas Risk Reduction Rules (RRR) (30 TAC §335 Subchapter S, 1993).

A Corrective Measure Study/Feasibility Study (CMS/FS) was completed in 2007 and conditionally approved by TCEQ and EPA in 2008 with the Pantex Site-Wide Record of Decision (ROD) finalized in the same year. The CMS/FS and ROD outline the interim corrective and stabilization measures (ICMs and interim stabilization measures [ISMs] respectively) for the perched groundwater unit. A comprehensive long-term groundwater monitoring strategy (LTM Design Report) supporting assessment of the proposed remedies was developed and finalized in 2009 (B&W Pantex, 2009a) and updated in 2014 (B&WPantex, 2014). Pantex produced an updated LTM Design Report (Pantex, 2019a) and Sampling and Analysis Plan (SAP) (Pantex, 2019b) in 2019.

The Long-Term Monitoring Optimization (LTMO) Report and second Five-Year Review (FYR) were completed in 2017 and 2018, respectively (HGL, 2017; HGL, 2018). Results from the LTM and FYR indicated possible expansion of the RDX plume to the southeast. Subsequent investigations in 2018 and 2019 confirmed the presence of impacted perched groundwater offsite to the southeast. As a result, the conceptual site model (CSM) and existing numerical groundwater flow and solute transport model for the perched groundwater system were updated to evaluate and recommend treatment options for the Southeast Offsite Plume Area (HGL, 2021a). The perched groundwater monitoring network described in the 2021 document is the subject of the following report. **Figure 2** illustrates the location of investigation monitoring wells in the program and the approximate location of the Southeast, Southwest and North Sectors of the perched groundwater unit used in the following analysis.

A chronology of key site events is presented in **Table 1**. Remedies are described in detail in Section 3.3.

Table 1. Pantex Plant Site Chronology

Date	Action
1942	Army Ordnance Corps Pantex Plant begins operations.
1951	Plant Site is transferred to AEC.
1980s	DOE Environmental Management (EM) initiates Environmental Restoration Project.
1988	RCRA facility investigation is conducted.
1991	EPA and TCEQ issue RCRA Hazardous Waste Permit to Pantex Plant; Pantex Plant is proposed for addition to the NPL.
1994	Pantex Plant is listed on the NPL.
1995	Southeast Pump and Treat System (SEPTS) pilot system installed
1999-2005	RI/FS is approved.
1999-2000	SEPTS is expanded from pilot installation.
2000	USDOE/NNSA succeeds DOE EM as lead federal agency.
2004	Pantex Plant Groundwater Modeling Report is completed.
2007	SEPTS is expanded.
2007-2008	CMS/FS is completed.
2008	ROD is signed (benchmark for FYR schedule), IAG is executed, and SEISB is installed.
2009	LTM Design and SAP are completed, and Playa 1 Pump and Treat System (P1PTS) is installed. Zone 11 In Situ Bioremediation (Z11ISB) is installed.
2010	All remedial design and construction is approved.
2013	First FYR and LTMO Review are completed.
2014	LTM Design and SAP updated.
2017	LTMO review is completed.
2017-2018	SEISB Extension is installed, and SEPTS is expanded.
2018	Second FYR is completed.
2019	Z11ISB Extension is installed and updated LTM Design and SAP are updated.
2020	Offsite ISB and Extraction System is installed.
2021	Perched Groundwater CSM and Numerical Groundwater Model are updated; Southeast Offsite Remediation system is updated; and P&T system is optimized. Significant expansion of Z11 ISB

2.2 REGULATORY BACKGROUND

The Pantex Plant is permitted as a hazardous waste facility under RCRA and regulated under CERCLA as well as the state of Texas RRR.

Remedial actions for all inactive areas at the Pantex Plant and perched groundwater unit were selected in the 2008 ROD. Many interim remedial actions were implemented before 2008 and were included as selected remedies in the ROD. The schedule for FYRs was, therefore, initiated by the ROD signature.

Remedial Action Objectives (RAOs) articulated in the ROD have the primary goals of restoring perched groundwater to drinking water standards and protecting the deeper Ogallala Aquifer. Specific RAOs include:

- Reduce the risk of exposure to perched groundwater through prevention of human or ecological contact;
- Achieve cleanup standards for all constituents of concern (COCs);
- Prevent growth of the perched groundwater contaminant plumes;
- Prevent contaminants from exceeding cleanup standards in the lower Ogallala Aquifer.

The remedy selected for perched groundwater in the ROD is:

- Operation of the existing Southeast Pump and Treat System (SEPTS) to stabilize migration of the plume and treat groundwater in the perched unit;
- Construction and operation of the Playa 1 Pump and Treat System (P1PTS) to reduce mounding of perched groundwater under Playa 1;
- Continued operation of the in situ bioremediation system (ISB) to treat HE southeast of Zone 12 and to treat trichloroethene (TCE) and perchlorate downgradient of Zone 11;
- Institutional controls (IC) to prevent exposure to contaminants in the soils and perched groundwater, and to prevent cross-contamination to the regional Ogallala Aquifer.

Effectiveness of the selected remedies for the Pantex Plant Site perched groundwater is determined through groundwater monitoring implemented through the Long-Term Groundwater Monitoring Plans. Results of groundwater monitoring are summarized in annual reports and used to support remedial action effectiveness in FYRs.

Additional remedies selected for other site media include soil vapor extraction (SVE) in the area of the Burning Ground, lining drainage ditches, capping landfills and ICs. The efficacy of these remedies is not specifically considered in this report but may be assessed indirectly by data from the perched groundwater monitoring program.

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3.0 CONCEPTUAL SITE MODEL

3.1 GEOLOGY AND HYDROGEOLOGY

The Pantex Plant lies on the High Plains portion of the Great Plains Physiographic Province in the Texas Panhandle. The area, known as the Llano Estacado, is a broad, flat, plateau with topographic elevation across the site ranging between 3,500 feet above mean sea level (ft amsl) to 3,595 ft amsl. A distinguishing feature of the area is the presence of numerous shallow circular basins called *playas* (**Figure 1**). Playas are ephemerally moist depressions that are the location of much of the recharge to groundwater in the region. When inundated, the playas form shallow lakes and wetlands, contributing to animal and plant diversity in the region. During TNT and later ordnance production through the early 2000s, industrial wastewater was discharged directly to unlined ditches that drained the active industrial areas to the playas. These unlined ditches also served as a historical source of recharge to groundwater. The average topographic slope across the Plant area is approximately 0.006 ft, and most Plant surface water tends to drain to the on-site playas.

The hydrostratigraphy below the Pantex Plant is summarized in **Table 2**. The uppermost hydrostratigraphic unit at the Pantex Plant is the Blackwater Draw Formation (BDF). The BDF extends up to 90 ft below ground surface (bgs) at the site and is largely unsaturated. The unit consists of silts and sands and an approximately 20-foot-thick lower unit composed of silty sand and caliche. The playas are depressions in the BDF.

Table 2. Pantex Hydrostratigraphic Units

Name	Elevation and Thickness	Description
Blackwater Draw Formation		
BDF	Surface at 3,575 to 3,500 ft amsl (~ 90 ft thick)	Unsaturated silts and sands, lower 20 ft interval of silty sand and caliche
Ogallala Formation		
• Caprock Caliche	Surface at ~3,500 to 3,415 ft amsl (0 to >40 ft thick). Sometimes absent, particularly underneath playas	Hard, dense and finely crystalline caliche
• Upper Ogallala	Surface at 3,495 to 3,405 ft amsl (145 to 250 ft thick)	Fine to medium sand, sands with clays and gravel
• Perched Groundwater Unit	Perched groundwater between 3,305 and 3,205 ft amsl (215 and 280 ft bgs, 0 to 60 ft saturated thickness)	Fine to medium sand, saturated sands with clays and gravel
• Fine-Grained Zone (FGZ)	Surface at 3,300 to 3,190 ft amsl with variable thickness (<5 to 150 ft thick)	Silts and clays, separate upper from lower Ogallala
• Lower Ogallala	Surface at 3,300 to 3,190 ft amsl with variable thickness (45 to 300 ft thick)	Coarse-grained fluvial, channel sands and gravels
• Lower Ogallala Saturated Zone (High Plains Aquifer)	Surface at 3,215 to 3,030 ft amsl (350 to 520 ft bgs, 1 to 400 ft saturated thickness)	Saturated coarse-grained sands, gravel, drinking water supply for Amarillo, irrigation water supply
Red Beds		
• Red Beds / Dockum Group	Surface at 3,180 ft amsl dipping to 2,870 ft amsl	Siltstone, confining layer

Elevations are approximate from previous reports (B&WPantex, 2004 and HGL, 2021a) and 2020 hydrographs.

The Ogallala Formation underlies the BDF. A Caprock Caliche layer generally defines the top of the Ogallala Formation but is not continuous across the entire Pantex Plant. The Caprock, where present, consists of a hard, dense and finely crystalline caliche. Below the Caprock Caliche, the Ogallala Formation consists of upper and lower permeable units separated by the FGZ. The permeable units are composed of coarse-grained fluvial sequences including channel sands and gravels overlain by finer overbank deposits.

The upper unit of the Ogallala Formation contains discontinuous areas of perched groundwater underlain by the FGZ. Perched groundwater is found in three main areas under the Pantex Plant. The largest area of perched groundwater is associated with recharge from Playas 1, 2 and 4 and drainage ditches associated with industrial Zones 11 and 12 (see **Figure 1**). Isolated areas of perched groundwater also occur under the Burning Ground (near Playa 3) and in the northeast corner of the Pantex Plant (near Pratt Playa).

Groundwater elevation is highest under Playa 1 (about 3,305 ft amsl) with radial groundwater flow primarily to the southwest and to the southeast beneath Zones 11 and 12, pinching out on the TTU property to the south and offsite to the southeast in a thin band (3,205 ft amsl). Saturated thickness of perched groundwater varies across the unit and over time with a historical maximum of 70 ft beneath Playa 1 to 0 ft at the extreme edges of the unit. Depth to groundwater varies from about 215 ft near Playa 1 to approximately 280 ft southeast of Highway 60 and 300 ft in the southwest area under TTU property.

Because of mounding near Playa 1 and the topography of the FGZ, groundwater flow in the main perched unit tends to be radial. To the south and east of Zone 12, the groundwater surface slopes to the southeast, and to the west of Zone 11 the groundwater surface slopes to the southwest. Groundwater north of Playa 1 tends to flow to the north. Radial flow within the main perched unit is the reason why the monitoring network was divided into three sectors based on dominant groundwater flow directions—the Southeast, Southwest, and North Sectors—for the LTMO analysis (see sectors identified on **Figure 2**).

The perched groundwater unit meets the yield and water quality criteria to be considered a potential drinking water source in the state of Texas. However, no water supply wells are drilled into the unit for either drinking water or industrial water supply on-site. Public drinking water supply wells in the vicinity are drilled into the Lower Ogallala Aquifer, except for one perched groundwater well on offsite property northeast of Pantex near Pratt Playa. The perched groundwater does not discharge to surface water bodies and hydraulic connection with the Ogallala is limited by the FGZ.

The FGZ is a zone of fine-grained sediment (consisting of sand, silt, and clay, with caliche intervals) within the Ogallala Formation. The FGZ varies in thickness from over 150 ft to less than 10 ft and slopes downward from the center of the Plant toward the southeast corner of the property. The FGZ tends to isolate perched water from deeper strata; however, the FGZ becomes coarser, thinner, and more permeable in areas to the south and east of the main Plant.

The surface of the Lower Ogallala Saturated Zone or High Plains Aquifer (Ogallala Aquifer) beneath the Pantex Plant slopes downward from south to north and is approximately 350 ft bgs on the south side of the plant and 500 ft bgs on the north side of the plant. An unsaturated zone between 50 and 100 ft in thickness is present between the FGZ and the saturated portion of the Lower Ogallala. The saturated thickness of the Ogallala Aquifer varies from 1 to 100 ft in the southern regions of the site and approximately 250 to 400 ft in the northern regions. The Ogallala Aquifer is the principal municipal water supply for the city of Amarillo, Texas. The city operates a municipal water supply field north of the Pantex Plant. The Aquifer has, historically, provided potable and industrial water for the Pantex Plant as well as agricultural water for the surrounding properties. Removal of water from the Ogallala Aquifer for municipal, industrial, and large-scale agricultural uses has reduced the saturated thickness in many areas of the aquifer. The following report does not consider monitoring of the deeper Ogallala Aquifer.

3.2 CONSTITUENTS AND SOURCES

The primary sources of COCs to groundwater at the Pantex Plant arose from infiltration of historical wastewater discharges through areas of focused recharge to the vadose zone and perched groundwater unit. Major historical industrial operational areas are Zone 10, Zone 11 and Zone 12 (see **Figure 1**) in the central portion of the Pantex Plant. Historically, effluent from industrial processes, sanitary wastewater, cooling water discharge and storm water runoff were released to unlined ditches. Discharges directed to Playas 1, 2 and 4 created linear sources as well as point sources to the subsurface. Subsequent infiltration has resulted in numerous co-mingled plumes and an artificially expanded perched groundwater unit under Playa 1 and areas southwest and southeast of the main industrial zones.

All wastewaters are currently directed to the sanitary sewer system and to the Pantex Plant Wastewater Treatment Facility (WWTF). Treated wastewater, including extracted groundwater, is designed to be discharged to the agricultural irrigation system for surface application, but an irrigation system filter bank break in June 2017 necessitated discharge of treated wastewater to Playa 1 under reduced flow to comply with Playa 1 permitted discharge limits. The irrigation system break was repaired, but the system continued to experience issues through 2021. Work on the irrigation system is ongoing, including installing a pivot system to the east. The upgraded irrigation system should be operational near the end of 2022.

3.2.1 Zone 12

Historical industrial wastewater generated in Zone 12 was discharged to the eastern ditch running to Playa 1. Industrial operations in Zone 12 included development, testing, and manufacture of HE components. Wastewater discharge from Zone 12 varied between 200,000 and 300,000 gallons per day (gpd), historically. Discharges originating in Zone 12 infiltrated along the unlined ditch discharging to Playa 1, resulting in groundwater mounding under Playa 1. Groundwater mounding resulted in plumes exceeding drinking water standards migrating north, east and southeast of Zone 12. Contamination is present to the extent of the groundwater unit to the east and southeast. Constituents remaining in the vadose zone may represent a continuing low-level, long-term, source of contamination to the perched unit.

Constituents in wastewater from Zone 12 included RDX, TNT, other HEs, hexavalent chromium (Cr VI) from cooling waters, and some chlorinated volatile organic compounds (VOCs). TNT is photo-reactive, decaying to products like 2-amino-4,6-dinitrotoluene (DNT2A) and 4-amino-2,6-dinitrotoluene (DNT4A) causing the characteristic colored ‘red water’ discharge in surface water.

RDX degrades to TNX, MNX and DNX under anaerobic conditions stimulated by the ISB remedies. These constituents, which are often short-lived, are monitored for remedy effectiveness rather than as priority risk drivers. RDX and degradation products of TNT are the priority COCs originating from Zone 12 and define the extent of affected groundwater in the southeast. Hexavalent chromium [Cr (VI)] is found in limited areas in the Southeast Sector with most of the mass occurring directly south of Zone 12.

3.2.2 Zone 11

Industrial operations in Zone 11 were diverse, consisting of quality assurance testing and machining operations that included cleaning of components with chlorinated solvents. Discharges from Zone 11 also infiltrated along ditches to the north and to Playa 1 resulting in linear sources extending north to Playa 1. Constituents associated with Zone 11 include chlorinated solvents such as TCE, and perchlorate, and Cr (VI). The groundwater flow from Zone 11 is predominantly to the southwest where the TCE and perchlorate plumes are located. 1,4-Dioxane is also associated with releases from Zone 11. Zone 10 is located downgradient to the southwest of Zone 11. Zone 10 has limited releases, and constituents in this area are not distinct from plumes emanating from Zone 11.

A groundwater flow divide runs through Zone 11. The flow divide has moved to the east under the long-term influence of pumping from SEPTS. Constituents associated with Zone 11 such as perchlorate and Cr (VI) are migrating southeast under the influence of groundwater extraction in the east. Flow west of the center of Z11ISB is to the southwest.

3.2.3 Burning Ground and Northern Property

The Burning Ground area is northwest of the main Zone 11 and 12 industrial areas and west of Playa 1. The Burning Ground has a small and, apparently, isolated perched groundwater unit associated with Playa 3. The Burning Ground is an active operation area used for thermal treatment of HE. Historical activities have resulted in some releases to shallow and deep soils. Selected remedies at the Burning Ground include an SVE system to remove VOCs from soil. Perched groundwater below the Burning Ground has limited detections of chlorinated VOCs and some HEs.

Most of the area north of Playa 1 did not have known industrial sources. An isolated perched groundwater unit is present in the northeast corner of the main property. A historical WWTF was located in the area, but only limited, non-trending, low-level contamination associated with the facility has been found sporadically in perched groundwater. Monitoring wells north of Zones 11 and 12 and north of Playa 1 do not indicate consistent or high concentrations of constituents.

3.2.4 Constituents of Concern

Groundwater analyses indicate that several contaminants are found above EPA Maximum Contaminant Levels (MCLs) or Texas Medium Specific Concentrations (MSCs) in perched groundwater. The 2008 ROD identified MCLs and MSCs as the primary remedial standards for the site constituents. Constituents and standards used for optimization of the monitoring network are listed in **Table 3** along with the maximum concentration results from groundwater analyses between 2017 and 2021 and from 2012 through 2016.

Table 3. Perched Groundwater Remedial Goals

Constituent Name	Standard	Basis of Standard	Maximum Concentration 2017 – 2021	Maximum Concentration 2012 – 2016
1,3,5-Trinitrobenzene	220	GW-Res NC Adj	526	1,260*
1,2-Dichloroethane	5	MCL	77.3	50.8
1,3-Dinitrobenzene	3.7[a]	GW RESc	0.091	0.093
1,4-Dioxane	7.7	GW RESc	70.3	77
2,4-Dinitrotoluene	1	PQL	5.39	18*
2,6-Dinitrotoluene	1	PQL	1.29	1.9
2-Amino-4,6-Dinitrotoluene (DNT2A)	1.2 (6.1[a])	GW Res NC Adj	6.8	23.4
4-Amino-2,6-Dinitrotoluene (DNT4A)	1.2 (6.1[a])	GW Res NC Adj	48.5	37.3
Arsenic	12	Background	620**	430**
Barium	2,000	MCL	21,000	21,000
Boron	7,300† (500)	†GW-Res NC	2,710	1,900*
Chloroform	80	MCL for Trihalomethanes	91.4	46.2
Chromium, Hexavalent [Cr (VI)]	100	MCL	2,301.91	6,031
Chromium, Total	100	MCL	2,780	6,840
cis-1,2-Dichloroethene	70	MCL	390	490
Hexahydro-1,3-Dinitroso-5-Nitro-1,3,5-Triazine (DNX)	2	EPA Lifetime HA for RDX	33.6	24*
Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	360	EPA Lifetime HA for HMX	396	530*
Lead	15	MCL	Non-detect	0.644
Manganese	1,715.5	GW-Res NC	99,000**	26,000
Hexahydro-1-Nitroso-3,5-Dinitro-1,3,5-Triazine (MNX)	2	EPA Lifetime HA for RDX	26.2	145
Molybdenum	182.5		46	43.9
Perchlorate	15	GW-Res NC	724	1290
Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	2	EPA Lifetime HA	2,850	3850
Selenium	50	MSC	51	59.2
Tetrachloroethene (PCE)	5	MCL	21.8	20.1
2,4,6-Trinitrotoluene (TNT)	3.6	GW-Res NC Adj	77.4	89*
Hexahydro-1,3,5-Trinitroso-1,3,5-Triazine (TNX)	2	EPA Lifetime HA for RDX	217	333
Trichloroethene (TCE)	5	MCL	1,500	500

All concentrations in µg/L—micrograms per liter
a ROD identified values for these constituents were adjusted below the calculated MSC because they target the same organs from a cumulative risk perspective.
N/A = Data not analyzed; * Sample from extraction well. **Sample from ISB well.
GW-Res—TCEQ Standard No. 2 Groundwater MSC for Residential Use
MCL—EPA Maximum Contaminant Level; PQL—Practical Quantitation Limit C—Carcinogenic; NC—Noncarcinogenic;
HA – Health Advisory
† Boron exceeds background, posing potential threat to agricultural applications. Remedial goal is 500 ug/L.

Boron concentrations in the perched unit are below drinking water standards and are protective for human consumption. However, the concentrations of boron present in some areas of the perched aquifer are harmful to crops, posing potential problems for agricultural application of treated wastewater. For this reason, boron is removed in the groundwater extraction treatment systems before application to crops. The standard for boron for the statistical analysis was set to 500 micrograms per liter (µg/L).

3.3 REMEDIES

Interim remedies implemented at the Pantex Plant were described in the 2003 *Compliance Plan for Industrial Solid Waste Management Sites*, with final remedies provided in the 2010 update to the *Compliance Plan* (TCEQ, 2010). Selected remedies are described in the 2008 ROD. Remedy components are summarized in **Table 4** and are illustrated on **Figure 2**.

Table 4. Perched Groundwater Remedies

Location	Remedy	Goal	Contingency
Playa 1	P1PTS –Groundwater Extraction and Treatment – GAC and boron Ion Exchange; Effluent to industrial supply or irrigation system	Reduce groundwater elevation and head causing downgradient movement; reduce mass of RDX, other HEs and boron	Additional extraction wells and expanded treatment
Southeast	SEPTS – Groundwater Extraction and Treatment Effluent – GAC, Cr and Boron Ion Exchange; Perchlorate treatment to be initiated fall of 2022. Effluent to industrial supply, irrigation system or re-injection	Reduce groundwater elevation and mass of RDX and other HE, VOCs and Cr (VI)	Expand P1PTS, improve irrigation system or find alternatives for disposal of treated water; Addition of perchlorate treatment unit; re-grading ditch
Southeast and Southeast Offsite	In Situ Bioremediation – Injection of carbon and nutrients to create reducing conditions	Create conditions supporting biological reduction of RDX	Change formulation for amendment, addition of more injection points, maintenance for biofouling
Zone 11	In Situ Bioremediation – Injection of carbon and nutrients to create reducing conditions	Create conditions supporting biological reduction of TCE (VOCs), perchlorate	Change formulation for amendment, addition of more injection points, maintenance for biofouling
Site-Wide	ICs	Prevent human and ecological exposure and potential cross-contamination	None

GAC = Granular Activated Carbon

Performance of the selected remedies is evaluated through groundwater monitoring implemented as described in periodic updates to the long-term groundwater monitoring design and sampling and analysis plan and by reports including the *Long-Term Monitoring System Design Report* (Pantex, 2019a), the *Sampling and Analysis Plan* (Pantex, 2019b), the *Pantex Plant Ogallala Aquifer and Perched Aquifer Contingency Plan* (Pantex, 2019c), and the *2018 Annual Progress Report* (Pantex, 2019d). The expected performance of the remedies has been identified based on the CSM, groundwater modeling and engineering estimates. Results of groundwater monitoring are compared to expected performance in annual reports . Significant deviation from expected remedy performance may result in modifications to RAs. Contingency plans for remedies are detailed in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (Pantex, 2019c) and are summarized below.

The overall remedy strategy for the perched unit is to reduce the volume and driving force of groundwater, particularly around Playa 1. Downgradient portions of the plumes are treated using biological and geochemical reduction of contaminants facilitated by in situ amendments. The individual remedy components are designed to work together to stabilize plumes in the perched unit and to reduce contaminant mass and mobility.

Plumes within the perched groundwater unit are somewhat unique relative to most groundwater plumes in that the abiotic, natural attenuation processes of advection, dilution and dispersion are not anticipated to reduce constituent concentrations to below remedial goals due to the contained nature of the unit. Therefore, several active remedies were selected in the regulatory decision documents to address contaminant plumes in the perched unit.

3.3.1 Playa 1 Pump and Treat System

A groundwater extraction and treatment system was installed in the Playa 1 area consisting of 10 extraction wells (EWs) and lines conveying water to a treatment plant. The system became fully operational in 2009. Water treatment consists of GAC and ion exchange units capable of removing contaminants from about 250 gallons per minute (gpm). The goal of the P1PTS is to reduce groundwater mounding under Playa 1 and to remove contaminant mass. Perched groundwater elevations are highest under Playa 1, with groundwater flow radiating from this location. Treated water has historically been discharged to the irrigation system supporting agricultural crops covering much of the Pantex and TTU properties. However, ongoing issues with the irrigation system have resulted in discharge of treated water to Playa 1. The irrigation system is currently being upgraded, and it is expected that once the system is operational, the infiltration of irrigation water will not exceed evapotranspiration losses, thereby preventing additional water from entering the perched unit.

The P1PTS has reduced saturated thickness in perched groundwater beneath Playa 1 since it became operational in 2009. Success of the P1PTS is defined as reduction in the groundwater elevation mound in the area, reducing the hydraulic gradient and therefore flux of contaminants to the edges of the perched unit.

Monitoring to confirm performance of the P1PTS includes measuring groundwater elevations around Playa 1 and developing potentiometric surface maps and elevation trends for the north-central Pantex Plant. Remedy performance expectations included a reduction in RDX concentrations and RDX mass flux to the southeast. Decreases in mass were anticipated to level off after several years of pumping. Should the P1PTS fail to meet performance objectives for head reduction, the proposed contingent remedy includes addition of EWs and treatment capacity.

3.3.2 Southeast Pump and Treat System

The SEPTS was piloted in 1995 and has since been expanded and modified to meet the RAOs and final remedy established in the ROD and Hazardous Waste Permit 50284. The SEPTS was a part of the ISM in the original Compliance Plan. The system consists of 65 active groundwater EWs, 1 active injection well, and lines conveying extracted water to a 300-gpm treatment plant with GAC, chromium ion exchange, and boron ion exchange units. A perchlorate treatment unit is being installed as part of the overall treatment process. Treated water is used for irrigation, beneficial reuse through ISB or industrial uses, and is discharged to Playa 1 if irrigation is not an option. When necessary, treated water is reinjected into wells in the southeast perched unit or through injection wells located near Playa 2. A subsurface irrigation system that was developed to discharge treated water broke down in 2017 and is no longer operational. The subsurface irrigation system is being replaced by a pivot irrigation system expected to become operational in summer 2022.

Performance objectives for the SEPTS are to reduce groundwater volume and lateral flux in the southeast portion of the perched unit, reducing transport potential to the edges of the plume and possible vertical migration to the Lower Ogallala Aquifer. The SEPTS is also anticipated to reduce total contaminant mass and mass flux of RDX and other HEs in the southeast, stabilizing the plumes. The SEPTS is designed to work in concert with both the P1PTS and the ISB remedies in the southeast.

The function of the monitoring network relative to the SEPTS is to demonstrate reduction in groundwater elevation and to monitor concentrations in the southeast area. Potential concerns for the SEPTS include migration of constituents from the southwest across the groundwater divide (running through Zone 11), and migration of plumes beyond the SEPTS and toward adjacent properties to the southeast.

Several conditions may result in under performance of the remedy, triggering possible contingency actions. If the P1PTS does not reduce flux to the south, additional EWs may be added around Playa 1 and the P1PTS treatment plant expanded. Infiltration from the 5/12a Ditch could be greater than expected, overloading the SEPTS. In this case, the contingent action would involve re-grading or lining portions of the 5/12a Ditch to reduce infiltration. As has occurred recently, when the irrigation system is unable to handle the treated groundwater, reinjection of treated water and discharge to Playa 1 are implemented, undermining the volume reduction function of the SEPTS. For this scenario, expansion of the irrigation system or finding alternative uses for the treated water may be required. If perchlorate or 1,4-dioxane are detected in the groundwater EWs at levels that exceed discharge criteria, then the extraction from wells closest to the plume fronts migrating from Zone 11 will need to be modified temporarily until the treatment system can be upgraded to treat these COCs. Data collected from the perched groundwater monitoring network are used to determine if the selected remedies are operating effectively and attaining remedial performance objectives.

3.3.3 Southeast In Situ Bioremediation (ISB) Systems

The SEISB system is designed to create strongly reducing geochemical conditions on the southeast edge of the perched unit to facilitate reduction of RDX and Cr (VI). The system consists of 42 injection wells where a mixture of bioavailable carbon and nutrients have been injected approximately every 18 to 24 months to stimulate anaerobic conditions. The in situ amendment consists of an emulsion of carbon substrates. Installation and preliminary injections were completed in March 2008. Injections have continued through 2022. Contaminant concentrations in the treatment zone will determine if the system is achieving its performance objective. RDX (and other HEs) and Cr (VI) approximately 200 ft downgradient of the treatment zone are expected to show strongly decreasing trends.

The function of the monitoring network relative to the ISB system is to provide data to demonstrate the efficacy of treatments downgradient from the injection points. One challenge for the monitoring network design is locating wells in areas of adequate saturated thickness along the southeast edge of the perched unit so that representative samples can be collected. Several wells drilled in the area are either dry, intermittently or apparently dry for some time after drilling. Delineating the edge of saturation of the perched unit to the east and southeast is a challenge due to the limited saturated thickness and response of the aquifer to changes in SEPTS operation.

Should monitoring data indicate the remedy is not performing as expected the contingent remedy includes changing the amendments to respond to specific geochemical needs, bioaugmentation with microorganisms, or installation of additional injection wells. Biofouling of the SEISB has occurred and caused the amendments to be changed from an emulsified vegetable oil carbon source to a molasses carbon source. This change has led to greater distribution of amendments but requires more frequent injections.

The RDX contaminant plume has been observed to be migrating further south and east from the main Pantex Plant, including into offsite areas. To prevent further offsite migration, the SEISB Extension system was installed in 2017 and expanded in 2020 and 2021. The SEISB Extension system consists of 25 injection wells installed along Highway 60 and 6 injection wells installed along the eastern fence property boundary, extending north away from Highway 60.

CNS began installation of an Offsite ISB system with limited pump and treat to address impacted perched groundwater off site. When complete, the Offsite ISB system will include 105 injection and extraction/recirculation wells and eight additional monitoring wells. The first two phases of system installation have been completed, with the remainder of the system, including additional performance monitoring wells, to be installed by the end of 2023.

3.3.4 Zone 11 In Situ Bioremediation System

An ISB system was installed in 2009 in the southwest portion of the Pantex Plant to create anaerobic conditions conducive to biological break down of TCE and perchlorate. The system consists of 85 active injection wells and 9 in situ performance monitoring wells (ISPM). The Zone 11 ISB (Z11ISB) was expanded between 2019 and 2021 by adding a second row of 26 injection wells in the lower portion of the system in-filling 5 injection wells on the near the center of the system due to performance issues with nearby wells, and adding 6 injection wells at the far western end of the system to limit COC migration around the western edge of the Z11ISB . In situ amendments are the same as those used in the SEISB.

The function of the ISB monitoring network is to confirm that amendments are stimulating biodegradation of chlorinated compounds (TCE) and perchlorate and reduction of Cr (VI) to trivalent chromium [Cr (III)]. Concentrations of parent compounds should decrease, approaching cleanup goals over the next five-year period.

Contingent remedies for the Z11ISB include installation of upgradient EWs to reduce the flow of water through the ISB area. Biofouling of the injection wells may require more rigorous maintenance or reconfiguration of the system. Breakthrough of perchlorate above cleanup goals may require reformulation of the amendments delivered to the subsurface to optimize treatment of this constituent.

3.4 CURRENT MONITORING PROGRAM

The current groundwater monitoring program at Pantex was designed in a formal process that included setting monitoring objectives, evaluating the function of each well relative to the objectives and using statistical, mathematical, modeling and qualitative tools to locate wells spatially.

The primary goal of the monitoring network is to confirm progress toward RAOs. Data collected from the monitoring network are used to evaluate the performance and efficacy of the remedies and are used to compare actual conditions to expected site conditions. Three primary monitoring objectives have been identified for the Pantex perched groundwater network:

- Plume stability (PS) – Identify areas of increasing and decreasing concentrations on the edge of the plumes and identify where the plume may be expanding into clean areas.
- RA efficacy – Evaluate the RA to determine its ability to reduce the elevation of groundwater in the Playa 1 area, reduce the mass in the Playa 1 and southeast areas, reduce the spread of contamination in the southeast and southwest areas, prevent further offsite migration of impacted groundwater, and remediate offsite impacted groundwater.
- Uncertainty management (UM) – Confirm whether expected conditions identified in the RFI exist and identify any deviations; compare results to expected conditions and identify deviations that may alter assumptions about existing conditions.

Most wells in the LTM network have been assigned at least one monitoring objective under the Pantex LTM Plan: PS, RA, and/or UM. Many wells have also been designated as point of compliance (POC) or point of exposure wells under the Compliance Plan as per Texas RRR. Some wells within ISB remedies have been identified as treatment zone monitoring locations. Wells in the current program used for this analysis, along with the monitoring objectives for each well are listed in **Table B-1** (**Appendix B**) and shown on **Figure 2**.

Secondary objectives of the monitoring network include the following:

- Delineating groundwater exceeding applicable regulatory standards (and delineation of the extent of saturation in the perched zone);
- Providing sufficient data to evaluate risks (under State of Texas RRR);
- Supporting calibration and development of site groundwater models;
- Providing early warning for potential impacts to the lower Ogallala Aquifer (lower saturated Ogallala);
- Providing data to optimize remedy performance and efficacy; and

- Complying with regulatory requirements.

For this report, 139 individual LTM program locations were evaluated, and of these 122 perched unit wells were actively sampled for COCs during the 2017 to 2021 time frame. Several wells in the network are intermittently dry and help define the extent of perched groundwater. No active ISB injection or extraction remedy wells were included in the monitoring network analysis. Some well locations not in the LTM program, particularly those that were drilled in dry locations, were included in the spatial analysis to prevent recommending additional wells where decommissioned wells currently exist.

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4.0 ANALYTICAL METHOD

Evaluation of the groundwater monitoring network for the Pantex Plant consisted of both quantitative and qualitative methods. A quantitative statistical evaluation of the site was conducted using tools in the Monitoring and Remediation Optimization System (MAROS) software (version 3.0 Beta). The qualitative evaluation reviewed hydrogeologic conditions, well construction and placement as well as contaminant geochemistry in the context of monitoring objectives. Both quantitative statistical and qualitative evaluations were combined using a 'lines of evidence' approach to recommend a final groundwater monitoring strategy to support site monitoring objectives. The analytical method for the current report is similar to that conducted for the 2012 *Perched Groundwater Monitoring Network Optimization* (GSI, 2012) (referred to below as the 2011 evaluation) and the 2017 *Optimization Review Report Long-Term Monitoring Optimization – Perched Groundwater Unit* (HGL, 2017) (referred to below as the 2016 evaluation).

Details of the MAROS tool, including algorithms used in the analysis are provided in MAROS User and Technical Manuals (AFCEE, 2004; AFCEC, 2012). A summary of the analytical process is provided below.

4.1 INPUT DATA AND REPORTS REVIEWED

Groundwater analytical data collected between 2017 and 2021 from the Pantex Plant perched groundwater LTM network were supplied by CNS from the site database (CNS, 2022). Received data include geographic coordinates of the wells, sample dates, analytical results, detection limits, and data flags. Analytical data from the previous LTM investigations (2000 through 2016) were used to supplement analyses of long-term trends.

Analytical data from 214 different sampling locations were received including investigation monitoring wells (IW), EW, and ISB wells. Only data from the 122 active IWs were used in the statistical analyses. The database contained data for 23 different COC analytes. Remedial goals for each of the COCs are those specified in site decision documents such as the ROD. Water quality and geochemical parameters were not included in the statistical analyses. Non-detect values are treated as half the detection limit within MAROS, with the exception of statistics calculated using Kaplan-Meier method.

Well construction data including depth, saturated unit, screened intervals, elevations, installation dates, well monitoring objectives, and other details were provided by CNS. Well construction details were used to identify active monitoring locations in the perched unit and monitoring objectives for each well. Water level trend data, geochemical data, and remedy performance data were received from CNS in various reports, with data through 2020 included in the CSM report (HGL, 2021a). These data were reviewed qualitatively to support monitoring recommendations.

As in the previous analyses, IWs were grouped by sector of dominant groundwater flow direction, with the elevation maximum under Playa 1. IWs were grouped into three sectors, Southeast, Southwest, and North. Wells used in the analysis, their monitoring objectives, and sector location are shown in **Table B-1**. The spatial sectors defined for the analysis are illustrated on **Figure 2**. Aquifer parameters used in the MAROS analyses are listed in **Table B-2** and were taken from the previous LTMO analyses and site documents.

For the time frame of 2017 through 2021, 61 monitoring wells were included in the Southeast Sector analysis, 51 wells were included in the Southwest Sector analysis and 23 wells were included in the North Sector analysis. Some wells were considered in two different Sectors to provide more complete spatial coverage. Data from extraction or ISB wells were not considered in the formal analysis but were reviewed qualitatively to support monitoring recommendations.

Documents reviewed for the report are listed in **Appendix A**.

4.2 MONITORING GOALS AND OBJECTIVES

Pantex site managers have developed three primary objectives for monitoring data collection discussed in Section 3.4: PS, RA, and UM. Most wells in the network have been assigned at least one of these objectives. **Table B-1** lists all the wells used in the LTMO and primary monitoring objectives defined by Pantex Plant managers.

For the LTMO analysis, wells were also assigned secondary monitoring objectives including source wells and tail wells. 'Source' wells are those wells closest to initial release areas in Zones 11 and 12 or with high historical concentrations. 'Tail' or plume wells are downgradient from sources. The purpose of identifying source and tail wells is to evaluate the trend for a group of wells. Trends in source wells will indicate if the source discharge is attenuating or remaining stable. Trends in tail wells will indicate if remedies are affecting the downgradient concentrations relative to discharge from the source.

Wells were also assigned secondary monitoring objectives for evaluating specific remedies (e.g., SEPTS for the southeast pump and treatment system; ISPM for in situ performance monitoring) and for COCs with limited spatial distribution [e.g., 1,4-dioxane, Cr (VI)].

A summary of the secondary monitoring objectives by well provided in **Table B-3, Table B-9,** and **Table B-15** for each sector in **Appendix B.**

4.3 INDIVIDUAL WELL ANALYSES

In MAROS, the goal of statistical analysis at individual wells is to assess contaminant concentrations and trends at monitoring locations within the plume. Statistical analysis provides insight into critical questions about point concentrations such as variability and stability over time, increasing or decreasing trends, attainment of remedial goals, magnitude and rate of concentration change and whether expectations about concentration change are being met.

Analytical data from individual wells were analyzed statistically to provide metrics to assess the magnitude, trend and variability in contamination at each monitoring location. One goal of the individual well analyses is to help assess the importance of each well in characterizing the plume and attaining its specific monitoring objectives. The statistical methods and procedures used to evaluate individual well locations at the Pantex Plant are summarized below and described in more detail in the MAROS User and Technical Manuals (AFCEE, 2004; AFCEC, 2012).

Statistical methods encoded in the MAROS software for individual wells are taken, primarily, from the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance* (USEPA, 2009). MAROS calculates the detection frequency, maximum concentration, date of maximum concentration, and whether the maximum is above the remedial goal for each priority constituent and well. The Individual Well Statistics module also includes the following functions:

- *Priority COCs* for each well are determined by identifying the maximum value for the average concentration normalized by the cleanup goal. The priority COC for each well was used to identify the primary plume associated with each well and to select COCs for calculation of summary statistics. Sector-wide priority COCs are also identified in the software based on toxicity (concentrations above remedial goals), prevalence (number of wells exceeding remedial goals) and mobility (partition coefficient).
- *Summary statistics* by Kaplan-Meier method identify the mean, median, percentiles, standard deviation, and coefficient of variation (COV) for each dataset. The Kaplan-Meier method provides a more precise way to estimate statistics for datasets that have non-detect (i.e., left censored) data.
- *Outlier* identification by Dixon's method (USEPA, 2009). High or low outliers are not removed from the dataset, but rather the User can identify outliers and review sampling documentation to determine if the outlier is likely a result of laboratory or sampling artifacts.
- *Distribution* test by Shapiro-Wilk. Datasets are identified that are likely normally or log-normally distributed. Data distribution determination is important to identify an appropriate statistical framework to apply to the analyses.
- *Concentration Trend* determination by Mann-Kendall (MK) method and by Linear Regression. For the following analysis, the non-parametric MK trend is used because it does not rely on normally or log-normally distributed data. (In the text, statistical MK trend results are indicated in *italics.*)
- Identification of locations that have 'attained' cleanup goals by Sequential T-Test (USEPA, 1992).

4.4 PLUME LEVEL ANALYSES

The Plume-Level Analysis in MAROS was developed to assess plume-wide and area-level stability by tracking plume migration on a level above that of the individual well. The Moment Analysis module estimates the total dissolved mass, center of mass, and spread of mass plume-wide for each contaminant. Trends for each of the plume-level metrics are found by applying the non-parametric MK trend test. Remedial performance and monitoring needs can be assessed based on whether total dissolved mass and centers of mass are *increasing, decreasing,* or *stable*.

MAROS also contains tools to estimate how much of the plume area and mass each well "represents" relative to other wells in the network using the Delaunay/Voronoi spatial geometry engine described below as well as to evaluate concentration trends for groups of wells in an area. The Plume Area Trend module automatically groups source wells and tail wells and allows selection of two additional custom groups of related wells (e.g., upgradient vs. downgradient of a remedy). The software weights results of the individual well MK trend analysis to calculate an aggregate trend for the group of wells. The software also estimates the amount of mass each group represents relative to the total mass in the plume. In this way, the software determines if the source wells have an aggregate trend and what percentage of total mass the wells represent (e.g., the tail wells have a *stable* trend and represent about 77 percent of the total dissolved mass of TCE in the Southwest Sector plume). Identifying the amount of mass in the source wells relative to the tail wells may help inform decisions on source monitoring or treatment.

Moving from concentration data at individual wells to evaluating concentrations on a plume or area-wide basis requires spatial interpolation of discreet data. The primary tool for spatial analysis in MAROS is a mesh-creation method known as Delaunay triangulation/Voronoi diagram spatial geometry (also known as Thiessen polygons).

In MAROS, Delaunay triangulation is first used to generate a grid for the site with existing/potential sampling locations as its nodes. The Delaunay triangulation includes triangulation of a point set with the property that no point in the point set falls in the interior of the circumcircle of any triangle in the network. In this application, triangles are drawn such that all wells are located on vertices of triangles and the circumcircle defined by the triangle does not contain more than the three wells defining the triangles' vertices. Voronoi diagrams are polygons generated by bisecting the sides of the Delaunay triangles connecting centers of the circumcircles. In MAROS, Voronoi diagrams are polyhedral regions that correspond to the set of points on a plane closest to one specific well in a network and form the 'monitoring area' for the well. Monitoring volumes are calculated by multiplying the 2- dimensional area by the plume thickness and porosity.

The Delaunay triangles are used in the Moment Analysis to assign concentrations to areas, which are then summed to estimate total dissolved mass in the plume (zeroth moment), center of mass (first moment), and spread of mass in the direction of and perpendicular to groundwater flow (second moments). These values are then assessed for MK trends. The Delaunay triangles and Voronoi diagrams are also used in the Spatial Optimization modules to assess concentration uncertainty, to prioritize regions for new wells, and to identify potentially redundant well locations.

Using the Voronoi polygons, the Plume Mass by Well tool in the Plume-Level analysis estimates a percentage of total plume mass and area represented by each well. In practical application, this tool may indicate that data from one source well constitutes 50 percent of the total estimated plume mass but monitors only 10 percent of plume area. With this information, analysts may prioritize sampling at wells that monitor high percentages of mass or large areas.

4.5 SPATIAL ANALYSES

The Spatial Optimization module in MAROS includes tools to select and prioritize groundwater monitoring locations based on estimates of concentration uncertainty. Two modules are available to select appropriate sampling frequencies.

The quantitative spatial optimization tool relies on calculation of a Slope Factor (SF) to estimate concentration uncertainty between monitoring locations. The SF is calculated by finding the difference between the known concentration at a well and a concentration estimated for the well from the nearest neighbors, then dividing by the maximum of the two. A SF is calculated for each sample event and an average value is returned for the full monitoring time frame. SF values fall between 1 and 0, with low values indicating potentially redundant locations and high values indicating areas with higher concentration uncertainty. Potentially redundant wells with low SF are then removed from the calculation, and the network is tested to make sure that the estimate of total plume area or total plume mass does not change significantly when the wells are removed. Wells are then recommended to be removed in areas with low spatial uncertainty (low SF) for priority constituents, and wells are recommended to be added in areas within the plume with high spatial uncertainty.

The COV (standard deviation divided by the mean) of SFs is calculated to assess the level of variability of uncertainty over time. COVs over 1 indicate high variability between locations over time, potentially requiring additional monitoring effort to understand and predict the causes of variability.

In addition, the MAROS spatial analysis uses the area of the Voronoi polygon surrounding each well to assess the spatial coverage for each well location. The well monitoring area or area of influence represents all points nearer to the node well than any other well in the network. Large areas of influence may mean there is insufficient spatial density of wells while extremely small areas may indicate that a well is redundant.

MAROS includes an additional decision logic module for spatial optimization. Under the decision logic framework, “good” monitoring networks have sampling locations that are evenly spaced, monitor similar sized areas, reduce concentration uncertainty, and thoroughly monitor edges of the network and areas where concentration trends are statistically *increasing*. Redundant locations are those with low SF and monitor relatively small Voronoi polygons with predictable concentrations over time. Conversely, areas on the edges of the existing network with *increasing* concentration trends or high uncertainty are recommended for additional well locations.

4.6 SAMPLING FREQUENCY ANALYSES

Sampling frequency recommendations for each well in MAROS are based on the rate of concentration change over recent (2016 through 2021) and long-term (2012 through 2021) time intervals (calculated from linear regression of concentration versus time) and on the MK trends over the same time intervals. Locations with rapid or high magnitude concentration changes and *increasing* trends are recommended for more frequent sampling.

An additional sampling frequency module is included to estimate a sampling frequency for the network as a whole. The idea behind the tool is that networks where the estimates of total dissolved mass are predictable, that is with a linear trend and low variability, require less monitoring effort; but networks that display high variability, determined from variability about the linear regression of total dissolved mass (zeroth moment), require more sampling effort.

To determine the recommended sampling frequency, MAROS plots the natural log of total dissolved mass for each sample event from the Moment Analysis against time to determine the linear regression of total mass in the plume and the COV for the sample set of mass estimates. MAROS determines the slope and coefficient of determination (R^2) for the linear regression of total mass over time, and then the software calculates an average network sampling frequency by counting how often each well is sampled each year and dividing that number by the number of sampled wells in the network. MAROS also estimates and outputs the advective groundwater travel time between the source and each monitoring location for the user's consideration. Decision logic is then employed within MAROS to make a sampling frequency recommendation based on the current sampling frequency and the results of the regression of total mass estimates. A network-level sampling frequency is returned for each priority contaminant.

4.7 QUALITATIVE REVIEW

All results returned by the MAROS software are reviewed for consistency with the goals and objectives of the monitoring program and the CSM. Statistical results are compiled for the priority COCs and compared, on a well-by-well basis, with results for spatial sufficiency and redundancy, and sampling frequency. Final recommendations for the monitoring network are a combination of quantitative and qualitative review.

5.0 RESULTS

5.1 SOUTHEAST SECTOR RESULTS

5.1.1 Priority COCs

Priority constituents evaluated for individual wells in the Southeast Sector are listed in **Table B-3**. Priority COCs are those for which average concentrations relative to the cleanup goal are the highest when compared to all other analytes (note that not all priority COCs exceed the cleanup goal, but rather, are present at higher concentrations relative to the cleanup goal and other COCs). RDX is the priority COC at 40 of the 61 locations sampled from 2017 through 2021. Seventy wells are included in the 2012 through 2021 dataset. RDX is currently considered the priority COC in the Southeast sector and over much of the site as its extent over regulatory limits defines the extent of the groundwater plume to the east and south.

Source area wells PTX06-1008, PTX06-1010, and PTX06-1011 monitor areas of higher total Cr [combined Cr (VI) and Cr (III)], Cr (VI), and other COCs. High concentrations of total Cr are associated with stainless steel well construction. However, Cr (VI) exceedances are likely the result of industrial activities. Other monitoring locations show priority exceedances for 1,2-dichloroethane, TCE, perchlorate, RDX degradation products, and some metals. Exceedances for metals such as barium and arsenic are related to oxidation/reduction changes stimulated by the ISB remedy. Boron exceeds standards for discharge of irrigation water at some locations.

A sector-wide evaluation of priority COCs was performed in the MAROS software, and the results are indicated in the MAROS COC Assessment for the Southeast Sector (**Appendix C**). Based on toxicity and prevalence metrics, the two priority COCs for the Southeast Sector are RDX (and its degradation products TNX and MNX) and perchlorate. The extent of the perchlorate plume in the Southeast Sector is limited to the area south of Zones 11 and 12. Perchlorate was identified as a priority COC due to the magnitude of concentrations relative to the remedial goal over this small area. Wells affected by perchlorate are included in the Southeast Sector analysis to account for mobility of constituents from the Southwest to the Southeast under the influence of SEPTS groundwater extraction. Perchlorate is also considered as a priority COC in the Southwest Sector analysis.

Historically, the TNT degradation product DNT4A was a priority COC in the Southeast Sector, but concentrations have been stable to decreasing over the past 10 years. DNT4A concentrations exceeded remedial goals at 23 of 61 well locations during the 2017 to 2021 time frame. Several locations exceeding remedial standards are near the northeast line of SEPTS EWs (PTX06-1038, PTX06-1039A, PTX06-1040, PT0X6-1041, PT06-1042, PTX06-1146), upgradient of the eastern boundary of the plume. Well PTX06-1120 is near the SEISB system in an area of low to intermittent saturation. Other wells exceeding the remedial goal are in the SEISB Extension/Offsite ISB area of the plume (PTX06-1182, PTX06-1190, PTX06-1203). Because DNT4A is widely distributed in the Southeast Sector and has the potential for early migration through the FGZ it is, considered as a priority COC for monitoring optimization.

The Southeast Sector-wide monitoring network was optimized for RDX with consideration of the extent of DNT4A. However, consideration was given to COCs indicating remedy performance (e.g., TNX, DNX and MNX), as well as to Cr (VI), perchlorate, and COCs potentially untreated by current remedies (e.g., 1,4-dioxane) when optimizing the Southeast Sector-wide monitoring network. Perchlorate concentrations exceed the remedial goals by a higher percentage than the other COCs, with the exception of RDX, but at fewer wells. The perchlorate plume is localized between the Southwest and Southeast Sectors' monitoring networks, and the monitoring networks do not define the extent of affected groundwater. Due to its limited extent, perchlorate does not control the assessment of the Southeast Sector monitoring network.

5.1.2 Individual Well Statistics

Individual well exploratory statistics for the Southeast Sector are shown in **Tables B-4** and **B-5**. Detection frequencies, maximum concentrations, and average concentrations indicate locations that consistently exceed cleanup goals or delineate the edges of high concentration plumes with concentrations below remedial goals. The COV provides a measure of the variability in concentration measurements over time.

Individual well concentration trends were determined using the MK non-parametric trend method. General MK trend results for both RDX and DNT4A are summarized in **Table 5**. Results of the trend analysis for individual wells for RDX and DNT4A for the years 2017 through 2021 are detailed in **Table B-4**. Included in **Table B-4** are trend results from the 2012 through 2016-time frame for comparison. MK trend results and average concentrations normalized by remedial goals for RDX are shown on **Figure 3.** Normalized average concentrations and trend results for DNT4A are shown on **Figure 4.** Concentrations relative to remedial goals illustrated alongside concentration trends help locate processes of interest in the plumes, supporting decisions on the spatial distribution of monitoring locations. A detailed MAROS report of MK trends for all wells is provided in **Appendix C**.

Table 5. Southeast Sector Individual Well Trend Summary

COC	Total Wells	Pantex Plant Southeast Perched Groundwater Mann-Kendall Trend Results by Number of Wells				
		Non-Detect	Decreasing or Probably Decreasing	Stable	Increasing or Probably Increasing	No Trend or Insufficient Data
RDX						
All wells	61	4 (7%)	11 (18%)	16 (26%)	13 (21%)	17 (28%)
DNT4A						
All wells	61	14 (23%)	16 (26%)	9 (15%)	9 (15%)	13 (21%)

Overall RDX trend results from 2017 through 2021 show proportionally fewer *decreasing* trends and more *increasing* trends when compared to the results from 2012 through 2016. This is due to changes in the number and identity of wells in the network, most notably the addition of several new wells in the SEISB Extension/Offsite ISB area. Wells in the far southeast with increasing RDX trends include PTX06-1190, PTX06-1196, PTX06-1197, PTX-1199, PTX06-1201, and PTX06-1203. Increasing trends for DNT4A were also observed in this area at PTX06-1199, PTX06-1201, PTX06-1202, and PTX06-1204. Several wells in the Offsite ISB area do not have sufficient data to evaluate a trend (N/A result), but continued sampling should resolve trends going forward.

Seven of nine wells with statistically *increasing* or *probably increasing* trends for DNT4A have concentrations below remedial goals and are located in the source area or the leading edge of the plume to the southeast. The remaining two wells with *increasing* or *probably increasing* trends, PTX06-1147 and PTX06-1199, had concentrations above remedial goals and are located downgradient of the SEPTS.

Well PTX06-1002A, in the northern source area, showed *increasing* and *probably increasing* trends for DNT4A, RDX and TNX, and Cr (VI). However, only RDX and TNX exceed remedial goals at this location. The cause of increasing trends may be related to changes in remedy operation, notably issues with groundwater extraction and discharge of treated groundwater, and to major precipitation/recharge events during this time period that may have recharged mass from the vadose zone beneath ditches and source areas.

Wells designated to monitor remedy performance of the SEPTS, PTX06-1013, PTX06-1014, PTX06-1038, PTX06-1039A, PTX06-1040, and PTX06-1042, located along FM 2373, show residual RDX concentrations significantly above cleanup goals. However, these wells show largely *stable* to *decreasing* concentration trends. None of the SEPTS remedial action monitoring wells show an *increasing* trend for RDX or DNT4A. These results indicate that the EWs along FM 2373 are successfully stabilizing the plume within the area of influence. Well PTX06-1146 had a *probably increasing* trend for RDX indicating that the RDX plume is continuing to move to the east outside of the SEPTS area of influence. The *increasing* trend for DNT4A at PTX06-1147, south of the other SEPTS monitoring wells, is of interest as the well is located near the area where the FGZ top elevation is deeper than expected. This may result in a thinner area of the FGZ around PTX06-1147 and around the nearby extraction wells.

Chromium (VI) Individual Well Results

Table 6, below, includes a list of monitoring wells exceeding remedial goals for Cr (VI) for the Southeast Sector with maximum concentrations and the MK trends indicated. Wells where high Cr (VI) concentration results are identified as statistical outliers are not included in the table. Results for Cr (VI) are presented on **Figure 5**.

Table 6. Trend Results for Chromium Affected Wells

Well Name	Cr (VI) Trend 2012 to 2016	Cr (VI) Trend 2017 to 2021	Maximum Concentration 2017-2021 [mg/L]	Well Location
PTX06-1052	Decreasing	Decreasing	0.63	Mid Plume
PTX06-1010	Stable	Decreasing	2.3	Source Area
PTX08-1008	Decreasing	Decreasing	0.007	Source Area
PTX06-1166	Probably Increasing	Increasing	0.13	Plume Toe
PTX06-1183*	(Insufficient Data)	Decreasing	1.56	Plume Toe
PTX06-1088	Stable	Increasing	0.10	Mid Plume

Note: The remedial goal for Cr (VI) is the same as that for total chromium, 0.1 milligrams per liter (mg/L).
* Well PTX06-1183 is included in the Southwest Sector analysis.

Cr (VI) is found in a comingled, U-shaped plume between the Southeast and Southwest Sectors. The Cr (VI) plume is contained within the Southeast and Southwest monitoring networks; therefore, it typically does not drive decisions for adding or removing well locations. Well PTX06-1010 is located near one suspected Cr (VI) source and showed an *increasing* trend from 2008 through 2011. However, the trend for 2012 through 2016 was *stable*, and the current 5-year trend is *decreasing.* This supports the observation that mass in the source may be depleting.

All other wells exceeding remedial goals for Cr (VI) show a decreasing trend except for PTX06-1166, which is downgradient from PTX06-1183 and PTX06-1088 near the source area and upgradient from the SEISB remedy. Concentration data support the conclusion that the Cr (VI) plume is likely becoming more dilute in most locations but may be migrating in the area of PTX06-1088 and PTX06-1166. PTX06-1088 is near the source with sufficient monitoring locations downgradient. PTX06-1166 is near the edge of the saturated perched unit with dry wells located to the east and south. Increasing trends in PTX06-1166 may be caused by the Cr (VI) plume migrating to the south where the edge of saturation is encountered at an area where the FGZ has a local high.

5.1.3 Plume-Level Analysis

MK trends for total dissolved mass, center of mass, and spread of mass within the Southeast Sector monitoring network (zeroth, first and second moments, respectively) were calculated for annually consolidated data from the 2017 through 2021 and the 2012 through 2021-time frames. Calculation of these trends provides a measure of plume stability. Trend estimates of the zeroth, first and second moments for both RDX and DNT4A for the Southeast Sector are summarized in **Table 7**, and first moments (center of mass) for RDX and DNT4A are illustrated on **Figures 3** and **4**, respectively. MAROS reports for zeroth, first and second moments for other COCs are in **Appendix C**.

Table 7. Southeast Sector Moment Analysis Results*

Moment Type	RDX Trend		DNT4A Trend	
	2017 – 2021	**2012 – 2021**	**2017 – 2021**	**2012 – 2021**
Zeroth (Total Dissolved Mass)	Stable	Decreasing	Stable	Decreasing
First (Center of Mass)	Stable	Increasing	Increasing	Increasing
Second (Spread of Mass X/Y)	Stable/No Trend	Increasing/Probably Increasing	Increasing/No Trend	Increasing/Increasing

*Result for uniform saturated thickness

The number of wells in the annually consolidated dataset varied between 41 and 59 between 2017 and 2021 from the 61 wells in the dataset. This reflects a variation in the number and identity of the wells and in the analyte list in the time frame of interest.

The zeroth moment analysis (estimate of total dissolved mass) shows a *stable* trend for RDX between 2017 and 2021. The overall total dissolved mass trend 2012 through 2021 is *decreasing.* Similar results were obtained for DNT4A. The recent s*table* trend for total dissolved mass is consistent with the observation that many individual wells have recent *stable* trends. The result also indicates that additional wells monitoring the Southeast Extension/Offsite Area did not increase the estimate of total dissolved mass significantly or move the center of mass away from the eastern SEPTS even though the footprint of affected groundwater increased.

The center of mass estimates for RDX are *stable* for 2017 through 2021 and *increasing* for 2012 through 2021. *Increasing* trends were obtained for both the short and long term for the center of DNT4A mass. Movement of the center of mass to the east was likely caused by the addition of wells in the southeast, extending the known footprint of the plume. Contaminant mass is also moving away from the source areas to the east and southeast with the center of mass located east of the SEPTS and northwest of the SEISB Extension.

Second moments, indicating the spread (dilution) of mass to the edges relative to the center of the plume show *no trend* or high variability for both RDX and DNT4A in the direction perpendicular to groundwater flow (Y direction). Spread in the direction of groundwater flow is *stable* for RDX and *increasing* for DNT4A in the recent time period. Increasing trends for second moments from 2012 to 2021 indicate that the plume is becoming more dilute in the center relative to the edges over the longer time frame.

For the Cr (VI) plume in the 2017 through 2021 time frame, estimates of total dissolved mass are *stable*, and the center of mass is *increasing* (moving to the southeast) with *increasing/no trend* in the spread of mass, indicating the continued dilution of the plume. The results indicate that the Cr (VI) plume in the Southeast is largely stable, with the plume core migrating slowly to the east.

Aggregate trends for areas within the Southeast Sector plumes were evaluated based on grouping of individual well trends. Aggregate trends were found for the source area (near the original ditch line release from Zone 12 to Playa 1), the tail (non-source wells), the area downgradient of the SEISB remedy area, and the area of the SEISB Extension.

The number of wells in each group is indicated in **Table 8**, and the identity of wells in the group is provided in **Table B-3**. Wells assigned to the southeast source area (Zone 12) are PTX06-1002A, PTX06-1003, PTX06-1005, PTX06-1010, PTX06-1011, and PTX06-1088. A small proportion of the total dissolved contaminant mass, < 1 percent for RDX and 2 percent for DNT4A, remains in the source wells. The source area shows an overall *stable* trend for RDX and DNT4A, indicating restoration actions (e.g., discontinued discharges to on-site ditches, and lining of key segments of ditches) have reduced mass flux to perched groundwater in the source area.

Table 8. Aggregate Trends for RDX and DNT4A in the Southeast Sector

Area	Number of Wells	RDX Aggregate Trend	RDX Aggregate Mass %	DNT4A Aggregate Trend	DNT4A Aggregate Mass %
Source	7	S	<1%	S	1%
Tail	53	NT	>99%	S	99%
Downgradient of SEISB	9	S	6%	S	2%
Downgradient of Offsite ISB	12	PI	1%	PD	1%

S=Stable
NT= No Trend
PI = Probably Increasing
PD = Probably Decreasing

Monitoring locations downgradient of the SEISB system show an aggregate *stable* trend and represent approximately 6 percent and 2 percent of plume mass for RDX and DNT4A, respectively. For the area of the Southeast Extension and Offsite ISB remedy, RDX accounts for 1 percent of the total Southeast Sector plume mass and shows a *probably increasing* trend. This result is consistent with the observation that low levels of contaminant mass are still migrating to the southeast. However, additional monitoring in the Offsite area did not result in a significant increase in the estimated total mass in the plume. DNT4A in this area also represents about 1 percent of the total mass in the plume but shows a *probably decreasing* trend, likely indicating that additional mass is either not migrating to the southeast or that DNT4A is being effectively addressed by the combined remedies.

The MAROS Percent of Mass by Well tool uses the Voronoi area and concentration at the well to estimate the percentage of the total plume mass closest to each well. The analysis for COCs in 2021 (annually consolidated data from 61 wells) calculated the mass at each well based on the annually averaged concentration and the distance between other monitoring locations. The tool is intended to identify wells that monitor disproportionately high or low amounts of plume mass and thereby determine areas that may require the addition of new wells or the elimination of wells that do not provide significant information about the distribution of mass. The MAROS reports for Percentage of Mass by Well are in **Appendix C** and are summarized below.

Monitoring areas showing the highest estimated percentage of RDX in the plume are PTX06-1146 (52 percent), PTX06-1041 (10.5 percent), PTX06-1034 (10.4 percent), and PTX06-1147 (7 percent). Most of the RDX mass is identified in the polygon around PTX06-1146, in part because of the large area that it monitors (10 percent of the total plume area). These mass estimates were made assuming a uniform saturated thickness, so for wells in thinner areas of the perched unit (e.g., PTX06-1034), the mass estimates are likely high (e.g., near the extent of perched saturation) and the converse is true in areas of greater saturated thickness (e.g., near Playa 1).

The well monitoring the most mass of DNT4A is also PTX06-1146 (51.6 percent), in part due to the large area that it monitors. The DNT4A plume is distributed more evenly, with several wells accounting for about 10 percent of mass (PTX06-1040, PTX06-1041, PTX06-1039A). The combination of mass due to movement under the influence of the EWs and the large distance between wells (resulting in a large monitoring area for each well) indicate that these wells are very important in characterizing the DNT4A plume.

Relatively few wells account for the majority of Cr (VI) mass in the network. The area around PTX06-1010 contains 74 percent of total mass, compared to 51 percent of the Cr (VI) in 2016. PTX06-1010 is also located near a leak in the plant's high pressure fire loop that has caused mounding, which may also be mobilizing Cr (VI). Other wells of importance in monitoring Cr (VI) are PTX06-1146 (5.6 percent of total mass comprising 10 percent of the total plume area) and PTX06-1005 (3 percent of total mass).

5.1.4 Spatial Analysis

The Southeast Sector network was evaluated for spatial sufficiency by calculation of SFs estimating concentrations at wells from the well's nearest neighbors. Average SFs, COVs, and monitoring areas for wells in the Southeast Sector for RDX and DNT4A are listed in **Table B-6**.

Overall, Southeast Sector SFs are low (below 0.5) for both priority COCs, indicating that there is low uncertainty within the current network. COV of SF is likewise low (below 1) for most locations, indicating stable relative concentrations between wells over time. The areas of influence (Voronoi polygons) are uniform in size relative to the overall extent of the monitoring network. Wells are fairly evenly spaced. Evenly spaced monitoring locations, low concentration uncertainty, and relatively low SF variability, along with the individual well trend analysis and moment analyses for plume stability, indicate that the network is well designed to address priority monitoring goals of plume stability and uncertainty assessment. Detailed results of the well sufficiency and redundancy analyses are presented below.

Well Sufficiency

One area of higher concentration uncertainty is found between wells in the Offsite area downgradient from the SEISB Extension remedy. Wells PTX06-1192, PTX06-1194, PTX06-1195, and PTX06-1214 show very low to non-detect results for RDX while neighboring wells in the core of the plume show much higher concentrations, resulting in higher estimates of uncertainty between monitoring locations.

Eight additional monitoring wells are planned in the Offsite ISB area based on modeling results (HGL, 2021a), seven within the system and one downgradient. These eight planned wells will monitor perched groundwater conditions in response to the Offsite ISB system operation and are expected to reduce uncertainty about concentrations between the ISB and beyond the ISB installations. Updates to the monitoring network are illustrated on **Figure 9**. Based on the MAROS well sufficiency analysis, an additional well may be beneficial at the midpoint between PTX06-1195 and PTX06-1196 to define the eastern edge of the ISB extension treatment area. An additional well east-northeast of PTX06-1199 to delineate the extent of groundwater contamination and further support delineation of the perched groundwater extent may also be beneficial. Groundwater monitoring in the Offsite area has a limited history. Additional data collection at planned and existing wells is likely to reduce uncertainty estimates in the area of the SEISB Extension and Offsite ISB remedies.

Higher concentration uncertainty is often found along the outer extent of the monitoring network. Two wells with higher concentration uncertainty estimates (SF >0.8), PTX06-1069 and PTX06-1023, are located on the northern edge of the network. These wells have intermittent detections of COCs with low concentrations and delineate the northern extent of the plumes. In this case, hull wells with low concentrations are compared against the higher concentration interior wells, resulting in higher uncertainty estimates. No additional sampling locations are needed in this area due to the low edge concentrations, limited area of saturation, and stable current trends.

Two wells, PTX06-1037 (SF 0.85) and PTX06-1153 (SF 0.83), are on the southern edge of the plume downgradient of the SEISB. Higher SFs at these locations are due to the large difference in concentrations and saturation between the two adjacent wells. PTX06-1153 shows an unusually high average concentration for 2017 through 2021 (337 µg/L) while PTX06-1037 is intermittently dry with concentrations, when available, below the remedial goal. The relatively high uncertainty between these two locations is related to the local hydrogeology on the edge of the plume. No additional wells are recommended in this location.

Well PTX06-1052, located between the Southwest and Southeast Sectors, shows higher uncertainty for RDX. The higher concentration uncertainty estimate for PTX06-1052 results from the location on the edge of the high concentration RDX plume.

PTX06-1133A is another monitoring network hull location on the southern edge of the RDX plume with high concentration uncertainty (SF = 0.92 up from 0.83 in 2016). Similarly, well PTX06-1184 (SF 0.98) delineates the southern edge of the RDX and DNT4A plumes. PTX06-1133A and PTX06-1184 show intermittent detections below remedial goals. PTX06-1133A and PTX06-1184 are upgradient of the recently installed SEISB Extension. The southeastern area is a priority monitoring zone due to the concerns about potential vertical migration and ongoing delineation of horizontal impacts

PTX06-1182, a neighboring well to PTX06-1133A and PTX06-1184, was installed in July 2016, 2,000 ft east of PTX06-1133A, to further define the edge of the RDX plume. PTX06-1182 shows concentrations above cleanup goals for RDX and DNT4A but with *decreasing* concentration trends. Well PTX06-1034 (average RDX concentration 996 µg/L) defines part of the triangle of interest near PTX06-1133A, along the eastern edge of the plume in the southeast. Since 2016, extensive work has been conducted in the Southeast/Offsite area to define and delineate concentrations. There remains some uncertainty related to concentrations along the eastern edge of the RDX plume east of the SEISB Extension/Offsite area. The top of the FGZ to the east is elevated (HGL, 2021b), likely limiting the area of perched groundwater saturation and preventing plume migration to the east, but additional wells in this area could confirm that the plume is not migrating further to the east.

Well PTX06-1008 is located in the general source area but has non-detect results for RDX. Neighboring wells show higher concentrations for RDX which leads to greater uncertainty for PTX06-1008. No additional well is recommended in this area, as the higher uncertainty is related to the geometry of the source area.

Well Redundancy

While many of the calculated SFs and COVs for RDX and DNT4A are low (< 0.3), no wells were identified by the software for removal from the network for all COCs. Several wells that are redundant to define the extent and stability of the RDX plume are important to the DNT4A, Cr (VI), perchlorate, or other COC plumes. All wells with low SF were reviewed for their value in addressing the priority monitoring objectives. Results of the qualitative review are shown in **Table B-6**, with key points summarized below.

Sampling locations with the lowest SFs are PTX06-1042, PTX06-1038, and PTX06-1040, a line of wells monitoring efficacy of the SEPTS. RDX concentrations in this area show low uncertainty and *stable* to *decreasing* trends, likely stabilized by pumping from the SEPTS. Wells are not recommended for removal from the network as they are required to evaluate efficacy of the SEPTS and identify potential plume migration.

Wells with low SF such as PTX06-1005 and PT06-1014 are near source areas and provide information on complex source geometries and inputs to the downgradient plume. Wells PTX06-1015 and PTX06-1031 are along the plume migration pathway to the southeast.

5.1.5 Sampling Frequency Analysis

Sampling frequency analysis included assessment of the rates of concentration change at individual well locations and the trend over both the long term (2012 through 2021) and the recent time period (2017 through 2021). Results of the individual well sampling frequency analysis for RDX are shown in **Table B-7**.

MAROS recommended a biennial (every 2 years) sampling frequency for 35 wells out of 61 for RDX and 49 wells out of 61 for DNT4A. The biennial frequency recommendation is based on the slow rate of change and *stable* to *decreasing* trends at these locations. However, it is recommended that most of these wells be sampled annually to collect sufficient data to develop trends for model development and the next LTMO report and FYR.

Monitoring locations with statistically *increasing/probably increasing* trends (PTX06-1002A, PTX06-1088, PTX06-1146, PTX06-1153, PTX06-1190, PTX06-1191, PTX06-1196, PTX06-1197, PTX06-1201, PTX06-1203, and PTX08-1002) were recommended for quarterly monitoring by the software. The majority of these wells are located in the Southeast Extension/Offsite ISB area, and trends would be expected to decrease over the next 5 years. Two wells, PTX06-1002A and PTX06-1088, are located in the source area, and increasing trends may be related to higher-than-normal precipitation that has caused a COC flux in the perched groundwater. Several of these wells, PTX06-1146, PTX08-1002, and PTX06-1153, are influenced by the operation of the pump and treat systems and may have increasing trends as a result of decreased operation of the SEPTS and P1PTS caused by irrigation system problems. After a qualitative review of monitoring objectives, an overall semiannual to annual sampling frequency was determined to be sufficient for supporting site monitoring objectives for these wells. Data from these wells are not required for monitoring exit pathways, points of exposure, or for short-term decision making.

A biennial frequency was recommended by the software for the network-level sampling frequency analysis. The overall biennial monitoring frequency recommendation for most wells is consistent with the findings from the plume-level, individual well, and spatial analyses indicating stable plumes, low uncertainty, and low rates of concentration change.

MAROS recommended sampling frequencies were reviewed qualitatively with respect to the monitoring goals of the network and individual wells. Recommendations included four wells for biennial sampling, 28 wells for annual sampling, and 28 wells for semiannual sampling. Semiannual sampling was recommended for remedial action efficacy, POC, and UM monitoring. No locations are recommended for quarterly sampling. Final recommendations for sampling frequency for the Southeast Sector are provided in **Table B-8**.

5.2 SOUTHWEST SECTOR RESULTS

5.2.1 Priority COCs

Priority COCs for individual wells in the Southwest Sector are listed in **Table B-9**. TCE is the priority COC at 22 of 51 locations, and perchlorate is the priority at 6 of the 43 wells sampled for perchlorate. Priority COCs at individual wells other than TCE and perchlorate include DNT4A, RDX, Cr (VI), cis-1,2-dichloroethene, and the degradation products of TCE and RDX. Metals such as arsenic and manganese are produced as byproducts of the ISB remedy and are elevated in some areas. Boron is a lower priority COC in the Southwest Sector as groundwater is not intercepted for treatment and subsequent surface application from this area.

Sector-wide priority COCs for the Southwest Sector are TCE and perchlorate. The Southwest Sector monitoring network was optimized for TCE and perchlorate as these COCs are more widely distributed at levels exceeding remedial goals. However, lower priority constituents such as 1,4-dioxane, metals, Cr (VI), and TCE degradation products were considered as monitoring priorities at specific locations.

1,4-Dioxane was detected above remedial goals at sampling locations in the Southwest Sector: PTX06-1012, PTX06-1126, PTX06-1127, PTX06-1148, PTX06-1149, PTX06-1151, PTX06-1155, PTX06-1156, PTX06-1169, PTX06-1170, PTX06-1171, PTX06-1173, PTX06-1174, PTX06-1175, PTX06-1209, PTX06-1210, PTX06-1211, PTX08-1007, and PTX08-1008. COCs such as TCE and perchlorate exceed remedial goals by a greater magnitude at each of these locations. The highest 1,4-dioxane concentrations were found at PTX06-1127, upgradient of the eastern Z11ISB remedy, and PTX06-1210, immediately downgradient of PTX06-1127 and within the ISB remedy. Wells downgradient from PTX06-1127 such as PTX06-1156 and PTX06-1148 previously had concentrations below the 1,4-dioxane remedial goal of 7.7 µg/L, but more recent sampling has shown increasing 1,4-dioxane concentrations in this region that now exceed the remedial goal. The farthest downgradient well, PTX06-1053, has been consistently non-detect, with a single 1,4-dioxane detection of 0.933 µg/L in November 2017. The 1,4-dioxane plume is not well delineated and may be migrating to the southeast in the region north of PTX06-1053 toward PTX06-1052.

The ISB and P&T remedies do not treat 1,4-dioxane. Monitoring of 1,4-dioxane is, therefore, conducted with the goal of assessing mobility through the groundwater divide toward the SEPTS remedy. Additional monitoring wells between PTX06-1148 and the SEPTS will be required to ensure that 1,4-dioxane is not reaching the SEPTS at concentrations above the remedial goal.

Wells in the immediate vicinity of the Z11ISB (PTX06-1170, PTX06-1173, PTX06-1155, PTX06-1012, and PTX06-1169) show high concentrations of cis-1,2-dichloroethene, generally exceeding TCE concentrations at these wells between 2017 and 2021. While TCE concentrations continue to exceed remedial goals at these locations, sampling degradation products of TCE is an important aspect of assessing ISB remedy performance. Therefore, monitoring the distribution and trends of TCE degradation product formation in the ISB area is important for remedy performance and efficacy monitoring.

5.2.2 Individual Well Statistics

Individual well exploratory data analysis statistics for the Southwest Sector are shown in **Tables B-10** and **B-11**. General MK trend results for both TCE and perchlorate are summarized in **Table 9**. Results of the trend analysis for individual wells for TCE and perchlorate for the years 2017 through 2021 are detailed in **Table B-10**. Included in **Table B-10** are trend results from the 2012 through 2016-time frame for comparison. MK trend results and average concentrations normalized by remedial goals for TCE are shown on **Figure 6.** Normalized average concentrations and trend results for perchlorate are shown on **Figure 7.**

Table 9. Southwest Sector Individual Well Trend Summary

Well Group	Total Wells	Pantex Plant Southeast Perched Groundwater Mann-Kendall Trend Results by Number of Wells				
		Non-Detect	Decreasing or Probably Decreasing	Stable	Increasing or Probably Increasing	No Trend or Insufficient Data
TCE						
All Wells	51	10 (20%)	10 (20%)	5 (10%)	13 (25%)	13 (25%)
Perchlorate						
All Wells	43	5 (12%)	18 (42%)	11 (25%)	4 (9%)	5 (12%)

The Southwest Sector monitoring well network has several wells that have been installed since 2016, most in the area of the Z11ISB for RA monitoring. These wells, PTX06-1207, PTX06-1209, PTX06-1210, and PTX06-1211, have insufficient data to determine a statistical trend (fewer than four sampling events).

Wells south of the eastern Z11ISB area, PTX06-1148, PTX06-1149, and PTX06-1150, show *increasing* trends for TCE and 1,4-dioxane. Since 2019, concentrations of TCE have consistently exceeded remedial goals at these three locations, and concentrations of 1,4-dioxane exceeded remedial goals at PTX06-1148 and PTX06-1149. Downgradient well PTX06-1052, southeast of the eastern Z1ISB area, shows an increasing trend in TCE, with levels below the remedial goal of 5 μg/L. PTX06-1052 has not been sampled for 1,4-dioxane.

Southwest Sector downgradient wells PTX06-1035 and PTX06-1134 show *increasing* or *probably increasing* statistical trends for TCE with remedial goal exceedances. Recently installed well PTX06-1207 bounds PTX06-1134 downgradient, but there is a large gap between PTX06-1035 and the closest downgradient well, PTX06-1131.

The number of wells with *increasing* or *probably increasing* perchlorate trends is lower than the number of *increasing* or *probably increasing* TCE trends. PTX06-1035, PTX06-1134, and PTX06-1149, south of the Z11ISB, had increasing trends for perchlorate. PTX06-1035 and PTX06-1134 are only bounded by PTX06-1207; PTX06-1131 is located further downgradient but is not currently sampled for perchlorate. PTX06-1207 is a recently installed well that has had low detections of perchlorate at or near the remedial goal of 15 μg/L.

Wells with *increasing* or *probably increasing* statistical trends downgradient of the Z11ISB may indicate that pulses of TCE and perchlorate have moved through the ISB when reducing conditions are attenuated between injections. For wells located further downgradient, *increasing* or *probably increasing* trends may indicate that high COC concentrations that were already beyond the Z11ISB at the time of installation are migrating to those locations as a disconnected plume. The TCE concentrations downgradient of the Z11ISB are generally an order of magnitude lower than concentrations upgradient of the ISB, with two exceptions in PTX06-1175 and PTX06-1159. Both PTX06-1175 and PTX06-1159 have *decreasing* statistical trends of TCE.

5.2.3 Plume-Level Analysis

MK trends for total dissolved mass, center of mass and spread of mass (zeroth, first, and second moments, respectively) were calculated for annually consolidated data 2017 through 2021 and for the 2012 through 2021-time frame. Trend estimates of the zeroth, first and second moments for both TCE and perchlorate for the Southwest Sector are summarized in **Table 10**, and first moments (center of mass) for TCE and perchlorate are illustrated on **Figure 6** for TCE and **Figure 7** for perchlorate. MAROS reports for zeroth, first and second moments for other COCs are in **Appendix C**.

Results for the moment analyses for both TCE and perchlorate plumes indicate statistically *stable* overall trends within the network. The total dissolved mass for perchlorate (zeroth moment) shows decreasing trends for both the recent data and between 2012 and 2021. While individual wells within the network may show strong trends, the plumes are not migrating or significantly changing distribution on a larger landscape level. There is no change in the trends calculated during the longer versus the more recent time frame, with the exception of the zeroth moment for TCE switching from *probably decreasing* to *stable*. *Stable* conditions for total dissolved mass indicate that additional mass mobilizing into the monitoring network from the source is balanced by degradation and attenuation within the plumes, while *decreasing* conditions for total dissolved mass indicate that the degradation and attenuation within the plumes is exceeding additional mass mobilizing from the source. *Stable* to *decreasing* conditions indicate that the interior network is adequate to evaluate the distribution of contamination.

Table 10. Southwest Sector Moment Analysis Results

Moment Type	Constituent			
	TCE Trend 2012 – 2021	**TCE Trend 2017 – 2021**	**Perchlorate Trend 2012 – 2021**	**Perchlorate Trend 2017 – 2021**
Zeroth (Total Dissolved Mass)	Probably Decreasing	Stable	Decreasing	Decreasing
First (Center of Mass)	Stable	Stable	Stable	Stable
Second (Spread of Mass X/Y)	No Trend/Stable	Stable/Stable	Increasing/ No Trend	Increasing/ No Trend

*Result for uniform saturated thickness

MAROS estimates the percentage of contaminant mass monitored by each well in the network, based on the Voronoi area and concentrations. Results indicate that wells monitoring the highest percentage of TCE plume mass are PTX06-1127 at 11 percent, PTX06-1180 at 11 percent, and PTX08-1006 at 9 percent. PTX06-1127 and PTX06-1180 are located upgradient of the Z11ISB with an *increasing* trend and *no trend*, respectively. PTX08-1006 monitors a large area near Zone 11 with a *stable* trend. For perchlorate, wells monitoring higher percentages of plume mass are PTX08-1008 at 25 percent, PTX06-1035 at 17 percent, and PTX06-1007 at 11 percent. PTX08-1008 is in the southwest corner of Zone 11 and east of the Z11ISB remedy with a *decreasing* trend. PTX06-1035 is southwest of the Z11ISB and monitors a large area with an *increasing* trend. PTX06-1007 monitors a large area upgradient in Zone 11 with a *stable* trend.

Overall, the aggregate trend analyses (**Table 11**) indicate that the source area has *no trend* for TCE. Individual well trends in the source area are largely *stable/no trend* for TCE and *decreasing* for perchlorate. Wells with *increasing* TCE trends include 1114-MW4, PTX06-1008, and PTX10-1014; wells with *increasing* perchlorate trends include only PTX08-1007. The combination of multiple trend designations for TCE and perchlorate results in an overall *no trend* or *stable* assessment for TCE and perchlorate in the source area, respectively. The analysis indicates that about 16 percent of TCE mass and 64 percent of perchlorate mass remain in the source area. For TCE, most of the contaminant mass is in the downgradient plume, with about 10 percent accounted for by ISPM wells and 22 percent in the five downgradient wells on the leading edge of the plumes (PTX06-1035, PTX06-1053, PTX06-1134, PTX06-1159, and PTX06-1207).

Table 11. Aggregate Trends for TCE and Perchlorate in the Southwest Sector

Area	Number of Wells (TCE / Perchlorate)	TCE Aggregate Trend	TCE Aggregate Mass %	Perchlorate Aggregate Trend	Perchlorate Aggregate Mass %
Source	10 / 10	NT	16%	S	64%
Tail	40 / 33	S	84%	PD	36%
ISPM	9	PI	10%	PD	5%
Downgradient Z11ISB	4 / 5	S	22%	PI	18%

5.2.4 Spatial Analysis

Results of the spatial sufficiency and redundancy analysis for the Southwest Sector are summarized in **Table B-12**.

Overall, Southwest Sector SFs are low (below 0.5) for priority COCs, indicating that there is low uncertainty within the current network. COV of SF is low (below 1) for most locations, indicating stable relationships among wells over time. Higher variability was found in wells downgradient from the central Z11ISB remedy, such as PTX06-1155, PTX06-1169, and PTX06-1173. These locations have high concentrations that respond to amendment injections that cause concentrations to decrease and subsequently rebound between amendments. The amendment injections schedule causes variability in concentrations within these wells over time.

The areas of influence (Voronoi polygons) for the Southwest Sector are variable due to the close spacing of wells around the Z11ISB to assess remedy performance and the larger spacing between wells in the source area and wells west of Zone 10. The variability in monitoring areas is consistent with the stated objectives of assessing remedy performance over a short spatial extent and managing uncertainty on the outer edges of the plume.

Well Sufficiency

Increasing 1,4-dioxane concentration trends and a large gap in the monitoring well network downgradient of wells PTX06-1149 and PTX06-1148 indicate that at least one additional monitoring well may be helpful to track the movement of 1,4-dioxane toward the SEPTS. Perchlorate concentrations at PTX06-1035 are above remedial goals and statistically *increasing,* while TCE concentrations are at or just below remedial goals and *increasing*. It is unknown if the ISB remedy is reducing the flux of TCE downgradient or whether a portion of the plumes were already downgradient of the ISB prior to installation and is now moving downgradient as an isolated plume.

Well Redundancy

Wells PTX06-1085 and PTX06-1086, located adjacent to Playa 2, are non-detect for priority COCs and are side-gradient from source areas based on the July 2020 perched zone water table. SFs for these wells are low (0.0 and 0.16), and the COV in the SF is also low (0.16 and 0.15). Removal of PTX06-1085 from the network spatial analysis did not increase uncertainty or change estimates of the mass or distribution of TCE in the plume (this location was not monitored for perchlorate). Therefore, PTX06-1085 was found to be redundant with PTX06-1086. It is recommended that the well be eliminated from routine monitoring but that it not be plugged and abandoned in case additional characterization is required.

Other wells located close together, such as those around the Z11ISB remedy show more spatial concentration variability and are required to evaluate the efficacy and provide data to optimize the ISB injections.

Several wells on the western side of the perched unit in Zone 10 such as PTX07-1Q01, PTX07-1Q02, PTX07-1Q03 and PTX06-1131 show low to non-detect concentrations with no *increasing* trends and low SFs. These UM wells are monitored to confirm low to non-detect conditions on the outer edge of the western perched unit, and are, therefore, not redundant.

5.2.5 Frequency Analysis

Results of the sampling frequency analysis for the Southwest Sector are listed in **Table B-13**. Most wells in the program were recommended by the software for biennial sampling for both TCE (36 of 51 wells) and perchlorate (36 of 43 wells). The biennial recommendation is consistent with the finding that concentrations are not changing rapidly, and plumes are largely stable. The MAROS software defaults to a recommendation of quarterly sampling at locations with fewer than four sampling results in the recent (2017 through 2021) time frame. As noted above, one well (PTX06-1207) in the network has been installed since 2017 and has not been sampled four times.

MAROS recommended sampling frequencies were reviewed qualitatively with respect to the monitoring goals of the network and individual wells. For the Southwest Sector, 6 wells are recommended for sampling once every 5 years, 4 wells for biennial sampling, 21 wells for annual sampling, and 20 wells for semiannual sampling. Semiannual sampling frequencies are recommended for wells in the ISB remedy area to monitor remedy performance and to provide data to optimize RAs.

No wells are recommended for routine quarterly sampling; however, quarterly sampling may be performed if short-term data are required to evaluate Z11ISB remedy performance after injections or if the injection protocol is optimized. Final recommendations for sampling frequency are provided in **Table B-14**. Sampling recommendations are illustrated on **Figure 9**.

5.3 NORTH SECTOR RESULTS

5.3.1 Priority COCs

Priority constituents for the 23 individual wells included in the North Sector analysis are listed in **Table B-15**. Four North Sector wells were included in the Southeast Sector analysis, and two wells were included in the Southwest Sector analytical group. The North Sector is characterized by radial groundwater flow, isolated saturated zones, and limited areas of continuous plumes. RDX is the only priority COC on a sector-wide basis. Boron also exceeds the standard for irrigation re-use (500 µg/L) at many locations, which is critical for the P1PTS operation. Many wells north of Zones 11 and 12 are UM wells and have low to no detections of site COCs. Constituents that exceed remedial goals at individual wells are RDX, boron, DNT4A, and total chromium.

5.3.2 Individual Well Statistics

Summary statistics for North Sector wells are shown in **Table B-16**. Concentration ratios and trend results for RDX in the North Sector are shown on **Figure 8**. Many monitoring locations in the North Sector either have low or no detections of site COCs. Overall, the magnitude and extent of contamination in the North is less than the Southeast and Southwest Sectors.

Higher concentrations of RDX are centered around Playa 1, which was a source of contamination through historical infiltration of industrial discharge. Monitoring locations with high concentrations of RDX south of Playa 1 include PTX08-1002, considered as a source well for the Southeast Sector, PTX08-1001, PTX06-1117, and PTX07-1P02. North of Playa 1, OW-WR-38 shows concentrations above remedial goals. OW-WR-38 and PTX07-1P02 show *increasing* trends for RDX in the recent time frame, while PTX08-1001 and PTX08-1002 show *no trend* trends.

North of Playa 1, PTX06-1050 monitors groundwater with historical high concentrations of RDX, boron, and DNT4A, which showed *decreasing* and *probably decreasing* trends between 2008 and 2016 but has recently shown *increasing* trends of RDX and boron. Northern well PTX07-1O03 exceeded remedial goals for RDX and had a *stable* concentration trend for RDX.

PTX06-1013, near the eastern edge of the perched unit, has shown exceedances of RDX. The well shows *stable* trends for RDX. Concentrations of COCs downgradient from PTX06-1013 at PTX06-1069 remained below remedial goals in the single sampling event between 2017 and 2021. Individual well results for these locations indicate the plumes are still not expanding to the east.

Concentration trends in the main perched unit of the North Sector may be influenced by varying recharge from rainfall to Playa 1 and discharge of treated water from the SEPTS and P1PTS. The site experienced wetter conditions in 2017 and 2019, with drier conditions in 2018, 2020, and 2021. Changes in recharge from precipitation and discharge to Playa 1 may influence the extent of perched zone saturation in some areas over long time scales.

The Burning Ground is located over a perched groundwater unit separate from and west of the main perched unit. Concentrations of COCs in the Burning Ground area are below remedial goals and have shown non-detect results in the recent time frame. Perched groundwater along the northern boundary of the Pantex Plant, isolated from the main perched unit, also shows low to non-detect concentrations of COCs.

5.3.3 Plume-Level Analysis

MK trends for total dissolved mass, center of mass and spread of mass (zeroth, first and second moments, respectively) were calculated for annually consolidated data from 2017 through 2021 for wells in the main perched unit around Playa 1 (excluding the detached perched units). The results are shown in **Table 12**. Total dissolved mass for RDX had *no trend* within the network. The P1PTS may be mobilizing RDX from below Playa 1 based on *increasing* and *probably increasing* RDX trends immediately adjacent to Playa 1, but the groundwater extraction system is preventing migration of the center of mass of the plume. Metrics were *decreasing* to *stable* or *no trend* for DNT4A.

Table 12. North Sector Moment Analysis Results

Moment Type	Constituent	
	RDX Trend 2017 - 2021	DNT4A Trend 2017 - 2021
Zeroth (Total Dissolved Mass)	No Trend	Decreasing
First (Center of Mass)	Decreasing	Stable
Second (Spread of Mass X/Y)	Stable/Decreasing	No Trend/No Trend

*Result for uniform saturated thickness

The MAROS tool that identifies the percentage of total plume mass represented by each well identified well OW-WR-38 as accounting for 46 percent of RDX in the North Sector. PTX06-1050 monitors a large area and shows relatively high concentrations of priority COCs. Other North Sector wells that are important in monitoring total plume mass are PTX07-1O03 (25 percent of RDX) and PTX06-1049 (9 percent of RDX).

5.3.4 Spatial Analysis

The MAROS quantitative network spatial analyses require monitoring locations in areas of consistent groundwater flow directions relative to source material to evaluate spatial redundancy and sufficiency. The SF analysis indicated significant spatial uncertainty, which is consistent with the finding that the North Sector has variable groundwater flow and sources, as well as disconnected saturated zones. For the North Sector, well redundancy and sufficiency were evaluated using qualitative methods and consideration of site monitoring objectives, as well as findings from previous LTMO efforts.

The primary monitoring objectives for the North Sector are to evaluate uncertainty in the Burning Ground and other isolated groundwater units with limited impacts. UM and RA wells are also located on the edges of the higher concentration areas to delineate impacts around Playa 1 in the main perched unit. Wells that monitor the performance of the P1PTS are located around Playa 1. The North Sector well network has been optimized formally and informally over many years. The current distribution of wells is mostly sufficient to address monitoring objectives and does not include redundant wells. The addition of a well downgradient of PTX06-1050 could ensure the delineation of RDX to the west. Previously, PTX06-1136, which is downgradient of PTX06-1050, was sampled, but this well has been dry in recent sampling events.

5.3.5 Frequency Analysis

As with Southeast and Southwest Sectors, concentrations in the North Sector are not changing rapidly. Overall, most wells in the North Sector were recommended for biennial sampling by the MAROS algorithm. Wells OW-WR-38, PTX08-1002, PTX06-1050, and PTX06-1128 were recommended for quarterly sampling, and wells with fewer than four sampling results in the recent time frame were recommended for annual (no or low detections) or quarterly (higher concentrations) sampling. The final recommended sampling frequencies, after qualitative review, is listed in **Table B-17**.

Several wells were recommended for reduced sampling frequency. Wells in the Burning Ground and north plant boundary area are recommended for sampling every five years due to low and unchanging historical concentrations. Of the 23 wells considered in the North Sector, 8 are recommended for sampling every 5 years, 4 are recommended for biennial sampling, 10 are recommended for annual sampling, and 1 is recommended for semiannual sampling. The annual sampling frequency for North Sector wells around Playa 1 will provide sufficient data in a five-year interval to determine trends to evaluate the performance of the P1PTS.

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6.0 RECOMMENDATIONS

6.1 SOUTHEAST SECTOR RECOMMENDATIONS

6.1.1 Southeast ISB Extension and Offsite ISB

Based on the monitoring optimization analysis, two additional monitoring wells are recommended in this area. One well is recommended for the midpoint between PTX06-1195 and PTX06-1196 to define the eastern edge of the SEISB Extension treatment area and assess the performance of the north-south oriented line of injection wells. Another well is recommended for the area northeast of PTX06-1199 to delineate the eastern edge of the southeastern plume. Additionally, seven monitoring wells in the Offsite ISB area are planned to monitor ISB performance between the two rows of injection wells and at the downgradient-most edge of the RDX plume.

Additional monitoring wells downgradient of the Offsite ISB may be required if data suggests that COC-impacted groundwater continues to migrate to the southeast. Additional wells may also be useful in defining the extent of perched zone saturation to the southeast.

6.1.2 Southeast ISB

Continued monitoring of the area around ISPM well PTX06-1153 is recommended to address uncertainty related to RDX concentration trends and saturation in this area. The limited saturated thickness in this area may mean that small migrations of affected groundwater may impact concentrations downgradient of the SEISB. Additional monitoring wells are not recommended, but periodic sampling of previously dry wells is recommended. PTX06-1051, PTX06-1188, PTX06-1167 and PTX06-1122 are dry wells located west of the ISB remedy. Monitoring saturation at these locations may indicate if untreated water is circumventing the ISB from the west (PTX06-1166), causing variable concentrations at ISPM well PTX06-1153. The ISB CSM can be strengthened by monitoring water levels and geochemistry in the ISB injection wells and downgradient ISPM wells. The potential effect of injections on the distribution of saturation in the area should be considered and incorporated into the CSM for the remedy.

The southeast trending Cr (VI) plume, observed in PTX06-1052 and PTX06-1183, may be migrating to the south when it encounters the edge of the perched unit saturation near PTX06-1166. The edge of the perched unit saturation in this area is likely caused by a local high in the FGZ that intersects the water table. Currently, the average concentration of Cr (VI) in PTX06-1166 is below remedial goals, but the concentration has an *increasing* statistical trend. If concentrations regularly exceed remedial goals in PTX06-1166, an additional well to the south/southwest should be considered to define the extent of Cr (VI). This Cr (VI) plume does not have any treatment downgradient because the Southeast ISB is disconnected from the plume by an unsaturated area. If water levels rise in the future, this Cr (VI) plume may be intercepted by the Southeast ISB.

6.1.3 Well Redundancy

The results of the MAROS analysis indicate overall low uncertainty and low variability between monitoring locations in the Southeast Sector. This result is consistent with the Plant history of optimizing the monitoring network over time. No wells are recommended for removal from the Southeast Sector routine monitoring program, now. Low spatial uncertainty results were considered when recommending sampling frequency. Locations with very low uncertainty (e.g., where the nearest neighboring wells can predict concentrations at a well node) were considered for reduced sampling frequency. An additional well is recommended east of PTX06-1042 to track higher RDX concentrations moving towards the SEISB Extension and line of extraction wells located around PTX06-1147.

6.1.4 Sampling Frequency

While the MAROS results indicate that a biennial sampling frequency would be sufficient to evaluate the rate of concentration change in the network and at most wells, an overall annual sampling frequency is recommended for most locations in the Southeast Sector. Semiannual sampling is recommended at wells used to evaluate the ISB remedies and wells near the edges of the perched unit where high COC concentrations have been observed. Final sampling recommendations are provided in **Table B-18** and shown on **Figure 9**.

6.2 SOUTHWEST SECTOR RECOMMENDATIONS

6.2.1 TCE Plume

Southwest downgradient wells PTX06-1035 and PTX06-1134 show *increasing* or *probably increasing* statistical trends for TCE with remedial goal exceedances. Recently installed well PTX06-1207 bounds PTX06-1134 downgradient, but there is a large gap between PTX06-1035 and the closet downgradient well, PTX06-1131. Because of the increasing trend and TCE exceedances in PTX06-1035, a new well is recommended downgradient approximately 750 ft to the southwest of PTX06-1035 if TCE concentrations in PTX06-1207 have an *increasing* or *probably increasing* trend once additional sampling has been completed.

6.2.2 Perchlorate Plume and 1,4-Dioxane Plume

Site data indicate high concentrations of perchlorate and increasing concentrations of 1,4-dioxane in monitoring wells downgradient of the eastern edge of the Z11ISB. The perchlorate plume and 1,4-dioxane may be migrating under the influence of the SEPTS from PTX08-1006 and PTX06-1148 southeast toward the SEPTS. An additional well south of PTX08-1008 and between the Z11ISB and SEPTS is recommended. Additionally, monitoring of wells PTX08-1009, PTX06-1052, and PTX06-1183 should be considered to ensure delineation of 1,4-dioxane and determine whether 1,4-dioxane is being drawn into the SEPTS. If 1,4-dioxane is determined to be present in the SEPTS area, appropriate steps may need to be taken to update the SEPTS to treat 1,4-dioxane. Additionally, a new monitoring well south of PTX08-1008 and between the Z11ISB and SEPTS should be considered to track 1,4-dioxane plume movement toward the SEPTS. The spatial analysis indicates low concentration uncertainty in this area, but monitoring effort should be directed toward quantifying perchlorate and 1,4-dioxane flux toward the SEPTS.

Southwest of the Z11ISB, PTX06-1035 and PTX06-1134 had *increasing* trends for perchlorate, with recently installed well PTX06-1207 not having enough samples to identify a trend. No wells downgradient of PTX06-1207 are currently being sampled for perchlorate. It is recommended that

PTX06-1131, east of PTX06-1207 and downgradient of wells with increasing perchlorate trends, be sampled for perchlorate to ensure that the plume is sufficiently delineated to the southwest.

6.2.3 Well Redundancy

As in the Southeast Sector, the monitoring network in the Southwest Sector has been optimized several times since initial site characterization. Overall, there is very low spatial uncertainty within the network. One well, PTX06-1085 was found to be redundant in the network. This well is not currently sampled routinely, and continued limited sampling is recommended.

6.2.4 Sampling Frequency

Monitoring wells in the Zone 11 and Zone 12 source areas show largely *stable* trends resulting in recommendations for annual sampling. Wells located within and downgradient from the Z11ISB remedy monitor changing conditions as the remedy is optimized and require more frequent monitoring to inform remedial decision making. Z11ISB area wells are recommended for largely a semiannual sampling frequency. Wells outside of the main plumes to the west are minimally affected by site COCs and are recommended for sampling once before each FYR (or as regulatory permitting requires). Final recommended sampling frequencies are provided in **Table B-18** and shown on **Figure 9**.

6.3 NORTH SECTOR RECOMMENDATIONS

6.3.1 Well Redundancy and Sufficiency

The North Sector monitoring network has been optimized previously based on the priority monitoring objectives. In the 2007 analysis, the area west of PTX06-1050 was recommended for a new monitoring location to delineate RDX to the west. PTX06-1136 had delineated an area of affected groundwater but is now dry. Recent concentrations at PTX06-1050 are *increasing*; therefore, an additional monitoring well located between PTX06-1136 and PTX06-1050 could ensure that delineation is achieved but is not recommended at this time. Increasing saturation in PTX06-1050 would make an additional well between PTX06-1136 and PTX06-1050 useful to track the plume movement if PTX06-1136 remains dry. No additional wells are recommended for the isolated perched water units at the Burning Ground or along the northern Plant boundary.

6.3.2 Sampling Frequency

For the northern perched unit, a largely annual sampling frequency is recommended for the Playa 1 area based on the rate of concentration change and the outstanding remedy management questions. Perched groundwater in the Burning Ground and northern boundary are recommended for 5-year sampling frequency except for POC wells that are recommended for annual sampling.

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FIGURES

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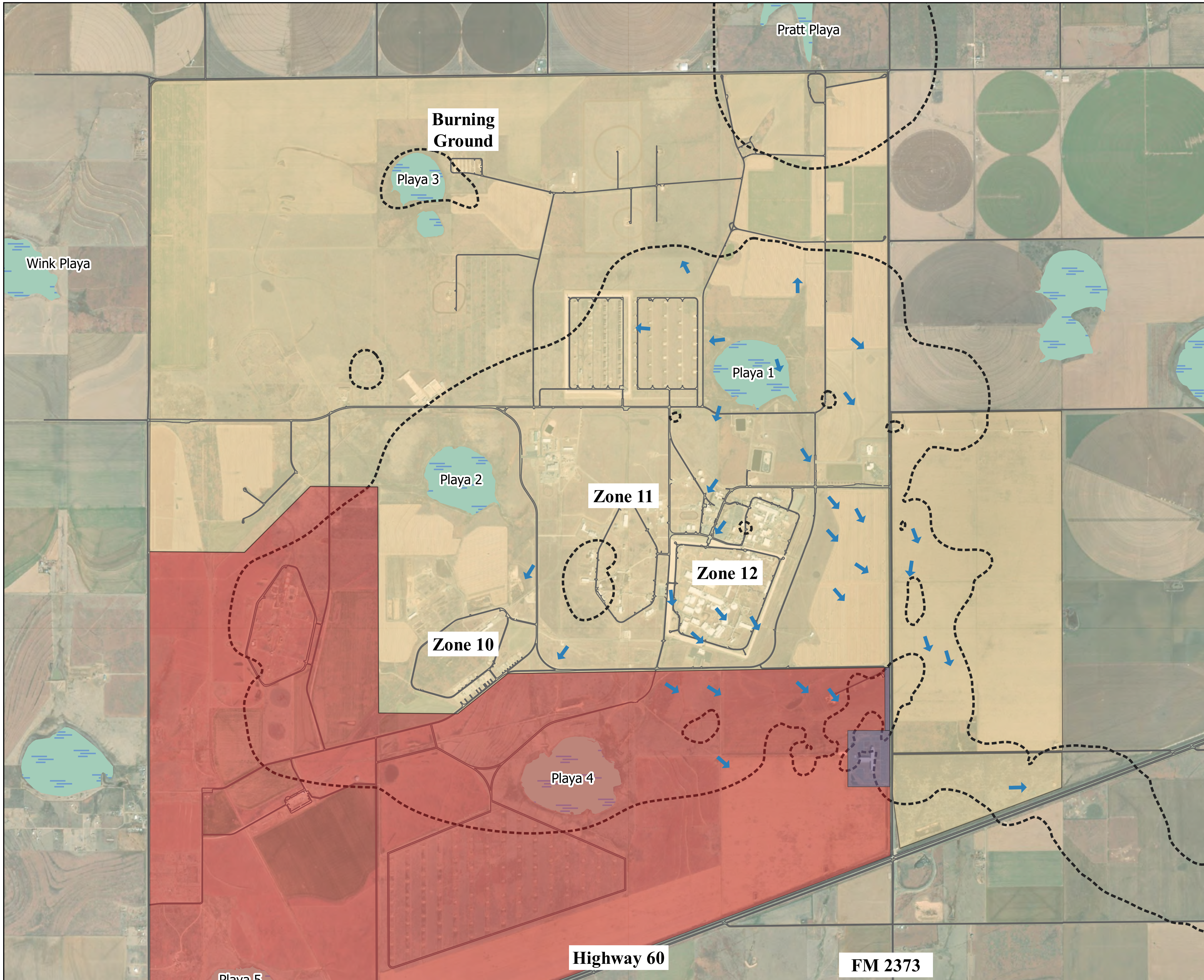


N

Legend

- USDOE Property
- Texes Tech University Property
- Pantex ASC LLC Property
- Playa Lakes
- Extent of Perched Unit - 2021
- Approximate Groundwater Flow Direction 2021

Roads

- Major

Notes:
Spatial data received from Pantex Plant.
USDOE: United States Department of Energy

Scale (ft)

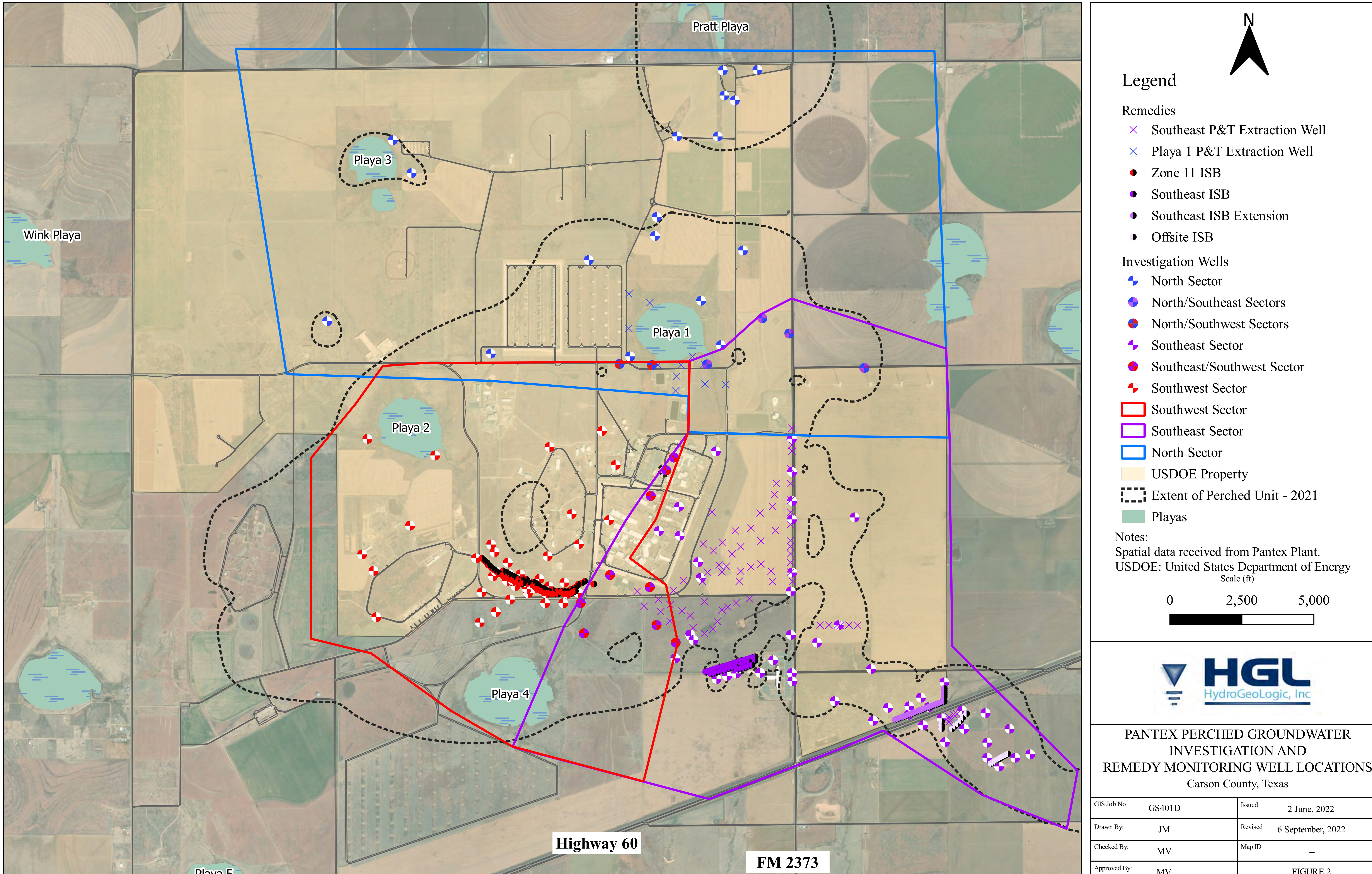
0 2,500 5,000

HGL HydroGeoLogic, Inc

PANTEX PLANT VICINITY

Carson County, Texas

GIS Job No.	GS401D	Issued	2 May, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 1



HGL HydroGeoLogic, Inc

PANTEX PERCHED GROUNDWATER INVESTIGATION AND REMEDY MONITORING WELL LOCATIONS

Carson County, Texas

GIS Job No.	GS401D	Issued	2 June, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 2

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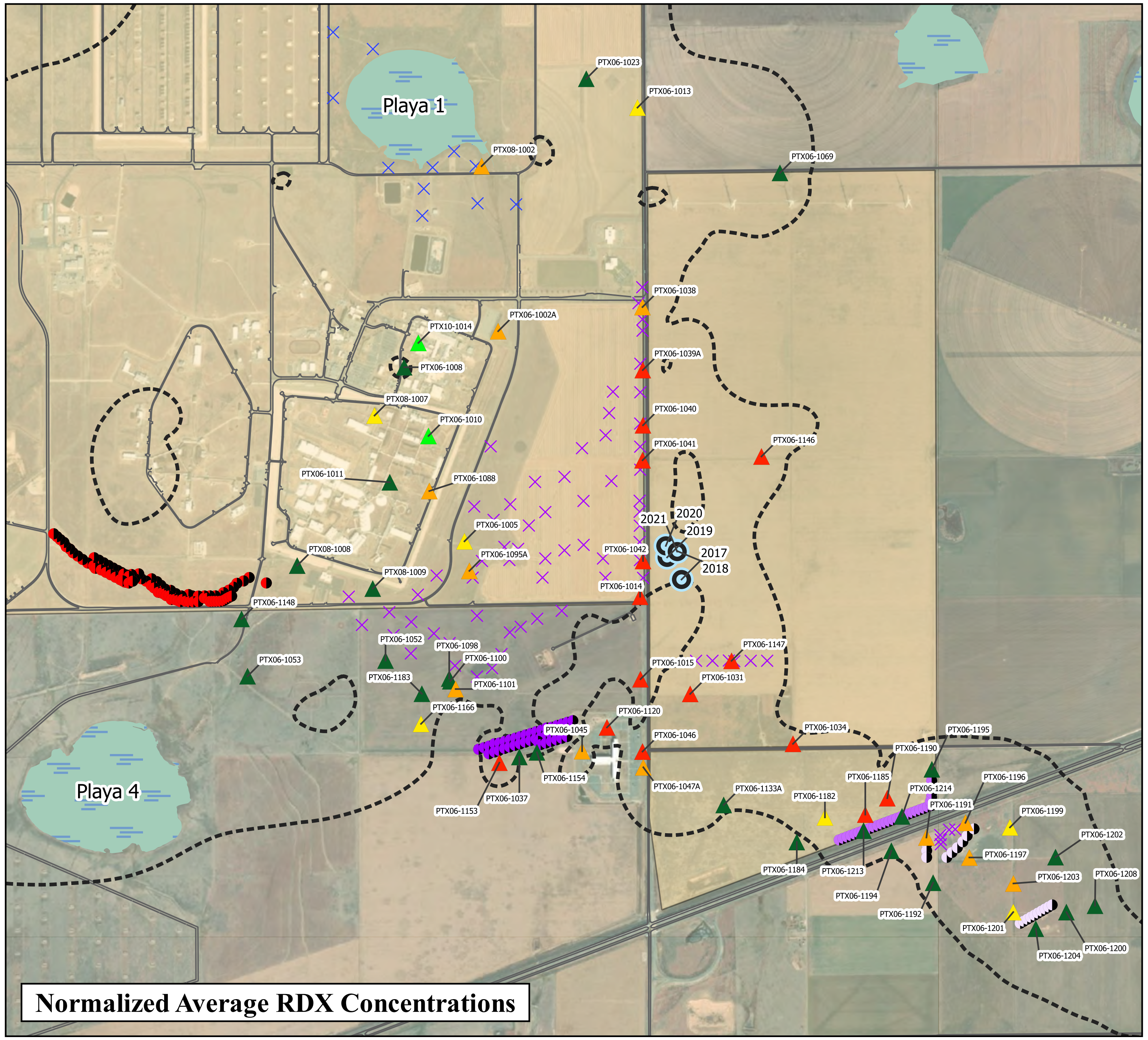
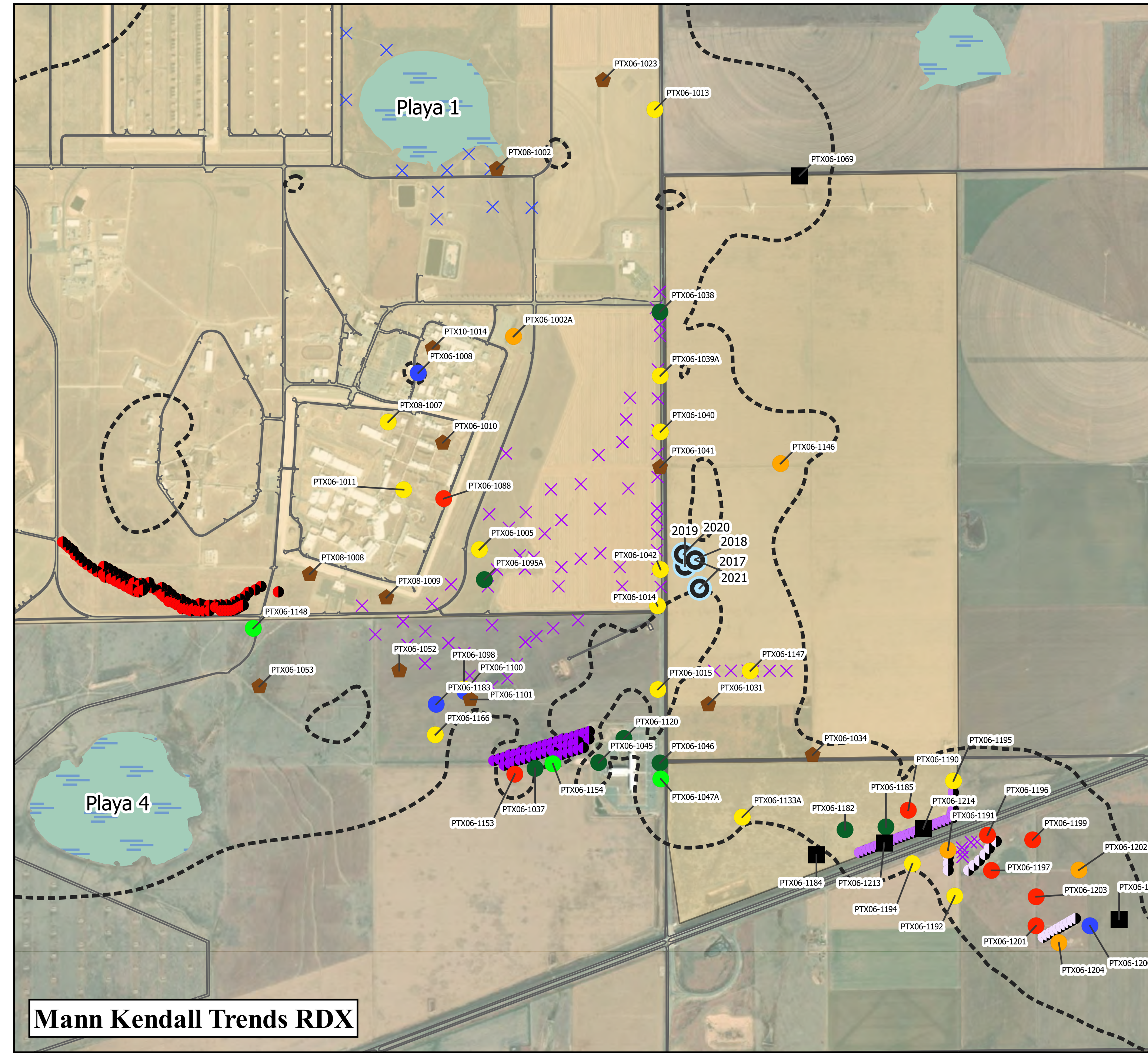




Legend

Normalized RDX Concentration GWPS RDX = 2 ug/L
- < 0.5
- 0.5 - 1
- 1 -10
- 10 - 100
- 100 - 1000
- >1000

Mann Kendal Trend RDX
- Decreasing
- Probably Decreasing
- Stable
- Probably Increasing
- Increasing
- Non Detect (2017 - 2021)
- No Trend
- Insufficient Data

RDX First Moments
- First Moments

Remedies
- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB
- Extent of Perched Unit - 2021
- USDOE Property

Scale (ft)
0 2,500 5,000

N

Notes:
1. Normalized average RDX concentrations calculated using the average concentration 2017 - 2021 divided by the GWPS.
2. First Moments are the center of mass for RDX using quarterly consolidated data.
3. Mann Kendall trends were determined for RDX 2017 - 2021.

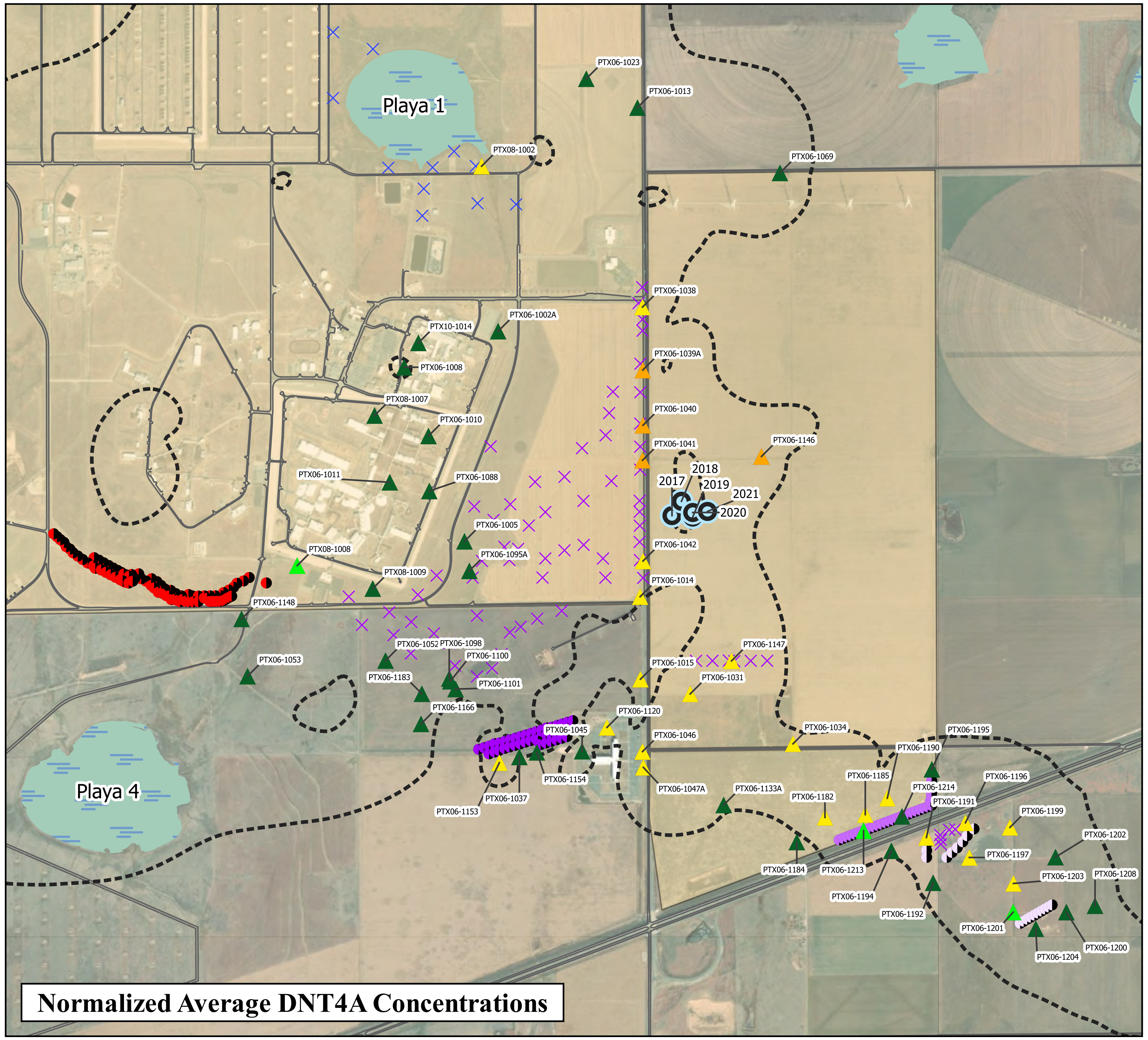
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
GWPS - Groundwater Protection Standard
P&T - Pump and Treat
ISB - In Situ Bioremediation
USDOE - United States Department of Energy

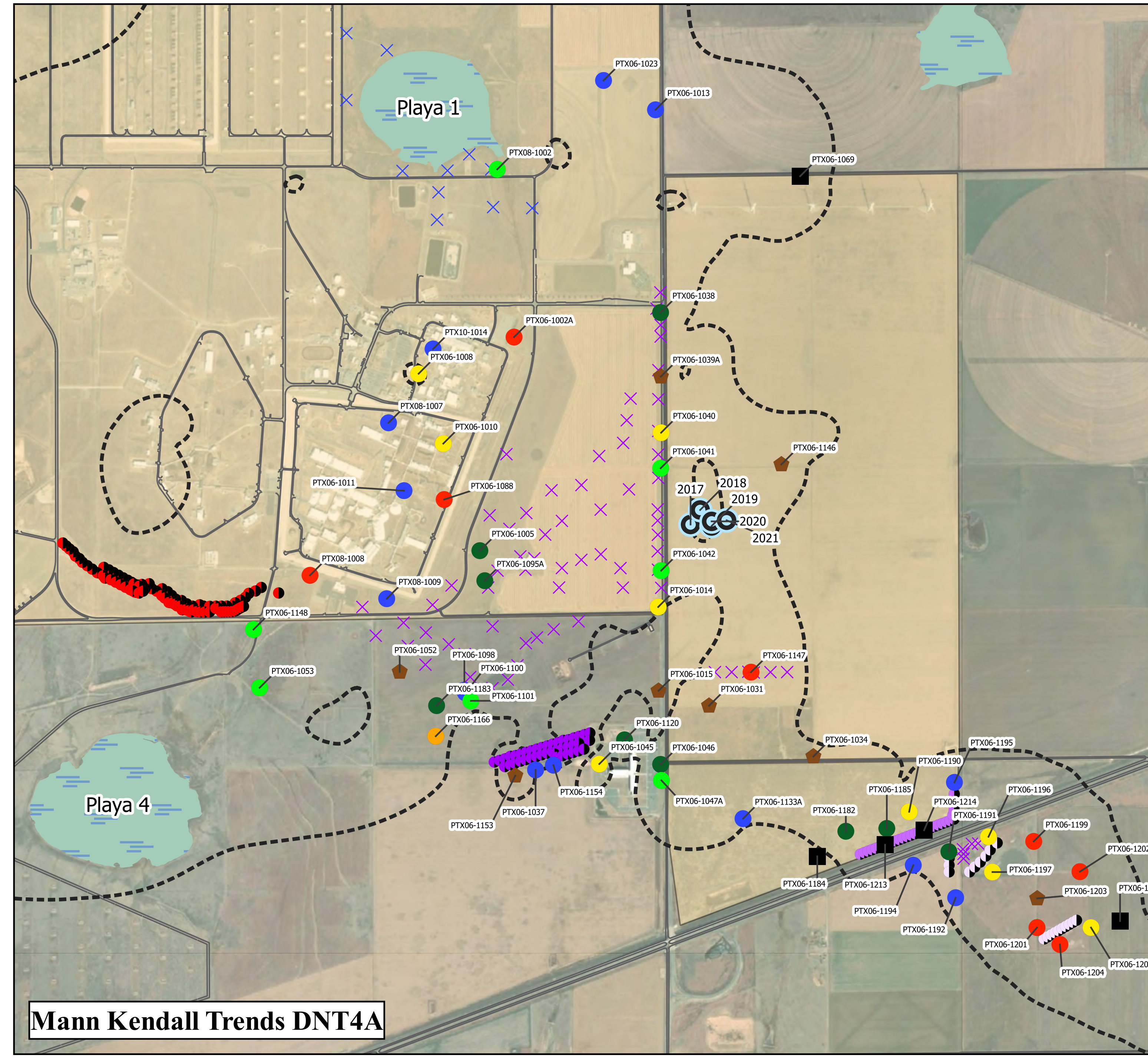
HGL HydroGeoLogic, Inc

PANTEX SOUTHEAST SECTOR PERCHED
RDX AVERAGE CONCENTRATIONS,
FIRST MOMENTS AND
MANN-KENDALL TRENDS

Carson County, Texas

GIS Job No.	GS401D	Issued	7 June, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 3





Legend

Normalized DNT4A Concentration GWPS DNT4A = 1.2 ug/L

- < 0.5
- 0.5 - 1
- 1 -10
- 10 - 100
- 100 - 1000
- >1000

Mann Kendal Trend DNT4A

- Decreasing
- Probably Decreasing
- Stable
- Probably Increasing
- Increasing
- Non Detect (2017 - 2021)
- No Trend
- Insufficient Data

DNT4A First Moments

- First Moments

Remedies

- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB
- Extent of Perched Unit - 2021
- USDOE Property

Scale (ft)

0 2,500 5,000

N

Notes:

1. Normalized average DNT4A concentrations calculated using the average concentration 2017 - 2021 divided by the GWPS.
2. First Moments are the center of mass for DNT4A using quarterly consolidated data.
3. Mann Kendall trends were determined for DNT4A 2017 - 2021.

DNT4A - 4-amino-2,6-dinitrotoluene
GWPS - Groundwater Protection Standard
P&T - Pump and Treat
ISB - In Situ Bioremediation
USDOE - United States Department of Energy

HGL HydroGeoLogic, Inc

PANTEX SOUTHEAST SECTOR PERCHED
DNT4A AVERAGE CONCENTRATIONS,
FIRST MOMENTS AND
MANN-KENDALL TRENDS

Carson County, Texas

GIS Job No.	GS401D	Issued	7 June, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 4

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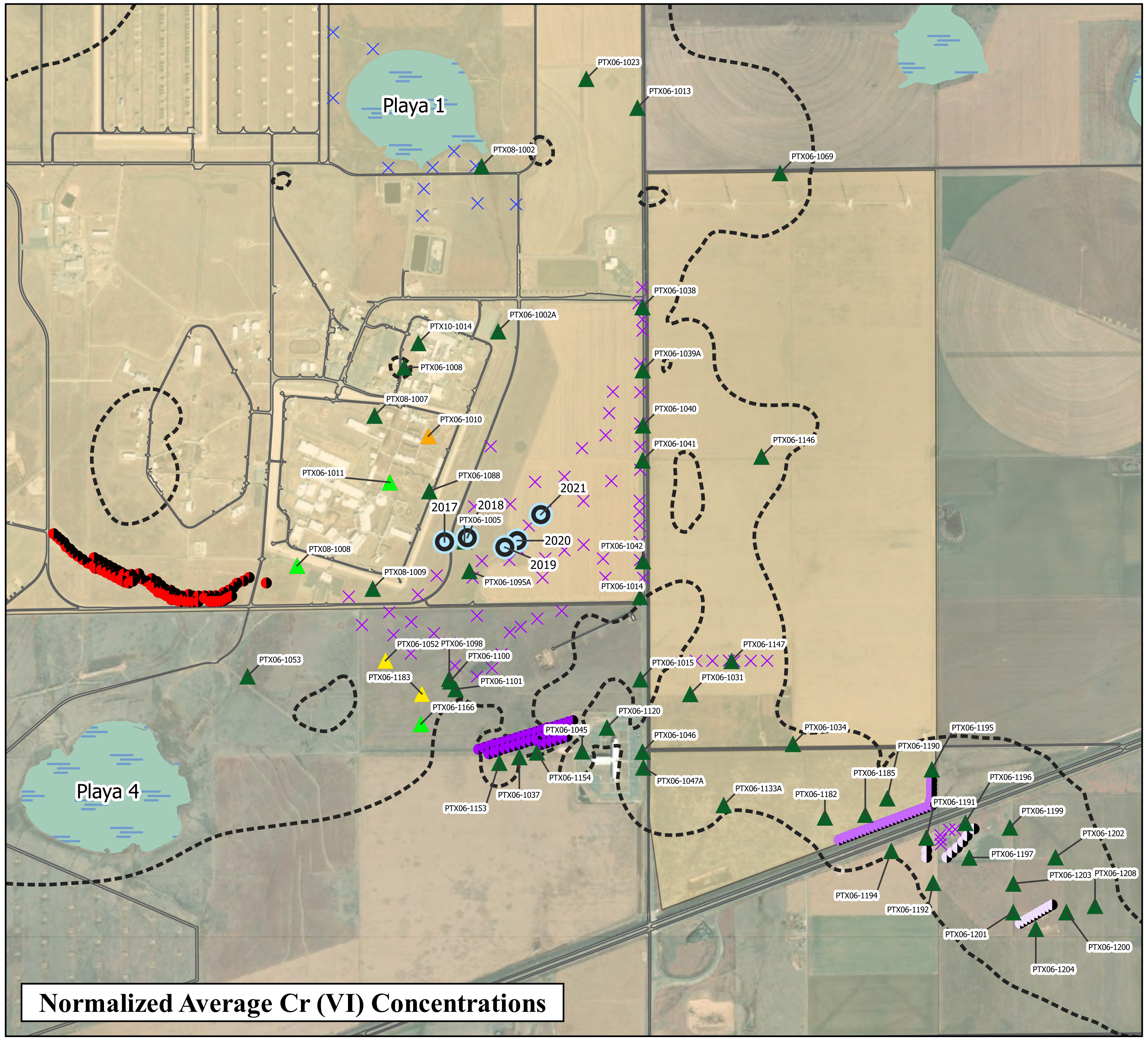

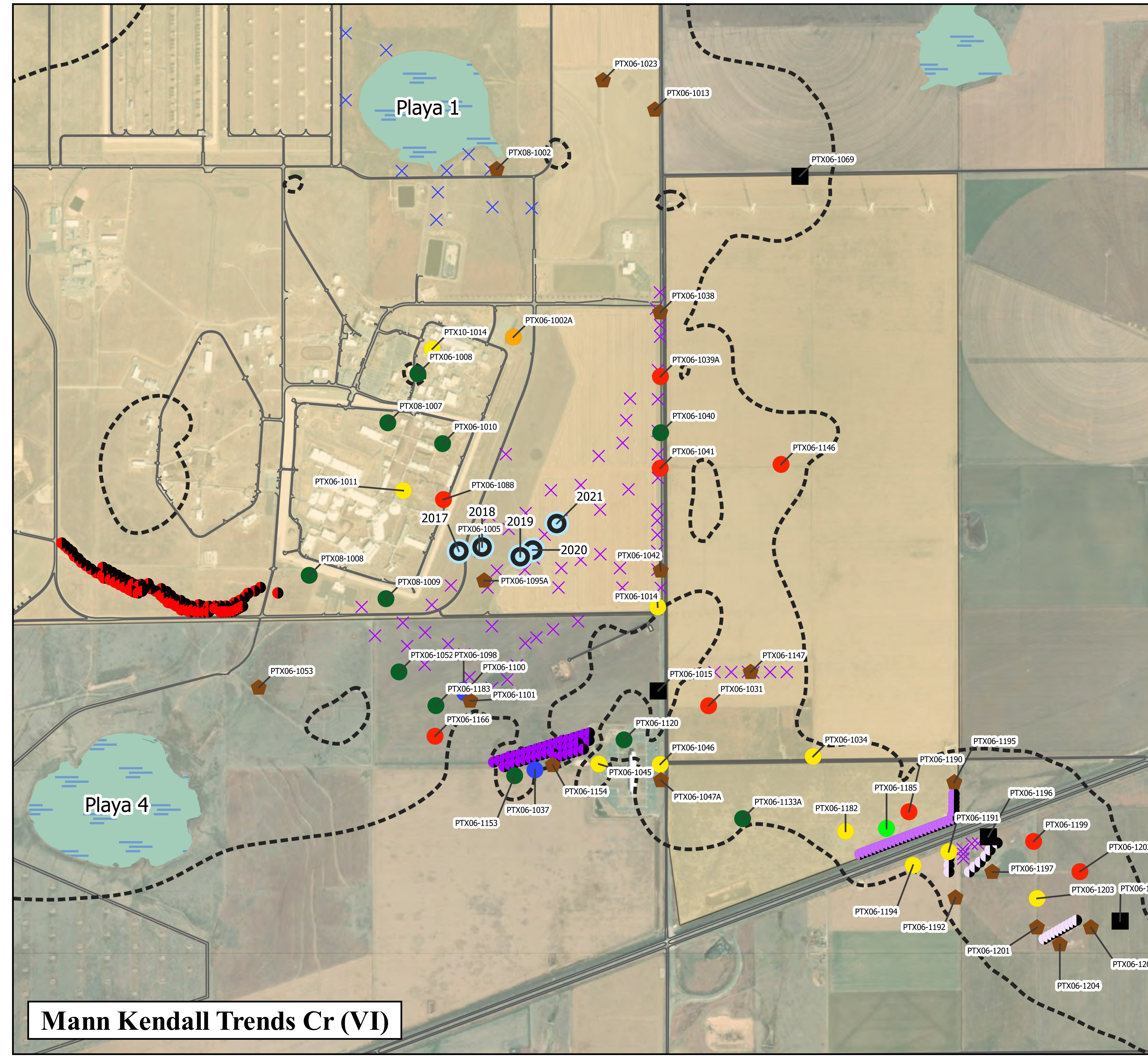

Legend

Normalized Cr (VI) Concentration GWPS Cr (VI) = 100 ug/L

- < 0.5
- 0.5 - 1
- 1 -10
- 10 - 100
- 100 - 1000
- >1000

Mann Kendal Trend Cr (VI)

- Decreasing
- Probably Decreasing
- Stable
- Probably Increasing
- Increasing
- Non Detect (2017 - 2021)
- No Trend
- Insufficient Data

Cr (VI) First Moments

- First Moments

Remedies

- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB
- Extent of Perched Unit - 2021
- USDOE Property

Scale (ft)

0 2,500 5,000

N

Notes:

1. Normalized average Cr (VI) concentrations calculated using the average concentration 2017 - 2021 divided by the GWPS.
2. First Moments are the center of mass for Cr (VI) using quarterly consolidated data.
3. Mann Kendall trends were determined for Cr (VI) 2017 - 2021.

Cr (VI) - Hexavalent Chromium
GWPS - Groundwater Protection Standard
P&T - Pump and Treat
ISB - In Situ Bioremediation
USDOE - United States Department of Energy

HGL HydroGeoLogic, Inc

PANTEX SOUTHEAST SECTOR PERCHED
Cr (VI) AVERAGE CONCENTRATIONS,
FIRST MOMENTS AND
MANN-KENDALL TRENDS

Carson County, Texas

GIS Job No.	GS401D	Issued	30 June, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 5

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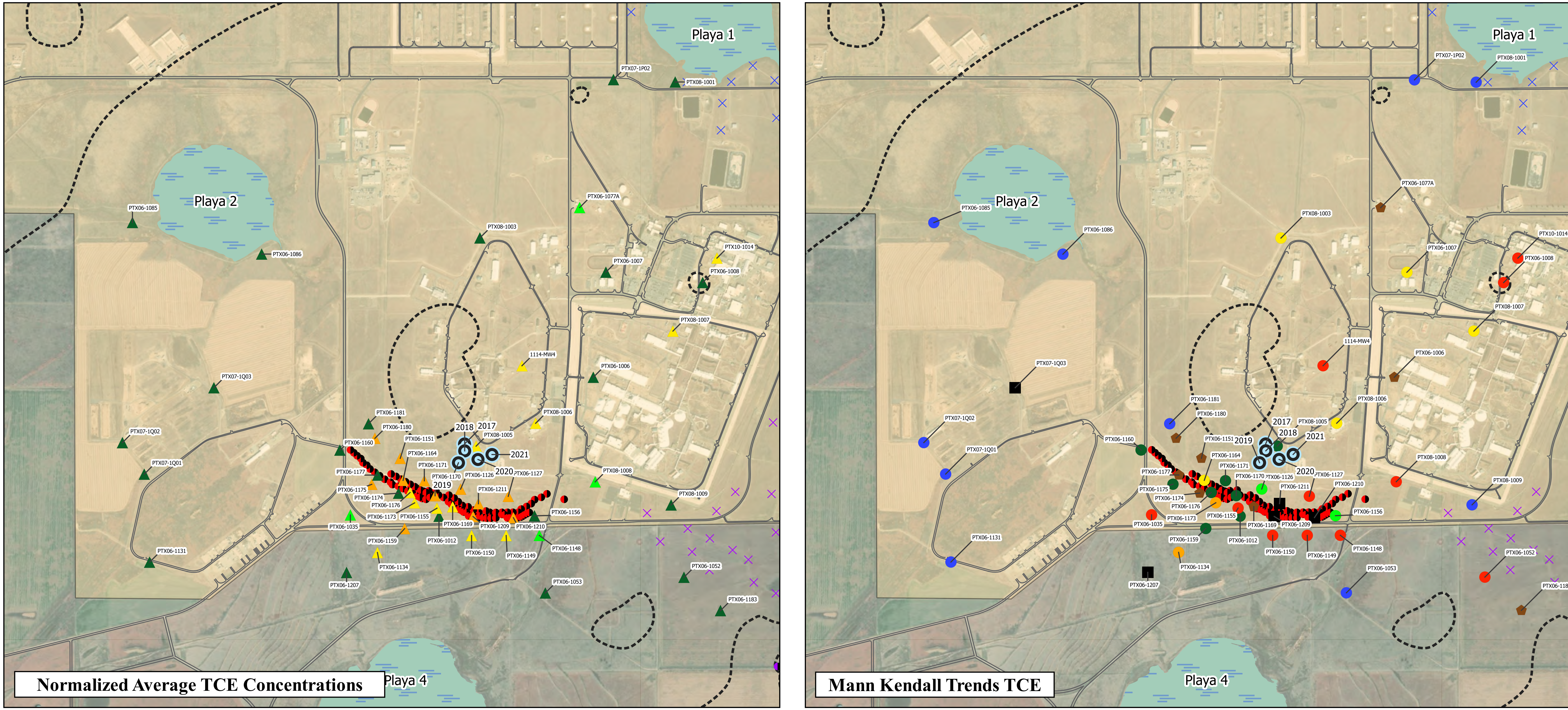

Legend

Normalized TCE Concentration GWPS TCE = 5 ug/L
- < 0.5
- 0.5 - 1
- 1 -10
- 10 - 100
- 100 - 1000
- >1000

Mann Kendal Trend TCE
- Decreasing
- Probably Decreasing
- Stable
- Probably Increasing
- Increasing
- Non Detect (2017 - 2021)
- No Trend
- Insufficient Data

TCE First Moments
- First Moments

Remedies
- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB
- Extent of Perched Unit - 2021
- USDOE Property

Scale (ft)
0 2,500 5,000

N

Notes:
1. Normalized average TCE concentrations calculated using the average concentration 2017 - 2021 divided by the GWPS.
2. First Moments are the center of mass for TCE using quarterly consolidated data.
3. Mann Kendall trends were determined for TCE 2017 - 2021.

TCE - Trichloroethene
GWPS - Groundwater Protection Standard
P&T - Pump and Treat
ISB - In Situ Bioremediation
USDOE - United States Department of Energy

HGL HydroGeoLogic, Inc

PANTEX SOUTHWEST SECTOR PERCHED
TCE AVERAGE CONCENTRATIONS, FIRST MOMENTS AND MANN-KENDALL TRENDS

Carson County, Texas

GIS Job No.	GS401D	Issued	24 May, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 6

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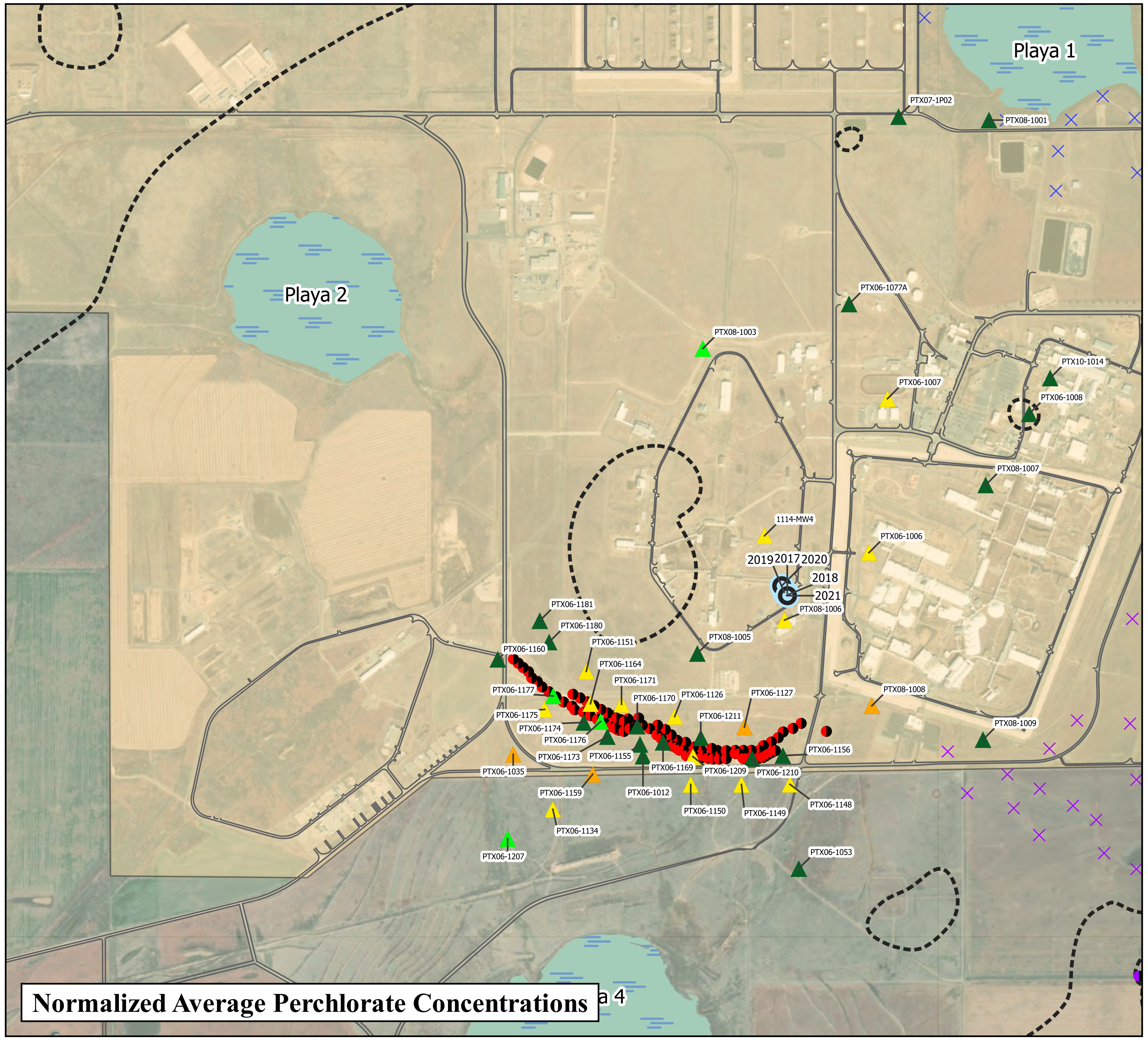

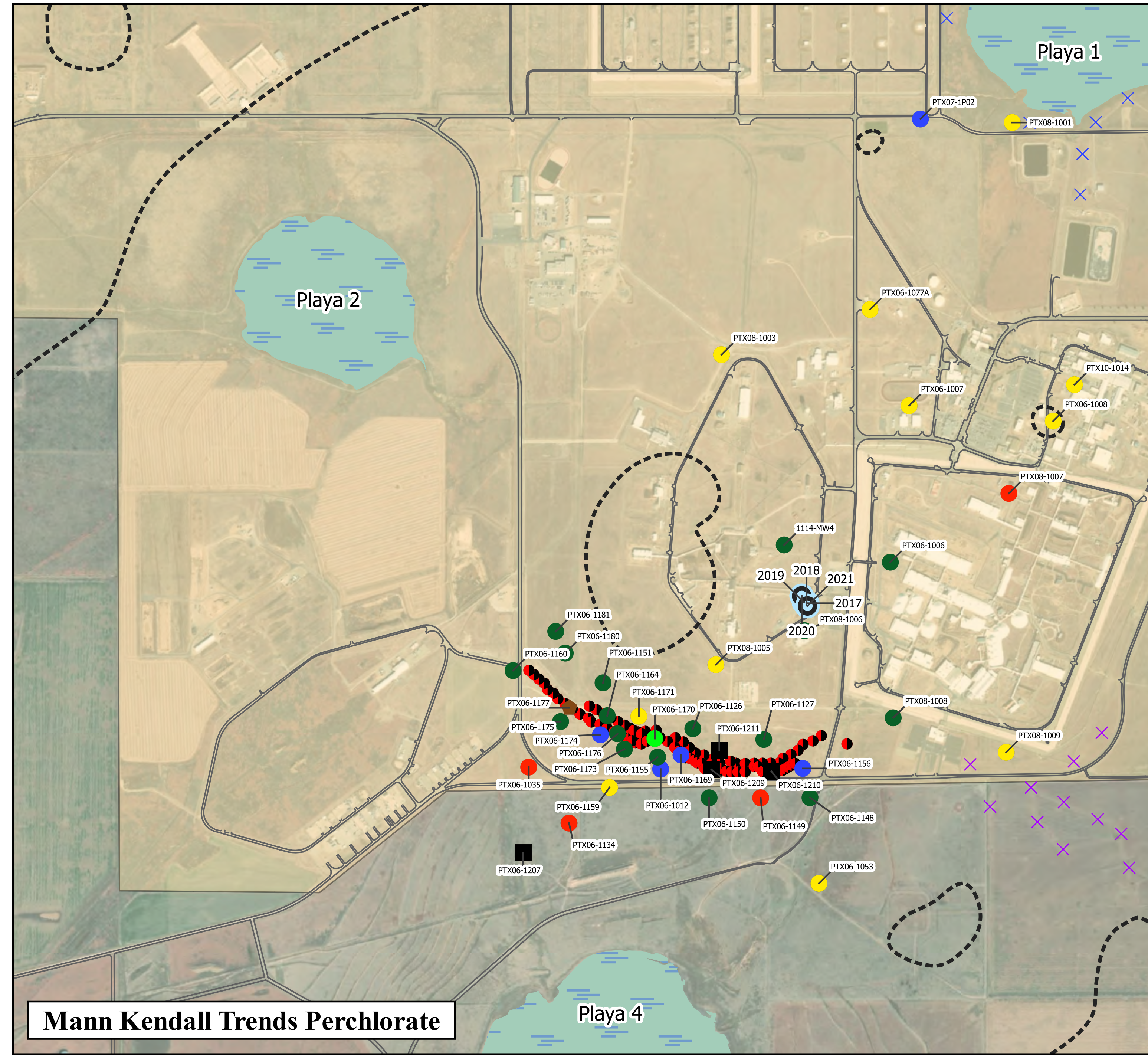

Legend

Normalized Perchlorate Concentration
GWPS Perchlorate = 15 ug/L

- < 0.5
- 0.5 - 1
- 1 -10
- 10 - 100
- 100 - 1000
- >1000
- Extent of Perched Unit - 2021
- USDOE Property

Mann Kendal Trend Perchlorate

- Decreasing
- Probably Decreasing
- Stable
- Probably Increasing
- Increasing
- Non Detect (2017 - 2021)
- No Trend
- Insufficient Data

Perchlorate First Moments

- First Moments

Remedies

- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB

Scale (ft)
0 2,500 5,000

N

Notes:
1. Normalized average perchlorate concentrations calculated using the average concentration 2017 - 2021 divided by the GWPS.
2. First Moments are the center of mass for perchlorate using quarterly consolidated data.
3. Mann Kendall trends were determined for perchlorate 2017 - 2021.

GWPS - Groundwater Protection Standard
P&T - Pump and Treat
ISB - In Situ Bioremediation
USDOE - United States Department of Energy

HGL HydroGeoLogic, Inc

PANTEX SOUTHWEST SECTOR PERCHED
PERCHLORATE AVERAGE CONCENTRATIONS, FIRST MOMENTS AND MANN-KENDALL TRENDS

Carson County, Texas

GIS Job No.	GS401D	Issued	24 May, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 7

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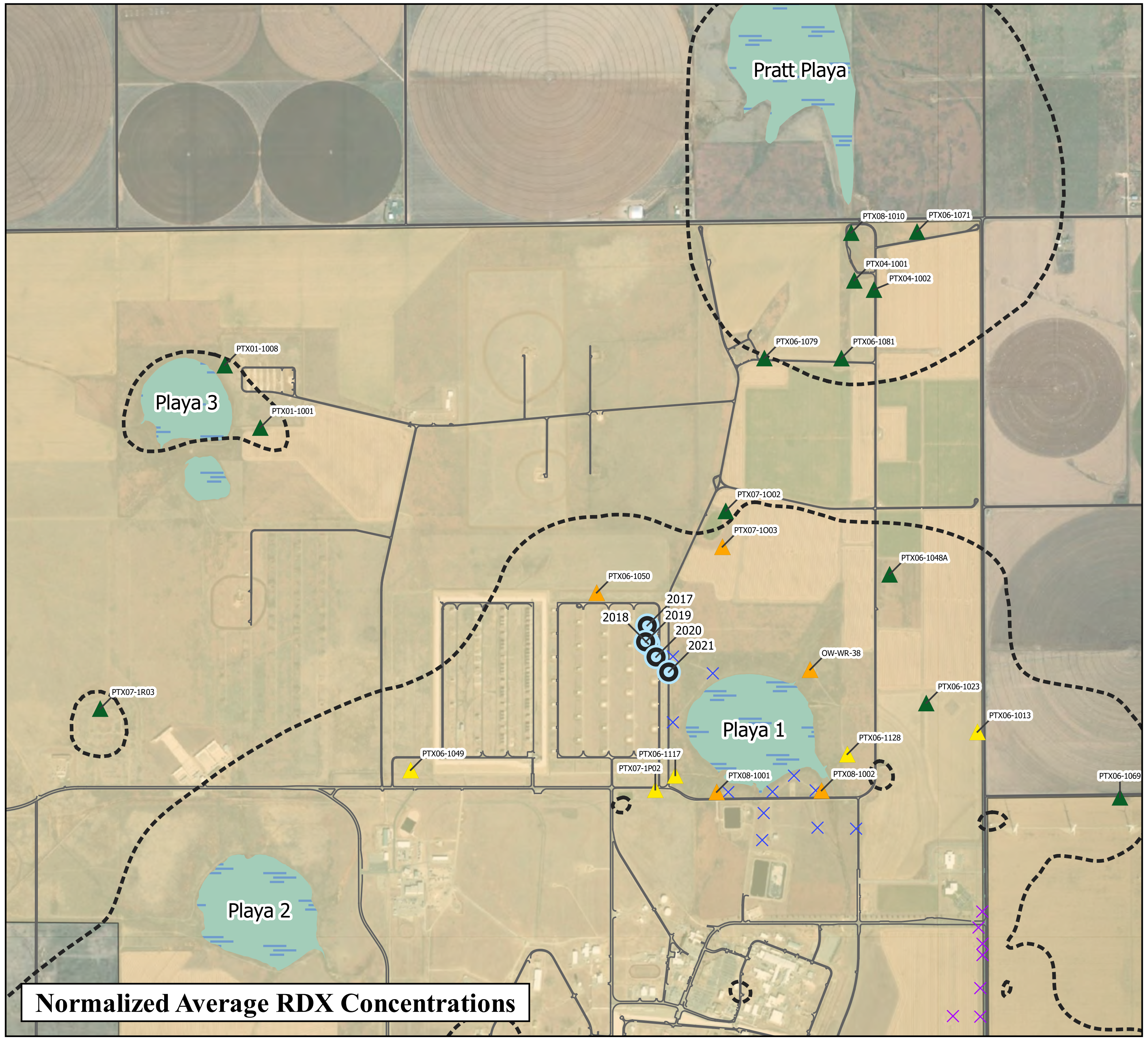

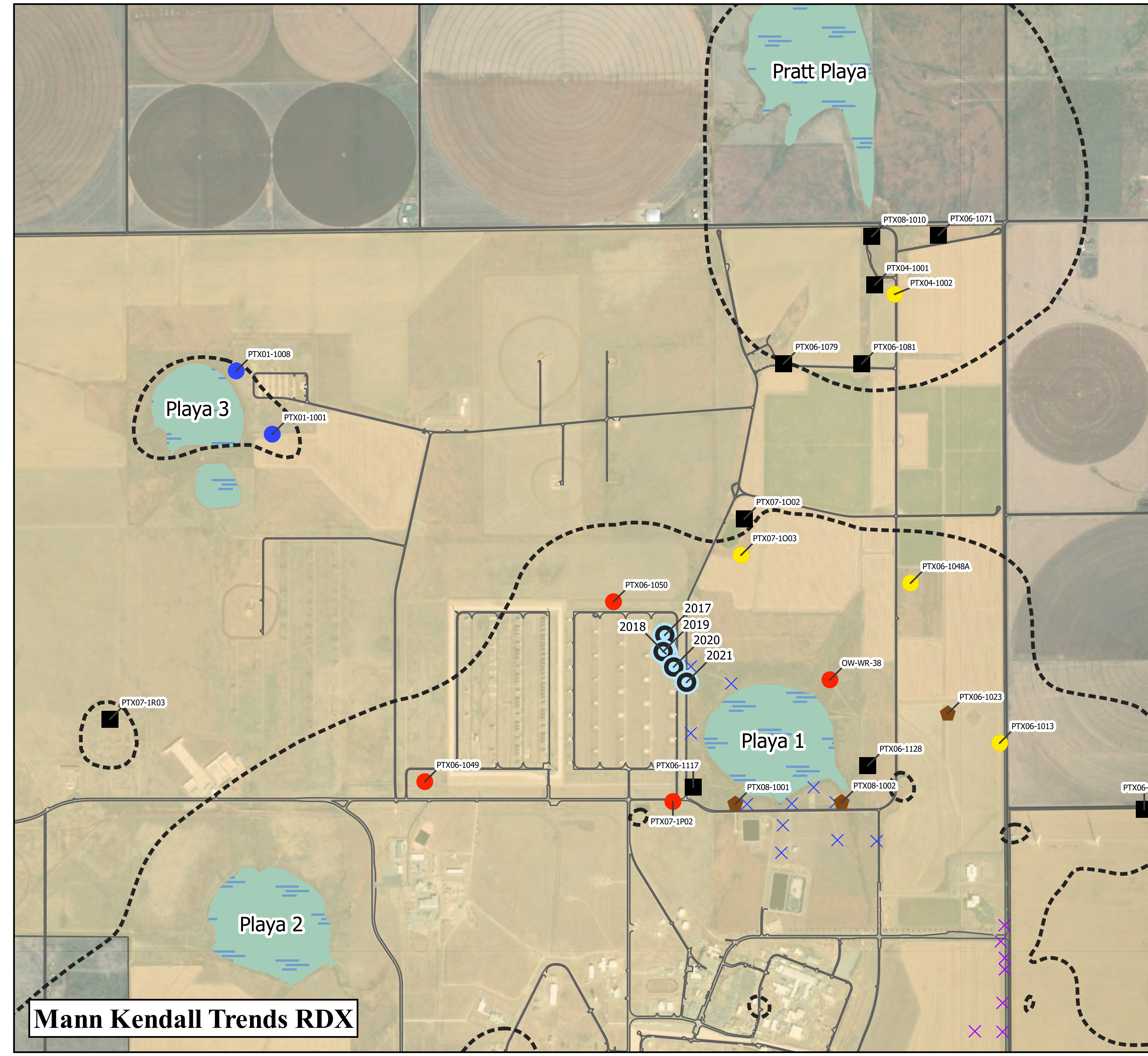

Legend

Normalized RDX Concentration GWPS RDX = 2 ug/L
- < 0.5
- 0.5 - 1
- 1 -10
- 10 - 100
- 100 - 1000
- >1000

Mann Kendal Trend RDX
- Decreasing
- Probably Decreasing
- Stable
- Probably Increasing
- Increasing
- Non Detect (2017 - 2021)
- No Trend
- Insufficient Data

RDX First Moments
- First Moments

Remedies
- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB
- Extent of Perched Unit - 2021
- USDOE Property

Scale (ft)

0 2,500 5,000

N

Notes:
1. Normalized average RDX concentrations calculated using the average concentration 2017 - 2021 divided by the GWPS.
2. First Moments are the center of mass for RDX using quarterly consolidated data.
3. Mann Kendall trends were determined for RDX 2017 - 2021.

RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
GWPS - Groundwater Protection Standard
P&T - Pump and Treat
ISB - In Situ Bioremediation
USDOE - United States Department of Energy

HGL HydroGeoLogic, Inc

PANTEX NORTH SECTOR PERCHED
RDX AVERAGE CONCENTRATIONS,
FIRST MOMENTS AND
MANN-KENDALL TRENDS

Carson County, Texas

GIS Job No.	GS401D	Issued	24 May, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 8

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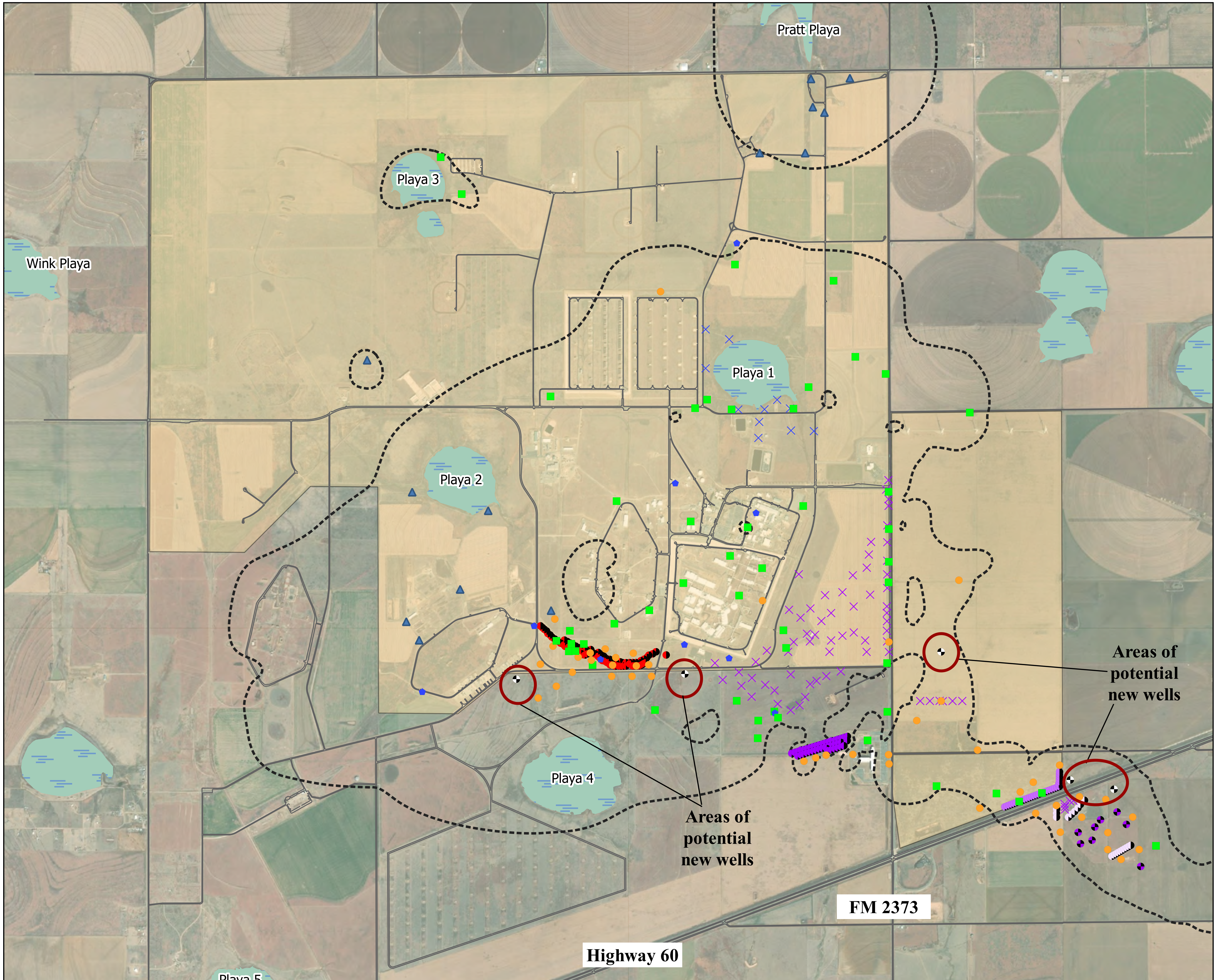

N

Legend

Remedies

- Southeast P&T Extraction Well
- Playa 1 P&T Extraction Well
- Zone 11 ISB
- Southeast ISB
- Southeast ISB Extension
- Offsite ISB
- USDOE Property
- Extent of Perched Unit - 2021
- Playas

Recommended Sampling Frequency Investigation Wells

- 5 year
- Biennial
- Annual
- Semi-annual
- Potential New Well
- Planned New Well

Notes:
Spatial data received from Pantex Plant.
USDOE: United States Department of Energy

Scale (ft)
0 2,500 5,000

HGL HydroGeoLogic, Inc

PANTEX PERCHED GROUNDWATER
FINAL RECOMMENDED
MONITORING NETWORK
Carson County, Texas

GIS Job No.	GS401D	Issued	20 June, 2022
Drawn By:	JM	Revised	6 September, 2022
Checked By:	MV	Map ID	--
Approved By:	MV		FIGURE 9

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APPENDIX A

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APPENDIX B

DATA AND RESULTS TABLES

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TABLE B-1
PANTEX PLANT INVESTIGATION MONITORING WELLS 2021: PERCHED GROUNDWATER

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Monitoring Sectors	Well Type	Current Sampling Frequency	Monitoring Objectives	Initial Saturated Thickness [FT]
1114-MW4	SWArea	IW	Annual	UM	14.11
OW-WR-38	NArea	IW	Annual	UM, RA	8.00
PTX01-1001	NArea	IW	Annual	UM/POC	0.36
PTX01-1008	NArea	IW	Annual	UM/POC	(dry)
PTX04-1001	NArea	IW		None	15.93
PTX04-1002	NArea	IW	5 Years	UM	14.71
PTX06-1002A	SEArea	IW	Annual	UM, RA	No Data
PTX06-1005	SEArea	IW	Semiannual	UM, RA	28.13
PTX06-1006	SWArea	IW	Annual	PS	No Data
PTX06-1007	SWArea	IW	Annual	UM	28.26
PTX06-1008	SWArea/SE	IW	Annual	UM	3.72
PTX06-1010	SEArea	IW	Annual	UM	7.00
PTX06-1011	SEArea	IW	Annual	UM	23.55
PTX06-1012	SWArea	ISPM	Semiannual	PS, RA	12.97
PTX06-1013	NArea/SE	IW	Annual	RA	6.59
PTX06-1014	SEArea	IW	Annual	RA	8.86
PTX06-1015	SEArea	IW	Annual	RA	7.47
PTX06-1023	NArea/SE	IW	Annual	RA, POC	11.96
PTX06-1031	SEArea	IW	Semiannual	RA, POC	7.70
PTX06-1034	SEArea	IW	Semiannual	PS, RA, POC	8.05
PTX06-1035	SWArea	IW	Semiannual	PS	6.67
PTX06-1037	SEArea	ISPM	Semiannual	RA	0.60
PTX06-1038	SEArea	IW	Annual	RA	21.20
PTX06-1039A	SEArea	IW	Annual	RA	12.02
PTX06-1040	SEArea	IW	Semiannual	RA	18.21
PTX06-1041	SEArea	IW	Semiannual	RA	35.00
PTX06-1042	SEArea	IW	Semiannual	RA/POC	17.00
PTX06-1045	SEArea	ISPM	Annual	RA/POC	1.20
PTX06-1046	SEArea	IW	Semiannual	RA/POC	11.50
PTX06-1047A	SEArea	IW	Semiannual	RA	4.60
PTX06-1048A	NArea	IW	Annual	PS, RA	8.15
PTX06-1049	NArea	IW	Annual	PS	10.00
PTX06-1050	NArea	IW	Annual	UM, RA/POC	34.00
PTX06-1052	SWArea/SE	IW	Semiannual	RA/POC	13.92
PTX06-1053	SWArea/SE	IW	Annual	UM, PS	5.75
PTX06-1069	NArea/SE	IW	Annual	PS	5.30
PTX06-1071	NArea	IW	5 Years	UM	28.00
PTX06-1077A	SWArea	IW	Annual	UM	6.50
PTX06-1079	NArea	IW		None	(dry)
PTX06-1081	NArea	IW		None	15.80
PTX06-1082	PantexLake	IW	5 Years	UM	9.48
PTX06-1083	PantexLake	IW	5 Years	UM	22.60
PTX06-1085	SWArea	IW	5 Years	UM	21.30
PTX06-1086	SWArea	IW	5 Years	UM	43.70
PTX06-1088	SEArea	IW	Semiannual	UM, RA	-2.00
PTX06-1095A	SEArea	IW	Semiannual	RA, UM	19.60
PTX06-1098	SEArea	ISPM	Annual	RA	No Data
PTX06-1100	SEArea	ISPM		None	5.09
PTX06-1101	SEArea	ISPM	Annual	RA,	No Data

See Notes End of Table

PTX06-1117	NArea	IW		None	33.35

TABLE B-1
PANTEX PLANT INVESTIGATION MONITORING WELLS 2021: PERCHED GROUNDWATER

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Monitoring Sectors	Well Type	Current Sampling Frequency	Monitoring Objectives	Initial Saturated Thickness [FT]
PTX06-1120	SEArea	IW	Annual	PS	7.58
PTX06-1126	SWArea	IW	Semiannual	PS/POC	18.47
PTX06-1127	SWArea	IW	Semiannual	PS/POC	22.38
PTX06-1128	NArea	IW		None	No Data
PTX06-1131	SWArea	IW	Annual	UM	6.62
PTX06-1133A	SEArea	IW	Semiannual	PS	31.00
PTX06-1134	SWArea	IW	Semiannual	PS	11.24
PTX06-1146	SEArea	IW	Semiannual	PS/POC	22.62
PTX06-1147	SEArea	IW	Semiannual	PS	16.58
PTX06-1148	SWArea/SE	ISPM	Semiannual	RA	No Data
PTX06-1149	SWArea	ISPM	Semiannual	RA	15.00
PTX06-1150	SWArea	ISPM	Semiannual	RA	No Data
PTX06-1151	SWArea	IW	Semiannual	PS	6.22
PTX06-1153	SEArea	ISPM	Semiannual	RA/POC	5.60
PTX06-1154	SEArea	ISPM	Semiannual	RA/POC	1.12
PTX06-1155	SWArea	ISPM	Semiannual	RA/POC	7.84
PTX06-1156	SWArea	ISPM	Semiannual	RA/POC	19.05
PTX06-1159	SWArea	IW	Semiannual	PS	17.00
PTX06-1160	SWArea	IW	Semiannual	PS	24.46
PTX06-1164	SWArea	TZM	Semiannual	TZM	19.00
PTX06-1166	SEArea	IW	Annual	PS	7.27
PTX06-1169	SWArea	TZM	Semiannual	TZM	16.85
PTX06-1170	SWArea	TZM	Semiannual	TZM	16.04
PTX06-1171	SWArea	IW	Annual	PS	14.92
PTX06-1173	SWArea	ISPM	Semiannual	RA	15.71
PTX06-1174	SWArea	ISPM	Semiannual	RA	14.57
PTX06-1175	SWArea	ISPM	Semiannual	RA	15.94
PTX06-1176	SWArea	TZM	Semiannual	TZM	16.40
PTX06-1177	SWArea	TZM	Semiannual	TZM	11.71
PTX06-1180	SWArea	IW	Semiannual	PS	18.00
PTX06-1181	SWArea	IW		None	21.80
PTX06-1182	SEArea	IW	Semiannual	PS	6.70
PTX06-1183	SWArea/SE	IW	Semiannual	PS	8.50
PTX06-1184	SEArea	IW	NA	PS	-1.19
PTX06-1185	SEArea	IW	Semiannual	PS	3.93
PTX06-1190	SEArea	IW	Semiannual	PS	6.32
PTX06-1191	SEArea	ISPM	Semiannual	PS, RA	11.83
PTX06-1192	SEArea	IW	Semiannual	PS	12.97
PTX06-1194	SEArea	ISPM	Semiannual	PS, RA	1.04
PTX06-1195	SEArea	IW	Annual	PS	7.03
PTX06-1196	SEArea	ISPM	Semiannual	PS, RA	9.83
PTX06-1197	SEArea	IW	Semiannual	PS	6.39
PTX06-1199	SEArea	IW	Semiannual	PS	9.90
PTX06-1200	SEArea	IW	Semiannual	PS	10.24
PTX06-1201	SEArea	IW	Semiannual	PS	11.18
PTX06-1202	SEArea	IW	Semiannual	PS	7.25
PTX06-1203	SEArea	IW	Semiannual	PS	10.64
PTX06-1204	SEArea	IW	Semiannual	PS	15.81

See Notes End of Table

PTX06-1207	SWArea	IW	Semiannual	PS	11.90
PTX06-1208	SEArea	IW	Semiannual	PS	3.68

TABLE B-1
PANTEX PLANT INVESTIGATION MONITORING WELLS 2021: PERCHED GROUNDWATER

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Monitoring Sectors	Well Type	Current Sampling Frequency	Monitoring Objectives	Initial Saturated Thickness [FT]
PTX06-1209	SWArea	TZM	Semiannual	TZM	13.44
PTX06-1210	SWArea	TZM	Semiannual	TZM	15.70
PTX06-1211	SWArea	IW	Semiannual	PS	15.54
PTX06-1213	SEArea	TZM	Semiannual	TZM	7.30
PTX06-1214	SEArea	TZM	Semiannual	TZM	9.30
PTX07-1O02	NArea	IW	Annual	UM, PS, RA/POC	7.58
PTX07-1O03	NArea	IW	Annual	UM, PS, RA	10.68
PTX07-1P02	NArea/SW	IW	Annual	UM/POC	22.00
PTX07-1Q01	SWArea	IW	5 Years	UM	12.22
PTX07-1Q02	SWArea	IW	5 Years	UM	24.78
PTX07-1Q03	SWArea	IW		None	36.62
PTX07-1R03	NArea	IW	5 Years	UM	1.40
PTX08-1001	NArea/SW	IW	Annual	UM, RA	48.00
PTX08-1002	NArea/SE	IW	Annual	UM, RA	30.00
PTX08-1003	SWArea	IW	Annual	PS	20.19
PTX08-1005	SWArea	IW	Annual	UM	14.40
PTX08-1006	SWArea	IW	Semiannual	UM	32.10
PTX08-1007	SWArea/SE	IW	Annual	UM	33.30
PTX08-1008	SWArea/SE	IW	Semiannual	UM, RA	28.60
PTX08-1009	SWArea/SE	IW	Annual	UM, RA	19.35
PTX08-1010	NArea	IW	5 Years	UM	24.29
PTX10-1014	SWArea/SE	IW	Annual	UM	21.15

Notes

1. Wells listed are monitoring locations sampled at least once between 2017 and 2021.
   Extraction and in situ remedy wells are not included.
2. Monitoring Sectors SE = Southeast; SW = Southwest; N= North. Wells included in two
   Sector analyses are indicated.
3. Well Type, Sampling Frequency, Monitoring Objectives and Initial Saturated Thickness are from
   CNS Pantex well database (May 2022). Blank cells indicate no values were listed in the database.
   No Data -- no data on initial saturation was found in the well database.
   Negative numbers indicate that saturation was only in the sump or was below the level of the fine-grained zone.

IW = Investigation well; ISPM = in situ performance monitoring;
UM = Uncertainty Management; RA = Remedial Action monitoring; PS = Plume Stability;
POC = Point of Compliance, PRB = Permeable reactive barrier; TZM =Treatment zone monitoring.

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TABLE B-2
AQUIFER INPUT PARAMETERS

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Parameter	Units	Southeast	Southwest	North
Current Plume Length	ft	7000	8000	Various
Maximum Plume Length	ft	7000	8000	Various
Plume Width	ft	6400	6000	Various
Seepage Velocity (ft/yr)*	ft/yr	140	62	70
Distance to Receptors	ft	8000	10000	8000
Groundwater Fluctuations	--	No	No	No
Source Treatment	--	Pump and treat/ In situ bioremediation		
Plume Type	--	Explosives, VOCs		
NAPL Present		No	No	No
Number of investigation wells (2012 - 2016)	--	50	53	27
Parameter		**Value**		
Groundwater flow direction		S/SE	S/SW	Various (45)
Porosity	--	0.25	0.25	0.25
Source Location near Well	--	PTX06-1010	PTX08-1006	Playa 1 (various)
Source X-Coordinate	ft	639886.625	636400.4375	639580.323
Source Y-Coordinate	ft	3758067	3756761.75	3764100.313
Coordinate System		NAD 83 SP Texas North FT		
Average Saturated Thickness Perched Zone	ft	30		
Priority Constituents		**MSC**	**Basis**	**Sectors Affected**
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	µg/L	2	GW-Res_{c}	All
4-Amino-2,6-Dinitrotoluene (DNT4A)	µg/L	1.2	GW-Res_{NCAdj}	All
2-Amino-4,6-Dinitrotoluene (DNT2A)	µg/L	1.2	GW-Res_{NCAdj}	Southeast
2,4,6-Trinitrotoluene (TNT)	µg/L	3.6	GW-Res_{NCAdj}	Southeast
2,4-Dinitrotoluene (24DNT)	µg/L	1	PQL	Southeast
Chromium (VI)	µg/L	100	MCL	Southeast
Perchlorate	µg/L	15	GW-Res_{NC}	Southwest
Trichloroethene	µg/L	5	MCL	Southwest

Notes:

1. Aquifer data from CMS/FS (BWXT, 2007a) and Subsurface Modeling Report (BWXT, 2004).
2. Priority COCs defined by prevalence, toxicity and mobility.
3. Saturated thickness represents an estimated average for the perched unit, which ranges from 0 to 70 ft in saturated thickness.
4. * = a range of transmissivites are present in the aquifer, and groundwater velocity is estimated for each sector.
5. MSC = Medium Specific Concentration, from CMS/FS (BWXT, 2007b).
   GW-Resc = TCEQ Standard No. 2 Groundwater MSC for Residential Use; NC = Noncarcinogenic; C = Carcinogenic;
   Adj = Value adjusted for a cumulative hazard index of 1; PQL = Practical Quantitation Limit; MCL = EPA Maximum Contaminant Level.

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TABLE B-3
PERCHED GROUNDWATER INVESTIGATION WELLS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Earliest Sample Date	Most Recent Sample Date	Number of Samples (2017-2021)	Primary COC at Well	Additional Objectives
Southeast Sector					
PTX06-1002A	2/23/2017	2/24/2021	8	RDX	Source
PTX06-1005	2/23/2017	8/4/2021	10	RDX	Source
PTX06-1008	5/23/2017	5/4/2021	5	1,2-DICHLOROETHANE	Source
PTX06-1010	5/24/2017	5/12/2021	8	CHROMIUM, TOTAL	Source
PTX06-1011	5/24/2017	5/12/2021	5	TCE	Source (SW)
PTX06-1013	4/25/2017	4/21/2021	5	RDX	SEPTS (N)
PTX06-1014	7/17/2017	8/4/2021	5	RDX	SEPTS
PTX06-1015	2/28/2017	8/21/2018	4	RDX	SEPTS
PTX06-1023	2/23/2017	2/8/2021	8	RDX	POC
PTX06-1031	5/15/2017	10/27/2021	11	RDX	East POC
PTX06-1034	2/21/2017	8/24/2021	10	RDX	East POC **
PTX06-1037	2/6/2017	8/3/2021	14	None	Dry/ISPM **
PTX06-1038	2/20/2017	2/8/2021	9	RDX	(SW)
PTX06-1039A	2/27/2017	2/24/2021	8	RDX	
PTX06-1040	2/27/2017	11/3/2021	10	RDX	SEPTS
PTX06-1041	2/27/2017	11/3/2021	10	RDX	SEPTS
PTX06-1042	2/20/2017	10/25/2021	10	RDX	SEPTS/POC
PTX06-1045	8/14/2019	5/26/2021	4	RDX	Dry/POC /ISPM **
PTX06-1046	3/1/2017	10/26/2021	10	RDX	SEPTS/POC/ **
PTX06-1047A	3/1/2017	10/26/2021	9	RDX	**
PTX06-1052	2/28/2017	8/18/2021	10	CHROMIUM, TOTAL	POC
PTX06-1053	5/8/2017	2/8/2021	8	None	**
PTX06-1069	7/28/2021	7/28/2021	1	None	(SW)
PTX06-1088	5/24/2017	11/9/2021	10	RDX	Delineation (N)
PTX06-1095A	2/27/2017	11/3/2021	10	RDX	Source
PTX06-1098	4/25/2017	6/23/2021	8	None	ISPM
PTX06-1100	9/6/2017	6/23/2021	5	None	ISPM
PTX06-1101	9/6/2017	6/23/2021	5	RDX	ISPM
PTX06-1120	6/1/2017	10/26/2021	4	RDX	Dry **
PTX06-1133A	5/15/2017	5/5/2021	9	CHROMIUM, TOTAL	**
PTX06-1146	2/21/2017	8/24/2021	10	RDX	
PTX06-1147	5/15/2017	10/27/2021	10	RDX	
PTX06-1148	2/9/2017	11/8/2021	17	PERCHLORATE	ISPM
PTX06-1153	2/6/2017	8/3/2021	23	RDX	East (POC)/ISPM **
PTX06-1154	2/6/2017	8/3/2021	16	TNX	East (POC)/ISPM **
PTX06-1166	2/21/2017	7/21/2021	8	RDX	
PTX06-1182	4/25/2017	11/1/2021	11	RDX	East
PTX06-1183	5/1/2017	11/1/2021	10	CHROMIUM, TOTAL	
PTX06-1184	7/10/2017	7/10/2017	1	RDX	East
PTX06-1185	7/10/2017	11/1/2021	10	RDX	(SW)

See Notes end of Table

TABLE B-3
PERCHED GROUNDWATER INVESTIGATION WELLS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Earliest Sample Date	Most Recent Sample Date	Number of Samples (2017-2021)	Primary COC at Well	Additional Objectives
Southeast Sector					
PTX06-1190	1/24/2018	10/27/2021	10	RDX	
PTX06-1191	2/13/2018	8/16/2021	8	RDX	ISPM *
PTX06-1192	2/14/2018	8/16/2021	8	CHROMIUM, HEXAVALENT	*
PTX06-1194	2/13/2018	8/16/2021	8	RDX	ISPM *
PTX06-1195	2/14/2018	10/26/2021	6	RDX	
PTX06-1196	8/20/2018	8/16/2021	7	RDX	ISPM *
PTX06-1197	8/20/2018	8/16/2021	7	RDX	*
PTX06-1199	8/20/2018	8/16/2021	7	RDX	*
PTX06-1200	2/20/2019	8/23/2021	6	BORON	*
PTX06-1201	1/14/2019	8/23/2021	7	RDX	*
PTX06-1202	1/15/2019	8/16/2021	7	RDX	*
PTX06-1203	2/21/2019	8/23/2021	6	RDX	*
PTX06-1204	2/20/2019	8/23/2021	7	RDX	*
PTX06-1208	3/2/2021	8/23/2021	2	CHROMIUM, TOTAL	*
PTX06-1213	11/15/2021	11/15/2021	1	CHROMIUM, TOTAL	
PTX06-1214	11/15/2021	11/15/2021	1	None	
PTX08-1002	5/17/2017	11/8/2021	8	RDX	
PTX08-1007	5/24/2017	5/12/2021	5	1,2-DICHLOROETHANE	Source
PTX08-1008	5/18/2017	11/10/2021	10	PERCHLORATE	Source
PTX08-1009	5/18/2017	3/1/2021	8	RDX	
PTX10-1014	5/23/2017	8/18/2021	10	TCE	

Notes:
1. Wells listed are investigation wells in current monitoring program. Wells that are intermittently dry are indicated (Dry).
   ISPM = In situ remedy performance monitoring; East = Location east of FM2373; Source = Designated source area well.
   SEPTS = Extraction picket in SE Sector; SE ISB = Southeast In Situ Bioremediation
   (SW) = well also included in Southwest Sector analysis; (N) = well also included in North Sector analysis.
   POC = point of compliance well
   * = downgradient of SE Extension/Off-site ISB; ** = downgradient of Southeast ISB for trend aggregate analysis.
2. Sampling dates for wells range from January 2017 (earliest sample dates) to December 2021 (most recent sample dates).
3. The priority chemical of concern (COC) at each well is the constituent detected at the highest level normalized by the MSC or appropriate RRS. The priorty constituent does not necessarily exceed the MSC.
4. Number of samples is the number of individual sample dates in the database for the priority COC, results from duplicate samples from the same date are averaged.
5. RDX = Hexahydro, 1,3,5-trinitro, 1,3,5-triazine; TCE = trichloroethene.
6. MAROS Goup is the goup assigned for an aggregate trend determination:
7. Wells with stainless steel construction can show false positive metal (Cr, Fe, Ni, etc.) detections.
   ISPM wells can have transient high metals cocentration due to redox changes.

TABLE B-4
MONITORING WELL TREND SUMMARY RESULTS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Number of Samples	Number of Detects	Percent Detection	Maximum Concentration [µg/L]	Maximum Above MSC?	Average Concentration [µg/L]	Average Above MSC?	Mann-Kendall Trend (2012 - 2016)	Mann-Kendall Trend (2017 - 2021)
RDX Southeast Sector									
PTX06-1002A	10	10	100%	**41**	Yes	**26.09**	Yes	D	PI
PTX06-1005	11	11	100%	**34**	Yes	**13.13**	Yes	PD	S
PTX06-1008	5	0	0%	DL	No	DL	No	ND	ND
PTX06-1010	8	8	100%	**2**	Yes	1.61	No	D	NT
PTX06-1011	5	5	100%	1.10	No	0.63	No	NT	S
PTX06-1013	5	5	100%	**6**	Yes	**5.30**	Yes	PD	S
PTX06-1014	5	5	100%	**706**	Yes	**594.20**	Yes	S	S
PTX06-1015	4	4	100%	**969**	Yes	**893.25**	Yes	D	S
PTX06-1023	10	4	40%	0.65	No	0.20	No	D	NT
PTX06-1031	12	12	100%	**848**	Yes	**650.82**	Yes	PI	NT
PTX06-1034	10	10	100%	**1,250**	Yes	**996.80**	Yes	I	NT
PTX06-1037	14	2	14%	0.21	No	0.14	No	D	D
PTX06-1038	10	10	100%	**117**	Yes	**92.62**	Yes	D	D
PTX06-1039A	9	9	100%	**1,140**	Yes	**743.44**	Yes	S	S
PTX06-1040	10	10	100%	**1,190**	Yes	**886.30**	Yes	NT	S
PTX06-1041	10	10	100%	**1,680**	Yes	**1,092.40**	Yes	S	NT
PTX06-1042	10	10	100%	**475**	Yes	**367.50**	Yes	D	S
PTX06-1045	5	5	100%	**58**	Yes	**23.00**	Yes	N/A	D
PTX06-1046	10	10	100%	**1,470**	Yes	**780.20**	Yes	PI	D
PTX06-1047A	10	10	100%	**92**	Yes	**44.97**	Yes	D	PD
PTX06-1052	11	3	27%	0.14	No	0.13	No	D	NT
PTX06-1053	8	5	62%	0.14	No	0.13	No	I	NT
PTX06-1069	1	0	0%	0.13	No	0.13	No	NT	N/A
PTX06-1088	10	10	100%	**141**	Yes	**35.80**	Yes	D	I
PTX06-1095A	10	10	100%	**618**	Yes	**100.41**	Yes	NT	D
PTX06-1098	8	1	12%	0.13	No	0.13	No	NT	S
PTX06-1100	5	0	0%	DL	No	DL	No	ND	ND
PTX06-1101	5	5	100%	**59**	Yes	**39.20**	Yes	I	NT
PTX06-1120	4	4	100%	**2,850**	Yes	**1,435.00**	Yes	S	D
PTX06-1133A	10	1	10%	0.34	No	0.15	No	S	S
PTX06-1146	10	10	100%	**2,100**	Yes	**1,263.30**	Yes	S	PI
PTX06-1147	11	11	100%	**952**	Yes	**678.75**	Yes	S	S
PTX06-1148	17	2	12%	0.21	No	0.13	No	S	PD
PTX06-1153	30	30	100%	**838**	Yes	**337.75**	Yes	NT	I
PTX06-1154	16	3	19%	0.86	No	0.18	No	D	PD
PTX06-1166	8	8	100%	**18**	Yes	**13.81**	Yes	S	S
PTX06-1182	12	11	92%	**23**	Yes	**4.99**	Yes	N/A	D
PTX06-1183	10	0	0%	0.13	No	0.13	No	ND	ND
PTX06-1184	1	1	100%	0.11	No	0.11	No	S	N/A
PTX06-1185	11	11	100%	**724**	Yes	**464.33**	Yes	PI	D
PTX06-1190	11	11	100%	**1,700**	Yes	**948.61**	Yes	D	I
PTX06-1191	8	8	100%	**164**	Yes	**129.44**	Yes	S	PI
PTX06-1192	8	1	12%	0.14	No	0.13	No	N/A	S
PTX06-1194	12	2	17%	0.15	No	0.13	No	N/A	S
PTX06-1195	6	2	33%	0.14	No	0.13	No	N/A	S
PTX06-1196	7	7	100%	**34**	Yes	**25.84**	Yes	N/A	I
PTX06-1197	8	8	100%	**279**	Yes	**193.36**	Yes	N/A	I
PTX06-1199	7	7	100%	**9**	Yes	**6.90**	Yes	N/A	I
PTX06-1200	8	0	0%	DL	No	DL	No	N/A	ND
PTX06-1201	7	7	100%	**10**	Yes	**5**	Yes	N/A	I
PTX06-1202	7	6	86%	**0.22**	No	**0.17**	No	N/A	PI

See Notes end of Table

TABLE B-4
MONITORING WELL TREND SUMMARY RESULTS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Number of Samples	Number of Detects	Percent Detection	Maximum Concentration [µg/L]	Maximum Above MSC?	Average Concentration [µg/L]	Average Above MSC?	Mann-Kendall Trend (2012 - 2016)	Mann-Kendall Trend (2017 - 2021)
PTX06-1203	6	6	100%	**244**	Yes	**159.77**	Yes	N/A	I
PTX06-1204	7	5	71%	1.09	No	0.35	No	N/A	PI
PTX06-1208	3	0	0%	0.13	No	0.13	No	N/A	N/A
PTX06-1213	1	0	0%	0.63	No	0.63	No	N/A	N/A
PTX06-1214	1	0	0%	0.13	No	0.13	No	N/A	N/A
PTX08-1002	9	9	100%	**142**	Yes	**26.95**	Yes	S	NT
PTX08-1007	5	5	100%	**3**	Yes	**2.84**	Yes	S	S
PTX08-1008	10	2	20%	2.15	Yes	0.33	No	NT	NT
PTX08-1009	9	6	67%	0.35	No	0.14	No	D	NT
PTX10-1014	6	6	100%	**3**	Yes	**1.66**	No	S	NT

Notes

1. Trends were evaluated for data collected between January 2017 and December 2020. Trends from 2012- 2016 indicated. Data were not consolidated by time.
2. Number of Samples is the number of samples evaluated for the compound at this location during 2017 - 2021
   Number of Detects is the number of samples where the compound was detected at this location.
3. The maximum concentration for the COC is the maximum analytical result analyzed between 2017 and 2021. Results above MSCs are indicated in **Bold**.
4. MSCs = Medium Specific Concentration from Corrective Measure Study. RDX = 2 µg/L;
5. D = Decreasing; PD = Probably Decreasing; S = Stable; PI = Probably Increasing; I = Increasing; N/A = Insufficient Data to determine trend;
   NT = No Trend; ND = well has all non-detect results for COC; ND* = one detection for compound, may be unaffected.
6. Recent Mann-Kendall trend results are illustrated on Figures 3 and 4.

TABLE B-5
SUMMARY STATISTICS RESULTS RDX SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Recent Above MSC	RDX Concentration µg/L Mean	Median	SD	COV	95% UCL RDX [µg/L]	Distribution	Outlier
RDX Southeast Sector								
PTX06-1002A	TRUE	24.4	27.4	14.4	0.59	**38.56**	Normal	FALSE
PTX06-1005	TRUE	12.7	8.1	9.7	0.77	**20.38**	Lognormal	TRUE
PTX06-1008	FALSE	0.1	0.0	0.0	0.00	**DL**	Normal	FALSE
PTX06-1010	FALSE	1.6	1.5	0.5	0.31	**2.03**	Normal	FALSE
PTX06-1011	FALSE	0.6	0.8	0.4	0.59	**1.09**	Normal	FALSE
PTX06-1013	TRUE	5.3	5.5	1.0	0.19	**6.54**	Normal	FALSE
PTX06-1014	TRUE	594.2	549.0	96.7	0.16	**714.32**	Normal	FALSE
PTX06-1015	TRUE	893.3	889.0	80.4	0.09	**1021.25**	Normal	FALSE
PTX06-1023	FALSE	0.2	0.0	0.2	1.12	**0.35**	No distribution	TRUE
PTX06-1031	TRUE	650.2	659.0	122.1	0.19	**736.81**	Normal	FALSE
PTX06-1034	TRUE	996.8	928.0	183.1	0.18	**1127.76**	Normal	FALSE
PTX06-1037	FALSE	0.2	0.0	0.0	0.00	**0.16**	No distribution	FALSE
PTX06-1038	TRUE	89.2	83.1	16.2	0.18	**106.36**	Normal	FALSE
PTX06-1039A	TRUE	722.3	632.0	230.9	0.32	**941.90**	Normal	FALSE
PTX06-1040	TRUE	886.3	817.0	178.2	0.20	**1013.76**	Normal	FALSE
PTX06-1041	TRUE	1092.4	1000.0	312.6	0.29	**1315.99**	Normal	FALSE
PTX06-1042	TRUE	367.5	351.0	62.9	0.17	**412.49**	Normal	FALSE
PTX06-1045	TRUE	22.8	22.0	21.4	0.94	**62.30**	Normal	FALSE
PTX06-1046	TRUE	780.2	588.0	469.3	0.60	**1115.93**	Normal	FALSE
PTX06-1047A	TRUE	47.0	43.3	25.6	0.54	**65.18**	Normal	FALSE
PTX06-1052	FALSE	0.1	0.0	0.0	0.00	**0.13**	Normal	FALSE
PTX06-1053	FALSE	0.1	0.0	0.0	0.00	**0.14**	Normal	FALSE
PTX06-1069	FALSE	0.1	0.0	0.0	0.00	**N/A**	No distribution	FALSE
PTX06-1088	TRUE	35.8	13.9	43.4	1.21	**66.82**	Lognormal	TRUE
PTX06-1095A	TRUE	100.4	23.9	187.2	1.86	**234.32**	Lognormal	TRUE
PTX06-1098	FALSE	0.1	0.0	0.0	0.00	**0.14**	No distribution	TRUE
PTX06-1100	FALSE	0.1	0.0	0.0	0.00	**DL**	Normal	FALSE
PTX06-1101	TRUE	39.2	43.1	14.8	0.38	**57.61**	Normal	FALSE
PTX06-1120	TRUE	1435.0	886.0	960.1	0.67	**2962.67**	Normal	TRUE
PTX06-1133A	FALSE	0.0	0.0	0.0	0.00	**0.20**	No distribution	TRUE
PTX06-1146	TRUE	1263.3	1120.0	352.3	0.28	**1515.31**	Lognormal	TRUE
PTX06-1147	TRUE	676.5	653.5	155.2	0.23	**795.66**	Normal	FALSE
PTX06-1148	FALSE	0.0	0.0	0.1	1.76	**0.15**	No distribution	FALSE
PTX06-1153	TRUE	359.1	280.5	154.5	0.43	**430.60**	No distribution	TRUE
PTX06-1154	FALSE	0.2	0.0	0.2	1.41	**0.28**	No distribution	TRUE
PTX06-1166	TRUE	13.8	13.7	2.3	0.17	**15.72**	Normal	FALSE
PTX06-1182	FALSE	4.6	0.3	8.8	1.93	**11.10**	No distribution	TRUE
PTX06-1183	FALSE	0.1	0.0	0.0	0.00	**0.13**	Normal	FALSE
PTX06-1184	FALSE	0.1	0.0	0.0	0.00	**N/A**	No distribution	FALSE
PTX06-1185	TRUE	472.7	469.0	196.5	0.42	**609.75**	Normal	FALSE
PTX06-1190	TRUE	931.3	955.0	473.4	0.51	**1305.30**	Normal	FALSE
PTX06-1191	TRUE	129.4	126.0	22.7	0.18	**148.39**	Normal	FALSE
PTX06-1192	FALSE	0.1	0.0	0.0	0.00	**0.14**	Normal	FALSE
PTX06-1194	FALSE	0.0	0.0	0.1	3.17	**0.14**	No distribution	TRUE
PTX06-1195	FALSE	0.1	0.0	0.0	0.00	**0.14**	No distribution	FALSE
PTX06-1196	TRUE	25.8	24.7	5.2	0.20	**30.62**	Normal	FALSE
PTX06-1197	TRUE	195.9	176.0	47.5	0.24	**240.31**	Normal	FALSE
PTX06-1199	TRUE	6.9	7.0	1.7	0.25	**8.48**	Normal	FALSE

TABLE B-5
SUMMARY STATISTICS RESULTS RDX SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Recent Above MSC	RDX Concentration µg/L Mean	Median	SD	COV	95% UCL RDX [µg/L]	Distribution	Outlier
PTX06-1200	FALSE	0.2	0.0	0.0	0.00	**DL**	No distribution	FALSE
See Notes End of Table								
PTX06-1201	TRUE	4.4	3.1	3.7	0.83	**8.81**	No distribution	FALSE
PTX06-1202	FALSE	0.2	0.2	0.0	0.22	**0.21**	Normal	FALSE
PTX06-1203	TRUE	159.8	139.0	56.8	0.36	**219.41**	No distribution	FALSE
PTX06-1204	FALSE	0.3	0.1	0.4	1.23	**0.75**	No distribution	TRUE
PTX06-1208	FALSE	0.1	0.0	0.0	0.00	**0.13**	Normal	FALSE
PTX06-1213	FALSE	0.6	0.0	0.0	0.00	**N/A**	No distribution	FALSE
PTX06-1214	FALSE	0.1	0.0	0.0	0.00	**N/A**	No distribution	FALSE
PTX08-1002	TRUE	25.2	11.3	44.1	1.75	**66.05**	No distribution	TRUE
PTX08-1007	TRUE	2.8	2.9	0.4	0.13	**3.28**	Normal	FALSE
PTX08-1008	TRUE	0.3	0.0	0.9	2.61	**0.79**	No distribution	TRUE
PTX08-1009	FALSE	0.1	0.1	0.1	0.87	**0.22**	No distribution	TRUE
PTX10-1014	TRUE	2.0	1.8	1.0	0.51	**2.84**	Normal	FALSE

Notes:
1. Summary statistics calculated using Kaplan Meier method.
2. Distribution determined by Shapiro Wilk method. Normal = normal distribution, Lognormal = log normal distribution; No distribution = neither normal nor lognormal or insufficient data; other distributions not tested.
3. Outlier in dataset determined by Dixon's method. Outliers are usually high values.
4. N/A = insufficient data. ND = Non-Detect, DL =detection limit.

TABLE B-6
SPATIAL ANALYSIS SUMMARY RESULTS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	RDX Average Slope Factor	RDX Slope Factor COV	Area of Influence [FT^2]	DNT4A Average Slope Factor	DNT4A Slope Factor COV	Recommendation After Qualitative Review
PTX06-1002A	*0.17*	**1.10**	5.90E+06	0.75	0.85	Retain for northern source
PTX06-1005	*0.11*	0.47	2.78E+06	0.32	0.24	Retain, source
PTX06-1008	**0.84**	0.05	9.54E+05	*0.22*	0.22	Retain for 1,2-DCA
PTX06-1010	*0.23*	0.24	2.70E+06	0.65	0.07	Retain (Cr source)
PTX06-1011	0.51	0.76	2.17E+06	0.54	0.03	Retain (TCE)
PTX06-1013	*0.15*	0.33	3.63E+06	0.72	0.13	Retain (DNT4A north)
PTX06-1014	*0.18*	0.00	1.09E+06	*0.17*	0.21	Retain, source
PTX06-1015	*0.30*	0.00	1.32E+06	*0.29*	0.25	May be redundant with PTX06-1031
PTX06-1023	**0.81**	0.49	9.59E+05	0.76	0.13	Retain (DNT4A)
PTX06-1031	*0.24*	0.00	1.67E+06	*0.20*	0.26	May be redundant with PTX06-1015
PTX06-1034	*0.25*	0.00	4.71E+06	*0.20*	0.11	Retain
PTX06-1037	**0.85**	0.17	5.28E+05	0.65	0.17	Retain
PTX06-1038	*0.05*	0.02	5.72E+06	*0.10*	0.27	Reduced monitoring schedule
PTX06-1039A	*0.13*	0.00	1.99E+06	*0.23*	0.08	Retain
PTX06-1040	*0.07*	0.00	2.44E+06	*0.17*	0.06	Retain
PTX06-1041	*0.11*	0.00	3.63E+06	*0.15*	0.04	Retain
PTX06-1042	*0.05*	0.00	2.98E+06	*0.10*	0.22	Retain
PTX06-1045	*0.19*	0.74	1.06E+06	0.56	0.28	Retain
PTX06-1046	0.36	0.02	5.90E+05	0.38	0.74	Retain
PTX06-1047A	*0.18*	0.22	1.53E+06	*0.30*	**1.09**	Retain
PTX06-1052	0.78	0.04	1.33E+06	0.53	0.29	Retain
PTX06-1053	0.65	0.05	4.67E+05	0.38	0.41	Retain [Cr (VI)]
PTX06-1069	**0.95**	0.00	4.59E+06	**0.91**	0.00	Retain
PTX06-1088	0.44	0.29	1.60E+06	0.45	0.45	Retain
PTX06-1095A	*0.26*	0.34	2.65E+06	0.27	0.48	Retain
PTX06-1098	0.78	0.11	1.14E+06	0.51	0.02	Retain
PTX06-1100	0.78	0.02	7.13E+04	0.27	0.02	Retain
PTX06-1101	0.70	0.19	9.53E+05	0.44	0.18	Retain
PTX06-1120	0.37	0.00	7.66E+05	0.45	0.48	Retain
PTX06-1133A	**0.92**	0.70	2.40E+06	**0.83**	0.15	Retain (delineation)
PTX06-1146	*0.22*	0.00	1.38E+07	*0.29*	0.02	Retain
PTX06-1147	0.32	0.00	5.17E+06	*0.29*	0.03	Retain
PTX06-1148	0.60	0.15	5.14E+05	0.59	0.17	Retain (SW)
PTX06-1153	**0.83**	0.01	8.81E+05	0.74	0.52	Retain
PTX06-1154	0.74	0.31	3.88E+05	0.54	0.22	Retain
PTX06-1166	*0.30*	0.02	1.14E+06	*0.28*	0.09	Retain (groundwater divide)
PTX06-1182	0.56	**1.65**	1.02E+06	0.52	**1.02**	Retain
PTX06-1184	**0.98**	0.00	1.14E+06	**0.90**	0.00	Retain (near edge of saturated zone PTX06-9906)
PTX06-1185	*0.19*	0.02	4.45E+05	*0.16*	0.66	Retain
PTX06-1190	0.35	0.00	1.05E+06	0.40	0.19	Retain
PTX06-1191	0.53	0.01	5.31E+05	*0.28*	0.38	Retain
PTX06-1192	**0.81**	0.21	7.44E+05	0.67	0.15	Retain
PTX06-1194	**0.82**	0.67	7.55E+05	0.65	0.51	Retain (delineation)
PTX06-1195	**0.92**	0.33	7.59E+06	0.74	0.20	Retain (delineation)
PTX06-1196	*0.11*	0.03	8.71E+05	*0.18*	0.12	Retain

See Notes End of Table

TABLE B-6
SPATIAL ANALYSIS SUMMARY RESULTS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	RDX Average Slope Factor	RDX Slope Factor COV	Area of Influence [FT^2]	DNT4A Average Slope Factor	DNT4A Slope Factor COV	Recommendation After Qualitative Review
PTX06-1197	0.31	0.01	6.91E+05	*0.15*	0.08	Retain
PTX06-1199	*0.17*	0.06	1.75E+06	*0.11*	0.06	Retain
PTX06-1200	0.77	0.16	3.78E+05	0.79	0.20	Retain
PTX06-1201	*0.11*	0.53	4.27E+05	*0.10*	0.44	Retain
PTX06-1202	0.79	0.04	8.01E+05	0.50	0.02	Retain
PTX06-1203	0.51	0.02	6.98E+05	0.47	0.06	Retain
PTX06-1204	0.53	0.62	9.93E+04	*0.21*	0.48	Retain
PTX06-1208	0.37	0.01	1.24E+05	0.66	0.03	Retain
PTX06-1213	0.59	0.00	5.92E+05	*0.01*	0.00	Retain
PTX06-1214	**0.96**	0.00	4.15E+05	**0.92**	0.00	Retain
PTX08-1002	0.41	0.12	3.53E+06	0.56	**1.22**	Retain
PTX08-1007	0.54	0.09	1.20E+06	0.39	0.02	Retain
PTX08-1008	0.67	0.45	2.26E+06	0.62	0.96	Retain
PTX08-1009	0.64	0.37	2.53E+06	0.47	0.02	Retain
PTX10-1014	0.38	0.45	1.74E+06	0.35	0.04	Retain

Notes:

1. Slope Factor (SF) is the difference between the actual concentration and the concentration estimated from nearby wells normalized by the actual concentration. Slope factors close to 1 show the concentrations cannot be estimated from the adjacent wells, and the well is important in the network.
2. Slope factors were calculated using data collected between January 2017 and November 2021.
3. Well locations with slope factors below 0.3 and area ratios below 0.8 were considered for elimination. Average slope factors below 0.3 are shown in *italic* and those above 0.8 are shown in **Bold**. SF COV above 1 are shown in **Bold**, indicating locations with fluctuating concentrations.
5. Locations identified for future elimination should be reviewed, and possibly removed from the program after 5 years of data collection.
6. PTX10-1013 not evaluated for RDX. Evaluated in SW Sector for TCE.

TABLE B-7
SAMPLING FREQUENCY ANALYSIS RESULTS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Recent Concentration Rate of Change [mg/yr]	Recent MK Trend (2017-2021)	Sampling Frequency Based on Recent Data (2017-2021)	Overall Concentration Rate of Change [mg/yr]	Overall MK Trend (2012 - 2021)	Sampling Frequency Based on Overall Data (2012 - 2021)	MAROS Recommended Sampling Frequency	LTM Plan Sampling Frequency
RDX Southeast Sector								
PTX06-1002A	2.12E-05	PI	Quarterly	1.49E-05	NT	Quarterly	Quarterly	Annual
PTX06-1005	-1.30E-05	S	Biennial	-1.34E-05	S	Biennial	Biennial	Semiannual
PTX06-1008	-7.04E-09	S	Biennial	-7.25E-09	ND	Biennial	Biennial	Annual
PTX06-1010	3.02E-07	NT	Biennial	1.74E-07	NT	Biennial	Biennial	Annual
PTX06-1011	-3.98E-07	S	Biennial	-4.31E-07	S	Biennial	Biennial	Annual
PTX06-1013	-1.12E-06	S	Biennial	-1.12E-06	S	Biennial	Biennial	Annual
PTX06-1014	-3.01E-05	S	Biennial	-3.01E-05	S	Biennial	Biennial	Annual
PTX06-1015	-2.14E-04	S	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Annual
PTX06-1023	1.31E-07	NT	Biennial	1.40E-07	S	Biennial	Biennial	Annual
PTX06-1031	3.46E-05	NT	Quarterly	3.94E-05	NT	Quarterly	Quarterly	Semiannual
PTX06-1034	5.91E-05	NT	Quarterly	2.13E-05	S	Quarterly	Quarterly	Semiannual
PTX06-1037	-1.13E-08	D	Biennial	-1.20E-08	S	Biennial	Biennial	Semiannual
PTX06-1038	-2.45E-05	D	Biennial	-2.13E-05	D	Biennial	Biennial	Annual
PTX06-1039A	-9.34E-05	S	Biennial	-5.95E-05	S	Biennial	Biennial	Annual
PTX06-1040	-1.30E-04	S	Biennial	-1.31E-04	S	Biennial	Biennial	Semiannual
PTX06-1041	1.95E-04	NT	Quarterly	2.29E-04	NT	Quarterly	Quarterly	Semiannual
PTX06-1042	-3.35E-05	S	Biennial	-3.85E-05	D	Biennial	Biennial	Semiannual
PTX06-1045	-6.39E-05	D	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Annual
PTX06-1046	-8.08E-04	D	Biennial	-8.19E-04	D	Biennial	Biennial	Semiannual
PTX06-1047A	-1.48E-05	PD	Biennial	-8.21E-06	S	Biennial	Biennial	Semiannual
PTX06-1052	3.78E-09	NT	Biennial	2.94E-09	NT	Biennial	Biennial	Semiannual
PTX06-1053	7.79E-09	NT	Biennial	1.43E-09	S	Biennial	Biennial	Annual
PTX06-1069	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Annual
PTX06-1088	3.66E-05	I	Quarterly	3.86E-05	NT	Quarterly	Quarterly	Semiannual
PTX06-1095A	-2.06E-04	D	Biennial	-2.17E-04	D	Biennial	Biennial	Semiannual
PTX06-1098	-6.93E-09	S	Biennial	-7.88E-09	S	Biennial	Biennial	Annual
PTX06-1100	-3.17E-09	S	Biennial	-3.01E-09	ND	Biennial	Biennial	
PTX06-1101	2.05E-05	NT	Quarterly	1.99E-05	NT	Quarterly	Quarterly	Annual
PTX06-1120	-1.31E-03	D	Biennial	-1.46E-03	D	Biennial	Biennial	Annual
PTX06-1133A	3.17E-08	S	Biennial	2.59E-08	S	Biennial	Biennial	Semiannual
PTX06-1146	4.16E-04	PI	Quarterly	3.91E-04	NT	Quarterly	Quarterly	Semiannual
PTX06-1147	-1.11E-04	S	Biennial	-1.05E-04	S	Biennial	Biennial	Semiannual
PTX06-1148	8.61E-09	PD	Biennial	3.18E-09	S	Biennial	Biennial	Semiannual
PTX06-1153	6.68E-05	I	Quarterly	4.02E-06	NT	Annual	Quarterly	Semiannual
PTX06-1154	4.50E-08	PD	Biennial	-5.18E-09	S	Biennial	Biennial	Semiannual
PTX06-1166	-5.51E-07	S	Biennial	-1.42E-06	S	Biennial	Biennial	Annual
PTX06-1182	-1.29E-05	D	Biennial	-1.35E-05	D	Biennial	Biennial	Semiannual
PTX06-1184	0.00E+00	N/A	FYR	0.00E+00	N/A	Annual	Annual	FYR
PTX06-1185	-3.30E-04	D	Biennial	-3.22E-04	D	Biennial	Biennial	Semiannual
PTX06-1190	9.02E-04	I	Quarterly	9.71E-04	I	Quarterly	Quarterly	Semiannual
PTX06-1191	2.26E-05	PI	Quarterly	1.14E-05	NT	Quarterly	Quarterly	Semiannual
PTX06-1192	-6.33E-09	S	Biennial	-7.12E-09	S	Biennial	Biennial	Semiannual
PTX06-1194	-1.16E-08	S	Biennial	-1.30E-08	S	Biennial	Biennial	Semiannual
PTX06-1195	-8.54E-09	S	Biennial	-4.92E-09	S	Biennial	Biennial	Annual
PTX06-1196	9.73E-06	I	Quarterly	7.47E-06	NT	SemiAnnual	Quarterly	Semiannual
PTX06-1197	1.31E-04	I	Quarterly	1.14E-04	I	Quarterly	Quarterly	Semiannual
PTX06-1199	4.28E-06	I	SemiAnnual	4.32E-06	I	SemiAnnual	SemiAnnual	Semiannual
PTX06-1200	-2.12E-08	S	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX06-1201	9.94E-06	I	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Semiannual
PTX06-1202	7.15E-08	PI	Annual	0.00E+00	N/A	Annual	Annual	Semiannual

See Notes End of Table

TABLE B-7
SAMPLING FREQUENCY ANALYSIS RESULTS SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Recent Concentration Rate of Change [mg/yr]	Recent MK Trend (2017-2021)	Sampling Frequency Based on Recent Data (2017-2021)	Overall Concentration Rate of Change [mg/yr]	Overall MK Trend (2012 - 2021)	Sampling Frequency Based on Overall Data (2012 - 2021)	MAROS Recommended Sampling Frequency	LTM Plan Sampling Frequency
RDX Southeast Sector								
PTX06-1203	1.65E-04	I	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Semiannual
PTX06-1204	9.48E-07	PI	SemiAnnual	0.00E+00	N/A	SemiAnnual	SemiAnnual	Semiannual
PTX06-1208	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX06-1213	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX06-1214	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX08-1002	3.17E-05	NT	Quarterly	3.37E-05	NT	Quarterly	Quarterly	Annual
PTX08-1007	-4.11E-07	S	Biennial	-4.35E-07	S	Biennial	Biennial	Annual
PTX08-1008	5.78E-07	NT	Biennial	5.47E-07	NT	Biennial	Biennial	Semiannual
PTX08-1009	5.54E-08	NT	Biennial	5.44E-08	S	Biennial	Biennial	Annual
PTX10-1014	7.67E-07	NT	Biennial	8.58E-07	NT	Biennial	Biennial	Annual

Notes:

1. 'Recent' concentration rate of change and MK trends are calculated from data collected 2017 - 2021.
2. MK = Mann Kendall Trend; D = Decreasing, PD = Probably Decreasing, S = Stable, NT = No Trend, PI = Probably Increasing, I = Increasing, ND = Non-detect, N/A = insufficient data, less than 4 sample events for time interval indicated.
3. Overall rate of change and MK trend are for the full data set (2012-2021) for each well.
4. MAROS Recommended Sampling Frequency is the sampling frequency from MAROS based on both recent and overall trends.
5. LTM Plan (CNS, Database) is the sampling frequency currently implemented.
6. The final recommended sampling frequency is listed on Table 8, and is based on a combination of qualitative and statistical evaluations.

TABLE B-8
FINAL RECOMMENDED MONITORING NETWORK SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	RDX			DNT4A			Sampling Recommendation	Rationale
	Percent Detection	Mann Kendall Trend	Average SF	Percent Detection	Mann Kendall Trend	Average SF		
Southeast Sector								
PTX06-1002A	100	PI	0.17	60	I	0.75	Annual	UM, RA, North source monitoring for RDX - Observe trends while P&T remedy/discharge is modified
PTX06-1005	100	S	0.11	100	D	0.32	Annual	UM, RA, Downgradient from source, spatially important to track reduction in concentrations.
PTX06-1008	0	ND	0.84	60	S	0.22	Annual	UM, Zone 11, delineate plumes for Cr, TCE, perchlorate, 1,2-dichloroethane
PTX06-1010	100	NT	0.23	62	S	0.65	Annual	UM, Monitors diminishing source discharge, historical total Cr
PTX06-1011	100	S	0.51	0	S	0.54	Annual	UM, Historical source of TCE, decreasing trends.
PTX06-1013	100	S	0.15	0	NT	0.72	Annual	RA, Edge of perched unit east of Playa 1. Monitor for boron and RDX.
PTX06-1014	100	S	0.18	100	S	0.17	Annual	RA, Monitors SEPTS near periodically dry area along FM 2373.
PTX06-1015	100	S	0.30	100	NT	0.29	Annual	RA, Monitors decreasing trends downgradient of SEPTS
PTX06-1023	40	NT	0.81	0	S	0.76	Annual	RA, POC, Edge of perched unit east of Playa 1. Monitor for boron and RDX.
PTX06-1031	100	NT	0.24	100	NT	0.20	Semiannual	RA, POC, Monitors RDX plume east of SEPTS, limited saturation and increasing trends
PTX06-1034	100	NT	0.25	100	NT	0.20	Semiannual	POC, Monitors migration path to southeast edge of unit.
PTX06-1037	14	D	0.85	0	D	0.65	Semiannual	RA, POC, Monitors southeastern edge of perched unit, increasing RDX trend,
PTX06-1038	100	D	0.05	100	D	0.10	Annual	RA, Monitores eastern extent of plume and SEPTS efficacy
PTX06-1039A	100	S	0.13	100	NT	0.23	Annual	RA, Monitores eastern extent of plume and SEPTS efficacy
PTX06-1040	100	S	0.07	100	S	0.17	Annual	RA, Monitors north of SEPTS along FM 2373, Stable trends
PTX06-1041	100	NT	0.11	100	PD	0.15	Annual	RA, Monitors variable high mass area along FM2373, monitor response action, stable trends
PTX06-1042	100	S	0.05	100	PD	0.10	Semiannual	RA, POC, Monitors variable high mass area along FM2373, monitor response action
PTX06-1045	100	D	0.19	60	S	0.56	Semiannual	RA, POC, Monitors variable high mass area along FM2373, monitor response action
PTX06-1046	100	D	0.36	100	D	0.38	Semiannual	RA, POC, Monitors variable high mass area along FM2373, monitor response action
PTX06-1047A	100	PD	0.18	100	PD	0.30	Semiannual	RA, Monitors flow path to the Southeast
PTX06-1052	27	NT	0.78	18	NT	0.53	Annual	RA, POC, Monitors decreasing trends downgradient of SEPTS
PTX06-1053	62	NT	0.65	100	PD	0.38	Annual	UM, Cr(VI) and TCE monitoring
PTX06-1069	0	N/A	0.95	0	N/A	0.91	Annual	PS, larger uncertainty between wells, delineates perched unit to the Northeast

See Notes End of Table

TABLE B-8
FINAL RECOMMENDED MONITORING NETWORK SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	RDX			DNT4A			Sampling Recommendation	Rationale
	Percent Detection	Mann Kendall Trend	Average SF	Percent Detection	Mann Kendall Trend	Average SF		
Southeast Sector								
PTX06-1088	100	I	0.44	100	I	0.45	Semiannual	UM, Near source, increasing RDX trends
PTX06-1095A	100	D	0.26	100	D	0.27	Annual	UM, monitors plume migration from sources
PTX06-1098	12	S	0.78	0	S	0.51	Annual	Monitors plume migration upgradient of SE ISB
PTX06-1100	0	ND	0.78	0	S	0.27	Biennial	May be redundant with PTX06-1098 and PTX06-1101. Consider elimination.
PTX06-1101	100	NT	0.70	40	PD	0.44	Annual	Monitors plume migration upgradient of SE ISB
PTX06-1120	100	D	0.37	100	D	0.45	Annual	PS, Cross-gradient of SE ISB
PTX06-1133A	10	S	0.92	0	PD	0.83	Annual	PS, Monitors edge of plume upgradient of SE Off-site area
PTX06-1146	100	PI	0.22	100	NT	0.29	Semiannual	RA, Monitors area near SEPTS along limited saturation zone. High concentration area of potential plume migration.
PTX06-1147	100	S	0.32	100	I	0.29	Semiannual	PS, Monitors highest concentration of RDX in perched unit, cross-gradient from ISB.
PTX06-1148	12	PD	0.60	12	PD	0.59	Semiannual	PS, RA, Downgradient from SW ISB, remedy, very high perchlorate, decreasing trends.
PTX06-1153	100	I	0.83	97	NT	0.74	Semiannual	ISPM, RA, POC, Downgradient of SE ISB, monitors anomalous conditions near ISB remedy.
PTX06-1154	19	PD	0.74	0	D	0.54	Semiannual	ISPM, RA, POC, Downgradient of SE ISB, remedy performance monitoring.
PTX06-1166	100	S	0.30	100	PI	0.28	Annual	PS, Monitors southern edge of groundwater divide, stable trends with exceedances for boron and RDX, cross-gradient from SE ISB may monitor intermittently saturated hydraulic connection around edge of ISB.
PTX06-1182	92	D	0.56	92	D	0.52	Annual	PS, Monitors the edge of the southeastern perched unit, upgradient of SE Offsite RDX plume.
PTX06-1184	100	N/A	0.98	0	N/A	0.90	Semiannual	PS, Delineates edge of SE plume near the SE Off-site ISB, decreasing concentration.
PTX06-1185	100	D	0.19	100	D	0.16	Semiannual	PS, Monitors groundwater entering the SE Off-site ISB
PTX06-1190	100	I	0.35	100	S	0.40	Semiannual	PS, Monitors groundwater entering the SE Off-site ISB. High and increasing concentration.
PTX06-1191	100	PI	0.53	100	D	0.28	Semiannual	RA, Monitors downgradinet of SE Off-site ISB.
PTX06-1192	12	S	0.81	0	S	0.67	Semiannual	RA, Monitors edge of SE Off-site plume. Limited detections.

See Notes End of Table

TABLE B-8
FINAL RECOMMENDED MONITORING NETWORK SOUTHEAST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	RDX			DNT4A			Sampling Recommendation	Rationale
	Percent Detection	Mann Kendall Trend	Average SF	Percent Detection	Mann Kendall Trend	Average SF		
Southeast Sector								
PTX06-1194	17	S	0.82	0	S	0.65	Semiannual	RA, Monitors edge of SE Off-site plume. Limited detections.
PTX06-1195	33	S	0.92	0	D	0.74	Semiannual	RA, Monitors edge of SE Off-site plume. Limited detections.
PTX06-1196	100	I	0.11	100	S	0.18	Semiannual	RA, Monitors area downgradient of SE Off-site ISB.
PTX06-1197	100	I	0.31	100	S	0.15	Semiannual	RA, Monitors area downgradient of SE Off-site ISB.
PTX06-1199	100	I	0.17	100	I	0.11	Semiannual	RA, Monitors edge of SE Off-site plume. Increasing trends.
PTX06-1200	0	ND	0.77	12	S	0.79	Semiannual	Downgradient delineation of the SE Off-site plume.
PTX06-1201	100	I	0.11	100	I	0.10	Semiannual	RA, PS, Monitors plume downgradient of the SE Off-site plume.
PTX06-1202	86	PI	0.79	100	I	0.50	Semiannual	RA, UM, Monitors area south of Zone 11, Cr (VI) and perchlorate plumes.
PTX06-1203	100	I	0.51	100	NT	0.47	Semiannual	Downgradient monitoring north edge of SE Off-site plume. High and increasing trends.
PTX06-1204	71	PI	0.53	100	I	0.21	Semiannual	Downgradient delineation of the SE Off-site plume.
PTX06-1208	0	N/A	0.37	0	N/A	0.66	Annual	Downgradient delineation of the SE Off-site plume.
PTX06-1213	0	N/A	0.59	0	N/A	0.01	Annual	Monitors area within SE Off-site ISB remedy.
PTX06-1214	0	N/A	0.96	0	N/A	0.92	Annual	Monitors area within SE Off-site ISB remedy.
PTX08-1002	100	NT	0.41	89	PD	0.56	Annual	UM, RA, Monitors high concentrations south of Playa 1.
PTX08-1007	100	S	0.54	0	S	0.39	Annual	UM, Monitors Zone 11 source area.
PTX08-1008	20	NT	0.67	80	I	0.62	Biennial	RA, UM, Monitors area south of Zone 11, Cr (VI) and perchlorate plumes.
PTX08-1009	67	NT	0.64	0	PD	0.47	Biennial	RA, UM, Monitors area south of Zone 11/12, limited detections of COCs.
PTX10-1014	100	NT	0.38	0	D	0.35	Biennial	UM, Source area, north of Zone 11/12.

Notes:
1. D = Decreasing; PD = Probably Decreasing; S = Stable; PI = Probably Increasing; I = Increasing; N/A = Insufficient Data to determine result; NT = No Trend; ND = well has all non-detect results for COC indicated.
2. Mann-Kendall trends for 2017 - 2021 are shown.
3. SF = Slope Factor. SF close to 1 indicates well provides unique information in network. SF near 0 indicates well may be redundant.
4. Percent detection is the ratio of the number of detections to the number of samples for the compound indicated multiplied by 100.
5. Some wells are evaluated for other COCs in results from Southwest and North Sectors.
6. PS = Plume Stability, UM = Uncertainty Management, RA = Remedial Action, POC = Point of Compliance

TABLE B-9
PERCHED GROUNDWATER INVESTIGATION WELLS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Earliest Sample Date[3]	Most Recent Sample Date	Number of Samples (2017-2021)	Primary COC at Well	Additional Objectives
Southwest Sector					
1114-MW4	5/1/2017	8/1/2021	9	PERCHLORATE	Source
PTX06-1006	5/1/2017	11/1/2021	5	RDX	Source
PTX06-1007	5/1/2017	11/1/2021	5	DNT4A	Source
PTX06-1008	5/1/2017	5/1/2021	5	1,2-DICHLOROETHANE	Source (SE)
PTX06-1012	2/1/2017	11/1/2021	17	TCE	ISPM
PTX06-1035	2/1/2017	8/1/2021	10	PERCHLORATE	
PTX06-1052	2/1/2017	8/1/2021	11	CHROMIUM, TOTAL	(SE)
PTX06-1053	5/1/2017	2/1/2021	8	None	(SE)
PTX06-1077A	8/1/2017	8/1/2021	5	TCE	
PTX06-1085	5/1/2017	8/1/2021	4	None	
PTX06-1086	5/1/2017	8/1/2021	4	None	
PTX06-1126	5/1/2017	11/1/2021	14	TCE	Upgradient ISB
PTX06-1127	5/1/2017	11/1/2021	14	RDX	
PTX06-1131	5/1/2017	5/1/2021	5	BORON	
PTX06-1134	5/1/2017	11/1/2021	12	TCE	
PTX06-1148	2/1/2017	11/1/2021	19	PERCHLORATE	ISPM (SE)
PTX06-1149	2/1/2017	11/1/2021	16	PERCHLORATE	ISPM
PTX06-1150	2/1/2017	11/1/2021	16	PERCHLORATE	ISPM
PTX06-1151	2/1/2017	8/1/2021	11	TCE	
PTX06-1155	2/1/2017	11/1/2021	18	TCE	ISPM
PTX06-1156	2/1/2017	11/1/2021	16	None	ISPM
PTX06-1159	2/1/2017	8/1/2021	13	TCE	
PTX06-1160	2/1/2017	8/1/2021	12	PERCHLORATE	
PTX06-1164	2/1/2017	11/1/2021	16	TCE	ISTZ
PTX06-1169	5/1/2017	11/1/2021	6	TCE	
PTX06-1170	2/1/2017	11/1/2021	19	TCE	ISTZ
PTX06-1171	8/1/2017	8/1/2021	5	TCE	
PTX06-1173	2/1/2017	11/1/2021	16	TCE	ISPM
PTX06-1174	2/1/2017	11/1/2021	16	TCE	ISPM
PTX06-1175	2/1/2017	11/1/2021	17	TCE	ISPM
PTX06-1176	2/1/2017	11/1/2021	16	TCE	ISTZ
PTX06-1177	2/1/2017	11/1/2021	17	TCE	ISTZ
PTX06-1180	2/1/2017	8/1/2021	10	TCE	
PTX06-1181	8/1/2017	8/1/2021	9	None	
PTX06-1183	5/1/2017	11/1/2021	10	CHROMIUM, TOTAL	
PTX06-1207	8/1/2020	11/1/2021	3	DNT4A	
PTX06-1209	11/1/2021	11/1/2021	1	TCE	ISTZ
PTX06-1210	11/1/2021	11/1/2021	1	TCE	ISTZ
PTX06-1211	11/1/2021	11/1/2021	1	TCE	Upgradient ISB

See Notes End of Table

TABLE B-9
PERCHED GROUNDWATER INVESTIGATION WELLS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Earliest Sample Date[3]	Most Recent Sample Date	Number of Samples (2017-2021)	Primary COC at Well	Additional Objectives
Southwest Sector					
PTX07-1P02	5/10/2012	11/2/2016	11	None	(N)
PTX07-1Q01	8/1/2017	8/1/2021	4	None	
PTX07-1Q02	8/1/2017	8/1/2021	4	None	
PTX07-1Q03	8/1/2017	8/1/2019	3	None	
PTX08-1001	5/1/2017	5/1/2021	5	RDX	(N)
PTX08-1003	5/1/2017	2/1/2021	6	None	
PTX08-1005	2/1/2017	2/1/2021	9	TCE	Source
PTX08-1006	2/1/2017	8/1/2021	10	RDX	Source
PTX08-1007	5/1/2017	5/1/2021	5	1,2-DICHLOROETHANE	Source (SE)
PTX08-1008	5/1/2017	11/1/2021	12	CHROMIUM, HEXAVALENT	Source (SE)
PTX08-1009	5/1/2017	2/1/2021	8	None	Source (SE)
PTX10-1014	5/1/2017	8/1/2021	9	TCE	Source (SE)

Notes:
1. Wells listed are investigation wells in current monitoring program. Wells that are intermittently dry are indicated (Dry).
ISPM = In situ remedy performance monitoring; ISTZ = In situ treatment zone monitoring
2. Sampling dates for wells range from February 2017 (earliest sample dates) to November 2021 (most recent sample dates).
3. The priority chemical of concern (COC) at each well is the constituent detected at the highest level normalized by the MSC or appropriate RRS.
4. Number of samples is the number of individual sample dates in the database for the priority COC, results from duplicate samples from the same date are averaged.
5. RDX = Hexahydro, 1,3,5-trinitro, 1,3,5-triazine; TCE = trichloroethene; DNT4A = 4-Amino, 2,6-dinitrotoluene; DNT2A = 2-Amino, 4,6-dinitrotoluene.
6. Additional monitoring objectives are used to group wells for aggregate trends: SE = well included in southeast sector analysis; N= well included in north sector; Source = wells in Zone 12 near primary sources.
7. * = Wells with stainless steel construction can show false positive metal (Cr, Fe, Ni, etc.) detections.
** = ISPM wells can have transient high metals cocentration due to redox changes.

TABLE B-10
MONITORING WELL TREND SUMMARY RESULTS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Number of Samples (2017 - 2021)	Number of Detects	Percent Detection	Maximum Concentration [µg/L]	Maximum Above MSC?	Average Concentration [µg/L]	Average Above MSC?	Mann-Kendall Trend 2012 - 2016	Mann-Kendall Trend 2017 - 2021
TCE Southwest Sector									
1114-MW4	9	9	100%	**17.7**	Yes	**13.16**	Yes	D	I
PTX06-1006	5	5	100%	1.1	No	0.99	No	S	NT
PTX06-1007	5	3	60%	0.5	No	0.45	No	S	S
PTX06-1008	5	5	100%	3.2	No	2.06	No	D	I
PTX06-1012	17	17	100%	2.1	No	1.07	No	D	D
PTX06-1035	10	10	100%	**8.5**	Yes	4.26	No	I	I
PTX06-1052	11	5	45%	**5.3**	Yes	1.71	No	S	I
PTX06-1053	8	0	0%	ND	No	ND	No	ND	ND
PTX06-1077A	4	4	100%	**6.3**	Yes	4.79	No	D	NT
PTX06-1085	4	0	0%	ND	No	ND	No	ND	ND
PTX06-1086	4	0	0%	ND	No	ND	No	ND	ND
PTX06-1126	12	12	100%	**1500.0**	Yes	**476.1**	Yes	S	PD
PTX06-1127	10	10	100%	**198.0**	Yes	**139.94**	Yes	PI	I
PTX06-1131	5	0	0%	ND	No	ND	No	ND	ND
PTX06-1134	10	10	100%	**75.8**	Yes	**35.2**	Yes	PI	PI
PTX06-1148	17	17	100%	**9.9**	Yes	3.15	No	D	I
PTX06-1149	16	12	75%	**53.2**	Yes	**7.5**	Yes	I* (ND)	I
PTX06-1150	16	16	100%	**20.7**	Yes	**8.72**	Yes	I	I
PTX06-1151	10	10	100%	**162.0**	Yes	**120.17**	Yes	PD	NT
PTX06-1155	18	11	61%	**40.5**	Yes	**6.17**	Yes	D	I
PTX06-1156	16	6	38%	3.8	No	1.4	No	NT	PD
PTX06-1159	11	11	100%	**356.5**	Yes	**231.69**	Yes	I	D
PTX06-1160	10	3	30%	0.6	No	0.52	No	NT	D
PTX06-1164	16	16	100%	**230.0**	Yes	**123.92**	Yes	NT	S
PTX06-1169	6	6	100%	**63.0**	Yes	**16.87**	Yes	N/A	NT
PTX06-1170	19	19	100%	**400.0**	Yes	**189.49**	Yes	S	D
PTX06-1171	5	5	100%	**347.0**	Yes	**326.6**	Yes	N/A	D
PTX06-1173	16	14	88%	**140.0**	Yes	**32.08**	Yes	N/A	PI
PTX06-1174	16	12	75%	**10.0**	Yes	1.74	No	N/A	NT
PTX06-1175	16	16	100%	**150.0**	Yes	**108.33**	Yes	N/A	D
PTX06-1176	16	13	81%	**74.0**	Yes	**17.14**	Yes	S	D
PTX06-1177	17	13	76%	**7.0**	Yes	2	No	S	NT
PTX06-1180	10	10	100%	**541.0**	Yes	**403.9**	Yes	--	NT
PTX06-1181	9	0	0%	ND	No	ND	No	N/A	ND
PTX06-1183	10	3	30%	1.2	No	0.55	No	N/A	NT
PTX06-1207	3	3	100%	1.3	No	0.91	No	--	N/A
PTX06-1209	1	1	100%	**329.0**	Yes	**329**	Yes	--	N/A
PTX06-1210	1	1	100%	**230.0**	Yes	**230**	Yes	--	N/A
PTX06-1211	1	1	100%	**336.0**	Yes	**336**	Yes	--	N/A
PTX07-1P02	10	0	0%	ND	No	ND	No	ND	ND
PTX07-1Q01	4	0	0%	**ND**	No	ND	No	ND	ND
PTX07-1Q02	4	0	0%	**ND**	No	ND	No	ND	ND
PTX07-1Q03	3	0	0%	**ND**	No	ND	No	ND	N/A
PTX08-1001	5	0	0%	**ND**	No	ND	No	ND	ND
PTX08-1003	6	5	83%	0.8	No	0.56	No	D	S
PTX08-1005	9	9	100%	**30.7**	Yes	**19.97**	Yes	PD	D
PTX08-1006	10	10	100%	**73.7**	Yes	**32.19**	Yes	I	S
PTX08-1007	5	5	100%	**15.5**	Yes	**14.32**	Yes	D	S
PTX08-1008	10	8	80%	**13.5**	Yes	2.69	No	ND	I
PTX08-1009	8	0	0%	ND	No	ND	Yes	NT	ND
PTX10-1014	6	6	100%	**35.2**	Yes	**16.73**	Yes	S	I

See Notes End of Table

TABLE B-10
MONITORING WELL TREND SUMMARY RESULTS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Number of Samples (2017 - 2021)	Number of Detects	Percent Detection	Maximum Concentration [µg/L]	Maximum Above MSC?	Average Concentration [µg/L]	Average Above MSC?	Mann-Kendall Trend 2012 - 2016	Mann-Kendall Trend 2017 - 2021
Perchlorate Southwest Sector									
1114-MW4	9	9	100%	**132.0**	Yes	**94.13**	Yes	NT	D
PTX06-1006	5	5	100%	**156.0**	Yes	**139.4**	Yes	NT	D
PTX06-1007	5	5	100%	**135.0**	Yes	**102.62**	Yes	S	S
PTX06-1008	5	4	80%	12.3	No	4.92	No	ND	S
PTX06-1012	17	0	0%	ND	No	ND	Yes	ND*	ND
PTX06-1035	10	10	100%	**293.0**	Yes	**212.81**	Yes	I	I
PTX06-1053	8	2	25%	6.0	No	4.79	No	ND	S
PTX06-1077A	5	4	80%	6.0	No	4.67	No	NT	S
PTX06-1126	14	14	100%	**139.5**	Yes	**30.9**	Yes	S	D
PTX06-1127	14	14	100%	**488.0**	Yes	**304.8**	Yes	S	D
PTX06-1134	12	12	100%	**239.0**	Yes	**111.84**	Yes	I	I
PTX06-1148	19	17	89%	**410.0**	Yes	**130.34**	Yes	D	D
PTX06-1149	16	7	44%	**95.7**	Yes	**20.22**	Yes	PD	I
PTX06-1150	16	16	100%	**41.0**	Yes	**20.16**	Yes	D	D
PTX06-1151	11	11	100%	**97.5**	Yes	**74.6**	Yes	S	D
PTX06-1155	18	1	6%	6.0	No	4.57	No	ND	D
PTX06-1156	16	0	0%	ND	No	ND	Yes	ND	ND
PTX06-1159	13	13	100%	**724.0**	Yes	**502.65**	Yes	I	S
PTX06-1160	12	9	75%	44.1	Yes	6.75	No	ND	D
PTX06-1164	16	13	81%	**110.0**	Yes	**47.44**	Yes	S	D
PTX06-1169	6	0	0%	ND	No	ND	Yes	N/A	ND
PTX06-1170	17	1	6%	30.0	Yes	6.12	No	ND	PD
PTX06-1171	5	5	100%	**63.8**	Yes	**47.12**	Yes	N/A	S
PTX06-1173	16	1	6%	6.0	No	4.58	No	N/A	D
PTX06-1174	16	0	0%	ND	No	ND	Yes	N/A	ND
PTX06-1175	17	14	82%	**300.0**	Yes	**112.82**	Yes	N/A	D
PTX06-1176	16	5	31%	38.0	Yes	13.33	No	S	D
PTX06-1177	17	1	6%	50.0	Yes	10.47	No	D	NT
PTX06-1180	10	4	40%	6.0	No	4.91	No	--	D
PTX06-1181	9	4	44%	6.0	No	3.9	No	N/A	D
PTX06-1207	3	3	100%	15.1	No	10.37	No	--	N/A
PTX06-1209	1	1	100%	**51.8**	Yes	**51.8**	Yes	--	N/A
PTX06-1210	1	0	0%	ND	No	ND	Yes	--	N/A
PTX06-1211	1	1	100%	2.3	No	2.3	No	--	N/A
PTX07-1P02	10	0	0%	ND	No	ND	Yes	ND	ND
PTX08-1001	5	1	20%	6.0	No	3.64	No	S	S
PTX08-1003	6	6	100%	10.7	No	10.01	No	D	S
PTX08-1005	9	3	33%	6.0	No	4.86	No	S	S
PTX08-1006	10	10	100%	**261.0**	Yes	**71.46**	Yes	D	D
PTX08-1007	5	5	100%	8.8	No	7.49	No	S	I
PTX08-1008	12	12	100%	**382.0**	Yes	**312.53**	Yes	I	D
PTX08-1009	8	4	50%	6.0	No	4.64	No	--	S
PTX10-1014	6	6	100%	7.1	No	6.31	No	S	S

Notes

1. Trends were evaluated for data collected between January 2017 and December 2021. Trends from 2012 - 2016 from 2017 LTMO Report.
2. Number of Samples is the number of samples for the compound at this location.
   Number of Detects is the number of samples where the compound was detected at this location.
3. Maximum Result is the maximum concentration for the COC analyzed between 2017 and 2021. Results above MSCs are indicated in **Bold**.
4. Screening level from Corrective Measure Study. TCE = 5 µg/L; Perchlorate = 15 µg/L.
5. Maximum and average concentrations for wells with no detections are representative of the detection limits for the analyses.
6. D = Decreasing; PD = Probably Decreasing; S = Stable; PI = Probably Increasing; I = Increasing; N/A = Insufficient Data to determine trend;
   NT = No Trend; ND = well has all non-detect results for COC, ND* = one detection for compound, may be unaffected.
7. * = Single detection with changing detection limit, results in false trend or detection limits above remedial goals.

TABLE B-11
SUMMARY STATISTICS RESULTS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Recent Above MSC	TCE Concentration µg/L Mean	Median	SD	COV	95% UCL TCE µg/L	Distribution	Outlier
TCE Southwest Sector								
1114-MW4	Yes	12.5	14.1	4.6	0.37	**16.85**	Normal	No
PTX06-1006	No	1.0	1.1	0.1	0.14	1.16	Normal	No
PTX06-1007	No	0.5	0.0	0.0	0.00	0.52	Normal	No
PTX06-1008	No	2.1	2.1	0.8	0.40	3.09	Normal	No
PTX06-1012	No	1.1	0.9	0.5	0.45	**1.32**	Normal	No
PTX06-1035	Yes	4.3	4.3	1.9	0.44	**5.61**	Normal	Yes
PTX06-1052	Yes	1.2	0.0	1.6	1.35	2.97	No distribution	No
PTX06-1053	No	0.5	0.0	0.0	0.00	0.50	No distribution	No
PTX06-1077A	Yes	4.8	4.8	1.3	0.28	6.90	Normal	No
PTX06-1085	No	ND	--	--	--	--	--	--
PTX06-1086	No	ND	--	--	--	--	--	--
PTX06-1126	Yes	431.5	214.0	408.4	0.95	788.41	Lognormal	Yes
PTX06-1127	Yes	139.9	133.0	55.0	0.39	179.29	Normal	No
PTX06-1131	No	ND	0.0	0.0	0.00	0.50	No distribution	No
PTX06-1134	Yes	35.2	33.0	24.0	0.68	52.39	Normal	No
PTX06-1148	Yes	3.6	2.3	2.8	0.78	4.40	Lognormal	No
PTX06-1149	Yes	7.4	2.3	13.3	1.80	14.49	Lognormal	Yes
PTX06-1150	Yes	8.7	6.4	5.0	0.58	11.39	No distribution	No
PTX06-1151	Yes	120.2	112.0	22.2	0.18	136.06	Normal	No
PTX06-1155	Yes	7.5	1.0	15.0	2.00	12.92	No distribution	No
PTX06-1156	No	0.8	0.4	1.2	1.54	1.90	No distribution	No
PTX06-1159	Yes	245.6	252.0	87.1	0.35	292.74	Normal	No
PTX06-1160	No	0.2	0.0	0.3	1.87	0.55	No distribution	Yes
PTX06-1164	Yes	123.9	130.0	59.7	0.48	155.72	Normal	No
PTX06-1169	Yes	16.9	8.7	22.9	1.36	40.91	No distribution	Yes
PTX06-1170	No	192.0	140.0	126.3	0.66	263.56	Normal	No
PTX06-1171	Yes	326.6	339.0	25.5	0.08	358.32	Normal	No
PTX06-1173	No	33.0	1.6	54.7	1.66	61.05	No distribution	No
PTX06-1174	No	1.6	0.8	2.5	1.58	3.04	No distribution	Yes
PTX06-1175	Yes	108.7	120.0	32.4	0.30	126.01	Normal	No
PTX06-1176	Yes	17.1	1.1	24.6	1.44	30.12	No distribution	No
PTX06-1177	No	1.6	1.2	1.5	0.94	3.04	No distribution	No
PTX06-1180	Yes	403.9	382.0	69.6	0.17	453.66	Normal	No
PTX06-1181	No	ND	--	--	--	--	--	--
PTX06-1183	No	0.5	0.4	0.3	0.62	0.71	No distribution	Yes
PTX06-1207	No	0.9	0.8	0.3	0.38	1.77	Normal	No
PTX06-1209	Yes	329.0	N/A	N/A	N/A	N/A	No distribution	No
PTX06-1210	Yes	230.0	N/A	N/A	N/A	N/A	No distribution	No
PTX06-1211	Yes	336.0	N/A	N/A	N/A	N/A	No distribution	No
PTX07-1P02	No	ND	--	--	--	--	--	--
PTX07-1Q01	No	ND	--	--	--	--	--	--
PTX07-1Q02	No	ND	--	--	--	--	--	--
PTX07-1Q03	No	ND	--	--	--	--	--	--
PTX08-1001	No	ND	--	--	--	--	--	--
PTX08-1003	No	0.5	0.5	0.1	0.27	0.74	Normal	Yes
PTX08-1005	No	18.1	22.2	10.6	0.59	27.92	Normal	No
PTX08-1006	Yes	32.2	24.3	18.5	0.57	45.41	Lognormal	No
PTX08-1007	Yes	14.3	14.1	0.7	0.05	15.20	Normal	No
PTX08-1008	No	2.6	1.3	4.1	1.57	5.50	Lognormal	Yes
PTX08-1009	No	ND	--	--	--	--	--	--
PTX10-1014	Yes	21.3	15.0	12.5	0.58	29.77	Lognormal	Yes

Notes:
1. Summary statistics calculated using Kaplan Meier method. -- = Insufficient data to calculate a result.
2. Distribution determined by Shapiro Wilk method. Normal = normal distribution, Lognormal = log normal distribution; No distribution = neither normal nor lognormal, other distributions not tested.
3. Outlier in dataset determined by Dixon's method. Outliers are usually high values.
4. N/A = insufficient data. ND = Non-Detect.

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TABLE B-12
SPATIAL ANALYSIS SUMMARY RESULTS SOUTHWEST SECTOR
LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Perchlorate Average Slope Factor	SF COV	Area of Influence [ft2]	TCE Average Slope Factor	SF COV	Area of Influence [ft2]	Recommendation After Qualitative Review
1114-MW4	*0.14*	0.24	2.19E+06	*0.11*	0.56	2.19E+06	Retain Source Area
PTX06-1006	*0.15*	0.06	2.44E+06	0.35	0.27	2.44E+06	Retain
PTX06-1007	0.32	0.10	2.98E+06	0.55	0.23	2.98E+06	Retain
PTX06-1008	*0.24*	0.90	1.01E+06	0.31	0.62	1.01E+06	Retain
PTX06-1012	*0.25*	**1.18**	3.04E+05	0.39	0.28	3.04E+05	Retain
PTX06-1035	*0.25*	0.04	2.01E+06	*0.29*	0.40	2.01E+06	Retain
PTX06-1052	--	--	--	0.45	0.70	2.19E+06	Retain (sample for 1,4-dioxane)
PTX06-1053	0.40	0.95	3.02E+06	0.47	0.11	3.02E+06	Retain
PTX06-1077A	0.30	0.39	4.05E+06	*0.10*	0.27	4.05E+06	Retain
PTX06-1085	--	--	--	*0.00*	0.16	2.19E+06	May be redudant with PTX06-1086
PTX06-1086	--	--	--	*0.16*	0.15	8.53E+06	Retain
PTX06-1126	*0.19*	0.79	3.24E+05	0.35	0.11	3.24E+05	Retain
PTX06-1127	0.47	0.08	6.57E+05	0.37	0.05	6.57E+05	Retain
PTX06-1131	--	--	--	0.56	0.33	2.15E+06	Retain (sample for perchlorate)
PTX06-1134	0.49	0.02	1.26E+06	0.37	0.36	1.26E+06	Retain (Delineates TCE SW)
PTX06-1148	0.44	**1.10**	9.86E+05	*0.18*	0.62	9.86E+05	Retain
PTX06-1149	0.39	0.25	5.88E+05	*0.16*	0.77	5.88E+05	Retain
PTX06-1150	*0.20*	0.37	1.45E+06	*0.07*	0.38	1.45E+06	Retain
PTX06-1151	0.38	0.19	6.14E+05	*0.22*	0.01	6.14E+05	Retain
PTX06-1155	*0.07*	**1.17**	7.16E+04	0.46	0.99	7.16E+04	Retain
PTX06-1156	0.52	**1.18**	5.54E+05	0.37	0.55	5.54E+05	Retain
PTX06-1159	0.62	0.03	6.96E+05	0.51	0.04	6.96E+05	Retain
PTX06-1160	0.50	**1.05**	2.62E+06	0.65	0.07	2.62E+06	Retain (SE)
PTX06-1164	0.32	**1.21**	8.15E+04	0.42	0.06	8.15E+04	Retain
PTX06-1169	*0.28*	**1.02**	1.33E+05	*0.21*	0.99	1.33E+05	Retain
PTX06-1170	*0.25*	**1.18**	1.28E+05	0.37	0.55	1.28E+05	Retain
PTX06-1171	*0.21*	0.09	2.84E+05	*0.23*	0.01	2.84E+05	Retain
PTX06-1173	*0.23*	**1.15**	1.48E+05	0.45	0.84	1.48E+05	Retain
PTX06-1174	0.40	**1.14**	1.97E+05	0.49	0.44	1.97E+05	Retain
PTX06-1175	0.40	0.34	3.35E+05	0.57	0.04	3.35E+05	Retain
PTX06-1176	*0.21*	**1.22**	6.50E+04	0.39	0.77	6.50E+04	Retain
PTX06-1177	0.40	**1.61**	2.16E+05	0.53	0.34	2.16E+05	Retain
PTX06-1180	*0.19*	0.32	3.65E+05	0.58	0.00	3.65E+05	Retain
PTX06-1181	*0.22*	0.64	2.84E+06	0.76	0.11	2.84E+06	Retain
PTX06-1183	--	--	--	*0.29*	0.22	3.79E+05	Retain (sample for 1,4-dioxane)
PTX06-1207	0.33	0.10	2.09E+06	0.59	0.32	2.09E+06	Retain
PTX06-1209	0.45	--	1.60E+05	*0.20*	--	1.60E+05	Retain
PTX06-1210	0.70	--	1.86E+05	*0.20*	--	1.86E+05	Retain
PTX06-1211	0.32	--	2.26E+05	*0.13*	--	2.26E+05	Retain
PTX07-1P02	0.39	0.68	6.17E+05	0.33	0.09	6.17E+05	Retain
PTX07-1Q01	--	--	--	0.50	0.08	2.38E+06	Retain
PTX07-1Q02	--	--	--	*0.00*	0.09	2.78E+05	Retain (Delineates TCE SW)
PTX07-1Q03	--	--	--	*0.07*	0.00	6.22E+06	Retain (Delineates TCE SW)
PTX08-1001	*0.23*	0.70	1.25E+06	*0.11*	0.06	1.25E+06	Retain (N)
PTX08-1003	0.30	0.01	8.00E+06	0.39	0.11	8.00E+06	Retain
PTX08-1005	0.34	0.42	8.52E+05	*0.09*	0.17	8.52E+05	Retain
PTX08-1006	0.41	0.05	1.56E+06	0.31	0.05	1.56E+06	Retain
PTX08-1007	*0.27*	0.02	1.83E+06	0.47	0.00	1.83E+06	Retain
PTX08-1008	0.36	0.00	2.44E+06	0.32	0.64	2.44E+06	Retain
PTX08-1009	0.41	0.02	2.63E+06	0.33	0.10	2.63E+06	Retain (sample for 1,4-dioxane)
PTX10-1014	*0.12*	0.08	1.31E+06	0.43	0.08	1.31E+06	Retain

Notes:
1. Slope Factor (SF) is the difference between the actual concentration and the concentration estimated from nearby wells normalized by the actual concentration. Slope factors close to 1 show the concentrations cannot be estimated from the nearby wells, and the well is important in the network.
2. Slope factors were calculated using data collected between February 2017 and 2021.
3. Well locations with slope factors below 0.3 and area ratios below 0.8 were considered for elimination.
   Average slope factors below 0.3 are shown in *italic* and those above 0.8 are shown in **Bold**.
   SF COV above 1 are shown in **Bold**, indicating locations with fluctuating concentrations.
   Not all wells were sampled for perchlorate.
4. N/A = Locations with insufficient data between 2017 - 2021 to calculate a slope factor.
5. Wells recommended for elimination are not recommended for plugging and abandonment, but should be retained for hydrogeologic monitoring.
6. * = Well included in Southeast network, recommendation based on COCs from Southeast Sector.

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TABLE B-13
SAMPLING FREQUENCY ANALYSIS RESULTS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Recent Concentration Rate of Change [mg/yr]	Recent MK Trend (2017-2021)	Sampling Frequency Based on Recent Data (2017-2021)	Overall Concentration Rate of Change [mg/yr]	Overall MK Trend (2012 - 2021)	Sampling Frequency Based on Overall Data (2012 - 2021)	MAROS Recommended Sampling Frequency	LTM Plan Sampling Frequency
TCE Southwest Sector								
1114-MW4	7.25E-06	I	Semiannual	7.14E-06	I	Semiannual	Semiannual	Annual
PTX06-1006	1.74E-07	NT	Biennial	2.05E-07	NT	Biennial	Biennial	Annual
PTX06-1007	1.82E-08	S	Biennial	2.19E-08	S	Biennial	Biennial	Annual
PTX06-1008	1.11E-06	I	Biennial	1.10E-06	I	Biennial	Biennial	Annual
PTX06-1012	-8.42E-07	D	Biennial	-7.78E-07	D	Biennial	Biennial	Semiannual
PTX06-1035	2.93E-06	I	Biennial	2.87E-06	I	Biennial	Biennial	Semiannual
PTX06-1052	2.76E-06	I	Biennial	2.76E-06	NT	Biennial	Biennial	Semiannual
PTX06-1053	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	Annual
PTX06-1077A	2.40E-07	NT	Biennial	2.40E-07	NT	Biennial	Biennial	Annual
PTX06-1085	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	5 Years
PTX06-1086	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	5 Years
PTX06-1126	-3.25E-04	PD	Biennial	-3.69E-04	S	Biennial	Biennial	Semiannual
PTX06-1127	8.92E-05	I	Quarterly	9.27E-05	I	Quarterly	Quarterly	Semiannual
PTX06-1131	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	Annual
PTX06-1134	2.50E-05	PI	Semiannual	2.54E-05	NT	Quarterly	Quarterly	Semiannual
PTX06-1148	4.03E-06	I	Biennial	4.38E-06	I	Biennial	Biennial	Semiannual
PTX06-1149	1.88E-05	I	Quarterly	2.12E-05	I	Quarterly	Quarterly	Semiannual
PTX06-1150	8.53E-06	I	Semiannual	9.67E-06	I	Semiannual	Semiannual	Semiannual
PTX06-1151	6.61E-06	NT	Biennial	7.43E-06	NT	Annual	Biennial	Semiannual
PTX06-1155	1.73E-05	I	Quarterly	2.08E-05	I	Quarterly	Quarterly	Semiannual
PTX06-1156	5.60E-07	PD	Biennial	8.74E-07	S	Biennial	Biennial	Semiannual
PTX06-1159	-1.46E-04	D	Biennial	-1.51E-04	D	Biennial	Biennial	Semiannual
PTX06-1160	-5.11E-08	D	Biennial	-4.93E-08	PD	Biennial	Biennial	Semiannual
PTX06-1164	-2.25E-05	S	Biennial	-1.26E-05	S	Biennial	Biennial	Semiannual
PTX06-1169	7.16E-06	NT	Annual	1.37E-05	NT	Semiannual	Semiannual	Semiannual
PTX06-1170	-1.58E-04	D	Biennial	-1.83E-04	D	Biennial	Biennial	Semiannual
PTX06-1171	-3.94E-05	D	Biennial	-3.94E-05	D	Biennial	Biennial	Annual
PTX06-1173	2.96E-05	PI	Quarterly	2.01E-05	NT	Semiannual	Quarterly	Semiannual
PTX06-1174	2.77E-07	NT	Biennial	-9.89E-08	S	Biennial	Biennial	Semiannual
PTX06-1175	-4.88E-05	D	Biennial	-4.30E-05	D	Biennial	Biennial	Semiannual
PTX06-1176	-3.68E-05	D	Biennial	-3.09E-05	NT	Biennial	Biennial	Semiannual
PTX06-1177	-5.21E-07	NT	Biennial	-8.49E-07	NT	Biennial	Biennial	Semiannual
PTX06-1180	3.45E-06	NT	Biennial	7.82E-06	NT	Annual	Biennial	Semiannual
PTX06-1181	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	--
PTX06-1183	2.22E-07	NT	Biennial	2.05E-07	PI	Biennial	Biennial	Semiannual
PTX06-1207	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX06-1209	0.00E+00	N/A	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Semiannual
PTX06-1210	0.00E+00	N/A	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Semiannual
PTX06-1211	0.00E+00	N/A	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Semiannual
PTX07-1P02	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	Annual
PTX07-1Q01	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	5 Years
PTX07-1Q02	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	5 Years
PTX07-1Q03	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	--
PTX08-1001	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	Annual
PTX08-1003	-2.17E-07	S	Biennial	-1.97E-07	S	Biennial	Biennial	Annual
PTX08-1005	-1.81E-05	D	Biennial	-1.76E-05	D	Biennial	Biennial	Annual
PTX08-1006	1.49E-05	S	Semiannual	1.59E-05	S	Semiannual	Semiannual	Semiannual
PTX08-1007	-9.74E-07	S	Biennial	-9.85E-07	S	Biennial	Biennial	Annual
PTX08-1008	4.25E-06	I	Biennial	4.84E-06	I	Biennial	Biennial	Semiannual
PTX08-1009	0.00E+00	S	Biennial	0.00E+00	ND	Biennial	Biennial	Annual
PTX10-1014	1.34E-05	I	Semiannual	1.43E-05	I	Quarterly	Quarterly	Annual

See Notes End of Table

TABLE B-13
SAMPLING FREQUENCY ANALYSIS RESULTS SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Recent Concentration Rate of Change [mg/yr]	Recent MK Trend (2017-2021)	Sampling Frequency Based on Recent Data (2017-2021)	Overall Concentration Rate of Change [mg/yr]	Overall MK Trend (2012 - 2021)	Sampling Frequency Based on Overall Data (2012 - 2021)	MAROS Recommended Sampling Frequency	LTM Plan Sampling Frequency
Perchlorate Southwest Sector								
1114-MW4	-4.78E-05	D	Biennial	-4.78E-05	D	Biennial	Biennial	Annual
PTX06-1006	-1.52E-05	D	Biennial	-1.83E-05	D	Biennial	Biennial	Annual
PTX06-1007	-1.59E-05	S	Biennial	-1.92E-05	S	Biennial	Biennial	Annual
PTX06-1008	-3.26E-06	S	Biennial	-3.17E-06	S	Biennial	Biennial	Annual
PTX06-1012	-3.86E-06	D	Biennial	-4.52E-06	ND	Biennial	Biennial	Semiannual
PTX06-1035	1.08E-04	I	Quarterly	1.06E-04	NT	Semiannual	Quarterly	Semiannual
PTX06-1053	-3.58E-06	S	Biennial	-3.90E-06	S	Biennial	Biennial	Annual
PTX06-1077A	-2.32E-06	S	Biennial	-2.30E-06	S	Biennial	Biennial	Annual
PTX06-1126	-5.73E-05	D	Biennial	-5.65E-05	D	Biennial	Biennial	Semiannual
PTX06-1127	-2.33E-04	D	Biennial	-2.33E-04	D	Biennial	Biennial	Semiannual
PTX06-1134	9.44E-05	I	Quarterly	1.02E-04	I	Quarterly	Quarterly	Semiannual
PTX06-1148	-2.32E-04	D	Biennial	-2.15E-04	NT	Biennial	Biennial	Semiannual
PTX06-1149	4.13E-05	I	Semiannual	4.61E-05	I	Semiannual	Semiannual	Semiannual
PTX06-1150	-1.87E-05	D	Biennial	-1.77E-05	D	Biennial	Biennial	Semiannual
PTX06-1151	-4.60E-05	D	Biennial	-4.62E-05	D	Biennial	Biennial	Semiannual
PTX06-1155	-3.76E-06	D	Biennial	-4.39E-06	S	Biennial	Biennial	Semiannual
PTX06-1156	-3.86E-06	D	Biennial	-4.52E-06	ND	Biennial	Biennial	Semiannual
PTX06-1159	-1.86E-04	S	Biennial	-1.98E-04	S	Biennial	Biennial	Semiannual
PTX06-1160	-2.74E-06	D	Biennial	-4.04E-06	NT	Biennial	Biennial	Semiannual
PTX06-1164	-6.54E-05	D	Biennial	-5.87E-05	D	Biennial	Biennial	Semiannual
PTX06-1169	-4.20E-06	NT	Biennial	-4.52E-06	ND	Biennial	Biennial	Semiannual
PTX06-1170	-2.75E-06	PD	Biennial	-4.53E-06	S	Biennial	Biennial	Semiannual
PTX06-1171	-1.34E-05	S	Biennial	-1.34E-05	S	Biennial	Biennial	Annual
PTX06-1173	-3.73E-06	D	Biennial	-4.41E-06	S	Biennial	Biennial	Semiannual
PTX06-1174	-3.82E-06	D	Biennial	-4.52E-06	ND	Biennial	Biennial	Semiannual
PTX06-1175	-1.39E-04	D	Biennial	-1.21E-04	S	Biennial	Biennial	Semiannual
PTX06-1176	-2.00E-05	D	Biennial	-1.87E-05	PD	Biennial	Biennial	Semiannual
PTX06-1177	4.90E-06	NT	Biennial	8.92E-07	NT	Biennial	Biennial	Semiannual
PTX06-1180	-2.04E-06	D	Biennial	-2.18E-06	S	Biennial	Biennial	Semiannual
PTX06-1181	-4.37E-06	D	Biennial	-3.90E-06	PD	Biennial	Biennial	--
PTX06-1207	0.00E+00	N/A	Semiannual	0.00E+00	N/A	Semiannual	Semiannual	Semiannual
PTX06-1209	0.00E+00	N/A	Quarterly	0.00E+00	N/A	Quarterly	Quarterly	Semiannual
PTX06-1210	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX06-1211	0.00E+00	N/A	Annual	0.00E+00	N/A	Annual	Annual	Semiannual
PTX07-1P02	-3.83E-06	PD	Biennial	-4.52E-06	ND	Biennial	Biennial	Annual
PTX08-1001	-4.08E-06	S	Biennial	-4.08E-06	S	Biennial	Biennial	Annual
PTX08-1003	-3.74E-07	S	Biennial	-3.50E-07	S	Biennial	Biennial	Annual
PTX08-1005	-3.29E-06	S	Biennial	-3.63E-06	S	Biennial	Biennial	Annual
PTX08-1006	-1.23E-04	D	Biennial	-1.23E-04	NT	Biennial	Biennial	Semiannual
PTX08-1007	1.50E-06	I	Biennial	1.57E-06	I	Biennial	Biennial	Annual
PTX08-1008	-6.86E-05	D	Biennial	-6.20E-05	S	Biennial	Biennial	Semiannual
PTX08-1009	-2.62E-06	S	Biennial	-2.72E-06	S	Biennial	Biennial	Annual
PTX10-1014	-5.36E-07	S	Biennial	-5.61E-07	S	Biennial	Biennial	Annual

Notes:
1. 'Recent' concentration rate of change and MK trends are calculated from data collected 2017 - 2021.
2. MK = Mann Kendall Trend; D = Decreasing, PD = Probably Decreasing, S = Stable, NT = No Trend, PI = Probably Increasing, I = Increasing, ND = Non-detect, N/A = insufficient data, less than 4 sample events for time interval indicated.
3. Overall rate of change and MK trend are for the full data set (2012-2021) for each well.
4. MAROS Recommended Sampling Frequency is the sampling frequency from MAROS based on both recent and overall trends.
5. LTM Plan (CNS, Database) is the sampling frequency currently implemented.
6. The final recommended sampling frequency is listed on Table 8, and is based on a combination of qualitative and statistical evaluations.

TABLE B-14
FINAL RECOMMENDED MONITORING NETWORK SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

	TCE			Perchlorate				
Well Name	**Percent Detection**	**Mann Kendall Trend**	**Average SF**	**Percent Detection**	**Mann Kendall Trend**	**Average SF**	**Sampling Recommendation**	**Rationale**
Southwest Sector								
1114-MW4	100%	I	0.11	100%	D	0.14	Annual	UM, Monitors perchlorate source, decreasing trend of perchlorate, increasing trend of TCE
PTX06-1006	100%	NT	0.35	100%	D	0.15	Annual	PS, Monitors perchlorate source, decreasing trend.
PTX06-1007	60%	S	0.55	100%	S	0.32	Annual	UM, Monitors perchlorate, RDX and DNT4A sources.
PTX06-1008	100%	I	0.31	80%	S	0.24	Annual	UM, Zone 11, delineate northern plumes, increasing TCE trend.
PTX06-1012	100%	D	0.39	0%	ND	0.25	Annual	ISPM, RA, PS, TCE remedy monitoring.
PTX06-1035	100%	I	0.29	100%	I	0.25	Semiannual	PS, Delineates southern edge of plumes, increasing trends.
PTX06-1052	45%	I	0.45				Semiannual	RA, POC, Monitors near groundwater flow divide; Total Cr and Cr (VI); early warning for movement of COCs to south/southeastern extent of perched groundwater.
PTX06-1053	0%	ND	0.47	25%	S	0.40	Annual	PS, UM, Upgradient of groundwater divide and downgradient from SW ISB, low to ND concentrations.
PTX06-1077A	100%	NT	0.10	80%	S	0.30	Biennial	UM, Delineates Southwest Sector to the north, low concentrations for all COCs.
PTX06-1085	0%	ND	0.00				5 yrs	UM, Delineates western edge of plume near Playa 2, largely non-detect.
PTX06-1086	0%	ND	0.16				5 yrs	UM, Delineates western edge of plumes near Playa 2, largely non-detect.
PTX06-1126	100%	PD	0.35	100%	D	0.19	Semiannual	PS, UM, POC, Upgradient of ISB, core of perchlorate and 1,4-dioxane plumes.
PTX06-1127	100%	I	0.37	100%	D	0.47	Semiannual	PS, UM, POC, Upgradient of ISB, core of perchlorate and 1,4-dioxane plumes.
PTX06-1131	0%	ND	0.56				Biennial	UM, Delineates Southwest Sector to the southwest.
PTX06-1134	100%	PI	0.37	100%	I	0.49	Semiannual	PS, Downgradient from ISB remedy, potentially increasing and increasing concentration trends.

See notes end of table.

TABLE B-14
FINAL RECOMMENDED MONITORING NETWORK SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	TCE			Perchlorate			Sampling Recommendation	Rationale
	Percent Detection	Mann Kendall Trend	Average SF	Percent Detection	Mann Kendall Trend	Average SF		
Southwest Sector								
PTX06-1148	100%	I	0.18	89%	D	0.44	Semiannual	PS, RA, Downgradient from ISB remedy, high perchlorate concentrations confirm decreasing trends, tacks 1,4-dioxane to the SW.
PTX06-1149	75%	I	0.16	44%	I	0.39	Semiannual	PS, Downgradient from ISB remedy, increasing trends of TCE, perchlorate, and 1,4-dioxane.
PTX06-1150	100%	I	0.07	100%	D	0.20	Semiannual	PS, RA, Downgradient from ISB, low but increasing TCE and 1,4-dioxane and decreasing perchlorate concentrations.
PTX06-1151	100%	NT	0.22	100%	D	0.38	Annual	PS, RA, Upgradient western edge of ISB, monitors edge of TCE and perchlorate plume.
PTX06-1155	61%	I	0.46	6%	D	0.07	Semiannual	Downgradient from ISB, ISPM well, required for TCE remedy performance monitoring; RA, POC
PTX06-1156	38%	PD	0.37	0%	ND	0.52	Semiannual	Downgradient from ISB on east side, below remedial goals, increasing 1,4-dioxane trends; UM
PTX06-1159	100%	D	0.51	100%	S	0.62	Semiannual	PS, RA, Downgradient from ISB, high TCE and perchlorate concentrations.
PTX06-1160	30%	D	0.65	75%	D	0.50	Biennial	PS, RA, Western edge of TCE plume, low concentrations; (recommended as UM well).
PTX06-1164	100%	S	0.42	81%	D	0.32	Annual	RA, Monitors area within the western ISB remedy with stable to decreasing trends, in situ treatment zone.
PTX06-1169	100%	NT	0.21	0%	ND	0.28	Annual	RA, Monitors central ISB in an area of low TCE concentrations, low uncertainty.
PTX06-1170	100%	D	0.37	6%	PD	0.25	Semiannual	RA, Monitors in situ treatment zone of the central ISB, high, decreasing TCE concentrations.
PTX06-1171	100%	D	0.23	100%	S	0.21	Annual	RA, Upgradient of western ISB, high, decreasing TCE concentrations, stable perchlorate trends.
PTX06-1173	88%	PI	0.45	6%	D	0.23	Semiannual	RA, Downgradient of western ISB, possibly increasing TCE trends and high concentrations of cis-1,2-DCE.

See Notes End of Table

TABLE B-14
FINAL RECOMMENDED MONITORING NETWORK SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	TCE Percent Detection	TCE Mann Kendall Trend	TCE Average SF	Perchlorate Percent Detection	Perchlorate Mann Kendall Trend	Perchlorate Average SF	Sampling Recommendation	Rationale
Southwest Sector								
PTX06-1174	75%	NT	0.49	0%	ND	0.40	Annual	RA, Downgradient of western ISB, ISPM, high concentrations of cis-1,2-DCE, low concentrations of TCE.
PTX06-1175	100%	D	0.57	82%	D	0.40	Semiannual	RA, Downgradient of western ISB, ISPM, high TCE and perchlorate concentrations, decreasing trends.
PTX06-1176	81%	D	0.39	31%	D	0.21	Annual	RA, Monitors in situ treatment zone of the western ISB, decreasing concentration trends.
PTX06-1177	76%	NT	0.53	6%	NT	0.40	Annual	RA, Monitors in situ treatment zone of the western ISB, low TCE and perchlorate concentrations.
PTX06-1180	100%	NT	0.58	40%	D	0.19	Semiannual	PS, Monitors western edge of TCE plume upgradient from western edge of ISB.
PTX06-1181	0%	ND	0.76	44%	D	0.22	5 yrs	RA, Delineates TCE plume to the west, low detections.
PTX06-1183	30%	NT	0.29				Annual	PS, RA, SE Sector RDX/Cr (VI) monitoring downgradient from groundwater divide. Begin sampling for perchlorate and 1,4-dioxane.
PTX06-1207	100%	N/A	0.59	100%	N/A	0.33	Semiannual	PS, Downgradient of ISB monitors TCE and perchlorate plumes leading edge, aditional sampling required for trend analysis.
PTX06-1209	100%	N/A	0.20	100%	N/A	0.45	Semiannual	RA, Monitors in situ treatment zone of the eastern ISB, high TCE and perchlorate concentrations, additional sampling required for trend analysis.
PTX06-1210	100%	N/A	0.20	0%	N/A	0.70	Semiannual	RA, Monitors in situ treatment zone of the eastern ISB, high TCE and perchlorate concentrations, additional sampling required for trend analysis.
PTX06-1211	100%	N/A	0.13	100%	N/A	0.32	Semiannual	PS, Upgradient off the estern ISB, high TCE and 1,4-dioxane concentrations, additional sampling required for trend analysis.
PTX07-1P02	0%	ND	0.33	0%	ND	0.39	Annual	UM, POC, Monitor RDX increasing trend and boron plume west of Playa 1.
PTX07-1Q01	0%	ND	0.50	20%	S	0.23	5 yrs	UM, Delineates Southwest Sector to the southwest.

TABLE B-14
FINAL RECOMMENDED MONITORING NETWORK SOUTHWEST SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	TCE Percent Detection	TCE Mann Kendall Trend	TCE Average SF	Perchlorate Percent Detection	Perchlorate Mann Kendall Trend	Perchlorate Average SF	Sampling Recommendation	Rationale
Southwest Sector								
PTX07-1Q02	0%	ND	0.00				5 yrs	UM, Delineates Southwest Sector to the southwest.
See Notes End of Table								
PTX07-1Q03	0%	N/A	0.07				5 yrs	UM, Delineates Southwest Sector to the southwest.
PTX08-1001	0%	ND	0.11				Annual	UM, RA, Monitor RDX and boron plumes south of Playa 1.
PTX08-1003	83%	S	0.39	100%	S	0.30	Annual	PS, Delineates TCE northwest of Zone 11, concentrations below remedial goals.
PTX08-1005	100%	D	0.09	33%	S	0.34	Annual	UM, Monitors area between TCE sources and ISB.
PTX08-1006	100%	S	0.31	100%	D	0.41	Annual	UM, Monitors upgradient area of high perchlorate, TCE, 1,4-dioxane, potential source.
PTX08-1007	100%	S	0.47	100%	I	0.27	Annual	UM, Monitors Zone 11 source area, stable to increasing concentrations.
PTX08-1008	80%	I	0.32	100%	D	0.36	Semiannual	RA, UM, Monitors area south of Zone 11, Cr (VI) and perchlorate plumes.
PTX08-1009	0%	ND	0.33	50%	S	0.41	Biennial	RA, UM, Monitors area south of Zone 11/12, limited detections of COCs.
PTX10-1014	100%	I	0.43	100%	S	0.12	Annual	UM, Source area, north of Zone 11/12, increasing TCE trends.

Notes:
1. D = Decreasing; PD = Probably Decreasing; S = Stable; PI = Probably Increasing; I = Increasing; N/A = Insufficient Data to determine trend; NT = No Trend; ND = well has all non-detect results for COC indicated. NA = Not applicable, no longer in active.
2. Mann-Kendall trends for 2017 - 2021 are shown.
3. SF = Slope Factor. SF close to 1 indicates well provides unique information in network. SF near 0 indicates well may be redundant.
4. * = Well also evaluated for other Sectors.

TABLE B-15
PERCHED GROUNDWATER INVESTIGATION WELLS NORTH SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Earliest Sample Date[3]	Most Recent Sample Date	Number of Samples (2017-2021)	Primary COC at Well	Area
North Sector					
OW-WR-38	4/25/2017	5/20/2021	8	RDX	Playa 1
PTX01-1001	4/25/2017	11/8/2021	9	Perchlorate	Burning Ground
PTX01-1008	4/25/2017	11/8/2021	8	RDX	Burning Ground
PTX04-1001	8/29/2017	8/1/2019	3	TCE	North
PTX04-1002	8/29/2017	8/1/2021	4	1,4-Dioxane	North
PTX06-1013	4/25/2017	5/20/2021	5	RDX	(SE)
PTX06-1023	2/23/2017	2/28/2020	10	RDX	(SE)
PTX06-1048A	4/25/2017	5/20/2021	4	TCE	Playa 1
PTX06-1049	4/25/2017	8/1/2021	11	RDX	Playa 1
PTX06-1050	4/25/2017	2/28/2020	8	RDX	Source/Playa 1
PTX06-1069	8/1/2021	8/1/2021	1	Cr (tot)	Playa 1 (SE)
PTX06-1071	8/1/2021	8/1/2021	1	None	North
PTX06-1079	1/23/2019	1/23/2019	1	Boron	North
PTX06-1081	8/29/2017	8/1/2019	3	RDX	North
PTX06-1117	10/23/2018	10/29/2019	3	RDX	Playa 1
PTX06-1128	10/23/2018	8/20/2020	4	RDX	Playa 1
PTX07-1O02	11/8/2021	11/8/2021	1	TCE	Playa 1
PTX07-1O03	8/29/2017	8/1/2021	5	RDX	Playa 1
PTX07-1P02	4/25/2017	11/8/2021	12	RDX	Playa 1 (SW)
PTX07-1R03	8/1/2021	8/1/2021	1	None	West
PTX08-1001	4/25/2017	5/20/2021	5	RDX	Playa 1 (SW)
PTX08-1002	4/25/2017	11/8/2021	9	RDX	Source/Playa 1 (SE)
PTX08-1010	8/1/2021	8/1/2021	1	None	North

Notes:
1. Wells listed are investigation wells in current monitoring program. Wells that were dry during the recent five years are not listed. Some wells included in more than one Sector for spatial analysis. N = North; SE = Southeast; SW = Southwest;
2. Data from CNS database received April, 2022.
3. Sampling dates for wells range from February 2017 (earliest sample dates) to November 2021 (most recent sample dates).
4. The priority chemical of concern (COC) at each well is the constituent detected at the highest level normalized by the MSC or appropriate remedial goal.
5. Number of samples is the number of individual sample dates in the database for the priority COC, results from duplicate samples from the same date are averaged.
6. RDX = Hexahydro, 1,3,5-trinitro, 1,3,5-triazine; TCE = trichloroethene; DNT4A = 4-Amino, 2,6-dinitrotoluene; Cr(VI) = Hexavalent Chromium.
7. MAROS Goup is the goup assigned for an aggregate trend determination:
   SEPTS = Extraction picket in SE Sector; SE ISB = Southeast In Situ Bioremediation
   ISB Zone 11 = In Situ Bioremediation Zone 11; Playa 1 = Perched unit beneath Playa 1.

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TABLE B-16
MONITORING WELL TREND SUMMARY RESULTS NORTH SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Number of Samples (2017 - 2021)	Number of Detects	Percent Detection	Maximum Concentration [µg/L]	Maximum Above MSC?	Average Concentration [µg/L]	Average Above MSC?	Mann-Kendall Trend 2012 - 2016	Mann-Kendall Trend 2017 - 2021
RDX North Sector									
OW-WR-38	8	8	100%	**52.3**	Yes	**26.8**	Yes	I	I
PTX01-1001	9	0	0%	ND	No	ND	No	ND	ND
PTX01-1008	8	0	0%	ND	No	ND	No	D	ND
PTX04-1001	3	2	67%	0.13	No	0.1	No	ND	N/A
PTX04-1002	4	4	100%	0.22	No	0.2	No	NT	S
PTX06-1013	5	5	100%	**6.48**	Yes	**5.3**	Yes	PD	S
PTX06-1023	10	4	40%	0.65	No	0.2	No	D	NT
PTX06-1048A	4	1	25%	0.14	No	0.1	No	ND	S
PTX06-1049	11	11	100%	**6.49**	Yes	**2.7**	Yes	NT	I
PTX06-1050	8	8	100%	**421**	Yes	**199.3**	Yes	PD	I
PTX06-1069	1	0	0%	ND	No	ND	No	NT	N/A
PTX06-1071	1	0	0%	ND	No	ND	No	N/A	N/A
PTX06-1079	1	0	0%	ND	No	ND	No	--	N/A
PTX06-1081	3	0	0%	ND	No	ND	No	NT	N/A
PTX06-1117	3	3	100%	**13.4**	Yes	**10.9**	Yes	--	N/A
PTX06-1128	4	4	100%	**9.59**	Yes	**8.0**	Yes	--	N/A
PTX07-1O02	1	1	100%	0.1	No	0.1	No	PI	N/A
PTX07-1O03	5	5	100%	**45.9**	Yes	**39.9**	Yes	I	S
PTX07-1P02	12	12	100%	**13**	Yes	**5.7**	Yes	I	I
PTX07-1R03	1	0	0%	ND	No	ND	No	N/A	N/A
PTX08-1001	5	5	100%	**123**	Yes	**34.7**	Yes	S	NT
PTX08-1002	9	9	100%	**142**	Yes	**27.0**	Yes	S	NT
PTX08-1010	1	0	0%	ND	No	ND	No	N/A	N/A
DNT4A North Sector									
OW-WR-38	8	4	50%	0.14	No	0.1	No	--	S
PTX01-1001	9	0	0%	ND	No	ND	No	S	ND
PTX01-1008	8	0	0%	ND	No	ND	No	--	ND
PTX04-1001	3	0	0%	ND	No	ND	No	--	N/A
PTX04-1002	4	0	0%	ND	No	ND	No	--	ND
PTX06-1013	5	0	0%	ND	No	ND	No	--	ND
PTX06-1023	10	0	0%	ND	No	ND	No	--	ND
PTX06-1048A	4	3	75%	0.13	No	0.1	No	D	S
PTX06-1049	11	11	100%	**1.84**	Yes	**1.2**	Yes	D	S
PTX06-1050	8	8	100%	**6.59**	Yes	**4.5**	Yes	D	D
PTX06-1069	1	0	0%	ND	No	ND	No	--	N/A
PTX06-1071	1	0	0%	ND	No	ND	No	--	N/A
PTX06-1079	1	0	0%	ND	No	ND	No	--	N/A
PTX06-1081	3	0	0%	ND	No	ND	No	--	N/A
PTX06-1117	3	0	0%	ND	No	ND	No	--	N/A
PTX06-1128	4	0	0%	ND	No	ND	No	--	N/A
PTX07-1O02	1	0	0%	ND	No	ND	No	--	N/A
PTX07-1O03	5	0	0%	ND	No	ND	No	--	ND
PTX07-1P02	12	0	0%	ND	No	ND	No	--	ND
PTX07-1R03	1	0	0%	ND	No	ND	No	--	N/A
PTX08-1001	5	1	20%	0.18	No	0.1	No	S	PD
PTX08-1002	9	8	89%	**2.82**	Yes	**1.2**	Yes	PD	PD
PTX08-1010	1	0	0%	ND	No	ND	No	--	N/A

See Notes End of Table

TABLE B-16
MONITORING WELL TREND SUMMARY RESULTS NORTH SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

WellName	Number of Samples (2017 - 2021)	Number of Detects	Percent Detection	Maximum Concentration [µg/L]	Maximum Above MSC?	Average Concentration [µg/L]	Average Above MSC?	Mann-Kendall Trend 2012 - 2016	Mann-Kendall Trend 2017 - 2021
Boron North Sector									
OW-WR-38	6	6	100%	**706**	Yes	461.1	No	NT	I
PTX01-1001	9	9	100%	70.2	No	62.2	No	S	I
PTX01-1008	8	8	100%	58.3	No	51.7	No	S	I
PTX04-1001	3	3	100%	155	No	134.3	No	N/A	N/A
PTX04-1002	4	4	100%	150	No	128.5	No	NT	S
PTX06-1013	5	5	100%	485	No	471.0	No	PD	S
PTX06-1023	10	10	100%	106	No	95.9	No	S	S
PTX06-1048A	4	4	100%	80.5	No	76.7	No	S	D
PTX06-1049	9	9	100%	132	No	119.1	No	PI	PI
PTX06-1050	8	8	100%	**1140**	Yes	**894.9**	Yes	D	I
PTX06-1069	1	1	100%	125	No	125.0	No	S	N/A
PTX06-1071	1	1	100%	97.9	No	97.9	No	N/A	N/A
PTX06-1079	1	1	100%	67.2	No	67.2	No	--	N/A
PTX06-1081	3	3	100%	82.2	No	79.9	No	NT	N/A
PTX06-1117	3	3	100%	**954**	Yes	**925.8**	Yes	--	N/A
PTX06-1128	4	4	100%	**605**	Yes	490.2	No	--	N/A
PTX07-1O02	1	1	100%	83	No	83.0	No	S	N/A
PTX07-1O03	5	5	100%	449	No	419.8	No	NT	S
PTX07-1P02	10	10	100%	**1310**	Yes	**947.1**	Yes	NT	I
PTX07-1R03	1	1	100%	131	No	131.0	No	N/A	N/A
PTX08-1001	5	5	100%	**1330**	Yes	**943.4**	Yes	S	S
PTX08-1002	9	9	100%	**831**	Yes	**529.6**	Yes	PD	NT
PTX08-1010	1	1	100%	134	No	134.0	No	N/A	N/A
Chromium North Sector									
No exceedances for Cr (VI) and single exceedance for Total Cr 2017 - 2021									
PTX06-1128	4	4	100%	**126**	Yes	66.8	No	--	N/A
TCE North Sector									
No exceedances for TCE 2017 - 2021									

Notes

1. Only wells where the COC indicated was detected are shown. Trends were evaluated for data collected between January 2017 and December 2021.
2. Number of Samples is the number of samples for the compound at this location during 2017 - 2021.
   Number of Detects is the number of samples where the compound was detected at this location.
3. The maximum concentration for the COC is the maximum analytical result analyzed between 2017 and 2021. Results above MSCs/remedial goals are indicated in **Bold**.
4. MSCs = Medium Specific Concentration from Corrective Measure Study. RDX = 2 µg/L; DNT4A = 1.2 µg/L; TCE = 5 µg/L; Cr (VI) = 100 µg/L;
   Perchlorate = 15 µg/L; Boron = 500 µg/L.
5. No exceedances of Cr(VI) were found in North Sector wells.
6. D = Decreasing; PD = Probably Decreasing; S = Stable; PI = Probably Increasing; I = Increasing; N/A = Insufficient Data to determine trend;
   NT = No Trend; ND = well has all non-detect results for COC; ND* = one detection for compound, may be unaffected.

TABLE B-17
FINAL RECOMMENDED GROUNDWATER MONITORING NETWORK NORTH SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Priority COPC	Maximum Above MSC?	MK Trend	Sampling Frequency Recommendation	Rationale
North Sector					
OW-WR-38	RDX	Yes	I	Annual	UM, RA, Monitors source area in north adjacent to Playa 1
PTX01-1001	None	--	--	Annual	UM and POC in Burning Ground, limited saturated thickness, low concentrations of COCs
PTX01-1008	None	--	--	Annual	UM and POC in Burning Ground, limited saturated thickness
PTX04-1001	None	--	--	5 yrs	UM in NE corner of DOE property.
PTX04-1002	None	--	--	5 yrs	UM in NE corner of DOE property.
PTX06-1013	RDX	Yes	S	Annual	RA, Edge of perched unit east of Playa 1. Monitor for boron and RDX.
PTX06-1023	RDX	No	NT	Biennial	RA, POC, Edge of perched unit east of Playa 1. Monitor for boron and RDX.
PTX06-1048A	TCE	No	S	Annual	PS, RA, TCE detections slightly below remedial goals and stable trend; Delineates north/northeast of perched unit.
PTX06-1049	RDX	Yes	I	Annual	PS, UM, Low concentrations of COCs with increasing RDX trend, delineates northwest of Zone 11
PTX06-1050	RDX	Yes	I	Semiannual	UM, RA, POC, Monitors area northwest of Playa 1, area of highest RDX concentration in North Sector.
PTX06-1069	Cr (tot)	No	N/A	5 yrs	PS, Monitors eastern extent of perched unit. Continue to monitor for plume staiblity.
PTX06-1071	None	--	--	5 yrs	UM, Non-detect for most COCs, Monitors SWMU 140, NE corner of DOE property.
PTX06-1079	None	--	--	5 yrs	UM, Non-detect for COCs, NE corner of DOE property.

See Notes End of Table

TABLE B-17
FINAL RECOMMENDED GROUNDWATER MONITORING NETWORK NORTH SECTOR

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	Priority COPC	Maximum Above MSC?	MK Trend	Sampling Frequency Recommendation	Rationale
North Sector					
PTX06-1081	None	--	--	5 yrs	UM, Non-detect for most COCs, NE corner of DOE property.
PTX06-1117	RDX	Yes	N/A	Annual	PS, RA, Monitor RDX and boron plumes south of Playa 1.
PTX06-1128	RDX	Yes	N/A	Annual	PS, RA, Monitor RDX and boron plumes east of Playa 1.
PTX07-1O02	None	--	--	Biennial	PS, UM, RA, POC, Monitors SWMU 68b.
PTX07-1O03	RDX	Yes	S	Annual	PS, UM, RA, Monitors SWMU 68b, stable RDX concentration trend.
PTX07-1P02	RDX	Yes	I	Annual	UM, POC, Monitors increasing RDX trend and boron plume west of Playa 1.
PTX07-1R03	None	--	--	5 yrs	UM, Monitors isolated area of groundwater northwest of Playa 2.
PTX08-1001	RDX	Yes	NT	Annual	UM, RA, Monitor RDX and boron plumes south of Playa 1.
PTX08-1002	RDX	Yes	--	Annual	UM, RA, Monitor RDX plume south of Playa 1.
PTX08-1010	None	--	--	5 yrs	UM, RA, limited detections of COPCs below remedial goals, NE corner of DOE property.

Notes:
1. MSC = Medium Specific Concentration.
2. D = Decreasing; PD = Probably Decreasing; S = Stable; PI = Probably Increasing; I = Increasing; N/A = Insufficient Data to determine trend; NT = No Trend; ND = well has all non-detect results for COC indicated; N/C not calculated.
3. Mann-Kendall trends for 2017 - 2021 are shown.
4. PS = Plume Stability, RA = Remedial Action, UM = Uncertainty Management, POC = Point of Compliance.

TABLE B-18
SUMMARY MONITORING NETWORK RECOMMENDATIONS

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	MAROS Analysis Sector	Indicator Area/Secondary Objectives	Priority COC at Well	LTM Objectives	Frequency Analysis Result
1114-MW4	Southwest	Source	PERCHLORATE	UM	Annual
OW-WR-38	North	Playa 1	RDX	UM, RA	Annual
PTX01-1001	North	Burning Ground	None	UM, POC	Annual
PTX01-1008	North	Burning Ground	None	UM, POC	Annual
PTX04-1001	North	North	None	None	5 yrs
PTX04-1002	North	North	None	UM	5 yrs
PTX06-1002A	Southeast	Source	RDX	UM, RA	Annual
PTX06-1005	Southeast	Source	RDX	UM, RA	Annual
PTX06-1006	Southwest	Source	RDX	PS	Annual
PTX06-1007	Southwest	Source	RDX	UM	Annual
PTX06-1008	Southwest/Southeast	Source	1,2-DICHLOROETHANE	UM	Annual
PTX06-1010	Southeast	Source	CHROMIUM, TOTAL	UM	Annual
PTX06-1011	Southeast	Source	TCE	UM	Annual
PTX06-1012	Southwest	ISPM	TCE	PS, RA	Annual
PTX06-1013	North/Southeast	P1PTS	RDX	RA	Annual
PTX06-1014	Southeast	SEPTS	RDX	RA	Annual
PTX06-1015	Southeast	SEPTS	RDX	RA	Annual
PTX06-1023	North/Southeast	P1PTS	RDX	RA, POC	Annual
PTX06-1031	Southeast	East edge	RDX	RA, POC	Semiannual
PTX06-1034	Southeast	East edge	RDX	PS, RA, POC	Semiannual
PTX06-1035	Southwest	ISPM	PERCHLORATE	PS	Semiannual
PTX06-1037	Southeast	ISPM (Dry)	None	RA	Semiannual
PTX06-1038	Southeast	SEPTS	RDX	RA	Annual
PTX06-1039A	Southeast	SEPTS	RDX	RA	Annual
PTX06-1040	Southeast	SEPTS	RDX	RA	Annual
PTX06-1041	Southeast	SEPTS	RDX	RA	Annual
PTX06-1042	Southeast	SEPTS	RDX	RA, POC	Semiannual
PTX06-1045	Southeast	ISPM (Dry)		RA, POC	Semiannual
PTX06-1046	Southeast	SEPTS	RDX	RA, POC	Semiannual
PTX06-1047A	Southeast	SE Migration	RDX	RA	Semiannual
PTX06-1048A	North	Playa 1	TCE	PS, RA	Annual
PTX06-1049	North	Playa 1	RDX	PS	Annual
PTX06-1050	North	Source/Playa 1	RDX	UM, RA, POC	Semiannual
PTX06-1052	Southwest/Southeast	ISPM	CHROMIUM, TOTAL	RA, POC	Annual
PTX06-1053	Southwest/Southeast	ISPM	None	PS, UM	Annual
PTX06-1069	North/Southeast	East edge	None	PS	Annual
PTX06-1071	North	North	None	UM	5 yrs
PTX06-1077A	Southwest	Zone 11	TCE	UM	Biennial
PTX06-1079	North	North	None	None	5 yrs
PTX06-1081	North	North	None	None	5 yrs
PTX06-1082	PantexLake	PantexLake	None	UM	5 yrs
PTX06-1083	PantexLake	PantexLake	None	UM	5 yrs
PTX06-1085	Southwest	Playa 2	None	UM	5 yrs
PTX06-1086	Southwest	Playa 2	None	UM	5 yrs
PTX06-1088	Southeast	Source	RDX	UM, RA	Semiannual
PTX06-1095A	Southeast	Source	RDX	RA, UM	Annual
PTX06-1098	Southeast	ISPM	None	RA	Annual

See Notes End of Table

TABLE B-18
SUMMARY MONITORING NETWORK RECOMMENDATIONS

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	MAROS Analysis Sector	Indicator Area/Secondary Objectives	Priority COC at Well	LTM Objectives	Frequency Analysis Result
PTX06-1100	Southeast	ISPM	None	None	Biennial
PTX06-1101	Southeast	ISPM	RDX	RA	Annual
PTX06-1117	North	Playa 1	RDX	None	Annual
PTX06-1120	Southeast	SE Migration	RDX	PS	Annual
PTX06-1126	Southwest	Upgradient ISB	TCE	PS, POC	Semiannual
PTX06-1127	Southwest	Upgradient ISB	RDX	PS, POC	Semiannual
PTX06-1128	North	Playa 1	RDX	None	Annual
PTX06-1131	Southwest	Zone 10	Boron	UM	Biennial
PTX06-1133A	Southeast	SE Migration	CHROMIUM, TOTAL	PS	Annual
PTX06-1134	Southwest	SW Migration	TCE	PS	Semiannual
PTX06-1146	Southeast	East edge	RDX	PS, POC	Semiannual
PTX06-1147	Southeast	East edge	RDX	PS	Semiannual
PTX06-1148	Southwest/Southeast	ISPM	PERCHLORATE	RA	Semiannual
PTX06-1149	Southwest	ISPM	PERCHLORATE	RA	Semiannual
PTX06-1150	Southwest	ISPM	PERCHLORATE	RA	Semiannual
PTX06-1151	Southwest	Upgradient ISB	TCE	PS	Annual
PTX06-1153	Southeast	ISPM	RDX	RA, POC	Semiannual
PTX06-1154	Southeast	ISPM	TNX	RA, POC	Semiannual
PTX06-1155	Southwest	ISPM	TCE	RA, POC	Semiannual
PTX06-1156	Southwest	ISPM	None	RA, POC	Semiannual
PTX06-1159	Southwest	SW Migration	TCE	PS	Semiannual
PTX06-1160	Southwest	SW Migration	PERCHLORATE	PS	Biennial
PTX06-1164	Southwest	ISTZ	TCE	TZM	Annual
PTX06-1166	Southeast	GW Divide	RDX	PS	Annual
PTX06-1169	Southwest	ISTZ	TCE	TZM	Biennial
PTX06-1170	Southwest	ISTZ	TCE	TZM	Semiannual
PTX06-1171	Southwest	ISPM	TCE	PS	Annual
PTX06-1173	Southwest	ISPM	TCE	RA	Semiannual
PTX06-1174	Southwest	ISPM	TCE	RA	Annual
PTX06-1175	Southwest	ISPM	TCE	RA	Semiannual
PTX06-1176	Southwest	ISTZ	TCE	TZM	Annual
PTX06-1177	Southwest	ISTZ	TCE	TZM	Annual
PTX06-1180	Southwest	ISB	TCE	PS	Semiannual
PTX06-1181	Southwest	ISB	None	None	5 yrs
PTX06-1182	Southeast	SE Migration	RDX	PS	Annual
PTX06-1183	Southwest	GW Divide	CHROMIUM, TOTAL	PS	Annual
PTX06-1184	Southeast	SE Edge	RDX	PS	Semiannual
PTX06-1185	Southeast	Upgradient ISB	RDX	PS	Semiannual
PTX06-1190	Southeast	Upgradient ISB	RDX	PS	Semiannual
PTX06-1191	Southeast	ISPM	RDX	PS, RA	Semiannual
PTX06-1192	Southeast	Offsite	CHROMIUM, HEXAVALENT	PS	Semiannual
PTX06-1194	Southeast	ISPM	RDX	PS, RA	Semiannual
PTX06-1195	Southeast	Offsite	RDX	PS	Semiannual
PTX06-1196	Southeast	ISPM	RDX	PS, RA	Semiannual
PTX06-1197	Southeast	Downgradient of Offsite ISB	RDX	PS	Semiannual
PTX06-1199	Southeast	Downgradient of Offsite ISB	RDX	PS	Semiannual

TABLE B-18
SUMMARY MONITORING NETWORK RECOMMENDATIONS

LONG-TERM MONITORING OPTIMIZATION
PANTEX PLANT
Carson County, Texas

Well Name	MAROS Analysis Sector	Indicator Area/Secondary Objectives	Priority COC at Well	LTM Objectives	Frequency Analysis Result
See Notes End of Table					
PTX06-1200	Southeast	Downgradient of Offsite ISB	BORON	PS	Semiannual
PTX06-1201	Southeast	Downgradient of Offsite ISB	RDX	PS	Semiannual
PTX06-1202	Southeast	Downgradient of Offsite ISB	RDX	PS	Semiannual
PTX06-1203	Southeast	Downgradient of Offsite ISB	RDX	PS	Semiannual
PTX06-1204	Southeast	Downgradient of Offsite ISB	RDX	PS	Semiannual
PTX06-1207	Southwest	SW Migration	4ADNT	PS	Semiannual
PTX06-1208	Southeast	Downgradient of Offsite ISB	CHROMIUM, TOTAL	PS	Annual
PTX06-1209	Southwest	ISTZ	TCE	TZM	Semiannual
PTX06-1210	Southwest	ISTZ	TCE	TZM	Semiannual
PTX06-1211	Southwest	Upgradient ISB	TCE	PS	Semiannual
PTX06-1213	Southeast	ISTZ	CHROMIUM, TOTAL	TZM	Annual
PTX06-1214	Southeast	ISTZ	None	TZM	Annual
PTX07-1O02	North	Playa 1	None	PS, UM, RA, POC	Biennial
PTX07-1O03	North	Playa 1	RDX	PS, UM, RA	Annual
PTX07-1P02	North/Southwest	Playa 1	RDX	UM, POC	Annual
PTX07-1Q01	Southwest	Zone 10	None	UM	5 yrs
PTX07-1Q02	Southwest	Zone 10	None	UM	5 yrs
PTX07-1Q03	Southwest	Zone 10	None	None	5 yrs
PTX07-1R03	North	West perched	None	UM	5 yrs
PTX08-1001	North/Southwest	Playa 1	RDX	UM, RA	Annual
PTX08-1002	North/Southeast	Source/Playa 1	RDX	UM, RA	Annual
PTX08-1003	Southwest	Zone 11	None	PS	Annual
PTX08-1005	Southwest	Source	TCE	UM	Annual
PTX08-1006	Southwest	Source	RDX	UM	Annual
PTX08-1007	Southwest/Southeast	Source	1,2-DICHLOROETHANE	UM	Annual
PTX08-1008	Southwest/Southeast	Source	CHROMIUM, HEXAVALENT	UM/RA	Biennial
PTX08-1009	Southwest/Southeast	Source	RDX	UM, RA	Biennial
PTX08-1010	North	North edge	None	UM	5 yrs
PTX10-1014	Southwest/Southeast	Source	TCE	UM	Biennial
Four Potential New Wells					
Southeast	Between PTX06-1195 and PTX06-1196		Southeast	UM, RA	Semiannual
Southeast	Northeast of PTX-06-1199		Southeast	UM	Semiannual
Southeast	East of PTX06-1042 and north of PTX06-1147		Southeast	PS, RA	Semiannual
Southwest	South of PTX08-1008		Southwest	UM	Semiannual
Southwest	Downgradient of PTX06-1035		Southwest	PS, UM	Semiannual

Notes:

1. SW = Southwest, N = North, SE = Southeast, ISPM = In situ performance monitoring, ISTZ = In situ treatment zone, SEPTS = Southeast Pump and Treat System; P1PTS = Playa 1 Pump and Treat System; ISB = In situ bioremediation, GW = groundwater, Dry = well intermittently dry.
2. Priority COCs represent the highest ratio of average concentration to remedial goal.
3. LTM Monitoring Objectives: PS = Plume Stability; UM = Uncertainty Management; RA = Response Action Effectiveness.

M = Treatment zone monitoring

4. Monitoring frequency recommendation from MAROS analysis and qualitative review.

APPENDIX C

MAROS REPORTS

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SOUTHEAST SECTOR MAROS REPORTS

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MAROS COC Assessment

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Toxicity:

Contaminant of Concern	Representative Concentration (mg/L)	PRG (mg/L)	Percent Above PRG
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	2.7E-01	2.0E-03	13459.5%
TNX	1.3E-02	2.0E-03	560.1%
PERCHLORATE	7.7E-02	1.5E-02	411.8%
MNX	2.6E-03	2.0E-03	31.0%
CHROMIUM, TOTAL	1.1E-01	1.0E-01	5.0%
ARSENIC	1.2E-02	1.2E-02	0.2%

Note: Top COCs by toxicity were determined by examining a representative concentration for each compound over the entire site. The compound representative concentrations are then compared with the chosen PRG for that compound, with the percentage exceedance from the PRG determining the compound's toxicity. All compounds above exceed the PRG.

Prevalence:

Contaminant of Concern	Class	Total Wells	Total Exceedance	Percent Exceedances	Total Detects
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	ORG	69	39	56.5%	63
TNX	ORG	69	29	42.0%	46
PERCHLORATE	INO	8	2	25.0%	8
ARSENIC	MET	18	3	16.7%	17
CHROMIUM, TOTAL	MET	68	9	13.2%	62
MNX	ORG	69	4	5.8%	33

Note: Top COCs by prevalence were determined by examining a representative concentration for each well location at the site. The total exceedances (values above the chosen PRGs) are compared to the total number of wells to determine the prevalence of the compound.

Mobility:

Contaminant of Concern	Kd/Koc
TNX	
PERCHLORATE	
MNX	
CHROMIUM, TOTAL	
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	0.00741
ARSENIC	25

MAROS COC Assessment

Project: Pantex | **User Name:** JM
Location: Southeast | **State:** Texas

Note: Top COCs by mobility were determined by examining each detected compound in the dataset and comparing their mobilities (Koc's for organics, assuming foc = 0.001, and Kd's for metals).

Priority Constituents by Well:

Well Name	Average	Max
PTX06-1002A	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1005	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1008	1,2-DICHLOROETHANE	1,2-DICHLOROETHANE
PTX06-1010	CHROMIUM, TOTAL	CHROMIUM, TOTAL
PTX06-1011	CHROMIUM, TOTAL	TRICHLOROETHYLENE (TCE
PTX06-1013	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1014	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1015	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1023	MOLYBDENUM	HEXAHYDRO-1,3,5-TRINITR
PTX06-1030	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1031	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1034	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1036	BORON	HEXAHYDRO-1,3,5-TRINITR
PTX06-1037	ARSENIC	ARSENIC
PTX06-1038	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1039A	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1040	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1041	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1042	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1045	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1046	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1047A	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1052	CHROMIUM, TOTAL	CHROMIUM, TOTAL
PTX06-1053	2,6-DINITROTOLUENE	2-AMINO-4,6-DINITROTOL
PTX06-1069	MANGANESE	CHROMIUM, TOTAL
PTX06-1088	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1095A	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1098	BARIUM	BARIUM
PTX06-1100	BARIUM	BARIUM
PTX06-1101	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1102	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR

MAROS COC Assessment

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

PTX06-1120	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1121	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1123	TNX	TNX
PTX06-1130	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1133A	1,2-DICHLOROETHANE	CHROMIUM, TOTAL
PTX06-1135	TETRACHLOROETHYLENE(P	CHROMIUM, TOTAL
PTX06-1146	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1147	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1148	PERCHLORATE	PERCHLORATE
PTX06-1153	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1154	BARIUM	TNX
PTX06-1166	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1182	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1183	CHROMIUM, TOTAL	CHROMIUM, TOTAL
PTX06-1184	2,4,6-TRINITROTOLUENE	HEXAHYDRO-1,3,5-TRINITR
PTX06-1185	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1190	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1191	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1192	HEXAHYDRO-1,3,5-TRINITR	CHROMIUM, HEXAVALENT
PTX06-1194	2,4-DINITROTOLUENE	HEXAHYDRO-1,3,5-TRINITR
PTX06-1195	CHROMIUM, HEXAVALENT	HEXAHYDRO-1,3,5-TRINITR
PTX06-1196	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1197	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1199	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1200	1,1-DICHLOROETHENE	BORON
PTX06-1201	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1202	2,6-DINITROTOLUENE	HEXAHYDRO-1,3,5-TRINITR
PTX06-1203	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX06-1204	2,4-DINITROTOLUENE	HEXAHYDRO-1,3,5-TRINITR
PTX06-1208	TRICHLOROETHYLENE (TCE)	CHROMIUM, TOTAL
PTX06-1213	CHROMIUM, TOTAL	CHROMIUM, TOTAL
PTX06-1214	1,3,5-TRINITROBENZENE	BORON
PTX06-PRB16	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX08-1002	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINITR
PTX08-1007	TRICHLOROETHYLENE (TCE)	1,2-DICHLOROETHANE

PTX08-1008	PERCHLORATE	PERCHLORATE
PTX08-1009	4-AMINO-2,6-DINITROTOL	HEXAHYDRO-1,3,5-TRINITR
PTX10-1014	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1002A										
A4DNT26	NO	60 %	NO	I	0.91	0.0002	NO	Normal	YES	NO
CR6	NO	100 %	NO	PI	0.92	0.0015	NO	Normal	YES	NO
RDX	YES	100 %	YES	PI	0.59	0.0386	NO	Normal	NO	NO
TNX	NO	100 %	YES	PI	0.50	0.0067	NO	Normal	NO	NO
PTX06-1005										
A4DNT26	NO	100 %	NO	D	0.35	0.0004	NO	Normal	YES	YES
CR6	NO	100 %	NO	NT	0.14	0.0460	NO	Normal	YES	YES
RDX	YES	100 %	YES	S	0.77	0.0204	NO	Lognormal	NO	NO
TNX	NO	100 %	NO	PI	0.40	0.0011	NO	Normal	YES	YES
PTX06-1008										
A4DNT26	NO	60 %	NO	S	0.33	0.0002	NO	Normal	YES	YES
CR6	NO	100 %	NO	D	0.93	0.0059	YES	No distribution	YES	NO
RDX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PCATE	NO	80 %	NO	S	1.22	0.0107	NO	Normal	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1010										
A4DNT26	NO	62 %	NO	S	0.00	0.0001	NO	No distribution	YES	YES
CR6	NO	100 %	YES	D	0.34	1.8828	NO	Normal	NO	NO
RDX	NO	100 %	NO	NT	0.31	0.0020	NO	Normal	NO	NO
TNX	NO	62 %	NO	S	0.33	0.0002	NO	Normal	YES	YES
PTX06-1011										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	100 %	NO	S	0.24	0.0675	NO	Normal	YES	NO
RDX	NO	100 %	NO	S	0.59	0.0011	NO	Normal	YES	NO
PCATE	NO	86 %	NO	D	0.18	0.0051	NO	Normal	YES	YES
TNX	NO	80 %	NO	S	0.65	0.0004	NO	Normal	YES	NO
PTX06-1013										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
CR6	NO	80 %	NO	NT	0.00	0.0058	YES	No distribution	YES	NO
RDX	YES	100 %	YES	S	0.19	0.0065	NO	Normal	NO	NO
TNX	NO	100 %	NO	S	0.21	0.0006	NO	Normal	YES	YES
PTX06-1014										
A4DNT26	NO	100 %	NO	S	0.14	0.0032	YES	Normal	YES	YES
CR6	NO	100 %	NO	S	0.05	0.0020	NO	Normal	YES	YES
RDX	YES	100 %	YES	S	0.16	0.7143	NO	Normal	NO	NO
TNX	NO	100 %	YES	NT	0.11	0.0294	NO	Normal	NO	NO
PTX06-1015										
A4DNT26	NO	100 %	NO	NT	0.04	0.0035	NO	Normal	YES	YES
CR6	NO	100 %	NO	N/A	0.14	0.0188	NO	Normal	NO	NO
RDX	YES	100 %	YES	S	0.09	1.0213	NO	Normal	NO	NO
TNX	NO	100 %	YES	S	0.18	0.0641	NO	Normal	NO	NO
PTX06-1023										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	100 %	NO	NT	0.20	0.0013	NO	Normal	YES	YES
RDX	YES	40 %	NO	NT	1.12	0.0004	YES	No distribution	YES	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1031										
A4DNT26	NO	100 %	NO	NT	0.21	0.0033	NO	Normal	YES	YES
CR6	NO	100 %	NO	I	0.46	0.0141	YES	Lognormal	YES	NO
RDX	YES	100 %	YES	NT	0.19	0.7368	NO	Normal	NO	NO
TNX	NO	100 %	YES	I	0.35	0.0316	NO	Normal	NO	NO
PTX06-1034										
A4DNT26	NO	100 %	NO	NT	0.12	0.0054	NO	Normal	YES	YES
CR6	NO	100 %	NO	S	0.07	0.0030	NO	No distribution	YES	YES
RDX	YES	100 %	YES	NT	0.18	1.1278	NO	Normal	NO	NO
TNX	NO	100 %	YES	PD	0.32	0.0575	YES	Lognormal	NO	NO
PTX06-1037										

MAROS Individual Well Summary Report

Project: Pantex　　**User Name:** JM

Location: Southeast　　**State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup? Normal	Attained Cleanup? Lognormal
A4DNT26	NO	0 %	NO	ND	0.00	0.0002	NO	No distribution	YES	YES
CR6	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	NO
RDX	NO	14 %	NO	D	0.00	0.0002	NO	No distribution	YES	YES
TNX	NO	7 %	NO	D	0.00	0.0002	NO	No distribution	YES	YES
PTX06-1038										
A4DNT26	NO	100 %	NO	D	0.29	0.0075	NO	Normal	NO	NO
CR6	NO	100 %	NO	NT	0.11	0.0016	NO	Normal	YES	YES
RDX	YES	100 %	YES	D	0.18	0.1064	NO	Normal	NO	NO
TNX	NO	100 %	YES	PD	0.23	0.0056	NO	Normal	NO	NO
PTX06-1039A										
A4DNT26	NO	100 %	YES	NT	0.20	0.0242	NO	Normal	NO	NO
CR6	NO	100 %	NO	I	0.18	0.0015	NO	Normal	YES	NO
RDX	YES	100 %	YES	S	0.32	0.9419	NO	Normal	NO	NO
TNX	NO	100 %	YES	NT	0.26	0.0855	NO	Normal	NO	NO
PTX06-1040										
A4DNT26	NO	100 %	YES	S	0.18	0.0239	NO	Normal	NO	NO
CR6	NO	100 %	NO	D	2.31	0.0211	YES	No distribution	YES	NO
RDX	YES	100 %	YES	S	0.20	1.0138	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.29	0.0754	NO	Normal	NO	NO
PTX06-1041										
A4DNT26	NO	100 %	YES	PD	0.11	0.0161	NO	Normal	NO	NO
CR6	NO	100 %	NO	I	1.03	0.0086	YES	No distribution	YES	NO
RDX	YES	100 %	YES	NT	0.29	1.3160	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.34	0.0293	NO	Normal	NO	NO
PTX06-1042										
A4DNT26	NO	100 %	NO	PD	0.29	0.0056	NO	Normal	YES	YES
CR6	NO	100 %	NO	NT	0.32	0.0024	YES	Lognormal	YES	YES
RDX	YES	100 %	YES	S	0.17	0.4125	NO	Normal	NO	NO
TNX	NO	100 %	YES	S	0.28	0.0074	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1045										
A4DNT26	NO	60 %	NO	S	1.04	0.0003	NO	Normal	YES	NO
CR6	NO	100 %	NO	S	0.31	0.0023	NO	Normal	YES	NO
RDX	YES	100 %	YES	D	0.94	0.0623	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.78	0.0038	NO	Normal	NO	NO
PTX06-1046										
A4DNT26	NO	100 %	NO	D	0.37	0.0047	NO	Normal	YES	NO
CR6	NO	100 %	NO	S	0.75	0.0096	NO	Normal	YES	NO
RDX	YES	100 %	YES	D	0.60	1.1159	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.81	0.0726	NO	Normal	NO	NO
PTX06-1047A										
A4DNT26	NO	100 %	NO	PD	0.68	0.0022	NO	Normal	YES	NO
CR6	NO	100 %	NO	NT	0.96	0.0131	NO	Lognormal	YES	NO
RDX	YES	100 %	YES	PD	0.54	0.0652	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.66	0.0033	NO	Normal	NO	NO
PTX06-1052										
A4DNT26	NO	18 %	NO	NT	4.00	0.0002	YES	No distribution	YES	YES
CR6	NO	100 %	NO	D	0.62	0.4653	NO	Normal	NO	NO
RDX	NO	27 %	NO	NT	0.00	0.0001	YES	Normal	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1053										
A4DNT26	NO	100 %	NO	PD	0.45	0.0003	NO	Normal	YES	NO
CR6	NO	88 %	NO	NT	0.00	0.0044	NO	No distribution	YES	NO
RDX	NO	62 %	NO	NT	0.00	0.0001	NO	Normal	YES	YES
PCATE	NO	25 %	NO	S	0.00	0.0067	NO	No distribution	YES	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1069										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1088										
A4DNT26	NO	100 %	NO	I	0.40	0.0006	NO	Normal	YES	NO
CR6	NO	100 %	NO	I	0.67	0.0617	NO	Lognormal	NO	NO
RDX	YES	100 %	YES	I	1.21	0.0668	NO	Lognormal	NO	NO
TNX	NO	100 %	NO	PI	0.55	0.0009	NO	Normal	YES	NO
PTX06-1095A										
A4DNT26	NO	100 %	NO	D	0.83	0.0009	NO	No distribution	YES	NO
CR6	NO	100 %	NO	NT	0.26	0.0163	NO	Normal	YES	YES
RDX	YES	100 %	YES	D	1.86	0.2343	YES	Lognormal	NO	NO
TNX	NO	80 %	NO	D	1.19	0.0008	NO	No distribution	YES	NO
PTX06-1098										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	0 %	NO	ND	0.00	0.0000	NO	No distribution	YES	YES
RDX	NO	12 %	NO	S	0.00	0.0001	YES	No distribution	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1100										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	0 %	NO	ND	0.00	0.0076	YES	No distribution	YES	NO
RDX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1101										
A4DNT26	NO	40 %	NO	PD	0.00	0.0001	YES	Normal	YES	YES
CR6	NO	40 %	NO	NT	0.00	0.0076	YES	Lognormal	YES	NO
RDX	YES	100 %	YES	NT	0.38	0.0576	NO	Normal	NO	NO
TNX	NO	20 %	NO	S	0.00	0.0001	NO	Normal	YES	YES
PTX06-1120										
A4DNT26	NO	100 %	NO	D	0.72	0.0086	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
CR6	NO	100 %	NO	D	1.28	0.0187	YES	Normal	YES	NO
RDX	YES	100 %	YES	D	0.67	2.9627	YES	Normal	NO	NO
TNX	NO	100 %	YES	S	0.69	0.2268	NO	Normal	NO	NO
PTX06-1133A										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	90 %	NO	D	0.00	0.0037	YES	No distribution	YES	YES
RDX	NO	10 %	NO	S	0.00	0.0002	YES	No distribution	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1146										
A4DNT26	NO	100 %	YES	NT	0.12	0.0227	NO	Normal	NO	NO
CR6	NO	100 %	NO	I	0.16	0.0166	NO	Normal	YES	NO
RDX	YES	100 %	YES	PI	0.28	1.5153	NO	Lognormal	NO	NO
TNX	NO	100 %	YES	I	0.12	0.0224	NO	Normal	NO	NO
PTX06-1147										
A4DNT26	NO	100 %	NO	I	0.16	0.0041	NO	Normal	NO	NO
CR6	NO	91 %	NO	NT	0.00	0.0049	YES	Lognormal	YES	YES
RDX	YES	100 %	YES	S	0.23	0.7957	NO	Normal	NO	NO
TNX	NO	100 %	YES	S	0.33	0.0433	YES	Normal	NO	NO
PTX06-1148										
A4DNT26	NO	12 %	NO	PD	3.74	0.0001	NO	No distribution	YES	YES
RDX	NO	12 %	NO	PD	1.76	0.0001	YES	No distribution	YES	YES
PCATE	YES	89 %	YES	D	1.30	0.2139	NO	Lognormal	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1153										
A4DNT26	NO	97 %	NO	NT	0.00	0.0031	YES	No distribution	YES	YES
CR6	NO	100 %	NO	D	0.64	0.0176	NO	Normal	YES	YES
RDX	YES	100 %	YES	I	0.43	0.4306	NO	No distribution	NO	NO
TNX	NO	100 %	YES	I	0.40	0.0193	NO	Normal	NO	NO
PTX06-1154										

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
CR6	NO	7 %	NO	NT	0.00	0.0000	YES	No distribution	YES	YES
RDX	NO	19 %	NO	PD	1.41	0.0003	YES	No distribution	YES	YES
TNX	YES	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1166										
A4DNT26	NO	100 %	NO	PI	0.12	0.0004	NO	Normal	YES	YES
CR6	NO	100 %	NO	I	0.42	0.0960	NO	Normal	NO	NO
RDX	YES	100 %	YES	S	0.17	0.0157	NO	Normal	NO	NO
TNX	NO	12 %	NO	S	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1182										
A4DNT26	NO	92 %	NO	D	1.88	0.0034	NO	No distribution	YES	NO
CR6	NO	90 %	NO	S	0.00	0.0037	YES	No distribution	YES	NO
RDX	YES	92 %	NO	D	1.93	0.0111	NO	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1183										
A4DNT26	NO	10 %	NO	PD	0.00	0.0001	YES	No distribution	YES	YES
CR6	NO	100 %	YES	D	0.47	1.0148	NO	Normal	NO	NO
RDX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1184										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1185										
A4DNT26	NO	100 %	NO	D	0.26	0.0036	NO	Normal	YES	YES
CR6	NO	100 %	NO	PD	0.20	0.0039	NO	Normal	YES	YES
RDX	YES	100 %	YES	D	0.42	0.6097	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.51	0.0033	NO	No distribution	NO	NO
PTX06-1190										

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
A4DNT26	NO	100 %	YES	S	0.13	0.0084	NO	Normal	NO	NO
CR6	NO	100 %	NO	I	0.12	0.0035	NO	Normal	YES	NO
RDX	YES	100 %	YES	I	0.51	1.3053	NO	Normal	NO	NO
TNX	NO	100 %	YES	I	0.28	0.0249	NO	Normal	NO	NO
PTX06-1191										
A4DNT26	NO	100 %	NO	D	0.22	0.0018	NO	Normal	YES	YES
CR6	NO	100 %	NO	S	0.09	0.0026	NO	Normal	YES	YES
RDX	YES	100 %	YES	PI	0.18	0.1484	NO	Normal	NO	NO
TNX	NO	100 %	NO	I	0.23	0.0004	NO	Normal	YES	NO
PTX06-1192										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
CR6	YES	100 %	NO	NT	1.34	0.0069	YES	Lognormal	YES	NO
RDX	YES	12 %	NO	S	0.00	0.0001	NO	Normal	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1194										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
CR6	NO	100 %	NO	S	0.60	0.0023	YES	Normal	YES	NO
RDX	YES	17 %	NO	S	3.17	0.0001	YES	No distribution	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1195										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	YES	YES
CR6	YES	100 %	NO	NT	0.52	0.0011	NO	No distribution	YES	NO
RDX	YES	33 %	NO	S	0.00	0.0001	YES	No distribution	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	YES	YES
PTX06-1196										
A4DNT26	NO	100 %	NO	S	0.25	0.0053	NO	Normal	YES	NO
CR6	NO	100 %	NO	N/A	0.23	0.0030	NO	Normal	NO	NO
RDX	YES	100 %	YES	I	0.20	0.0306	NO	Normal	NO	NO
TNX	NO	100 %	NO	I	0.62	0.0017	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1197										
A4DNT26	NO	100 %	NO	S	0.12	0.0035	NO	Normal	YES	YES
CR6	NO	100 %	NO	NT	0.23	0.0042	NO	Normal	YES	YES
RDX	YES	100 %	YES	I	0.24	0.2403	NO	Normal	NO	NO
TNX	NO	100 %	NO	NT	0.19	0.0018	YES	Normal	YES	NO
PTX06-1199										
A4DNT26	NO	100 %	NO	I	0.20	0.0020	YES	Normal	NO	NO
CR6	NO	100 %	NO	I	0.72	0.0040	YES	Lognormal	YES	NO
RDX	YES	100 %	YES	I	0.25	0.0085	NO	Normal	NO	NO
TNX	NO	14 %	NO	PD	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1200										
A4DNT26	NO	12 %	NO	S	0.00	0.0002	YES	No distribution	YES	YES
CR6	NO	100 %	NO	NT	0.06	0.0013	YES	No distribution	YES	YES
RDX	NO	0 %	NO	ND	0.00	0.0002	YES	No distribution	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0002	YES	No distribution	YES	YES
PTX06-1201										
A4DNT26	NO	100 %	NO	I	0.50	0.0014	NO	No distribution	NO	NO
CR6	NO	100 %	NO	NT	0.16	0.0029	YES	No distribution	YES	YES
RDX	YES	100 %	YES	I	0.83	0.0088	NO	No distribution	NO	NO
TNX	NO	14 %	NO	PD	0.00	0.0001	YES	No distribution	YES	YES
PTX06-1202										
A4DNT26	NO	100 %	NO	I	0.17	0.0004	NO	No distribution	YES	NO
CR6	NO	100 %	NO	I	0.20	0.0016	YES	No distribution	YES	NO
RDX	YES	86 %	NO	PI	0.22	0.0002	NO	Normal	YES	YES
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX06-1203										
A4DNT26	NO	100 %	YES	NT	0.09	0.0068	YES	No distribution	NO	NO
CR6	NO	100 %	NO	S	0.03	0.0045	NO	Normal	YES	YES
RDX	YES	100 %	YES	I	0.36	0.2194	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
TNX	NO	100 %	YES	PI	0.29	0.0030	NO	No distribution	NO	NO
PTX06-1204										
A4DNT26	NO	100 %	NO	I	0.68	0.0009	NO	Lognormal	NO	NO
CR6	NO	100 %	NO	NT	0.18	0.0032	YES	No distribution	YES	YES
RDX	YES	71 %	NO	PI	1.23	0.0008	YES	No distribution	YES	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	YES	YES
PTX06-1208										
A4DNT26	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
CR6	NO	100 %	NO	N/A	1.34	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
TNX	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
PTX06-1213										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1214										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX08-1002										
A4DNT26	NO	89 %	NO	PD	0.79	0.0020	NO	Normal	YES	NO
CR6	NO	89 %	NO	NT	0.00	0.0032	YES	No distribution	YES	NO
RDX	YES	100 %	YES	NT	1.75	0.0660	YES	No distribution	NO	NO
TNX	NO	100 %	NO	S	0.99	0.0023	YES	Lognormal	NO	NO
PTX08-1007										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	100 %	NO	D	1.01	0.0081	YES	No distribution	YES	NO
RDX	NO	100 %	YES	S	0.13	0.0033	NO	Normal	NO	NO
PCATE	NO	100 %	NO	I	0.13	0.0087	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
TNX	NO	100 %	NO	S	0.28	0.0009	NO	Normal	YES	NO
PTX08-1008										
A4DNT26	NO	80 %	NO	I	1.11	0.0021	NO	Lognormal	NO	NO
CR6	NO	100 %	NO	D	0.69	0.0992	NO	Normal	NO	NO
RDX	NO	20 %	YES	NT	2.61	0.0008	YES	No distribution	YES	NO
PCATE	YES	100 %	YES	D	0.19	0.3575	NO	Normal	NO	NO
TNX	NO	10 %	NO	S	0.00	0.0002	YES	No distribution	YES	YES
PTX08-1009										
A4DNT26	YES	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	100 %	NO	D	0.69	0.0284	NO	Normal	YES	NO
RDX	YES	67 %	NO	NT	0.87	0.0002	YES	No distribution	YES	YES
PCATE	NO	50 %	NO	S	0.00	0.0064	NO	No distribution	YES	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX10-1014										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
CR6	NO	100 %	NO	S	0.74	0.0250	NO	Normal	YES	NO
RDX	NO	100 %	YES	NT	0.51	0.0028	NO	Normal	NO	NO
PCATE	NO	100 %	NO	S	0.11	0.0073	NO	Normal	YES	YES
TNX	NO	100 %	NO	NT	0.35	0.0005	NO	Normal	YES	NO

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Time Period: 1/1/2017 **to** 1/1/2022
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
4-AMINO-2,6-DINITROTOLUENE							
PTX06-1002A	8	5	0.18	20	99.3%	No	I
PTX06-1005	10	10	0.34	-31	99.8%	No	D
PTX06-1008	5	3	0.21	-6	88.3%	No	S
PTX06-1010	8	5	0.08	-4	64.0%	No	S
PTX06-1011	5	0	0.02	-5	82.1%	Yes	ND
PTX06-1013	5	0	0.02	3	67.5%	Yes	ND
PTX06-1014	5	5	0.14	-4	75.8%	No	S
PTX06-1015	4	4	0.04	4	83.3%	No	NT
PTX06-1023	8	0	0.04	-2	54.8%	Yes	ND
PTX06-1031	11	11	0.18	11	77.7%	No	NT
PTX06-1034	10	10	0.12	1	50.0%	No	NT
PTX06-1037	14	0	0.19	-46	99.4%	Yes	ND
PTX06-1038	8	8	0.24	-25	100.0%	No	D
PTX06-1039A	8	8	0.21	8	80.1%	No	NT
PTX06-1040	10	10	0.18	-1	50.0%	No	S
PTX06-1041	10	10	0.11	-18	93.4%	No	PD
PTX06-1042	10	10	0.29	-19	94.6%	No	PD
PTX06-1045	4	2	0.32	-4	83.3%	No	S
PTX06-1046	10	10	0.37	-25	98.6%	No	D
PTX06-1047A	9	9	0.76	-16	94.0%	No	PD
PTX06-1052	10	2	0.65	13	85.4%	No	NT
PTX06-1053	8	8	0.45	-14	94.6%	No	PD
PTX06-1069	1	0	0.00	0	0.0%	Yes	ND
PTX06-1088	10	10	0.40	27	99.2%	No	I
PTX06-1095A	10	10	0.83	-35	100.0%	No	D
PTX06-1098	8	0	0.02	-10	86.2%	Yes	ND

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

4-AMINO-2,6-DINITROTOLUENE

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1100	5	0	0.02	-6	88.3%	Yes	ND
PTX06-1101	5	2	0.15	-7	92.1%	No	PD
PTX06-1120	4	4	0.72	-6	95.8%	No	D
PTX06-1133A	10	0	0.02	-16	90.7%	Yes	ND
PTX06-1146	10	10	0.12	3	56.9%	No	NT
PTX06-1147	10	10	0.16	25	98.6%	No	I
PTX06-1148	16	1	0.22	-30	90.3%	No	PD
PTX06-1153	16	15	1.28	-29	89.5%	No	NT
PTX06-1154	16	0	0.14	-68	99.9%	Yes	ND
PTX06-1166	8	8	0.12	14	94.6%	No	PI
PTX06-1182	11	10	1.78	-44	100.0%	No	D
PTX06-1183	10	1	0.05	-16	90.7%	No	PD
PTX06-1184	1	0	0.00	0	0.0%	Yes	ND
PTX06-1185	9	9	0.26	-28	99.9%	No	D
PTX06-1190	9	9	0.13	-12	87.0%	No	S
PTX06-1191	8	8	0.22	-16	96.9%	No	D
PTX06-1192	8	0	0.04	-3	59.4%	Yes	ND
PTX06-1194	8	0	0.04	-11	88.7%	Yes	ND
PTX06-1195	6	0	0.03	-10	95.2%	Yes	ND
PTX06-1196	7	7	0.25	-1	50.0%	No	S
PTX06-1197	7	7	0.11	-9	88.1%	No	S
PTX06-1199	7	7	0.20	15	98.5%	No	I
PTX06-1200	6	1	0.18	-5	76.5%	No	S
PTX06-1201	6	6	0.40	11	97.2%	No	I
PTX06-1202	6	6	0.15	11	97.2%	No	I
PTX06-1203	6	6	0.09	6	81.5%	No	NT
PTX06-1204	6	6	0.61	15	99.9%	No	I
PTX06-1208	3	0	0.00	0	0.0%	Yes	ND
PTX06-1213	1	0	0.00	0	0.0%	Yes	ND
PTX06-1214	1	0	0.00	0	0.0%	Yes	ND
PTX08-1002	8	7	0.72	-12	91.1%	No	PD
PTX08-1007	5	0	0.03	-3	67.5%	Yes	ND
PTX08-1008	10	8	1.05	43	100.0%	No	I

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
4-AMINO-2,6-DINITROTOLUENE							
PTX08-1009	8	0	0.04	-13	92.9%	Yes	ND
PTX10-1014	5	0	0.04	-8	95.8%	Yes	ND
CHROMIUM, HEXAVALENT							
PTX06-1002A	8	8	0.81	14	94.6%	No	PI
PTX06-1005	10	10	0.14	9	75.8%	No	NT
PTX06-1008	5	5	0.93	-10	99.2%	No	D
PTX06-1010	8	8	0.34	-20	99.3%	No	D
PTX06-1011	5	5	0.24	-6	88.3%	No	S
PTX06-1013	5	4	1.72	0	40.8%	No	NT
PTX06-1014	5	5	0.05	0	40.8%	No	S
PTX06-1015	3	3	0.00	0	0.0%	No	N/A
PTX06-1023	8	8	0.21	2	54.8%	No	NT
PTX06-1031	10	10	0.46	21	96.4%	No	I
PTX06-1034	10	10	0.07	-13	85.4%	No	S
PTX06-1037	10	0	2.07	-9	75.8%	Yes	ND
PTX06-1038	8	8	0.11	2	54.8%	No	NT
PTX06-1039A	8	8	0.18	18	98.4%	No	I
PTX06-1040	10	10	2.31	-27	99.2%	No	D
PTX06-1041	10	10	1.03	27	99.2%	No	I
PTX06-1042	10	10	0.32	11	81.0%	No	NT
PTX06-1045	4	4	0.43	-4	83.3%	No	S
PTX06-1046	10	10	0.75	-7	70.0%	No	S
PTX06-1047A	9	9	1.06	-8	76.2%	No	NT
PTX06-1052	10	10	0.65	-39	100.0%	No	D
PTX06-1053	8	7	1.66	-8	80.1%	No	NT
PTX06-1069	1	1	0.00	0	0.0%	No	N/A
PTX06-1088	10	10	0.67	33	99.9%	No	I
PTX06-1095A	10	10	0.26	7	70.0%	No	NT
PTX06-1098	7	0	0.00	0	43.7%	Yes	ND
PTX06-1100	5	0	2.20	-1	50.0%	Yes	ND
PTX06-1101	5	2	2.17	2	59.2%	No	NT
PTX06-1120	4	4	1.28	-6	95.8%	No	D
PTX06-1133A	10	9	0.75	-31	99.8%	No	D

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

CHROMIUM, HEXAVALENT

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1146	10	10	0.16	31	99.8%	No	I
PTX06-1147	10	9	0.37	15	89.2%	No	NT
PTX06-1153	16	16	0.58	-70	99.9%	No	D
PTX06-1154	14	1	1.83	-13	74.1%	No	NT
PTX06-1166	8	8	0.42	18	98.4%	No	I
PTX06-1182	10	9	0.89	-13	85.4%	No	S
PTX06-1183	10	10	0.47	-33	99.9%	No	D
PTX06-1185	9	9	0.21	-16	94.0%	No	PD
PTX06-1190	8	8	0.11	20	99.3%	No	I
PTX06-1191	4	4	0.09	0	37.5%	No	S
PTX06-1192	8	8	1.34	8	80.1%	No	NT
PTX06-1194	4	4	0.60	0	37.5%	No	S
PTX06-1195	6	6	0.52	5	76.5%	No	NT
PTX06-1196	3	3	0.00	0	0.0%	No	N/A
PTX06-1197	7	7	0.25	5	71.9%	No	NT
PTX06-1199	7	7	0.72	13	96.5%	No	I
PTX06-1200	6	6	0.06	7	86.4%	No	NT
PTX06-1201	6	6	0.16	5	76.5%	No	NT
PTX06-1202	6	6	0.20	11	97.2%	No	I
PTX06-1203	6	6	0.03	-3	64.0%	No	S
PTX06-1204	6	6	0.18	7	86.4%	No	NT
PTX06-1208	2	2	0.00	0	0.0%	No	N/A
PTX08-1002	8	7	2.43	-2	54.8%	No	NT
PTX08-1007	5	5	1.01	-10	99.2%	No	D
PTX08-1008	10	10	0.69	-39	100.0%	No	D
PTX08-1009	8	8	0.69	-24	99.9%	No	D
PTX10-1014	5	5	0.84	-6	88.3%	No	S
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN							
PTX06-1002A	8	8	0.57	14	94.6%	No	PI
PTX06-1005	10	10	0.77	-15	89.2%	No	S
PTX06-1008	5	0	0.04	-6	88.3%	Yes	ND
PTX06-1010	8	8	0.31	8	80.1%	No	NT
PTX06-1011	5	5	0.59	-4	75.8%	No	S

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1013	5	5	0.19	-6	88.3%	No	S
PTX06-1014	5	5	0.16	-2	59.2%	No	S
PTX06-1015	4	4	0.09	-4	83.3%	No	S
PTX06-1023	8	3	0.93	1	50.0%	No	NT
PTX06-1031	11	11	0.20	11	77.7%	No	NT
PTX06-1034	10	10	0.18	5	63.6%	No	NT
PTX06-1037	14	2	0.19	-44	99.2%	No	D
PTX06-1038	8	8	0.18	-16	96.9%	No	D
PTX06-1039A	8	8	0.32	0	45.2%	No	S
PTX06-1040	10	10	0.20	-11	81.0%	No	S
PTX06-1041	10	10	0.29	15	89.2%	No	NT
PTX06-1042	10	10	0.17	-9	75.8%	No	S
PTX06-1045	4	4	1.07	-6	95.8%	No	D
PTX06-1046	10	10	0.60	-43	100.0%	No	D
PTX06-1047A	9	9	0.58	-14	91.0%	No	PD
PTX06-1052	10	3	0.05	11	81.0%	No	NT
PTX06-1053	8	5	0.09	2	54.8%	No	NT
PTX06-1069	1	0	0.00	0	0.0%	Yes	ND
PTX06-1088	10	10	1.21	21	96.4%	No	I
PTX06-1095A	10	10	1.86	-39	100.0%	No	D
PTX06-1098	8	1	0.08	-10	86.2%	No	S
PTX06-1100	5	0	0.02	-6	88.3%	Yes	ND
PTX06-1101	5	5	0.38	6	88.3%	No	NT
PTX06-1120	4	4	0.67	-6	95.8%	No	D
PTX06-1133A	10	1	0.43	-9	75.8%	No	S
PTX06-1146	10	10	0.28	18	93.4%	No	PI
PTX06-1147	10	10	0.24	-5	63.6%	No	S
PTX06-1148	16	2	0.26	-37	94.7%	No	PD
PTX06-1153	16	16	0.52	38	95.2%	No	I
PTX06-1154	16	3	1.00	-36	94.2%	No	PD
PTX06-1166	8	8	0.17	0	45.2%	No	S
PTX06-1182	11	11	1.83	-47	100.0%	No	D
PTX06-1183	10	0	0.03	-16	90.7%	Yes	ND

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN							
PTX06-1184	1	1	0.00	0	0.0%	No	N/A
PTX06-1185	9	9	0.41	-32	100.0%	No	D
PTX06-1190	9	9	0.49	31	100.0%	No	I
PTX06-1191	8	8	0.18	12	91.1%	No	PI
PTX06-1192	8	1	0.05	-7	76.4%	No	S
PTX06-1194	8	2	0.07	-11	88.7%	No	S
PTX06-1195	6	2	0.11	-5	76.5%	No	S
PTX06-1196	7	7	0.20	13	96.5%	No	I
PTX06-1197	7	7	0.26	19	99.9%	No	I
PTX06-1199	7	7	0.25	19	99.9%	No	I
PTX06-1200	6	0	0.17	-3	64.0%	Yes	ND
PTX06-1201	6	6	0.73	11	97.2%	No	I
PTX06-1202	6	6	0.20	9	93.2%	No	PI
PTX06-1203	6	6	0.36	15	99.9%	No	I
PTX06-1204	6	5	1.11	9	93.2%	No	PI
PTX06-1208	3	0	0.00	0	0.0%	Yes	ND
PTX06-1213	1	0	0.00	0	0.0%	Yes	ND
PTX06-1214	1	0	0.00	0	0.0%	Yes	ND
PTX08-1002	8	8	1.74	0	45.2%	No	NT
PTX08-1007	5	5	0.13	-6	88.3%	No	S
PTX08-1008	10	2	1.91	-13	85.4%	No	NT
PTX08-1009	8	6	0.60	6	72.6%	No	NT
PTX10-1014	5	5	0.57	2	59.2%	No	NT
PERCHLORATE							
PTX06-1008	5	4	0.95	-2	59.2%	No	S
PTX06-1011	5	5	0.19	-10	99.2%	No	D
PTX06-1053	8	2	0.47	-11	88.7%	No	S
PTX06-1148	16	14	1.20	-88	100.0%	No	D
PTX08-1007	5	5	0.13	8	95.8%	No	I
PTX08-1008	10	10	0.20	-21	96.4%	No	D
PTX08-1009	6	4	0.35	-2	57.0%	No	S
PTX10-1014	5	5	0.12	-2	59.2%	No	S

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

TNX

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
TNX							
PTX06-1002A	8	8	0.49	14	94.6%	No	PI
PTX06-1005	10	10	0.42	17	92.2%	No	PI
PTX06-1008	5	0	0.04	-6	88.3%	Yes	ND
PTX06-1010	8	5	0.24	-6	72.6%	No	S
PTX06-1011	5	4	0.57	-6	88.3%	No	S
PTX06-1013	5	5	0.21	-6	88.3%	No	S
PTX06-1014	5	5	0.11	2	59.2%	No	NT
PTX06-1015	4	4	0.18	0	37.5%	No	S
PTX06-1023	8	0	0.04	-2	54.8%	Yes	ND
PTX06-1031	11	11	0.37	35	99.7%	No	I
PTX06-1034	10	10	0.32	-17	92.2%	No	PD
PTX06-1037	14	1	0.20	-36	97.3%	No	D
PTX06-1038	8	8	0.20	-14	94.6%	No	PD
PTX06-1039A	8	8	0.28	8	80.1%	No	NT
PTX06-1040	10	10	0.29	-20	95.5%	No	D
PTX06-1041	10	10	0.34	-23	97.7%	No	D
PTX06-1042	10	10	0.28	-7	70.0%	No	S
PTX06-1045	4	4	0.93	-6	95.8%	No	D
PTX06-1046	10	10	0.81	-43	100.0%	No	D
PTX06-1047A	9	9	0.72	-22	98.8%	No	D
PTX06-1052	10	0	0.03	-11	81.0%	Yes	ND
PTX06-1053	8	0	0.04	-7	76.4%	Yes	ND
PTX06-1069	1	0	0.00	0	0.0%	Yes	ND
PTX06-1088	10	10	0.55	17	92.2%	No	PI
PTX06-1095A	10	8	1.06	-41	100.0%	No	D
PTX06-1098	8	0	0.02	-10	86.2%	Yes	ND
PTX06-1100	5	0	0.02	-6	88.3%	Yes	ND
PTX06-1101	5	1	0.06	-3	67.5%	No	S
PTX06-1120	4	4	0.69	-4	83.3%	No	S
PTX06-1133A	10	0	0.02	-16	90.7%	Yes	ND
PTX06-1146	10	10	0.12	23	97.7%	No	I
PTX06-1147	10	10	0.31	-15	89.2%	No	S

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

TNX

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1148	16	0	0.16	-51	98.9%	Yes	ND
PTX06-1153	16	16	0.46	50	98.7%	No	I
PTX06-1154	16	0	0.14	-68	99.9%	Yes	ND
PTX06-1166	8	1	0.11	-8	80.1%	No	S
PTX06-1182	11	0	0.09	-26	97.5%	Yes	ND
PTX06-1183	10	0	0.03	-16	90.7%	Yes	ND
PTX06-1184	1	0	0.00	0	0.0%	Yes	ND
PTX06-1185	8	8	0.53	-23	99.9%	No	D
PTX06-1190	9	9	0.29	24	99.4%	No	I
PTX06-1191	8	8	0.23	20	99.3%	No	I
PTX06-1192	8	0	0.04	-3	59.4%	Yes	ND
PTX06-1194	8	0	0.04	-11	88.7%	Yes	ND
PTX06-1195	6	0	0.03	-10	95.2%	Yes	ND
PTX06-1196	7	7	0.62	17	99.5%	No	I
PTX06-1197	7	7	0.20	3	61.4%	No	NT
PTX06-1199	7	1	0.12	-12	94.9%	No	PD
PTX06-1200	6	0	0.17	-3	64.0%	Yes	ND
PTX06-1201	6	1	0.12	-9	93.2%	No	PD
PTX06-1202	6	0	0.02	-9	93.2%	Yes	ND
PTX06-1203	6	6	0.29	9	93.2%	No	PI
PTX06-1204	6	0	0.02	-2	57.0%	Yes	ND
PTX06-1208	3	0	0.00	0	0.0%	Yes	ND
PTX06-1213	1	0	0.00	0	0.0%	Yes	ND
PTX06-1214	1	0	0.00	0	0.0%	Yes	ND
PTX08-1002	8	8	0.99	0	45.2%	No	S
PTX08-1007	5	5	0.28	-2	59.2%	No	S
PTX08-1008	10	1	0.20	-13	85.4%	No	S
PTX08-1009	8	0	0.04	-13	92.9%	Yes	ND
PTX10-1014	5	5	0.40	4	75.8%	No	NT

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

TNX

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events).

The Number of Samples and Number of Detects shown above are post-consolidation values.

MAROS Spatial Moment Analysis Summary

Project: Pantex | **User Name:** JM
Location: Southeast | **State:** Texas

Effective Date	0th Moment Estimated Mass (Kg)	1st Moment (Center of Mass) Xc (ft)	Yc (ft)	Source Distance	2nd Moment (Spread) Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
4-AMINO-2,6-DINITROTOLUENE							
7/1/2017	5.1E+01	644,342	3,756,611	4,687	2,587,255	6,507,284	43
7/1/2018	4.8E+01	644,515	3,756,872	4,780	3,181,330	6,615,842	49
7/1/2019	4.9E+01	644,721	3,756,583	5,057	3,992,504	7,368,661	55
7/1/2020	5.0E+01	644,722	3,756,667	5,033	4,216,930	7,350,045	56
7/1/2021	4.9E+01	644,991	3,756,686	5,288	4,603,449	6,528,502	59
CHROMIUM, HEXAVALENT							
7/1/2017	3.1E+02	640,180	3,756,131	1,958	4,498,128	4,204,942	41
7/1/2018	2.8E+02	640,597	3,756,206	1,992	5,197,814	3,785,964	48
7/1/2019	2.3E+02	641,284	3,756,031	2,469	6,953,226	4,654,786	54
7/1/2020	1.9E+02	641,509	3,756,152	2,510	7,750,799	4,709,518	51
7/1/2021	2.3E+02	641,942	3,756,628	2,509	7,787,342	3,924,527	53
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN							
7/1/2017	4.3E+03	644,516	3,755,441	5,322	2,334,009	4,152,667	43
7/1/2018	2.9E+03	644,433	3,755,963	5,009	1,800,644	4,959,651	49
7/1/2019	3.1E+03	644,253	3,755,846	4,898	1,958,086	5,560,669	55
7/1/2020	2.9E+03	644,229	3,756,057	4,785	2,124,646	6,319,475	56
7/1/2021	3.0E+03	644,438	3,755,952	5,018	2,001,596	4,956,342	59
PERCHLORATE							
7/1/2017	3.8E+01	637,587	3,755,905	3,157	375,748	934,385	7
7/1/2018	3.7E+01	637,820	3,755,856	3,027	413,606	956,905	8
7/1/2019	2.8E+01	637,978	3,755,943	2,856	389,401	1,057,132	8
7/1/2020	1.5E+01	638,127	3,756,235	2,541	320,415	884,418	8
7/1/2021	2.5E+01	637,932	3,756,073	2,793	369,167	860,015	8
TNX							
7/1/2017	1.5E+02	644,324	3,755,776	4,994	2,056,628	6,060,321	43
7/1/2018	1.2E+02	644,383	3,756,079	4,916	2,381,058	6,966,288	49
7/1/2019	1.4E+02	644,288	3,756,015	4,856	2,380,266	7,200,377	55
7/1/2020	1.2E+02	644,201	3,756,323	4,653	2,581,113	7,828,957	56
7/1/2021	1.1E+02	644,392	3,756,134	4,902	2,555,546	7,071,084	59

MAROS Spatial Moment Analysis Summary

Project: Pantex | **User Name:** JM
Location: Southeast | **State:** Texas

Spatial Moment Analysis Summary:

Moment Type	Constituent	Coefficient of Variation	Mann-Kendall S Statistic	Confidence in Trend	Moment Trend
0th Moment	4-AMINO-2,6-DINITROTOLU	0.03	0	40.8%	S
0th Moment	CHROMIUM, HEXAVALENT	0.19	-6	88.3%	S
0th Moment	HEXAHYDRO-1,3,5-TRINITR	0.18	-4	75.8%	S
0th Moment	PERCHLORATE	0.33	-8	95.8%	D
0th Moment	TNX	0.11	-6	88.3%	S
First Moment	4-AMINO-2,6-DINITROTOLU	0.05	8	95.8%	I
First Moment	CHROMIUM, HEXAVALENT	0.12	8	95.8%	I
First Moment	HEXAHYDRO-1,3,5-TRINITR	0.04	-4	75.8%	S
First Moment	PERCHLORATE	0.08	-8	95.8%	D
First Moment	TNX	0.03	-6	88.3%	S
Second Moment X	4-AMINO-2,6-DINITROTOLU	0.22	10	99.2%	I
Second Moment X	CHROMIUM, HEXAVALENT	0.23	10	99.2%	I
Second Moment X	HEXAHYDRO-1,3,5-TRINITR	0.10	0	40.8%	S
Second Moment X	PERCHLORATE	0.09	-4	75.8%	S
Second Moment X	TNX	0.09	6	88.3%	NT
Second Moment Y	4-AMINO-2,6-DINITROTOLU	0.06	2	59.2%	NT
Second Moment Y	CHROMIUM, HEXAVALENT	0.10	2	59.2%	NT
Second Moment Y	HEXAHYDRO-1,3,5-TRINITR	0.16	4	75.8%	NT
Second Moment Y	PERCHLORATE	0.08	-4	75.8%	S
Second Moment Y	TNX	0.09	6	88.3%	NT

Note: The following assumptions were applied for the calculation of the Zeroth Moment:

Porosity: 0.25 **Saturated Thickness:** Uniform: 30 ft

Mann-Kendall Trend test performed on all sample events for each constituent. Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events); (ND) Non Detect.

Note: The Sigma XX and Sigma YY components are estimated using the given field coordinate system and then rotated to align with the estimated groundwater flow direction. Moments are not calculated for sample events with less than 6 wells.

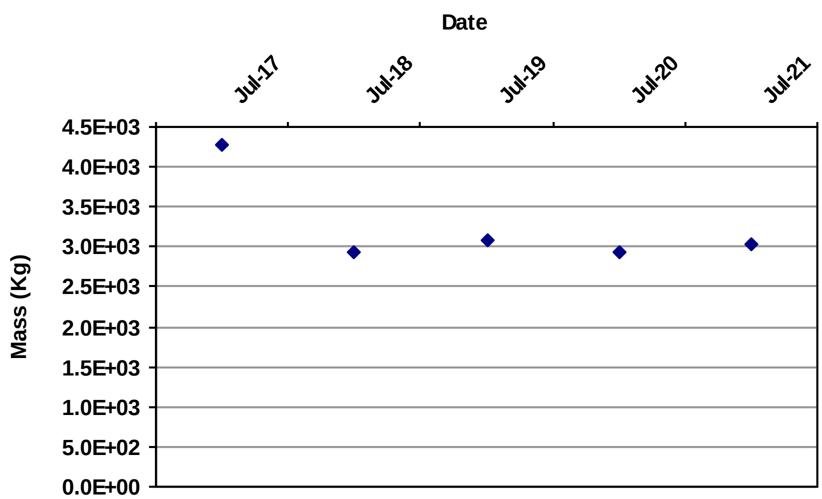
MAROS Zeroth Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Change in Dissolved Mass Over Time

COC: HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE



Porosity: 0.25

Saturated Thickness:

Uniform: 30 ft

Mann-Kendall S Statistic:

-4

Confidence in Trend:

75.8%

Coefficient of Variation:

0.18

Zeroth Moment Trend:

S

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	HEXAHYDRO-1,3,5-TRINITRO-1,3,	4.3E+03	43
7/1/2018	HEXAHYDRO-1,3,5-TRINITRO-1,3,	2.9E+03	49
7/1/2019	HEXAHYDRO-1,3,5-TRINITRO-1,3,	3.1E+03	55
7/1/2020	HEXAHYDRO-1,3,5-TRINITRO-1,3,	2.9E+03	56
7/1/2021	HEXAHYDRO-1,3,5-TRINITRO-1,3,	3.0E+03	59

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

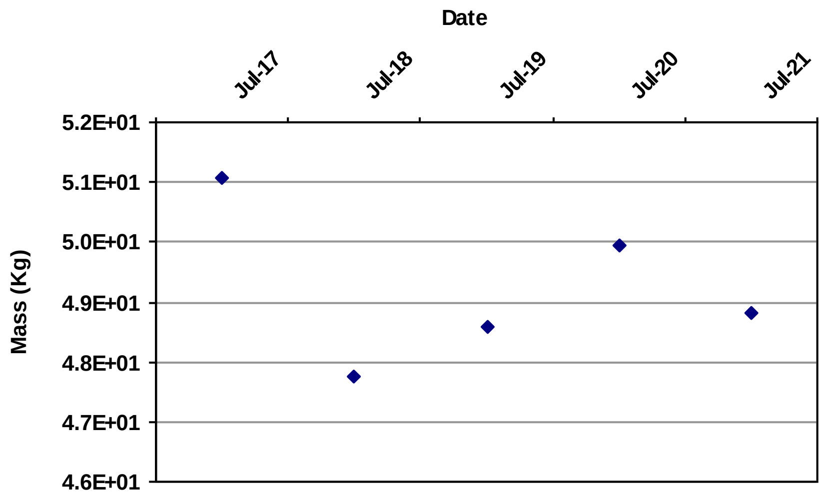
MAROS Zeroth Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Change in Dissolved Mass Over Time

COC: 4-AMINO-2,6-DINITROTOLUENE



Porosity: 0.25

Saturated Thickness:

Uniform: 30 ft

Mann-Kendall S Statistic:

0

Confidence in Trend:

40.8%

Coefficient of Variation:

0.03

Zeroth Moment Trend:

S

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	4-AMINO-2,6-DINITROTOLUENE	5.1E+01	43
7/1/2018	4-AMINO-2,6-DINITROTOLUENE	4.8E+01	49
7/1/2019	4-AMINO-2,6-DINITROTOLUENE	4.9E+01	55
7/1/2020	4-AMINO-2,6-DINITROTOLUENE	5.0E+01	56
7/1/2021	4-AMINO-2,6-DINITROTOLUENE	4.9E+01	59

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

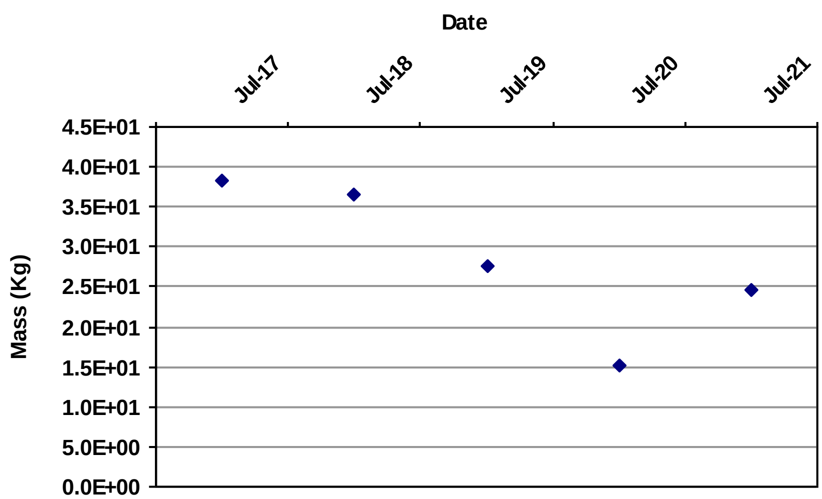
MAROS Zeroth Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Change in Dissolved Mass Over Time

COC: PERCHLORATE



Porosity: 0.25

Saturated Thickness:
Uniform: 30 ft

Mann-Kendall S Statistic:
-8

Confidence in Trend:
95.8%

Coefficient of Variation:
0.33

Zeroth Moment Trend:
D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	PERCHLORATE	3.8E+01	7
7/1/2018	PERCHLORATE	3.7E+01	8
7/1/2019	PERCHLORATE	2.8E+01	8
7/1/2020	PERCHLORATE	1.5E+01	8
7/1/2021	PERCHLORATE	2.5E+01	8

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

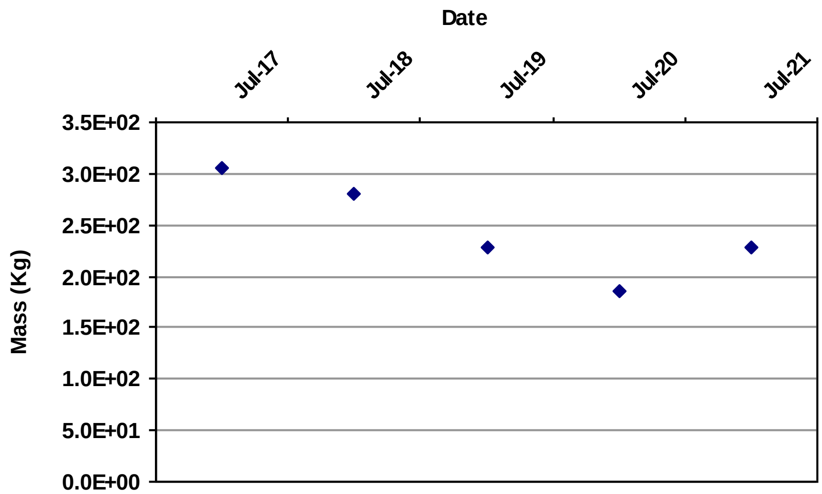
MAROS Zeroth Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

Change in Dissolved Mass Over Time

COC: CHROMIUM, HEXAVALENT



Porosity: 0.25

Saturated Thickness:
Uniform: 30 ft

Mann-Kendall S Statistic:
-6

Confidence in Trend:
88.3%

Coefficient of Variation:
0.19

Zeroth Moment Trend:
S

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	CHROMIUM, HEXAVALENT	3.1E+02	41
7/1/2018	CHROMIUM, HEXAVALENT	2.8E+02	48
7/1/2019	CHROMIUM, HEXAVALENT	2.3E+02	54
7/1/2020	CHROMIUM, HEXAVALENT	1.9E+02	51
7/1/2021	CHROMIUM, HEXAVALENT	2.3E+02	53

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

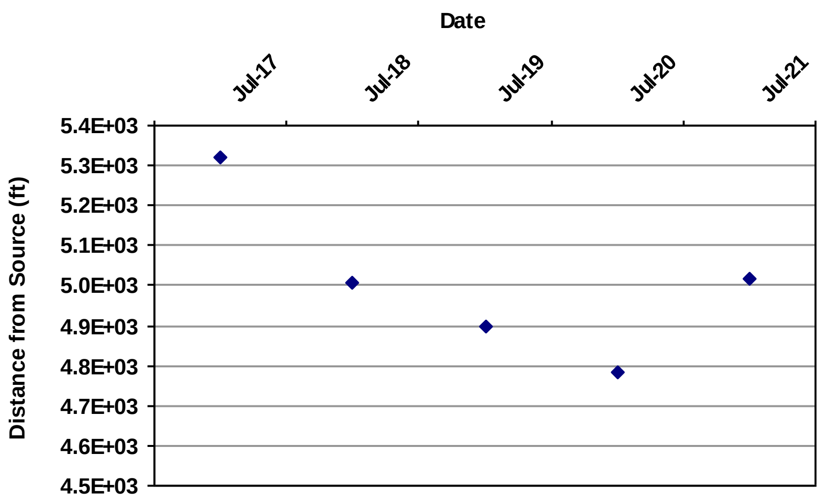
MAROS First Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC: HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE

Distance from Source to Center of Mass



Mann-Kendall S Statistic:

-4

Confidence in Trend:

75.8%

Coefficient of Variation:

0.04

First Moment Trend:

S

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	HEXAHYDRO-1,3,5-TRINITRO-	644,516	3,755,441	5,322	43
7/1/2018	HEXAHYDRO-1,3,5-TRINITRO-	644,433	3,755,963	5,009	49
7/1/2019	HEXAHYDRO-1,3,5-TRINITRO-	644,253	3,755,846	4,898	55
7/1/2020	HEXAHYDRO-1,3,5-TRINITRO-	644,229	3,756,057	4,785	56
7/1/2021	HEXAHYDRO-1,3,5-TRINITRO-	644,438	3,755,952	5,018	59

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

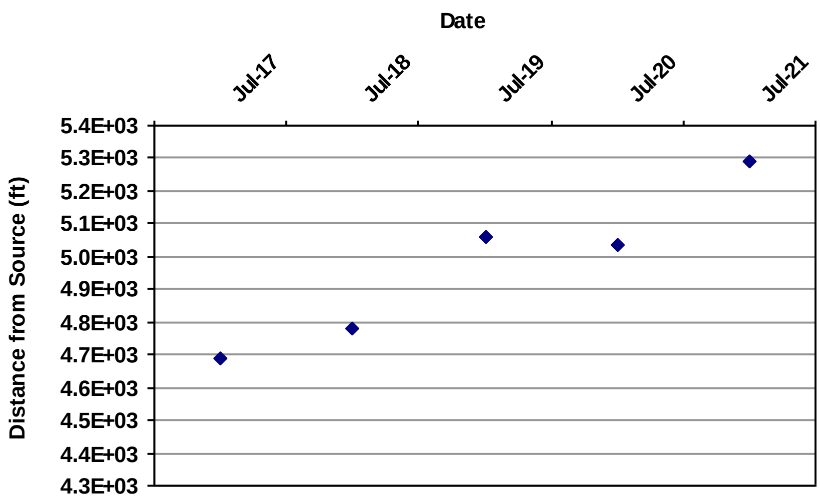
MAROS First Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC: 4-AMINO-2,6-DINITROTOLUENE

Distance from Source to Center of Mass



Mann-Kendall S Statistic:

8

Confidence in Trend:

95.8%

Coefficient of Variation:

0.05

First Moment Trend:

I

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	4-AMINO-2,6-DINITROTOLUE	644,342	3,756,611	4,687	43
7/1/2018	4-AMINO-2,6-DINITROTOLUE	644,515	3,756,872	4,780	49
7/1/2019	4-AMINO-2,6-DINITROTOLUE	644,721	3,756,583	5,057	55
7/1/2020	4-AMINO-2,6-DINITROTOLUE	644,722	3,756,667	5,033	56
7/1/2021	4-AMINO-2,6-DINITROTOLUE	644,991	3,756,686	5,288	59

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

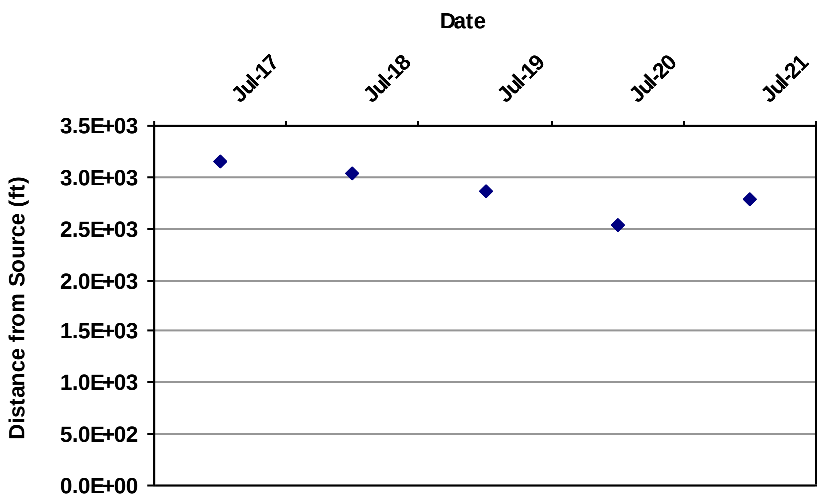
MAROS First Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC: PERCHLORATE

Distance from Source to Center of Mass



Mann-Kendall S Statistic:
-8

Confidence in Trend:
95.8%

Coefficient of Variation:
0.08

First Moment Trend:
D

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	PERCHLORATE	637,587	3,755,905	3,157	7
7/1/2018	PERCHLORATE	637,820	3,755,856	3,027	8
7/1/2019	PERCHLORATE	637,978	3,755,943	2,856	8
7/1/2020	PERCHLORATE	638,127	3,756,235	2,541	8
7/1/2021	PERCHLORATE	637,932	3,756,073	2,793	8

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

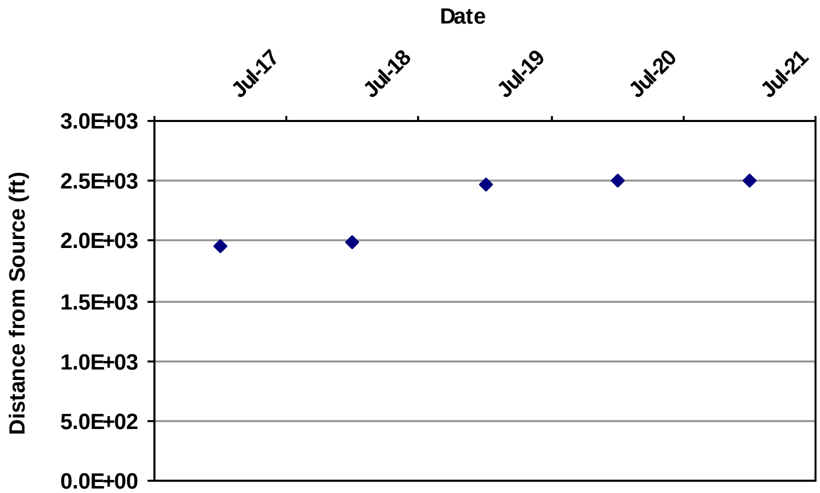
MAROS First Moment Analysis

Project: Pantex **User Name:** JM

Location: Southeast **State:** Texas

COC: CHROMIUM, HEXAVALENT

Distance from Source to Center of Mass



Mann-Kendall S Statistic:
8

Confidence in Trend:
95.8%

Coefficient of Variation:
0.12

First Moment Trend:
I

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	CHROMIUM, HEXAVALENT	640,180	3,756,131	1,958	41
7/1/2018	CHROMIUM, HEXAVALENT	640,597	3,756,206	1,992	48
7/1/2019	CHROMIUM, HEXAVALENT	641,284	3,756,031	2,469	54
7/1/2020	CHROMIUM, HEXAVALENT	641,509	3,756,152	2,510	51
7/1/2021	CHROMIUM, HEXAVALENT	641,942	3,756,628	2,509	53

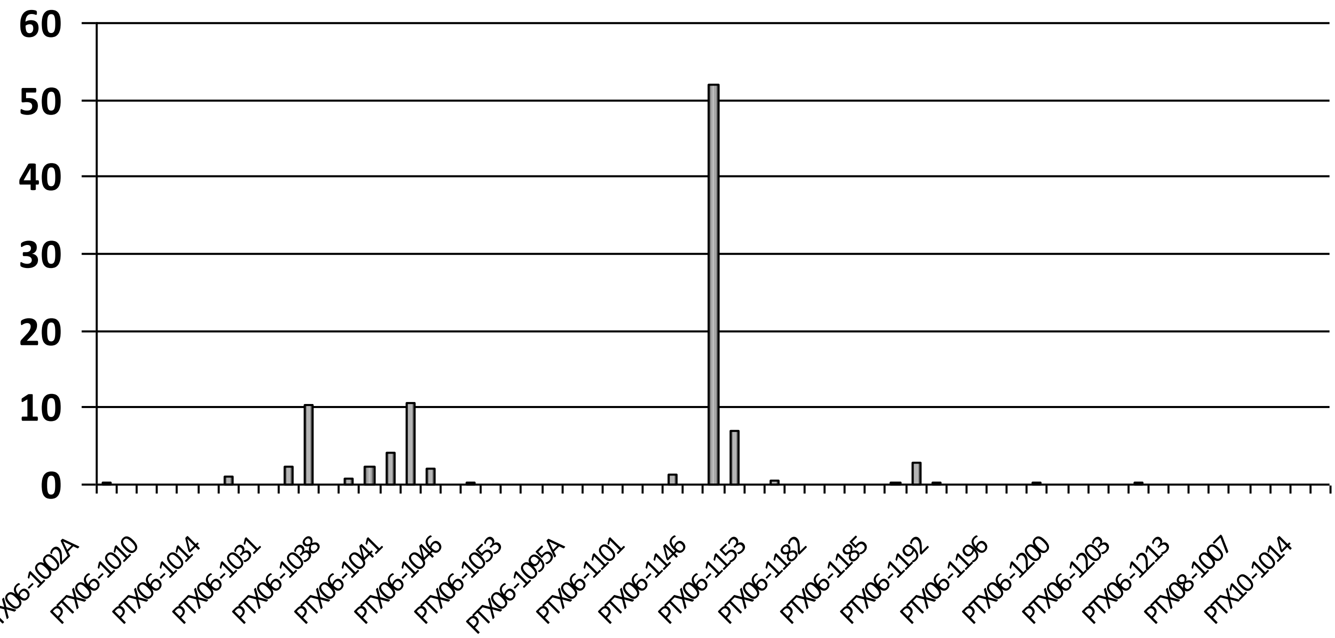
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1002A	5,898,553.56	42,347.93	0.33	4.42
PTX06-1005	2,780,965.17	6,595.58	0.05	2.08
PTX06-1008	954,160.68	31.81	0.00	0.71
PTX06-1010	2,700,073.87	1,375.01	0.01	2.02
PTX06-1011	2,169,869.21	177.14	0.00	1.63
PTX06-1013	3,626,944.53	3,551.23	0.03	2.72
PTX06-1014	1,093,970.16	138,988.92	1.10	0.82
PTX06-1015	1,324,787.40	347.76	0.00	0.99
PTX06-1023	959,172.23	32.73	0.00	0.72
PTX06-1031	1,670,955.38	304,406.31	2.40	1.25
PTX06-1034	4,709,730.68	1,315,427.84	10.37	3.53
PTX06-1037	528,128.48	17.88	0.00	0.40
PTX06-1038	5,720,024.85	113,563.95	0.90	4.29
PTX06-1039A	1,994,280.36	289,756.49	2.28	1.49

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1040	2,435,227.30	539,205.01	4.25	1.82
PTX06-1041	3,629,713.53	1,338,683.78	10.55	2.72
PTX06-1042	2,977,062.19	260,232.46	2.05	2.23
PTX06-1045	1,058,899.97	856.12	0.01	0.79
PTX06-1046	590,347.66	36,881.97	0.29	0.44
PTX06-1047A	1,529,031.93	5,860.02	0.05	1.15
PTX06-1052	1,327,447.84	45.04	0.00	0.99
PTX06-1053	466,526.33	14.82	0.00	0.35
PTX06-1069	4,592,861.63	157.94	0.00	3.44
PTX06-1088	1,598,085.73	13,193.20	0.10	1.20
PTX06-1095A	2,651,449.16	6,016.97	0.05	1.99
PTX06-1098	1,144,173.42	39.35	0.00	0.86
PTX06-1100	71,341.35	2.45	0.00	0.05
PTX06-1101	952,746.22	11,179.29	0.09	0.71
PTX06-1120	765,782.07	159,608.14	1.26	0.57
PTX06-1133A	2,404,511.91	82.53	0.00	1.80
PTX06-1146	13,794,283.21	6,608,324.12	52.09	10.34
PTX06-1147	5,166,374.70	896,091.59	7.06	3.87
PTX06-1148	514,389.34	17.35	0.00	0.39
PTX06-1153	880,912.92	58,619.25	0.46	0.66
PTX06-1154	387,810.68	13.23	0.00	0.29
PTX06-1166	1,136,055.53	3,071.61	0.02	0.85
PTX06-1182	1,024,988.71	30.94	0.00	0.77
PTX06-1183	580,191.68	19.72	0.00	0.43
PTX06-1184	1,138,391.32	298.83	0.00	0.85
PTX06-1185	445,465.15	28,327.41	0.22	0.33
PTX06-1190	1,047,244.92	372,491.95	2.94	0.78
PTX06-1191	530,805.27	19,367.76	0.15	0.40
PTX06-1192	744,017.53	25.54	0.00	0.56
PTX06-1194	755,474.36	25.85	0.00	0.57
PTX06-1195	7,594,975.12	258.18	0.00	5.69

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

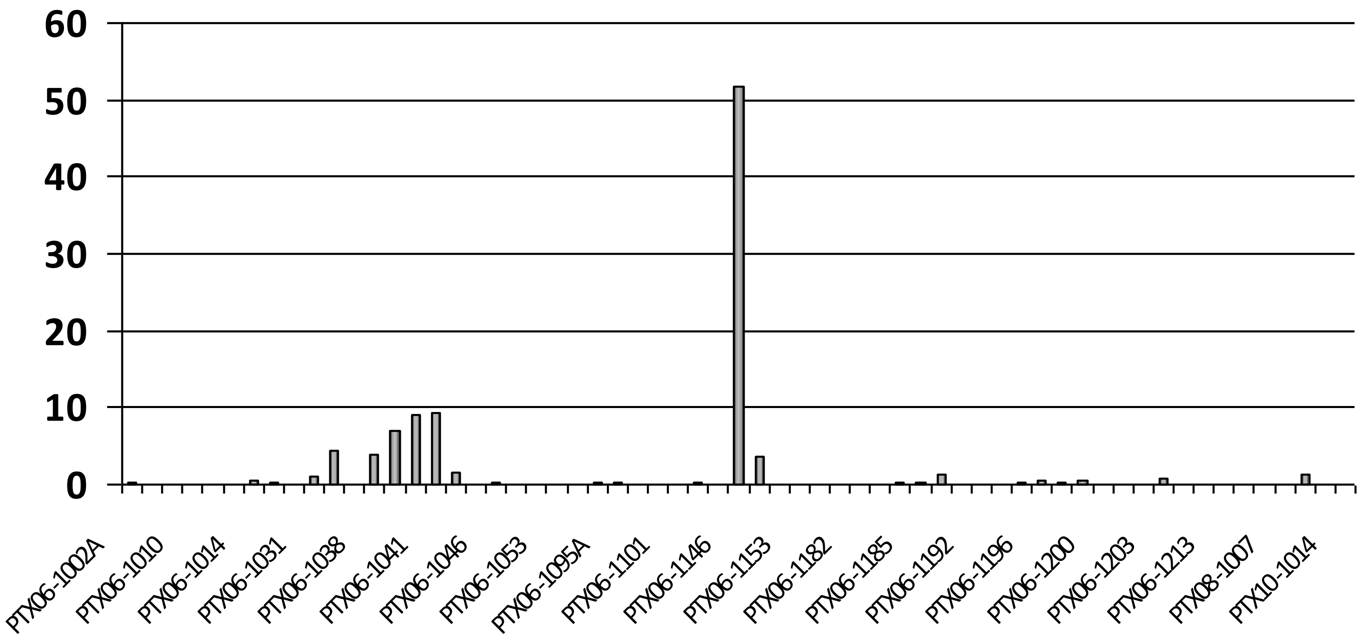
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1196	871,157.87	6,986.14	0.06	0.65
PTX06-1197	690,996.12	45,890.78	0.36	0.52
PTX06-1199	1,754,597.26	3,967.91	0.03	1.31
PTX06-1200	378,473.50	12.87	0.00	0.28
PTX06-1201	427,409.23	1,060.24	0.01	0.32
PTX06-1202	800,789.99	41.10	0.00	0.60
PTX06-1203	698,212.41	39,588.65	0.31	0.52
PTX06-1204	99,313.42	19.88	0.00	0.07
PTX06-1208	123,744.76	4.08	0.00	0.09
PTX06-1213	592,053.73	97.13	0.00	0.44
PTX06-1214	414,597.73	14.04	0.00	0.31
PTX08-1002	3,530,174.71	9,637.38	0.08	2.65
PTX08-1007	1,202,127.31	823.61	0.01	0.90
PTX08-1008	2,258,743.43	674.74	0.01	1.69
PTX08-1009	2,528,484.34	60.73	0.00	1.89
PTX10-1014	1,735,116.57	1,421.06	0.01	1.30
	118,174,197.6	12,685,963.3	100	88.5522965593

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

4-AMINO-2,6-DINITROTOLUENE 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1002A	5,898,553.56	297.29	0.20	4.42
PTX06-1005	2,780,965.17	185.42	0.12	2.08
PTX06-1008	954,160.68	31.81	0.02	0.71
PTX06-1010	2,700,073.87	91.43	0.06	2.02
PTX06-1011	2,169,869.21	74.05	0.05	1.63
PTX06-1013	3,626,944.53	129.96	0.09	2.72
PTX06-1014	1,093,970.16	720.79	0.48	0.82
PTX06-1015	1,324,787.40	347.76	0.23	0.99
PTX06-1023	959,172.23	32.73	0.02	0.72
PTX06-1031	1,670,955.38	1,359.74	0.91	1.25
PTX06-1034	4,709,730.68	6,682.23	4.45	3.53
PTX06-1037	528,128.48	17.88	0.01	0.40
PTX06-1038	5,720,024.85	5,870.89	3.91	4.29
PTX06-1039A	1,994,280.36	10,469.97	6.98	1.49

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1040	2,435,227.30	13,488.12	8.99	1.82
PTX06-1041	3,629,713.53	13,958.52	9.30	2.72
PTX06-1042	2,977,062.19	2,379.60	1.59	2.23
PTX06-1045	1,058,899.97	36.55	0.02	0.79
PTX06-1046	590,347.66	227.03	0.15	0.44
PTX06-1047A	1,529,031.93	107.17	0.07	1.15
PTX06-1052	1,327,447.84	109.76	0.07	0.99
PTX06-1053	466,526.33	33.92	0.02	0.35
PTX06-1069	4,592,861.63	157.94	0.11	3.44
PTX06-1088	1,598,085.73	259.67	0.17	1.20
PTX06-1095A	2,651,449.16	202.19	0.13	1.99
PTX06-1098	1,144,173.42	39.35	0.03	0.86
PTX06-1100	71,341.35	2.45	0.00	0.05
PTX06-1101	952,746.22	31.76	0.02	0.71
PTX06-1120	765,782.07	325.65	0.22	0.57
PTX06-1133A	2,404,511.91	82.53	0.05	1.80
PTX06-1146	13,794,283.21	77,489.39	51.64	10.34
PTX06-1147	5,166,374.70	5,434.86	3.62	3.87
PTX06-1148	514,389.34	22.82	0.02	0.39
PTX06-1153	880,912.92	192.56	0.13	0.66
PTX06-1154	387,810.68	13.23	0.01	0.29
PTX06-1166	1,136,055.53	130.32	0.09	0.85
PTX06-1182	1,024,988.71	34.71	0.02	0.77
PTX06-1183	580,191.68	19.72	0.01	0.43
PTX06-1184	1,138,391.32	298.83	0.20	0.85
PTX06-1185	445,465.15	263.98	0.18	0.33
PTX06-1190	1,047,244.92	1,905.07	1.27	0.78
PTX06-1191	530,805.27	145.89	0.10	0.40
PTX06-1192	744,017.53	25.54	0.02	0.56
PTX06-1194	755,474.36	25.85	0.02	0.57
PTX06-1195	7,594,975.12	258.18	0.17	5.69

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

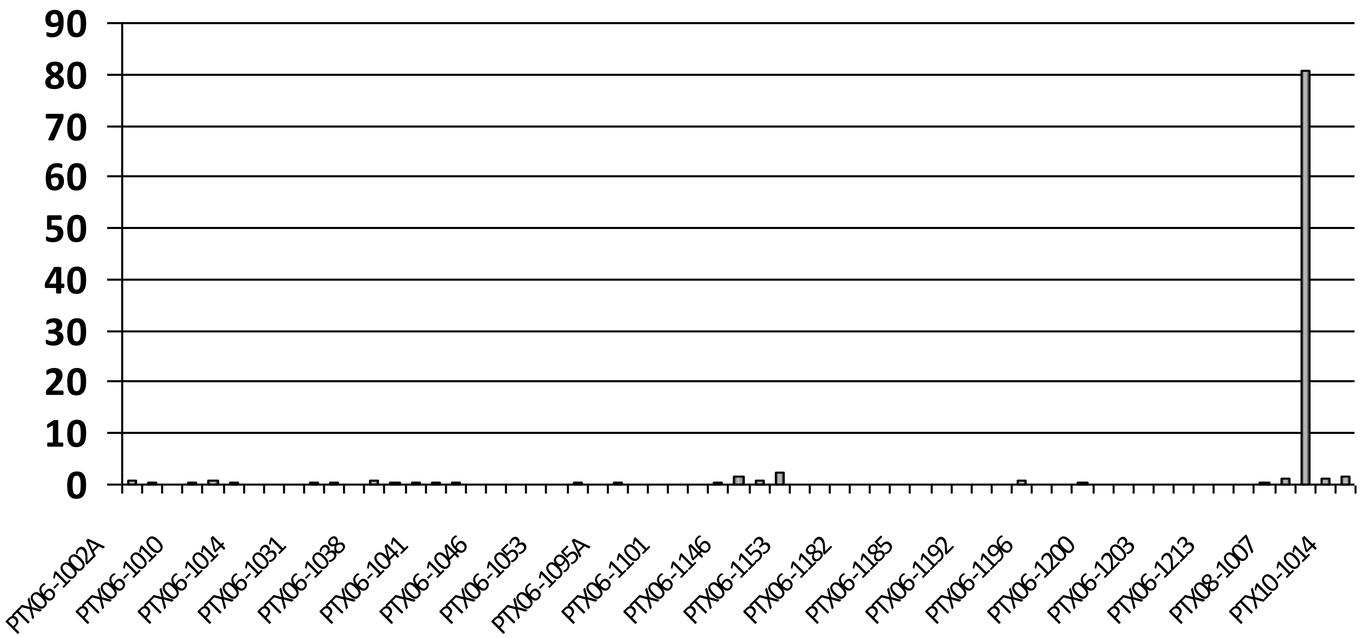
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1196	871,157.87	822.10	0.55	0.65
PTX06-1197	690,996.12	529.65	0.35	0.52
PTX06-1199	1,754,597.26	916.56	0.61	1.31
PTX06-1200	378,473.50	12.37	0.01	0.28
PTX06-1201	427,409.23	155.95	0.10	0.32
PTX06-1202	800,789.99	84.08	0.06	0.60
PTX06-1203	698,212.41	1,194.99	0.80	0.52
PTX06-1204	99,313.42	23.76	0.02	0.07
PTX06-1208	123,744.76	4.08	0.00	0.09
PTX06-1213	592,053.73	97.13	0.06	0.44
PTX06-1214	414,597.73	14.04	0.01	0.31
PTX08-1002	3,530,174.71	121.86	0.08	2.65
PTX08-1007	1,202,127.31	41.18	0.03	0.90
PTX08-1008	2,258,743.43	1,882.52	1.25	1.69
PTX08-1009	2,528,484.34	84.63	0.06	1.89
PTX10-1014	1,735,116.57	58.87	0.04	1.30
	118,174,197.6	150,058.9	100	88.5522965593

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

PERCHLORATE 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1002A	5,898,553.56	1,548.37	0.70	4.42
PTX06-1005	2,780,965.17	730.00	0.33	2.08
PTX06-1008	954,160.68	257.98	0.12	0.71
PTX06-1010	2,700,073.87	708.77	0.32	2.02
PTX06-1011	2,169,869.21	1,873.95	0.84	1.63
PTX06-1013	3,626,944.53	952.07	0.43	2.72
PTX06-1014	1,093,970.16	287.17	0.13	0.82
PTX06-1015	1,324,787.40	347.76	0.16	0.99
PTX06-1023	959,172.23	251.78	0.11	0.72
PTX06-1031	1,670,955.38	438.63	0.20	1.25
PTX06-1034	4,709,730.68	1,236.30	0.56	3.53
PTX06-1037	528,128.48	138.63	0.06	0.40
PTX06-1038	5,720,024.85	1,501.51	0.68	4.29
PTX06-1039A	1,994,280.36	523.50	0.24	1.49

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1040	2,435,227.30	639.25	0.29	1.82
PTX06-1041	3,629,713.53	952.80	0.43	2.72
PTX06-1042	2,977,062.19	781.48	0.35	2.23
PTX06-1045	1,058,899.97	277.96	0.13	0.79
PTX06-1046	590,347.66	154.97	0.07	0.44
PTX06-1047A	1,529,031.93	401.37	0.18	1.15
PTX06-1052	1,327,447.84	348.46	0.16	0.99
PTX06-1053	466,526.33	176.35	0.08	0.35
PTX06-1069	4,592,861.63	1,205.63	0.54	3.44
PTX06-1088	1,598,085.73	419.50	0.19	1.20
PTX06-1095A	2,651,449.16	696.01	0.31	1.99
PTX06-1098	1,144,173.42	300.35	0.14	0.86
PTX06-1100	71,341.35	18.73	0.01	0.05
PTX06-1101	952,746.22	250.10	0.11	0.71
PTX06-1120	765,782.07	201.02	0.09	0.57
PTX06-1133A	2,404,511.91	631.18	0.28	1.80
PTX06-1146	13,794,283.21	3,621.00	1.63	10.34
PTX06-1147	5,166,374.70	1,356.17	0.61	3.87
PTX06-1148	514,389.34	4,830.60	2.17	0.39
PTX06-1153	880,912.92	231.24	0.10	0.66
PTX06-1154	387,810.68	101.80	0.05	0.29
PTX06-1166	1,136,055.53	298.21	0.13	0.85
PTX06-1182	1,024,988.71	269.06	0.12	0.77
PTX06-1183	580,191.68	152.30	0.07	0.43
PTX06-1184	1,138,391.32	298.83	0.13	0.85
PTX06-1185	445,465.15	116.93	0.05	0.33
PTX06-1190	1,047,244.92	274.90	0.12	0.78
PTX06-1191	530,805.27	139.34	0.06	0.40
PTX06-1192	744,017.53	195.30	0.09	0.56
PTX06-1194	755,474.36	198.31	0.09	0.57
PTX06-1195	7,594,975.12	1,993.68	0.90	5.69

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

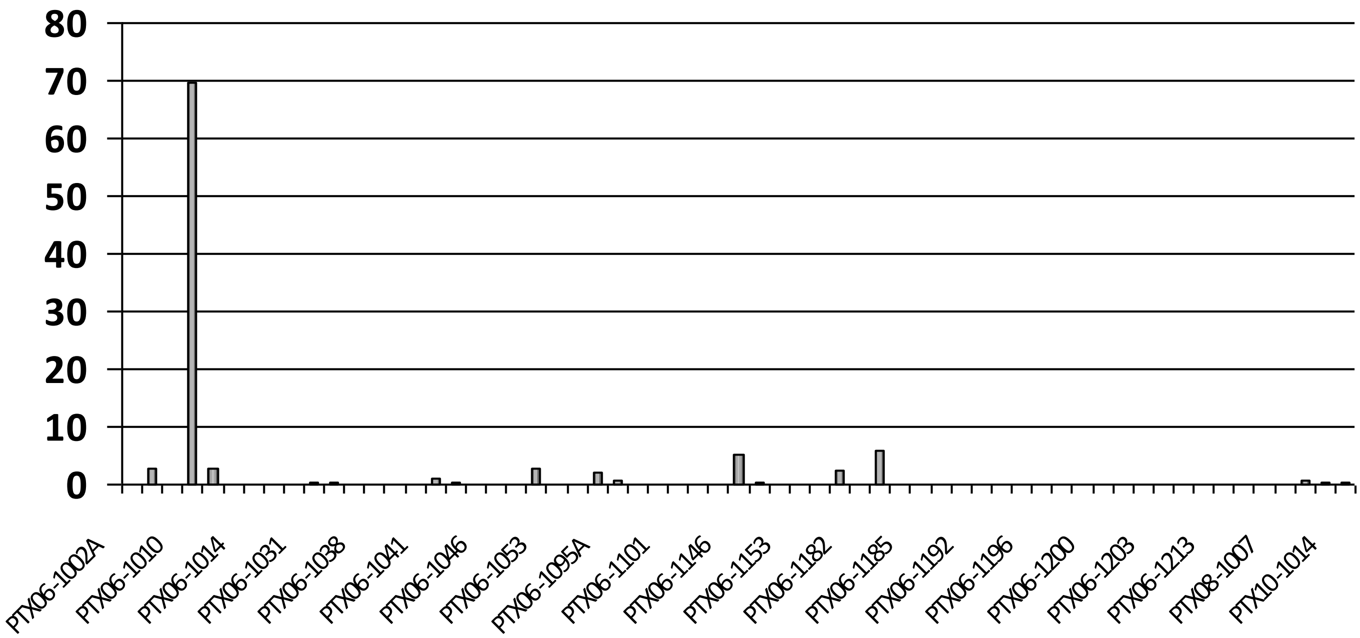
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1196	871,157.87	228.68	0.10	0.65
PTX06-1197	690,996.12	181.39	0.08	0.52
PTX06-1199	1,754,597.26	460.58	0.21	1.31
PTX06-1200	378,473.50	99.35	0.04	0.28
PTX06-1201	427,409.23	112.19	0.05	0.32
PTX06-1202	800,789.99	210.21	0.09	0.60
PTX06-1203	698,212.41	183.28	0.08	0.52
PTX06-1204	99,313.42	26.07	0.01	0.07
PTX06-1208	123,744.76	32.48	0.01	0.09
PTX06-1213	592,053.73	155.41	0.07	0.44
PTX06-1214	414,597.73	108.83	0.05	0.31
PTX08-1002	3,530,174.71	926.67	0.42	2.65
PTX08-1007	1,202,127.31	2,780.07	1.25	0.90
PTX08-1008	2,258,743.43	179,061.89	80.60	1.69
PTX08-1009	2,528,484.34	2,210.21	0.99	1.89
PTX10-1014	1,735,116.57	3,060.75	1.38	1.30
	118,174,197.6	222,167.3	100	88.5522965593

MAROS Percent of Mass by Well

Project: Pantex **User Name:**

Location: Southeast **State:** Texas

CHROMIUM, HEXAVALENT 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1002A	5,898,553.56	1,947.85	0.17	4.42
PTX06-1005	2,780,965.17	32,454.86	2.80	2.08
PTX06-1008	954,160.68	363.18	0.03	0.71
PTX06-1010	2,700,073.87	807,157.25	69.52	2.02
PTX06-1011	2,169,869.21	31,113.89	2.68	1.63
PTX06-1013	3,626,944.53	535.07	0.05	2.72
PTX06-1014	1,093,970.16	501.97	0.04	0.82
PTX06-1015	1,324,787.40	347.76	0.03	0.99
PTX06-1023	959,172.23	355.89	0.03	0.72
PTX06-1031	1,670,955.38	4,796.15	0.41	1.25
PTX06-1034	4,709,730.68	3,187.19	0.27	3.53
PTX06-1037	528,128.48	1.39	0.00	0.40
PTX06-1038	5,720,024.85	1,959.47	0.17	4.29
PTX06-1039A	1,994,280.36	749.65	0.06	1.49

MAROS Percent of Mass by Well

Project: Pantex | **User Name:**

Location: Southeast | **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1040	2,435,227.30	1,183.25	0.10	1.82
PTX06-1041	3,629,713.53	11,357.85	0.98	2.72
PTX06-1042	2,977,062.19	2,036.14	0.18	2.23
PTX06-1045	1,058,899.97	139.54	0.01	0.79
PTX06-1046	590,347.66	437.47	0.04	0.44
PTX06-1047A	1,529,031.93	578.17	0.05	1.15
PTX06-1052	1,327,447.84	31,877.19	2.75	0.99
PTX06-1053	466,526.33	17.63	0.00	0.35
PTX06-1069	4,592,861.63	1,661.35	0.14	3.44
PTX06-1088	1,598,085.73	25,085.74	2.16	1.20
PTX06-1095A	2,651,449.16	9,080.09	0.78	1.99
PTX06-1098	1,144,173.42	3.00	0.00	0.86
PTX06-1100	71,341.35	0.19	0.00	0.05
PTX06-1101	952,746.22	30.51	0.00	0.71
PTX06-1120	765,782.07	331.28	0.03	0.57
PTX06-1133A	2,404,511.91	1,060.71	0.09	1.80
PTX06-1146	13,794,283.21	61,853.91	5.33	10.34
PTX06-1147	5,166,374.70	5,673.89	0.49	3.87
PTX06-1148	514,389.34	135.03	0.01	0.39
PTX06-1153	880,912.92	1,490.17	0.13	0.66
PTX06-1154	387,810.68	1.02	0.00	0.29
PTX06-1166	1,136,055.53	26,620.13	2.29	0.85
PTX06-1182	1,024,988.71	363.10	0.03	0.77
PTX06-1183	580,191.68	69,435.85	5.98	0.43
PTX06-1184	1,138,391.32	298.83	0.03	0.85
PTX06-1185	445,465.15	286.87	0.02	0.33
PTX06-1190	1,047,244.92	961.74	0.08	0.78
PTX06-1191	530,805.27	139.34	0.01	0.40
PTX06-1192	744,017.53	319.91	0.03	0.56
PTX06-1194	755,474.36	198.31	0.02	0.57
PTX06-1195	7,594,975.12	1,772.38	0.15	5.69

MAROS Percent of Mass by Well

Project: Pantex
User Name:
Location: Southeast
State: Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1196	871,157.87	228.68	0.02	0.65
PTX06-1197	690,996.12	605.65	0.05	0.52
PTX06-1199	1,754,597.26	977.12	0.08	1.31
PTX06-1200	378,473.50	125.53	0.01	0.28
PTX06-1201	427,409.23	301.58	0.03	0.32
PTX06-1202	800,789.99	325.61	0.03	0.60
PTX06-1203	698,212.41	784.53	0.07	0.52
PTX06-1204	99,313.42	75.04	0.01	0.07
PTX06-1208	123,744.76	623.46	0.05	0.09
PTX06-1213	592,053.73	155.41	0.01	0.44
PTX06-1214	414,597.73	108.83	0.01	0.31
PTX08-1002	3,530,174.71	212.21	0.02	2.65
PTX08-1007	1,202,127.31	589.15	0.05	0.90
PTX08-1008	2,258,743.43	8,460.97	0.73	1.69
PTX08-1009	2,528,484.34	4,176.17	0.36	1.89
PTX10-1014	1,735,116.57	3,315.58	0.29	1.30
	118,174,197.6	1,160,967.7	100	88.5522965593

SOUTHWEST SECTOR MAROS REPORTS

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MAROS COC Assessment

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Toxicity:

Contaminant of Concern	Representative Concentration (mg/L)	PRG (mg/L)	Percent Above PRG
TRICHLOROETHYLENE (TCE)	6.4E-02	5.0E-03	1187.8%
PERCHLORATE	6.7E-02	1.2E-02	458.3%
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6.1E-03	2.0E-03	206.4%
4-AMINO-2,6-DINITROTOLUENE	2.0E-03	1.2E-03	68.0%
1,4-DIOXANE (P-DIOXANE)	8.8E-03	7.7E-03	13.9%
ARSENIC	1.0E-02	1.0E-02	3.8%
BORON	2.0E-01	1.9E-01	2.0%

Note: Top COCs by toxicity were determined by examining a representative concentration for each compound over the entire site. The compound representative concentrations are then compared with the chosen PRG for that compound, with the percentage exceedance from the PRG determining the compound's toxicity. All compounds above exceed the PRG.

Prevalence:

Contaminant of Concern	Class	Total Wells	Total Exceedance	Percent Exceedances	Total Detects
TRICHLOROETHYLENE (TCE)	ORG	57	29	50.9%	45
PERCHLORATE	INO	48	24	50.0%	41
1,4-DIOXANE (P-DIOXANE)	ORG	50	15	30.0%	41
BORON	MET	51	15	29.4%	51
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	ORG	51	14	27.5%	37
4-AMINO-2,6-DINITROTOLUENE	ORG	51	12	23.5%	30
ARSENIC	MET	35	6	17.1%	31

Note: Top COCs by prevalence were determined by examining a representative concentration for each well location at the site. The total exceedances (values above the chosen PRGs) are compared to the total number of wells to determine the prevalence of the compound.

Mobility:

Contaminant of Concern	Kd/Koc
PERCHLORATE	
BORON	
1,4-DIOXANE (P-DIOXANE)	0.000479
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	0.00741
4-AMINO-2,6-DINITROTOLUENE	0.0985
TRICHLOROETHYLENE (TCE)	0.297
ARSENIC	25

MAROS COC Assessment

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Note: Top COCs by mobility were determined by examining each detected compound in the dataset and comparing their mobilities (Koc's for organics, assuming foc = 0.001, and Kd's for metals).

Priority Constituents by Well:

Well Name	Average	Max
1114-MW4	PERCHLORATE	PERCHLORATE
PTX06-1006	PERCHLORATE	PERCHLORATE
PTX06-1007	4-AMINO-2,6-DINITROTOL	4-AMINO-2,6-DINITROTOL
PTX06-1008	1,2-DICHLOROETHANE	1,2-DICHLOROETHANE
PTX06-1011	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1012	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1035	PERCHLORATE	PERCHLORATE
PTX06-1036	2,6-DINITROTOLUENE	HEXAHYDRO-1,3,5-TRINIT
PTX06-1052	CHROMIUM, TOTAL	CHROMIUM, TOTAL
PTX06-1053	1,1-DICHLOROETHENE	2-AMINO-4,6-DINITROTOL
PTX06-1073A	TNX	TRICHLOROETHYLENE (TCE
PTX06-1077A	2-AMINO-4,6-DINITROTOL	TRICHLOROETHYLENE (TCE
PTX06-1085	BARIUM	BARIUM
PTX06-1086	LEAD	BORON
PTX06-1126	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1127	PERCHLORATE	HEXAHYDRO-1,3,5-TRINIT
PTX06-1131	BORON	BORON
PTX06-1134	PERCHLORATE	PERCHLORATE
PTX06-1148	PERCHLORATE	PERCHLORATE
PTX06-1149	ARSENIC	PERCHLORATE
PTX06-1150	PERCHLORATE	PERCHLORATE
PTX06-1151	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1155	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1156	ARSENIC	ARSENIC
PTX06-1159	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1160	1,1-DICHLOROETHENE	PERCHLORATE
PTX06-1162	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1164	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1169	ARSENIC	TRICHLOROETHYLENE (TCE
PTX06-1170	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE

MAROS COC Assessment

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

PTX06-1171	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1172	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1173	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1174	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1175	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1176	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1177	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1180	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1181	2,4-DINITROTOLUENE	BORON
PTX06-1183	CHROMIUM, TOTAL	CHROMIUM, TOTAL
PTX06-1207	4-AMINO-2,6-DINITROTOL	4-AMINO-2,6-DINITROTOL
PTX06-1209	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1210	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX06-1211	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX07-1P02	BORON	BORON
PTX07-1P05	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX07-1Q01	1,3-DINITROBENZENE	BORON
PTX07-1Q02	HEXAHYDRO-1,3,5-TRINITR	BORON
PTX07-1Q03	OCTAHYDRO-1,3,5,7-TETRA	BORON
PTX08-1001	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX08-1003	OCTAHYDRO-1,3,5,7-TETRA	PERCHLORATE
PTX08-1005	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX08-1006	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX08-1007	TRICHLOROETHYLENE (TCE)	1,2-DICHLOROETHANE
PTX08-1008	PERCHLORATE	PERCHLORATE
PTX08-1009	2-AMINO-4,6-DINITROTOL	BORON
PTX10-1014	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1002A										
A4DNT26	NO	56 %	NO	PI	0.39	0.0002	NO	Normal	NO	NO
CR6	NO	61 %	NO	D	0.00	0.0047	NO	No distribution	NO	NO
RDX	YES	100 %	YES	NT	0.72	0.0281	NO	No distribution	NO	NO
TNX	NO	100 %	YES	NT	0.66	0.0056	NO	Lognormal	NO	NO
PTX06-1005										
A4DNT26	NO	100 %	NO	D	1.17	0.0024	NO	Lognormal	NO	NO
CR6	NO	100 %	NO	D	1.75	0.2682	NO	No distribution	NO	NO
RDX	YES	100 %	YES	D	1.10	0.2579	NO	No distribution	NO	NO
TNX	NO	100 %	NO	D	1.62	0.0092	NO	No distribution	NO	NO
PTX06-1008										
A4DNT26	NO	70 %	NO	S	0.30	0.0002	NO	Normal	NO	NO
CR6	NO	80 %	NO	D	1.22	0.0100	YES	Lognormal	NO	NO
RDX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PCATE	NO	40 %	NO	S	1.48	0.0077	YES	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX06-1010										
A4DNT26	NO	50 %	NO	D	0.18	0.0001	NO	No distribution	NO	NO
CR6	NO	100 %	YES	D	0.45	2.0637	NO	Normal	NO	NO
RDX	NO	100 %	NO	PD	0.34	0.0021	NO	Normal	NO	NO
TNX	NO	56 %	NO	NT	0.25	0.0001	NO	No distribution	NO	NO
PTX06-1011										
A4DNT26	NO	10 %	NO	S	0.00	0.0001	YES	No distribution	NO	NO
CR6	NO	100 %	NO	NT	0.42	0.0587	NO	Normal	NO	NO
RDX	NO	80 %	NO	NT	1.43	0.0017	YES	Lognormal	NO	NO
PCATE	NO	60 %	NO	D	0.00	0.0058	NO	No distribution	NO	NO
TNX	NO	70 %	NO	NT	1.60	0.0009	YES	Lognormal	NO	NO
PTX06-1013										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
CR6	NO	33 %	NO	D	0.00	0.0063	NO	No distribution	NO	NO
RDX	YES	100 %	YES	D	0.17	0.0067	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.20	0.0006	NO	Normal	NO	NO
PTX06-1014										
A4DNT26	NO	100 %	NO	PD	0.20	0.0033	NO	Normal	NO	NO
CR6	NO	80 %	NO	D	0.86	0.0058	NO	No distribution	NO	NO
RDX	YES	100 %	YES	NT	0.18	0.6106	NO	Normal	NO	NO
TNX	NO	100 %	YES	S	0.20	0.0296	NO	Normal	NO	NO
PTX06-1015										
A4DNT26	NO	100 %	NO	D	0.32	0.0052	NO	Normal	NO	NO
CR6	NO	93 %	NO	I	0.72	0.0193	NO	Lognormal	NO	NO
RDX	YES	100 %	YES	PD	0.18	0.9842	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.18	0.0572	NO	Normal	NO	NO
PTX06-1023										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	NO	NO
CR6	NO	50 %	NO	D	0.00	0.0048	NO	No distribution	NO	NO
RDX	YES	39 %	NO	NT	1.33	0.0005	NO	No distribution	NO	NO
TNX	YES	11 %	NO	NT	0.36	0.0001	YES	No distribution	NO	NO
PTX06-1030										
A4DNT26	NO	100 %	YES	I	0.18	0.0175	NO	Normal	NO	NO
CR6	NO	86 %	NO	S	0.45	0.0086	NO	Normal	NO	NO
RDX	YES	100 %	YES	PI	0.10	1.1325	NO	Normal	NO	NO
TNX	NO	100 %	YES	S	0.33	0.0213	NO	Normal	NO	NO
PTX06-1031										
A4DNT26	NO	100 %	NO	I	0.18	0.0029	NO	Lognormal	NO	NO
CR6	NO	85 %	NO	I	0.59	0.0101	YES	Lognormal	NO	NO
RDX	YES	100 %	YES	I	0.20	0.6539	NO	Normal	NO	NO
TNX	NO	100 %	YES	I	0.69	0.0219	NO	No distribution	NO	NO
PTX06-1034										

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
A4DNT26	NO	100 %	NO	D	0.35	0.0082	NO	Normal	NO	NO
CR6	NO	75 %	NO	D	0.61	0.0057	YES	No distribution	NO	NO
RDX	YES	100 %	YES	I	0.29	0.9853	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.28	0.0612	NO	Normal	NO	NO
PTX06-1036										
A4DNT26	NO	0 %	NO	N/A	0.00	0.0001	YES	Normal	NO	NO
CR6	NO	100 %	NO	N/A	0.14	0.0143	NO	Normal	NO	NO
RDX	YES	100 %	NO	N/A	0.05	0.0016	NO	Normal	NO	NO
TNX	NO	0 %	NO	N/A	0.00	0.0001	YES	Normal	NO	NO
PTX06-1037										
A4DNT26	NO	0 %	NO	ND	0.00	0.0004	NO	No distribution	NO	NO
CR6	NO	13 %	NO	D	0.00	0.0050	NO	No distribution	NO	NO
RDX	NO	29 %	NO	D	0.00	0.0005	NO	No distribution	NO	NO
TNX	NO	59 %	NO	D	1.20	0.0005	NO	No distribution	NO	NO
PTX06-1038										
A4DNT26	NO	100 %	NO	D	0.42	0.0121	NO	Normal	NO	NO
CR6	NO	79 %	NO	D	0.85	0.0052	NO	No distribution	NO	NO
RDX	YES	100 %	YES	D	0.73	0.2360	NO	Lognormal	NO	NO
TNX	NO	100 %	YES	D	0.62	0.0117	NO	Lognormal	NO	NO
PTX06-1039A										
A4DNT26	NO	100 %	YES	I	0.38	0.0187	NO	Normal	NO	NO
CR6	NO	61 %	NO	D	1.25	0.0057	NO	No distribution	NO	NO
RDX	YES	100 %	YES	S	0.25	0.8069	NO	Normal	NO	NO
TNX	NO	100 %	YES	I	0.27	0.0704	NO	Normal	NO	NO
PTX06-1040										
A4DNT26	NO	100 %	YES	NT	0.20	0.0223	NO	Normal	NO	NO
CR6	NO	81 %	NO	D	1.96	0.0127	YES	No distribution	NO	NO
RDX	YES	100 %	YES	D	0.20	1.0759	NO	Normal	NO	NO
TNX	NO	100 %	YES	NT	0.29	0.0710	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1041										
A4DNT26	NO	100 %	YES	D	0.13	0.0173	NO	Normal	NO	NO
CR6	NO	80 %	NO	D	0.80	0.0073	NO	Lognormal	NO	NO
RDX	YES	100 %	YES	NT	0.21	1.1907	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.36	0.0363	NO	Normal	NO	NO
PTX06-1042										
A4DNT26	NO	100 %	NO	D	0.54	0.0107	NO	Normal	NO	NO
CR6	NO	62 %	NO	D	0.00	0.0072	YES	Lognormal	NO	NO
RDX	YES	100 %	YES	D	0.40	0.6345	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.58	0.0126	NO	Lognormal	NO	NO
PTX06-1045										
A4DNT26	NO	50 %	NO	S	1.46	0.0003	NO	Normal	NO	NO
CR6	NO	100 %	NO	S	0.43	0.0023	NO	Normal	NO	NO
RDX	YES	100 %	YES	D	1.07	0.0623	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.93	0.0038	NO	Normal	NO	NO
PTX06-1046										
A4DNT26	NO	100 %	NO	D	0.41	0.0064	NO	Normal	NO	NO
CR6	NO	90 %	NO	S	0.58	0.0086	NO	Normal	NO	NO
RDX	YES	100 %	YES	D	0.55	1.6078	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.64	0.1166	NO	Normal	NO	NO
PTX06-1047A										
A4DNT26	NO	95 %	NO	D	1.00	0.0033	NO	Lognormal	NO	NO
CR6	NO	60 %	NO	D	1.18	0.0100	NO	Lognormal	NO	NO
RDX	YES	100 %	YES	D	1.47	0.2276	NO	Lognormal	NO	NO
TNX	NO	95 %	NO	D	1.61	0.0144	NO	Lognormal	NO	NO
PTX06-1052										
A4DNT26	NO	30 %	NO	NT	0.80	0.0002	YES	No distribution	NO	NO
CR6	NO	100 %	NO	D	1.22	2.0136	NO	Lognormal	NO	NO
RDX	NO	30 %	NO	S	0.38	0.0001	YES	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX06-1053										
A4DNT26	NO	100 %	NO	D	0.57	0.0006	NO	Normal	NO	NO
CR6	NO	50 %	NO	D	0.00	0.0053	NO	No distribution	NO	NO
RDX	NO	67 %	NO	S	0.35	0.0002	NO	Normal	NO	NO
PCATE	NO	12 %	NO	S	0.00	0.0063	NO	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Lognormal	NO	NO
PTX06-1069										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
CR6	NO	40 %	NO	S	1.61	0.0101	NO	Normal	NO	NO
RDX	NO	40 %	NO	NT	0.00	0.0001	NO	Normal	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX06-1088										
A4DNT26	NO	100 %	NO	S	0.66	0.0008	NO	Lognormal	NO	NO
CR6	NO	95 %	NO	I	0.81	0.0485	NO	Lognormal	NO	NO
RDX	YES	100 %	YES	NT	1.09	0.0543	NO	Lognormal	NO	NO
TNX	NO	100 %	NO	S	0.63	0.0009	NO	Lognormal	NO	NO
PTX06-1095A										
A4DNT26	NO	100 %	NO	D	0.81	0.0024	NO	No distribution	NO	NO
CR6	NO	90 %	NO	PI	1.59	0.0344	YES	No distribution	NO	NO
RDX	YES	100 %	YES	D	1.17	0.5371	NO	Lognormal	NO	NO
TNX	NO	90 %	NO	D	1.09	0.0066	NO	No distribution	NO	NO
PTX06-1098										
A4DNT26	NO	0 %	NO	ND	0.00	0.0003	YES	No distribution	NO	NO
CR6	NO	35 %	NO	D	1.92	0.0104	NO	No distribution	NO	NO
RDX	NO	11 %	NO	NT	0.00	0.0003	YES	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0007	YES	No distribution	NO	NO
PTX06-1100										
A4DNT26	NO	0 %	NO	ND	0.00	0.0003	YES	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
CR6	NO	30 %	NO	D	3.22	0.0289	YES	No distribution	NO	NO
RDX	NO	0 %	NO	ND	0.00	0.0003	YES	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0006	YES	No distribution	NO	NO
PTX06-1101										
A4DNT26	NO	20 %	NO	S	0.00	0.0003	YES	No distribution	NO	NO
CR6	NO	40 %	NO	D	2.31	0.0079	NO	Normal	NO	NO
RDX	YES	80 %	YES	I	0.82	0.0384	NO	Normal	NO	NO
TNX	NO	20 %	NO	NT	0.00	0.0005	YES	No distribution	NO	NO
PTX06-1102										
A4DNT26	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	100 %	YES	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1120										
A4DNT26	NO	100 %	NO	D	0.40	0.0098	NO	No distribution	NO	NO
CR6	NO	100 %	NO	S	0.88	0.0145	NO	Lognormal	NO	NO
RDX	YES	100 %	YES	D	0.36	2.7696	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.41	0.2351	NO	Normal	NO	NO
PTX06-1121										
A4DNT26	NO	100 %	NO	N/A	0.24	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.08	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	N/A	0.64	#Error	NO	No distribution	NO	NO
TNX	NO	100 %	YES	N/A	0.56	#Error	NO	No distribution	NO	NO
PTX06-1123										
A4DNT26	NO	0 %	NO	ND	0.00	0.0007	YES	No distribution	NO	NO
CR6	NO	7 %	NO	D	0.00	0.0072	NO	No distribution	NO	NO
RDX	NO	53 %	NO	D	2.11	0.0036	NO	No distribution	NO	NO
TNX	YES	100 %	NO	D	1.21	0.0171	NO	Lognormal	NO	NO
PTX06-1130										

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
A4DNT26	NO	100 %	NO	D	0.16	0.0094	YES	Normal	NO	NO
CR6	NO	43 %	NO	D	0.00	0.0072	NO	Normal	NO	NO
RDX	YES	100 %	YES	S	0.12	0.1213	NO	Normal	NO	NO
TNX	NO	100 %	YES	NT	0.10	0.0065	NO	Normal	NO	NO
PTX06-1133A										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
CR6	NO	67 %	NO	D	0.73	0.0053	NO	No distribution	NO	NO
RDX	NO	20 %	NO	D	2.95	0.0004	YES	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX06-1135										
A4DNT26	NO	78 %	NO	I	1.02	0.0004	YES	No distribution	NO	NO
CR6	NO	38 %	NO	S	0.63	0.0079	NO	Normal	NO	NO
RDX	NO	100 %	NO	I	0.58	0.0008	YES	Lognormal	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX06-1146										
A4DNT26	NO	100 %	YES	D	0.16	0.0243	NO	Normal	NO	NO
CR6	NO	85 %	NO	I	0.38	0.0142	NO	No distribution	NO	NO
RDX	YES	100 %	YES	NT	0.23	1.3113	YES	No distribution	NO	NO
TNX	NO	100 %	YES	I	0.19	0.0207	NO	Normal	NO	NO
PTX06-1147										
A4DNT26	NO	100 %	NO	PD	0.22	0.0045	NO	Normal	NO	NO
CR6	NO	60 %	NO	D	0.00	0.0054	NO	Normal	NO	NO
RDX	YES	100 %	YES	D	0.31	0.9937	NO	Normal	NO	NO
TNX	NO	100 %	YES	D	0.32	0.0534	NO	Normal	NO	NO
PTX06-1148										
A4DNT26	NO	6 %	NO	S	0.00	0.0002	NO	No distribution	NO	NO
RDX	NO	19 %	NO	S	0.00	0.0002	NO	No distribution	NO	NO
PCATE	YES	94 %	YES	D	0.96	0.5226	NO	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0004	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1153										
A4DNT26	NO	92 %	NO	D	0.00	0.0042	NO	No distribution	NO	NO
CR6	NO	100 %	NO	D	0.81	0.0876	NO	No distribution	NO	NO
RDX	YES	100 %	YES	PI	0.43	0.3447	NO	No distribution	NO	NO
TNX	NO	94 %	YES	I	0.00	0.0140	NO	No distribution	NO	NO
PTX06-1154										
A4DNT26	NO	0 %	NO	ND	0.00	0.0007	NO	No distribution	NO	NO
CR6	NO	41 %	NO	D	1.63	0.0085	NO	No distribution	NO	NO
RDX	NO	14 %	NO	NT	4.48	0.0016	NO	No distribution	NO	NO
TNX	YES	37 %	NO	D	2.45	0.0254	NO	No distribution	NO	NO
PTX06-1166										
A4DNT26	NO	100 %	NO	S	0.20	0.0004	NO	Lognormal	NO	NO
CR6	NO	94 %	NO	I	0.79	0.0644	NO	Normal	NO	NO
RDX	YES	100 %	YES	D	0.24	0.0188	NO	Normal	NO	NO
TNX	NO	19 %	NO	PI	0.00	0.0001	NO	No distribution	NO	NO
PTX06-1182										
A4DNT26	NO	92 %	NO	D	1.54	0.0039	NO	No distribution	NO	NO
CR6	NO	82 %	NO	PD	0.00	0.0039	NO	Lognormal	NO	NO
RDX	YES	100 %	NO	D	1.56	0.0119	NO	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	NO	NO
PTX06-1183										
A4DNT26	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	YES	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1184										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1185										
A4DNT26	NO	100 %	NO	D	0.26	0.0036	NO	Normal	NO	NO
CR6	NO	100 %	NO	PD	0.21	0.0039	NO	Normal	NO	NO
RDX	YES	100 %	YES	D	0.41	0.6097	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.53	0.0033	NO	No distribution	NO	NO
PTX06-1190										
A4DNT26	NO	100 %	YES	S	0.13	0.0084	NO	Normal	NO	NO
CR6	NO	100 %	NO	I	0.11	0.0035	NO	Normal	NO	NO
RDX	YES	100 %	YES	I	0.49	1.3053	NO	Normal	NO	NO
TNX	NO	100 %	YES	I	0.29	0.0249	NO	Normal	NO	NO
PTX06-1191										
A4DNT26	NO	100 %	NO	D	0.22	0.0018	NO	Normal	NO	NO
CR6	NO	100 %	NO	S	0.09	0.0026	NO	Normal	NO	NO
RDX	YES	100 %	YES	PI	0.18	0.1484	NO	Normal	NO	NO
TNX	NO	100 %	NO	I	0.23	0.0004	NO	Normal	NO	NO
PTX06-1192										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	NO	NO
CR6	YES	100 %	NO	NT	1.34	0.0069	YES	Lognormal	NO	NO
RDX	NO	12 %	NO	S	0.00	0.0001	NO	Normal	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	NO	NO
PTX06-1194										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	NO	NO
CR6	NO	100 %	NO	S	0.60	0.0023	YES	Normal	NO	NO
RDX	YES	25 %	NO	S	2.46	0.0001	YES	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	NO	NO
PTX06-1195										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	NO	NO
CR6	NO	100 %	NO	NT	0.52	0.0011	NO	No distribution	NO	NO
RDX	YES	33 %	NO	S	0.00	0.0001	YES	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	NO	NO
PTX06-1196										
A4DNT26	NO	100 %	NO	S	0.25	0.0053	NO	Normal	NO	NO
CR6	NO	100 %	NO	N/A	0.23	0.0030	NO	Normal	NO	NO
RDX	YES	100 %	YES	I	0.20	0.0306	NO	Normal	NO	NO
TNX	NO	100 %	NO	I	0.62	0.0017	NO	Normal	NO	NO
PTX06-1197										
A4DNT26	NO	100 %	NO	S	0.12	0.0035	NO	Normal	NO	NO
CR6	NO	100 %	NO	NT	0.25	0.0042	NO	Normal	NO	NO
RDX	YES	100 %	YES	I	0.26	0.2403	NO	Normal	NO	NO
TNX	NO	100 %	NO	NT	0.20	0.0018	YES	Normal	NO	NO
PTX06-1199										
A4DNT26	NO	100 %	NO	I	0.20	0.0020	YES	Normal	NO	NO
CR6	NO	100 %	NO	I	0.72	0.0040	YES	Lognormal	NO	NO
RDX	YES	100 %	YES	I	0.25	0.0085	NO	Normal	NO	NO
TNX	NO	14 %	NO	PD	0.00	0.0001	YES	No distribution	NO	NO
PTX06-1200										
A4DNT26	NO	17 %	NO	S	0.00	0.0002	YES	No distribution	NO	NO
CR6	NO	100 %	NO	NT	0.06	0.0013	YES	No distribution	NO	NO
RDX	NO	0 %	NO	ND	0.00	0.0002	YES	No distribution	NO	NO
TNX	YES	0 %	NO	ND	0.00	0.0002	YES	No distribution	NO	NO
PTX06-1201										
A4DNT26	NO	100 %	NO	I	0.40	0.0014	NO	No distribution	NO	NO
CR6	NO	100 %	NO	NT	0.16	0.0029	YES	No distribution	NO	NO
RDX	YES	100 %	YES	I	0.73	0.0088	NO	No distribution	NO	NO
TNX	NO	17 %	NO	PD	0.00	0.0001	YES	No distribution	NO	NO
PTX06-1202										
A4DNT26	NO	100 %	NO	I	0.15	0.0004	NO	No distribution	NO	NO
CR6	NO	100 %	NO	I	0.20	0.0016	YES	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
RDX	YES	100 %	NO	PI	0.20	0.0002	NO	Normal	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX06-1203										
A4DNT26	NO	100 %	YES	NT	0.09	0.0068	YES	No distribution	NO	NO
CR6	NO	100 %	NO	S	0.03	0.0045	NO	Normal	NO	NO
RDX	YES	100 %	YES	I	0.36	0.2194	NO	No distribution	NO	NO
TNX	NO	100 %	YES	PI	0.29	0.0030	NO	No distribution	NO	NO
PTX06-1204										
A4DNT26	NO	100 %	NO	I	0.61	0.0009	NO	Lognormal	NO	NO
CR6	NO	100 %	NO	NT	0.18	0.0032	YES	No distribution	NO	NO
RDX	YES	83 %	NO	PI	1.16	0.0008	YES	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	No distribution	NO	NO
PTX06-1207										
A4DNT26	YES	100 %	NO	N/A	0.22	0.0088	NO	Normal	NO	NO
RDX	YES	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
PCATE	NO	100 %	NO	N/A	0.50	0.0233	NO	Normal	NO	NO
TNX	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
PTX06-1208										
A4DNT26	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
CR6	NO	100 %	NO	N/A	1.34	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
TNX	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
PTX06-1213										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1214										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
TNX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-PRB16										
A4DNT26	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	N/A	0.00	#Error	NO	No distribution	NO	NO
TNX	NO	100 %	YES	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX08-1002										
A4DNT26	NO	94 %	NO	D	0.81	0.0037	NO	Lognormal	NO	NO
CR6	NO	44 %	NO	D	0.00	0.0047	NO	No distribution	NO	NO
RDX	YES	100 %	YES	D	0.96	0.0704	NO	Lognormal	NO	NO
TNX	NO	100 %	NO	D	0.79	0.0041	NO	Lognormal	NO	NO
PTX08-1007										
A4DNT26	NO	30 %	NO	PI	0.00	0.0001	NO	No distribution	NO	NO
CR6	NO	60 %	NO	D	0.89	0.0068	NO	Normal	NO	NO
RDX	NO	100 %	YES	D	0.42	0.0059	NO	No distribution	NO	NO
PCATE	NO	80 %	NO	I	0.20	0.0074	NO	Normal	NO	NO
TNX	NO	100 %	NO	D	0.49	0.0017	NO	Normal	NO	NO
PTX08-1008										
A4DNT26	NO	40 %	NO	I	1.90	0.0011	NO	No distribution	NO	NO
CR6	YES	100 %	NO	D	1.72	0.3452	YES	Lognormal	NO	NO
RDX	NO	15 %	YES	NT	2.34	0.0004	YES	No distribution	NO	NO
PCATE	YES	95 %	YES	I	0.77	0.2612	NO	No distribution	NO	NO
TNX	NO	5 %	NO	NT	0.00	0.0001	YES	No distribution	NO	NO
PTX08-1009										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
CR6	NO	78 %	NO	S	0.76	0.0226	NO	No distribution	NO	NO
RDX	YES	83 %	NO	D	1.07	0.0005	YES	No distribution	NO	NO
PCATE	NO	67 %	NO	S	0.00	0.0064	NO	No distribution	NO	NO
TNX	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
PTX10-1014										

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	NO	NO
CR6	NO	80 %	NO	S	0.92	0.0146	NO	Lognormal	NO	NO
RDX	NO	100 %	YES	S	0.45	0.0023	NO	Normal	NO	NO
PCATE	NO	80 %	NO	S	0.17	0.0070	NO	Normal	NO	NO
TNX	NO	100 %	NO	S	0.42	0.0005	NO	Normal	NO	NO

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Time Period: 1/1/2017 **to** 12/1/2021
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
CHROMIUM, HEXAVALENT							
1114-MW4	1	1	0.00	0	0.0%	No	N/A
PTX06-1007	1	1	0.00	0	0.0%	No	N/A
PTX06-1008	5	5	0.93	-10	99.2%	No	D
PTX06-1052	10	10	0.65	-39	100.0%	No	D
PTX06-1053	8	7	1.66	-8	80.1%	No	NT
PTX06-1077A	1	1	0.00	0	0.0%	No	N/A
PTX06-1085	1	1	0.00	0	0.0%	No	N/A
PTX06-1086	1	1	0.00	0	0.0%	No	N/A
PTX06-1126	10	10	0.61	25	98.6%	No	I
PTX06-1127	10	9	0.70	-35	100.0%	No	D
PTX06-1131	1	1	0.00	0	0.0%	No	N/A
PTX06-1183	10	10	0.47	-33	99.9%	No	D
PTX07-1P02	1	1	0.00	0	0.0%	No	N/A
PTX07-1Q01	1	1	0.00	0	0.0%	No	N/A
PTX07-1Q02	1	1	0.00	0	0.0%	No	N/A
PTX08-1001	1	1	0.00	0	0.0%	No	N/A
PTX08-1005	8	8	0.14	14	94.6%	No	PI
PTX08-1006	1	1	0.00	0	0.0%	No	N/A
PTX08-1007	5	5	1.01	-10	99.2%	No	D
PTX08-1008	10	10	0.69	-39	100.0%	No	D
PTX08-1009	8	8	0.69	-24	99.9%	No	D
PTX10-1014	5	5	0.84	-6	88.3%	No	S
CHROMIUM, TOTAL							
1114-MW4	1	1	0.00	0	0.0%	No	N/A
PTX06-1007	1	1	0.00	0	0.0%	No	N/A
PTX06-1008	5	5	0.36	6	88.3%	No	NT

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

CHROMIUM, TOTAL

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1012	14	0	0.36	-11	70.5%	Yes	ND
PTX06-1052	10	10	0.64	-37	100.0%	No	D
PTX06-1053	8	1	0.31	-1	50.0%	No	S
PTX06-1077A	1	0	0.00	0	0.0%	Yes	ND
PTX06-1085	1	0	0.00	0	0.0%	Yes	ND
PTX06-1086	1	0	0.00	0	0.0%	Yes	ND
PTX06-1126	10	10	0.48	19	94.6%	No	PI
PTX06-1127	10	10	1.46	21	96.4%	No	I
PTX06-1131	1	1	0.00	0	0.0%	No	N/A
PTX06-1148	14	13	1.56	-2	52.2%	No	NT
PTX06-1149	14	1	0.80	-11	70.5%	No	S
PTX06-1150	14	11	0.96	-6	60.6%	No	S
PTX06-1155	14	3	0.65	0	47.8%	No	S
PTX06-1156	14	0	0.45	-8	64.6%	Yes	ND
PTX06-1169	2	0	0.00	0	0.0%	Yes	ND
PTX06-1173	14	0	0.45	-8	64.6%	Yes	ND
PTX06-1174	14	0	0.48	-11	70.5%	Yes	ND
PTX06-1175	14	6	2.35	-17	80.6%	No	NT
PTX06-1183	10	10	0.43	-33	99.9%	No	D
PTX06-1211	1	0	0.00	0	0.0%	Yes	ND
PTX07-1P02	1	0	0.00	0	0.0%	Yes	ND
PTX07-1Q01	1	0	0.00	0	0.0%	Yes	ND
PTX07-1Q02	1	0	0.00	0	0.0%	Yes	ND
PTX08-1001	1	0	0.00	0	0.0%	Yes	ND
PTX08-1005	8	7	0.19	14	94.6%	No	PI
PTX08-1006	1	1	0.00	0	0.0%	No	N/A
PTX08-1007	5	2	0.23	-3	67.5%	No	S
PTX08-1008	10	10	0.71	-41	100.0%	No	D
PTX08-1009	8	8	0.63	-24	99.9%	No	D
PTX10-1014	5	5	0.40	-4	75.8%	No	S

cis-1,2-DICHLOROETHYLENE

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
1114-MW4	8	0	0.00	0	45.2%	Yes	ND
PTX06-1006	5	0	0.00	0	40.8%	Yes	ND

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

cis-1,2-DICHLOROETHYLENE

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1007	5	0	0.00	0	40.8%	Yes	ND
PTX06-1008	5	0	0.00	0	40.8%	Yes	ND
PTX06-1012	16	16	0.53	-47	98.2%	No	D
PTX06-1035	10	0	0.00	0	46.4%	Yes	ND
PTX06-1052	10	0	0.00	0	46.4%	Yes	ND
PTX06-1053	8	0	0.00	0	45.2%	Yes	ND
PTX06-1077A	4	4	1.03	2	62.5%	No	NT
PTX06-1085	4	0	0.00	0	37.5%	Yes	ND
PTX06-1086	4	0	0.00	0	37.5%	Yes	ND
PTX06-1126	10	10	0.68	-25	98.6%	No	D
PTX06-1127	10	10	0.49	29	99.5%	No	I
PTX06-1131	5	0	0.00	0	40.8%	Yes	ND
PTX06-1134	10	10	0.69	23	97.7%	No	I
PTX06-1148	16	7	0.58	-58	99.6%	No	D
PTX06-1149	16	7	0.41	-30	90.3%	No	PD
PTX06-1150	16	9	0.74	-33	92.4%	No	PD
PTX06-1151	10	10	0.30	16	90.7%	No	PI
PTX06-1155	16	16	0.42	39	95.7%	No	I
PTX06-1156	16	9	0.79	19	78.8%	No	NT
PTX06-1159	10	10	0.29	-33	99.9%	No	D
PTX06-1160	10	0	0.00	0	46.4%	Yes	ND
PTX06-1164	16	16	1.22	29	89.5%	No	NT
PTX06-1169	6	6	0.14	0	42.3%	No	S
PTX06-1170	16	16	0.48	-55	99.3%	No	D
PTX06-1171	5	5	0.11	-9	97.5%	No	D
PTX06-1173	16	16	0.43	9	63.9%	No	NT
PTX06-1174	16	16	1.24	-7	60.5%	No	NT
PTX06-1175	16	16	1.40	42	96.8%	No	I
PTX06-1176	16	16	0.84	-89	100.0%	No	D
PTX06-1177	16	15	0.68	-75	100.0%	No	D
PTX06-1180	10	10	0.17	-16	90.7%	No	PD
PTX06-1181	9	0	0.00	0	46.0%	Yes	ND
PTX06-1183	10	0	0.00	0	46.4%	Yes	ND

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

cis-1,2-DICHLOROETHYLENE

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1207	3	0	0.00	0	0.0%	Yes	ND
PTX06-1209	1	1	0.00	0	0.0%	No	N/A
PTX06-1210	1	1	0.00	0	0.0%	No	N/A
PTX06-1211	1	1	0.00	0	0.0%	No	N/A
PTX07-1P02	8	0	0.00	0	45.2%	Yes	ND
PTX07-1Q01	4	0	0.00	0	37.5%	Yes	ND
PTX07-1Q02	4	0	0.00	0	37.5%	Yes	ND
PTX07-1Q03	3	0	0.00	0	0.0%	Yes	ND
PTX08-1001	5	0	0.00	0	40.8%	Yes	ND
PTX08-1003	5	0	0.00	0	40.8%	Yes	ND
PTX08-1005	8	5	0.19	7	76.4%	No	NT
PTX08-1006	10	3	0.14	8	72.9%	No	NT
PTX08-1007	5	0	0.00	0	40.8%	Yes	ND
PTX08-1008	10	0	0.73	7	70.0%	Yes	ND
PTX08-1009	8	0	0.00	0	45.2%	Yes	ND
PTX10-1014	5	0	0.00	0	40.8%	Yes	ND
PERCHLORATE							
1114-MW4	8	8	0.30	-20	99.3%	No	D
PTX06-1006	5	5	0.09	-8	95.8%	No	D
PTX06-1007	5	5	0.21	-2	59.2%	No	S
PTX06-1008	5	4	0.95	-2	59.2%	No	S
PTX06-1012	16	0	0.53	-48	98.4%	Yes	ND
PTX06-1035	10	10	0.34	28	99.4%	No	I
PTX06-1053	8	2	0.47	-11	88.7%	No	S
PTX06-1077A	5	4	0.34	-4	75.8%	No	S
PTX06-1126	10	10	1.36	-37	100.0%	No	D
PTX06-1127	10	10	0.45	-37	100.0%	No	D
PTX06-1134	10	10	0.59	31	99.8%	No	I
PTX06-1148	16	14	1.20	-88	100.0%	No	D
PTX06-1149	16	7	1.28	62	99.8%	No	I
PTX06-1150	16	16	0.56	-101	100.0%	No	D
PTX06-1151	11	11	0.36	-55	100.0%	No	D
PTX06-1155	16	1	0.53	-43	97.1%	No	D

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PERCHLORATE							
PTX06-1156	16	0	0.53	-48	98.4%	Yes	ND
PTX06-1159	10	10	0.38	-11	81.0%	No	S
PTX06-1160	11	8	1.87	-24	96.4%	No	D
PTX06-1164	16	13	0.87	-80	100.0%	No	D
PTX06-1169	6	0	1.22	-8	89.8%	Yes	ND
PTX06-1170	16	1	1.11	-36	94.2%	No	PD
PTX06-1171	5	5	0.23	-4	75.8%	No	S
PTX06-1173	16	1	0.53	-43	97.1%	No	D
PTX06-1174	16	0	0.53	-48	98.4%	Yes	ND
PTX06-1175	16	13	0.92	-77	100.0%	No	D
PTX06-1176	16	5	1.07	-82	100.0%	No	D
PTX06-1177	16	1	1.28	-12	68.7%	No	NT
PTX06-1180	10	4	0.29	-20	95.5%	No	D
PTX06-1181	9	4	0.64	-24	99.4%	No	D
PTX06-1207	3	3	0.00	0	0.0%	No	N/A
PTX06-1209	1	1	0.00	0	0.0%	No	N/A
PTX06-1210	1	0	0.00	0	0.0%	Yes	ND
PTX06-1211	1	1	0.00	0	0.0%	No	N/A
PTX07-1P02	8	0	0.55	-12	91.1%	Yes	ND
PTX08-1001	5	1	0.79	-4	75.8%	No	S
PTX08-1003	5	5	0.07	-2	59.2%	No	S
PTX08-1005	8	2	0.43	-11	88.7%	No	S
PTX08-1006	10	10	1.17	-31	99.8%	No	D
PTX08-1007	5	5	0.13	8	95.8%	No	I
PTX08-1008	10	10	0.20	-21	96.4%	No	D
PTX08-1009	6	4	0.35	-2	57.0%	No	S
PTX10-1014	5	5	0.12	-2	59.2%	No	S
TRICHLOROETHYLENE (TCE)							
1114-MW4	8	8	0.34	22	99.8%	No	I
PTX06-1006	5	5	0.14	6	88.3%	No	NT
PTX06-1007	5	3	0.13	-1	50.0%	No	S
PTX06-1008	5	5	0.40	8	95.8%	No	I
PTX06-1012	16	16	0.45	-98	100.0%	No	D

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

TRICHLOROETHYLENE (TCE)

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1035	10	10	0.44	31	99.8%	No	I
PTX06-1052	10	5	1.03	25	98.6%	No	I
PTX06-1053	8	0	0.00	0	45.2%	Yes	ND
PTX06-1077A	4	4	0.28	2	62.5%	No	NT
PTX06-1085	4	0	0.00	0	37.5%	Yes	ND
PTX06-1086	4	0	0.00	0	37.5%	Yes	ND
PTX06-1126	10	10	0.92	-19	94.6%	No	PD
PTX06-1127	10	10	0.39	31	99.8%	No	I
PTX06-1131	5	0	0.00	0	40.8%	Yes	ND
PTX06-1134	10	10	0.68	19	94.6%	No	PI
PTX06-1148	16	16	0.74	84	100.0%	No	I
PTX06-1149	16	12	1.75	89	100.0%	No	I
PTX06-1150	16	16	0.58	84	100.0%	No	I
PTX06-1151	10	10	0.18	3	56.9%	No	NT
PTX06-1155	16	9	2.06	68	99.9%	No	I
PTX06-1156	16	6	0.68	-32	91.7%	No	PD
PTX06-1159	10	10	0.37	-37	100.0%	No	D
PTX06-1160	10	3	0.07	-24	98.2%	No	D
PTX06-1164	16	16	0.48	-4	55.3%	No	S
PTX06-1169	6	6	1.36	7	86.4%	No	NT
PTX06-1170	16	16	0.73	-47	98.2%	No	D
PTX06-1171	5	5	0.08	-8	95.8%	No	D
PTX06-1173	16	14	1.69	33	92.4%	No	PI
PTX06-1174	16	12	1.39	4	55.3%	No	NT
PTX06-1175	16	16	0.31	-80	100.0%	No	D
PTX06-1176	16	13	1.42	-71	100.0%	No	D
PTX06-1177	16	12	0.97	11	67.1%	No	NT
PTX06-1180	10	10	0.17	2	53.5%	No	NT
PTX06-1181	9	0	0.00	0	46.0%	Yes	ND
PTX06-1183	10	3	0.41	10	78.4%	No	NT
PTX06-1207	3	3	0.00	0	0.0%	No	N/A
PTX06-1209	1	1	0.00	0	0.0%	No	N/A
PTX06-1210	1	1	0.00	0	0.0%	No	N/A

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

TRICHLOROETHYLENE (TCE)

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1211	1	1	0.00	0	0.0%	No	N/A
PTX07-1P02	8	0	0.00	0	45.2%	Yes	ND
PTX07-1Q01	4	0	0.00	0	37.5%	Yes	ND
PTX07-1Q02	4	0	0.00	0	37.5%	Yes	ND
PTX07-1Q03	3	0	0.00	0	0.0%	Yes	ND
PTX08-1001	5	0	0.00	0	40.8%	Yes	ND
PTX08-1003	5	4	0.26	-4	75.8%	No	S
PTX08-1005	8	8	0.48	-20	99.3%	No	D
PTX08-1006	10	10	0.57	-1	50.0%	No	S
PTX08-1007	5	5	0.05	-6	88.3%	No	S
PTX08-1008	10	8	1.46	38	100.0%	No	I
PTX08-1009	8	0	0.00	0	45.2%	Yes	ND
PTX10-1014	5	5	0.63	8	95.8%	No	I

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events).

The Number of Samples and Number of Detects shown above are post-consolidation values.

MAROS Spatial Moment Analysis Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

	0th Moment	1st Moment (Center of Mass)			2nd Moment (Spread)		
Effective Date	Estimated Mass (Kg)	Xc (ft)	Yc (ft)	Source Distance	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
CHROMIUM, HEXAVALENT							
7/1/2017	2.0E+02	638,502	3,755,271	2,576	664,965	1,460,591	11
7/1/2018	1.2E+02	638,400	3,755,043	2,637	639,312	1,287,607	11
7/1/2019	6.4E+01	638,456	3,755,347	2,496	757,425	1,374,075	11
7/1/2020	4.8E+01	638,502	3,755,382	2,514	823,434	1,514,124	11
7/1/2021	5.1E+01	637,147	3,756,143	970	7,221,966	3,454,996	22
CHROMIUM, TOTAL							
7/1/2017	2.4E+02	638,379	3,755,317	2,450	1,003,706	1,366,163	21
7/1/2018	2.5E+02	638,156	3,755,202	2,349	1,081,015	1,262,687	21
7/1/2019	1.7E+02	638,262	3,755,433	2,287	1,265,055	1,455,696	20
7/1/2020	1.5E+02	638,006	3,755,526	2,026	1,710,442	1,544,017	20
7/1/2021	2.1E+02	636,035	3,756,703	370	8,734,851	5,117,009	32
cis-1,2-DICHLOROETHYLENE							
7/1/2017	2.3E+01	634,590	3,756,334	1,860	3,628,253	3,740,479	47
7/1/2018	2.4E+01	634,563	3,756,253	1,907	3,531,930	3,583,374	47
7/1/2019	2.5E+01	634,432	3,756,235	2,037	3,354,264	3,471,405	45
7/1/2020	1.9E+01	634,939	3,755,889	1,702	2,650,196	2,478,162	43
7/1/2021	1.9E+01	634,854	3,756,726	1,547	4,728,345	4,741,790	50
PERCHLORATE							
7/1/2017	3.4E+02	636,434	3,757,097	337	1,567,603	2,618,704	38
7/1/2018	3.0E+02	636,426	3,757,069	308	1,959,096	2,935,121	39
7/1/2019	2.4E+02	636,395	3,757,107	345	2,398,655	3,266,896	38
7/1/2020	1.8E+02	636,366	3,757,187	427	2,335,960	2,921,188	40
7/1/2021	1.8E+02	636,436	3,757,065	305	2,417,182	3,074,378	43
TRICHLOROETHYLENE (TCE)							
7/1/2017	7.5E+01	635,106	3,756,385	1,347	2,396,526	2,449,452	47
7/1/2018	9.2E+01	635,109	3,756,260	1,385	2,236,134	2,255,352	47
7/1/2019	9.0E+01	634,995	3,756,043	1,578	2,149,165	1,678,341	45
7/1/2020	7.5E+01	635,351	3,756,103	1,239	2,204,240	2,238,066	43
7/1/2021	8.9E+01	635,606	3,756,193	976	2,833,342	3,076,529	50

MAROS Spatial Moment Analysis Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Spatial Moment Analysis Summary:

Moment Type	Constituent	Coefficient of Variation	Mann-Kendall S Statistic	Confidence in Trend	Moment Trend
0th Moment	CHROMIUM, HEXAVALENT	0.66	-8	95.8%	D
0th Moment	CHROMIUM, TOTAL	0.20	-4	75.8%	S
0th Moment	cis-1,2-DICHLOROETHYLENE	0.13	-2	59.2%	S
0th Moment	PERCHLORATE	0.28	-8	95.8%	D
0th Moment	TRICHLOROETHYLENE (TCE)	0.10	0	40.8%	S
First Moment	CHROMIUM, HEXAVALENT	0.32	-6	88.3%	S
First Moment	CHROMIUM, TOTAL	0.46	-10	99.2%	D
First Moment	cis-1,2-DICHLOROETHYLENE	0.11	-4	75.8%	S
First Moment	PERCHLORATE	0.14	0	40.8%	S
First Moment	TRICHLOROETHYLENE (TCE)	0.17	-4	75.8%	S
Second Moment X	CHROMIUM, HEXAVALENT	1.44	8	95.8%	I
Second Moment X	CHROMIUM, TOTAL	1.21	10	99.2%	I
Second Moment X	cis-1,2-DICHLOROETHYLENE	0.21	-2	59.2%	S
Second Moment X	PERCHLORATE	0.17	8	95.8%	I
Second Moment X	TRICHLOROETHYLENE (TCE)	0.12	0	40.8%	S
Second Moment Y	CHROMIUM, HEXAVALENT	0.51	6	88.3%	NT
Second Moment Y	CHROMIUM, TOTAL	0.77	8	95.8%	I
Second Moment Y	cis-1,2-DICHLOROETHYLENE	0.22	-2	59.2%	S
Second Moment Y	PERCHLORATE	0.08	4	75.8%	NT
Second Moment Y	TRICHLOROETHYLENE (TCE)	0.21	0	40.8%	S

Note: The following assumptions were applied for the calculation of the Zeroth Moment:

Porosity: 0.25 **Saturated Thickness:** Uniform: 30 ft

Mann-Kendall Trend test performed on all sample events for each constituent. Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events); (ND) Non Detect.

Note: The Sigma XX and Sigma YY components are estimated using the given field coordinate system and then rotated to align with the estimated groundwater flow direction. Moments are not calculated for sample events with less than 6 wells.

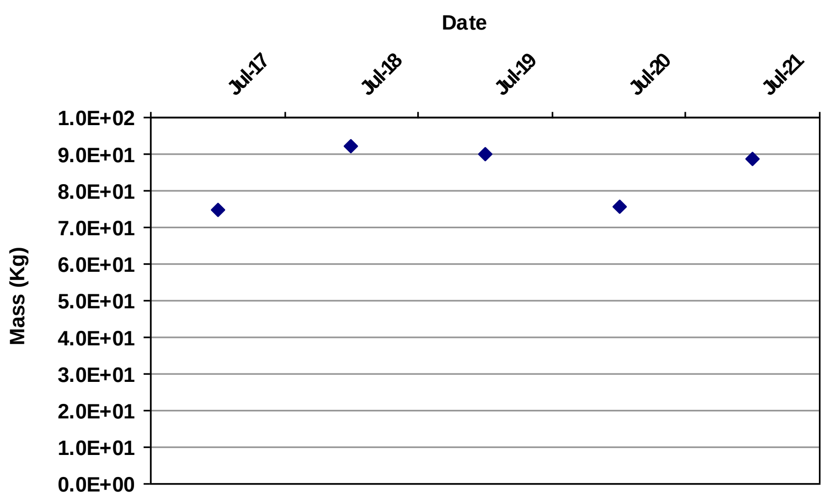
MAROS Zeroth Moment Analysis

Project: Pantex | **User Name:** MV

Location: Southwest Sector | **State:** Texas

Change in Dissolved Mass Over Time

COC: TRICHLOROETHYLENE (TCE)



Porosity: 0.25

Saturated Thickness:

Uniform: 30 ft

Mann-Kendall S Statistic:

0

Confidence in Trend:

40.8%

Coefficient of Variation:

0.10

Zeroth Moment Trend:

S

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	TRICHLOROETHYLENE (TCE)	7.5E+01	47
7/1/2018	TRICHLOROETHYLENE (TCE)	9.2E+01	47
7/1/2019	TRICHLOROETHYLENE (TCE)	9.0E+01	45
7/1/2020	TRICHLOROETHYLENE (TCE)	7.5E+01	43
7/1/2021	TRICHLOROETHYLENE (TCE)	8.9E+01	50

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

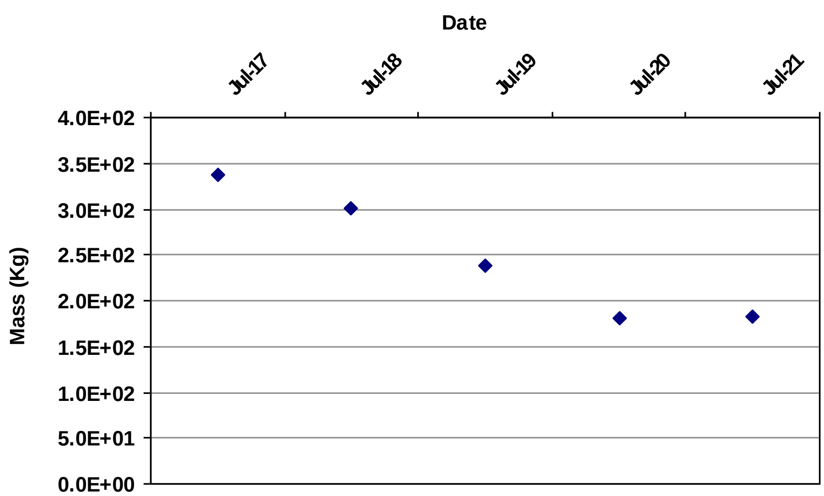
MAROS Zeroth Moment Analysis

Project: Pantex　　**User Name:** MV

Location: Southwest Sector　　**State:** Texas

Change in Dissolved Mass Over Time

COC: PERCHLORATE



Porosity: 0.25

Saturated Thickness:

Uniform: 30 ft

Mann-Kendall S Statistic:

-8

Confidence in Trend:

95.8%

Coefficient of Variation:

0.28

Zeroth Moment Trend:

D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	PERCHLORATE	3.4E+02	38
7/1/2018	PERCHLORATE	3.0E+02	39
7/1/2019	PERCHLORATE	2.4E+02	38
7/1/2020	PERCHLORATE	1.8E+02	40
7/1/2021	PERCHLORATE	1.8E+02	43

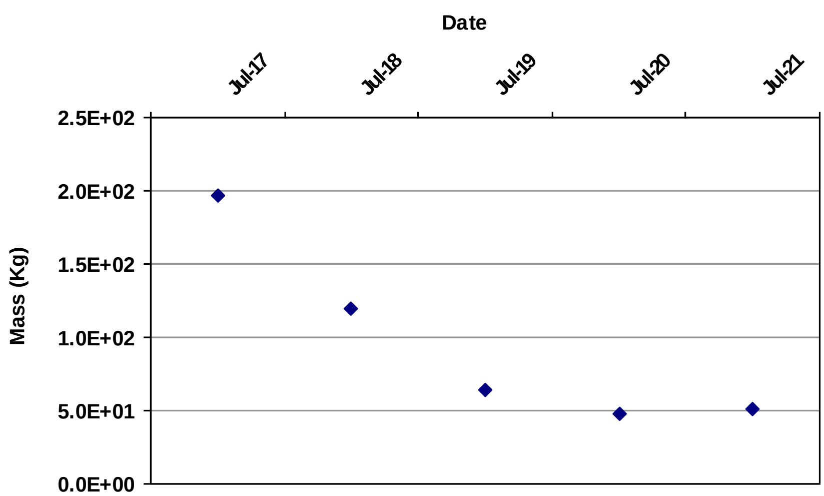
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

MAROS Zeroth Moment Analysis

Project: Pantex | **User Name:** MV
Location: Southwest Sector | **State:** Texas

Change in Dissolved Mass Over Time

COC: CHROMIUM, HEXAVALENT



Porosity: 0.25

Saturated Thickness:
Uniform: 30 ft

Mann-Kendall S Statistic:
-8

Confidence in Trend:
95.8%

Coefficient of Variation:
0.66

Zeroth Moment Trend:
D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	CHROMIUM, HEXAVALENT	2.0E+02	11
7/1/2018	CHROMIUM, HEXAVALENT	1.2E+02	11
7/1/2019	CHROMIUM, HEXAVALENT	6.4E+01	11
7/1/2020	CHROMIUM, HEXAVALENT	4.8E+01	11
7/1/2021	CHROMIUM, HEXAVALENT	5.1E+01	22

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

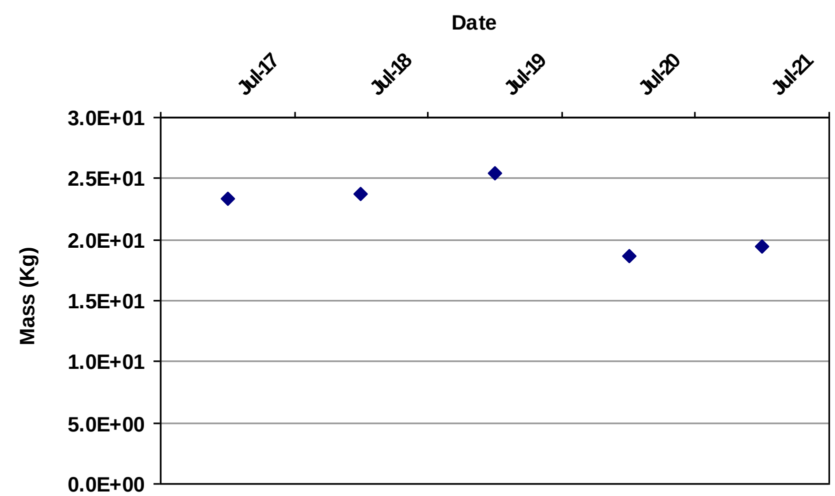
MAROS Zeroth Moment Analysis

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Change in Dissolved Mass Over Time

COC: cis-1,2-DICHLOROETHYLENE



Porosity: 0.25

Saturated Thickness:

Uniform: 30 ft

Mann-Kendall S Statistic:

-2

Confidence in Trend:

59.2%

Coefficient of Variation:

0.13

Zeroth Moment Trend:

S

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	cis-1,2-DICHLOROETHYLENE	2.3E+01	47
7/1/2018	cis-1,2-DICHLOROETHYLENE	2.4E+01	47
7/1/2019	cis-1,2-DICHLOROETHYLENE	2.5E+01	45
7/1/2020	cis-1,2-DICHLOROETHYLENE	1.9E+01	43
7/1/2021	cis-1,2-DICHLOROETHYLENE	1.9E+01	50

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

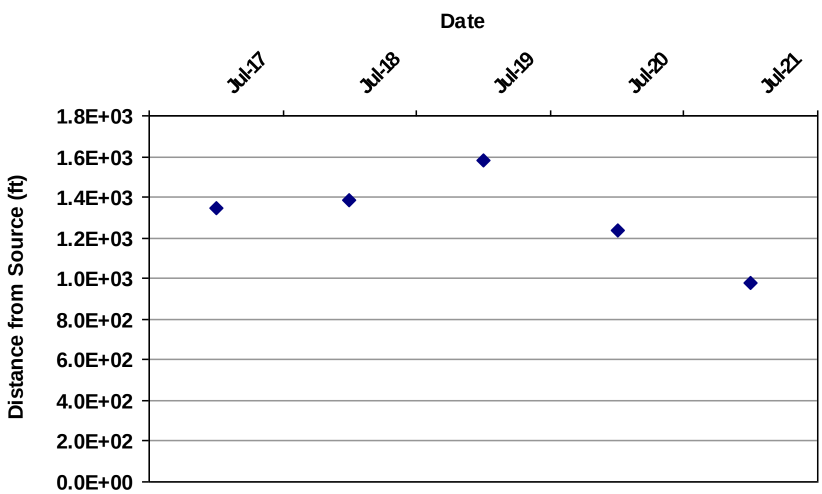
MAROS First Moment Analysis

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC: TRICHLOROETHYLENE (TCE)

Distance from Source to Center of Mass



Mann-Kendall S Statistic:

-4

Confidence in Trend:

75.8%

Coefficient of Variation:

0.17

First Moment Trend:

S

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	TRICHLOROETHYLENE (TCE)	635,106	3,756,385	1,347	47
7/1/2018	TRICHLOROETHYLENE (TCE)	635,109	3,756,260	1,385	47
7/1/2019	TRICHLOROETHYLENE (TCE)	634,995	3,756,043	1,578	45
7/1/2020	TRICHLOROETHYLENE (TCE)	635,351	3,756,103	1,239	43
7/1/2021	TRICHLOROETHYLENE (TCE)	635,606	3,756,193	976	50

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

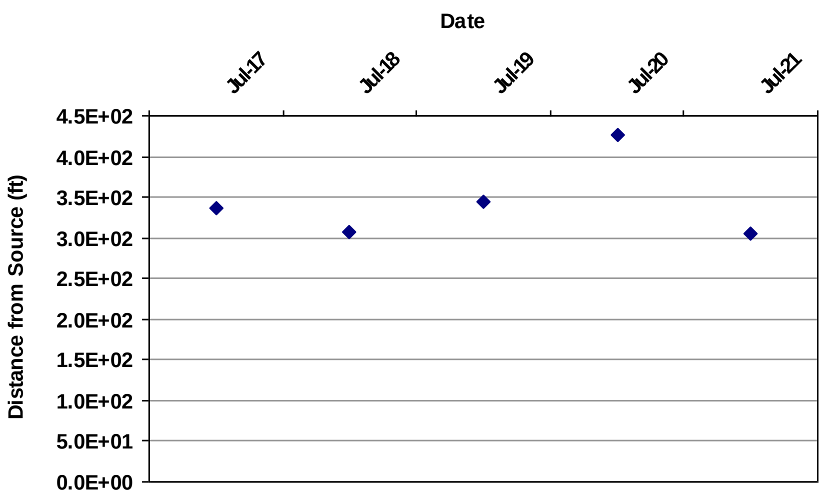
MAROS First Moment Analysis

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

COC: PERCHLORATE

Distance from Source to Center of Mass



Mann-Kendall S Statistic:
0

Confidence in Trend:
40.8%

Coefficient of Variation:
0.14

First Moment Trend:
S

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	PERCHLORATE	636,434	3,757,097	337	38
7/1/2018	PERCHLORATE	636,426	3,757,069	308	39
7/1/2019	PERCHLORATE	636,395	3,757,107	345	38
7/1/2020	PERCHLORATE	636,366	3,757,187	427	40
7/1/2021	PERCHLORATE	636,436	3,757,065	305	43

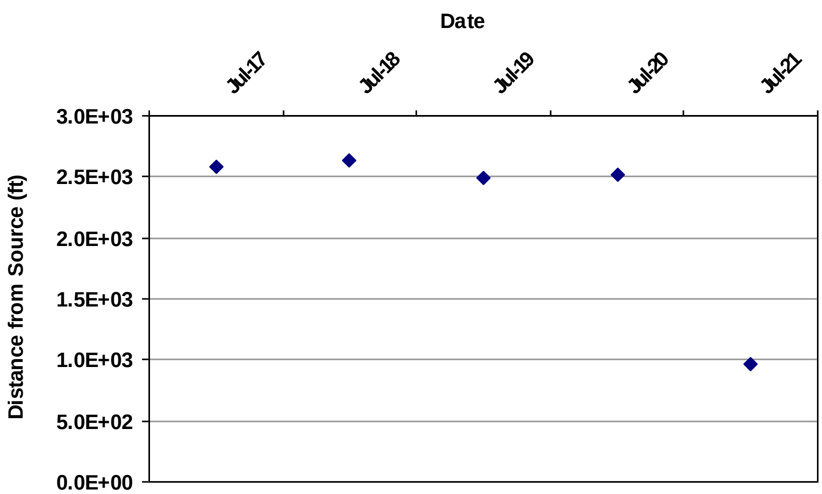
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

MAROS First Moment Analysis

Project: Pantex | **User Name:** MV
Location: Southwest Sector | **State:** Texas

COC: CHROMIUM, HEXAVALENT

Distance from Source to Center of Mass



Mann-Kendall S Statistic:
-6

Confidence in Trend:
88.3%

Coefficient of Variation:
0.32

First Moment Trend:
S

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	CHROMIUM, HEXAVALENT	638,502	3,755,271	2,576	11
7/1/2018	CHROMIUM, HEXAVALENT	638,400	3,755,043	2,637	11
7/1/2019	CHROMIUM, HEXAVALENT	638,456	3,755,347	2,496	11
7/1/2020	CHROMIUM, HEXAVALENT	638,502	3,755,382	2,514	11
7/1/2021	CHROMIUM, HEXAVALENT	637,147	3,756,143	970	22

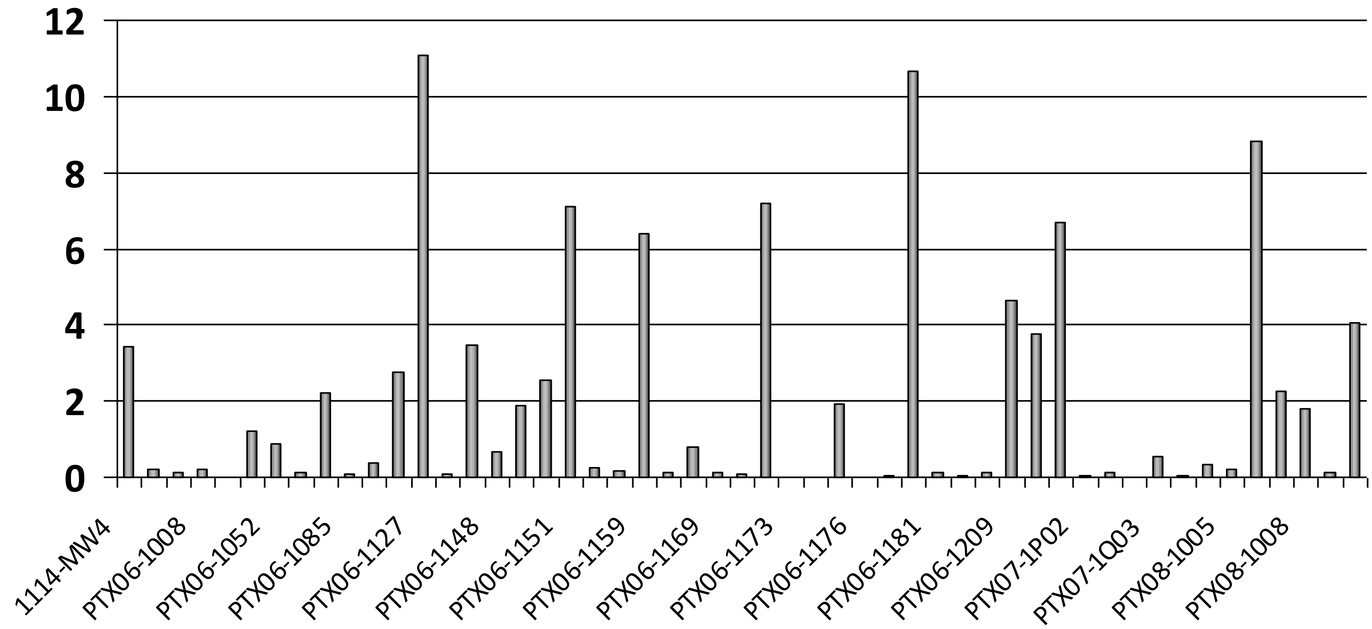
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

TRICHLOROETHYLENE (TCE) 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
1114-MW4	2,187,942.97	10,165.73	3.41	2.43
PTX06-1006	2,435,332.46	671.24	0.23	2.70
PTX06-1007	2,977,699.96	328.29	0.11	3.30
PTX06-1008	1,006,773.04	586.70	0.20	1.12
PTX06-1012	304,319.09	41.78	0.01	0.34
PTX06-1035	2,007,659.81	3,552.05	1.19	2.23
PTX06-1052	2,194,563.85	2,595.21	0.87	2.43
PTX06-1053	3,022,608.92	396.72	0.13	3.35
PTX06-1077A	4,049,820.15	6,654.87	2.23	4.49
PTX06-1085	2,190,843.49	287.55	0.10	2.43
PTX06-1086	8,529,727.81	1,119.53	0.38	9.45
PTX06-1126	323,501.29	8,173.46	2.74	0.36
PTX06-1127	656,811.65	33,017.10	11.09	0.73
PTX06-1131	2,154,780.95	282.82	0.09	2.39

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1134	1,262,268.35	10,321.41	3.47	1.40
PTX06-1148	985,797.67	2,044.94	0.69	1.09
PTX06-1149	587,540.68	5,644.80	1.90	0.65
PTX06-1150	1,451,098.96	7,561.13	2.54	1.61
PTX06-1151	614,409.91	21,208.66	7.12	0.68
PTX06-1155	71,583.99	720.63	0.24	0.08
PTX06-1156	553,535.70	510.01	0.17	0.61
PTX06-1159	696,054.30	19,038.83	6.39	0.77
PTX06-1160	2,621,764.59	344.11	0.12	2.91
PTX06-1164	81,488.74	2,395.77	0.80	0.09
PTX06-1169	132,582.55	393.27	0.13	0.15
PTX06-1170	128,479.15	250.41	0.08	0.14
PTX06-1171	283,817.67	21,382.11	7.18	0.31
PTX06-1173	147,623.99	43.75	0.01	0.16
PTX06-1174	196,538.36	44.24	0.01	0.22
PTX06-1175	334,505.12	5,720.67	1.92	0.37
PTX06-1176	64,962.02	21.32	0.01	0.07
PTX06-1177	215,571.53	71.02	0.02	0.24
PTX06-1180	364,995.60	31,761.46	10.67	0.40
PTX06-1181	2,839,455.80	372.68	0.13	3.15
PTX06-1183	378,842.93	80.55	0.03	0.42
PTX06-1207	2,093,489.12	392.92	0.13	2.32
PTX06-1209	160,275.59	13,841.80	4.65	0.18
PTX06-1210	185,841.11	11,220.16	3.77	0.21
PTX06-1211	226,040.91	19,936.81	6.69	0.25
PTX07-1P02	616,645.36	80.93	0.03	0.68
PTX07-1Q01	2,383,680.14	312.86	0.11	2.64
PTX07-1Q02	277,970.92	36.48	0.01	0.31
PTX07-1Q03	6,220,267.64	1,632.82	0.55	6.89
PTX08-1001	1,251,956.44	164.32	0.06	1.39
PTX08-1003	8,003,427.39	1,050.45	0.35	8.87

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

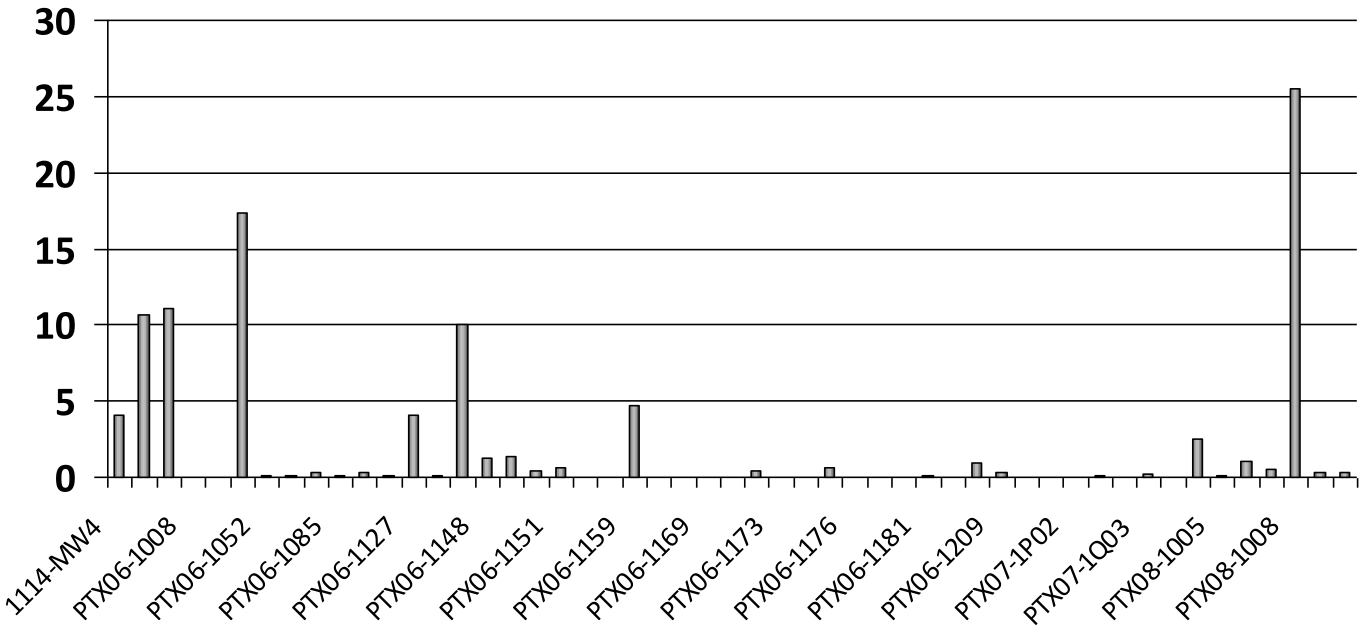
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX08-1005	852,230.18	636.46	0.21	0.94
PTX08-1006	1,563,013.25	26,238.11	8.81	1.73
PTX08-1007	1,829,804.09	6,676.50	2.24	2.03
PTX08-1008	2,443,406.26	5,362.06	1.80	2.71
PTX08-1009	2,628,961.80	345.05	0.12	2.91
PTX10-1014	1,308,496.52	12,073.33	4.05	1.45
	80,100,809.7	297,805.9	100	88.7798524601

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

PERCHLORATE 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
1114-MW4	2,187,942.97	30,669.49	4.04	2.43
PTX06-1006	2,435,332.46	80,548.62	10.62	2.70
PTX06-1007	2,977,699.96	84,417.80	11.13	3.30
PTX06-1008	1,006,773.04	272.21	0.04	1.12
PTX06-1012	304,319.09	39.94	0.01	0.34
PTX06-1035	2,007,659.81	131,489.18	17.33	2.23
PTX06-1052	2,194,563.85	576.07	0.08	2.43
PTX06-1053	3,022,608.92	1,142.55	0.15	3.35
PTX06-1077A	4,049,820.15	2,636.43	0.35	4.49
PTX06-1085	2,190,843.49	575.10	0.08	2.43
PTX06-1086	8,529,727.81	2,239.05	0.30	9.45
PTX06-1126	323,501.29	589.76	0.08	0.36
PTX06-1127	656,811.65	31,034.35	4.09	0.73
PTX06-1131	2,154,780.95	565.63	0.07	2.39

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1134	1,262,268.35	76,043.78	10.02	1.40
PTX06-1148	985,797.67	9,257.56	1.22	1.09
PTX06-1149	587,540.68	10,541.58	1.39	0.65
PTX06-1150	1,451,098.96	3,479.64	0.46	1.61
PTX06-1151	614,409.91	4,911.06	0.65	0.68
PTX06-1155	71,583.99	9.40	0.00	0.08
PTX06-1156	553,535.70	72.65	0.01	0.61
PTX06-1159	696,054.30	35,537.92	4.68	0.77
PTX06-1160	2,621,764.59	363.38	0.05	2.91
PTX06-1164	81,488.74	56.26	0.01	0.09
PTX06-1169	132,582.55	17.40	0.00	0.15
PTX06-1170	128,479.15	16.86	0.00	0.14
PTX06-1171	283,817.67	3,360.05	0.44	0.31
PTX06-1173	147,623.99	19.38	0.00	0.16
PTX06-1174	196,538.36	25.80	0.00	0.22
PTX06-1175	334,505.12	4,860.15	0.64	0.37
PTX06-1176	64,962.02	8.53	0.00	0.07
PTX06-1177	215,571.53	28.29	0.00	0.24
PTX06-1180	364,995.60	333.90	0.04	0.40
PTX06-1181	2,839,455.80	883.25	0.12	3.15
PTX06-1183	378,842.93	99.45	0.01	0.42
PTX06-1207	2,093,489.12	7,226.46	0.95	2.32
PTX06-1209	160,275.59	2,179.35	0.29	0.18
PTX06-1210	185,841.11	24.39	0.00	0.21
PTX06-1211	226,040.91	136.47	0.02	0.25
PTX07-1P02	616,645.36	80.93	0.01	0.68
PTX07-1Q01	2,383,680.14	625.72	0.08	2.64
PTX07-1Q02	277,970.92	72.97	0.01	0.31
PTX07-1Q03	6,220,267.64	1,632.82	0.22	6.89
PTX08-1001	1,251,956.44	164.32	0.02	1.39
PTX08-1003	8,003,427.39	18,866.08	2.49	8.87

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

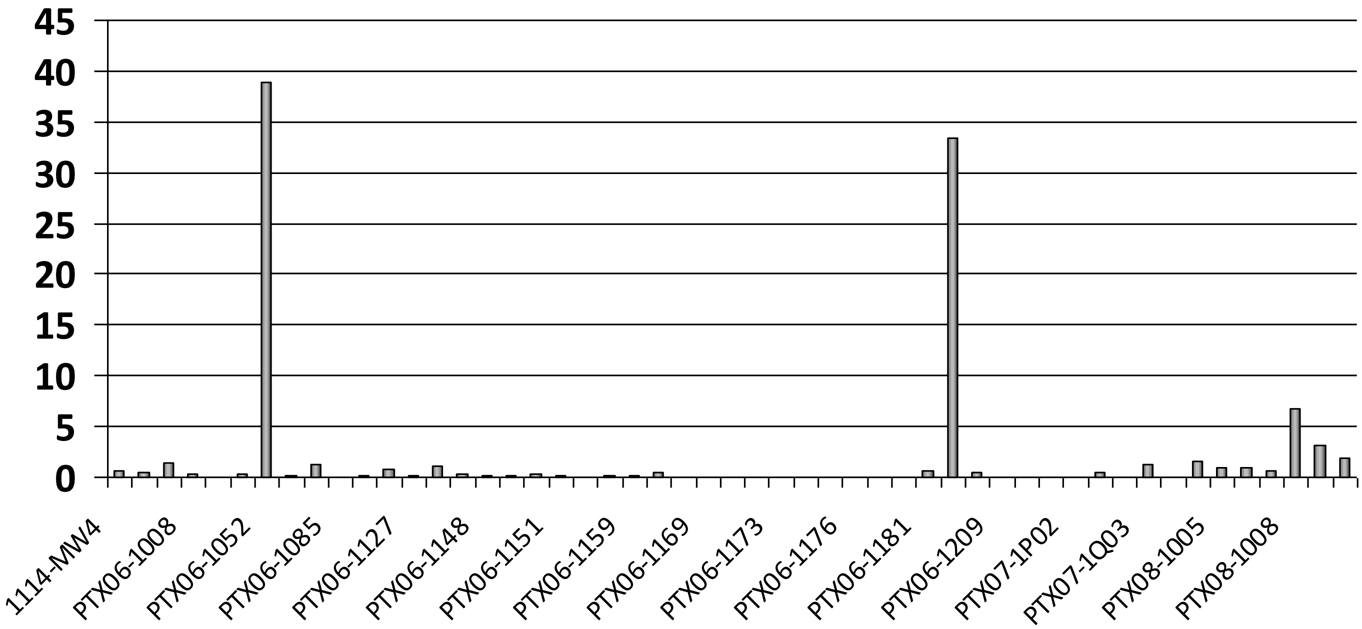
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX08-1005	852,230.18	407.15	0.05	0.94
PTX08-1006	1,563,013.25	8,021.19	1.06	1.73
PTX08-1007	1,829,804.09	4,231.65	0.56	2.03
PTX08-1008	2,443,406.26	193,701.04	25.53	2.71
PTX08-1009	2,628,961.80	2,298.04	0.30	2.91
PTX10-1014	1,308,496.52	2,308.19	0.30	1.45
	80,100,809.7	758,699.2	100	88.7798524601

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

CHROMIUM, HEXAVALENT 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
1114-MW4	2,187,942.97	887.35	0.65	2.43
PTX06-1006	2,435,332.46	639.27	0.47	2.70
PTX06-1007	2,977,699.96	2,009.61	1.48	3.30
PTX06-1008	1,006,773.04	383.20	0.28	1.12
PTX06-1012	304,319.09	79.88	0.06	0.34
PTX06-1035	2,007,659.81	527.01	0.39	2.23
PTX06-1052	2,194,563.85	52,700.03	38.84	2.43
PTX06-1053	3,022,608.92	114.25	0.08	3.35
PTX06-1077A	4,049,820.15	1,796.60	1.32	4.49
PTX06-1085	2,190,843.49	83.96	0.06	2.43
PTX06-1086	8,529,727.81	248.53	0.18	9.45
PTX06-1126	323,501.29	1,100.21	0.81	0.36
PTX06-1127	656,811.65	270.52	0.20	0.73
PTX06-1131	2,154,780.95	1,419.73	1.05	2.39

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1134	1,262,268.35	331.35	0.24	1.40
PTX06-1148	985,797.67	258.77	0.19	1.09
PTX06-1149	587,540.68	154.23	0.11	0.65
PTX06-1150	1,451,098.96	380.91	0.28	1.61
PTX06-1151	614,409.91	161.28	0.12	0.68
PTX06-1155	71,583.99	18.79	0.01	0.08
PTX06-1156	553,535.70	145.30	0.11	0.61
PTX06-1159	696,054.30	182.71	0.13	0.77
PTX06-1160	2,621,764.59	688.21	0.51	2.91
PTX06-1164	81,488.74	21.39	0.02	0.09
PTX06-1169	132,582.55	34.80	0.03	0.15
PTX06-1170	128,479.15	33.73	0.02	0.14
PTX06-1171	283,817.67	74.50	0.05	0.31
PTX06-1173	147,623.99	38.75	0.03	0.16
PTX06-1174	196,538.36	51.59	0.04	0.22
PTX06-1175	334,505.12	87.81	0.06	0.37
PTX06-1176	64,962.02	17.05	0.01	0.07
PTX06-1177	215,571.53	56.59	0.04	0.24
PTX06-1180	364,995.60	95.81	0.07	0.40
PTX06-1181	2,839,455.80	745.36	0.55	3.15
PTX06-1183	378,842.93	45,338.95	33.42	0.42
PTX06-1207	2,093,489.12	549.54	0.41	2.32
PTX06-1209	160,275.59	42.07	0.03	0.18
PTX06-1210	185,841.11	48.78	0.04	0.21
PTX06-1211	226,040.91	59.34	0.04	0.25
PTX07-1P02	616,645.36	62.32	0.05	0.68
PTX07-1Q01	2,383,680.14	567.52	0.42	2.64
PTX07-1Q02	277,970.92	37.80	0.03	0.31
PTX07-1Q03	6,220,267.64	1,632.82	1.20	6.89
PTX08-1001	1,251,956.44	68.69	0.05	1.39
PTX08-1003	8,003,427.39	2,100.90	1.55	8.87

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

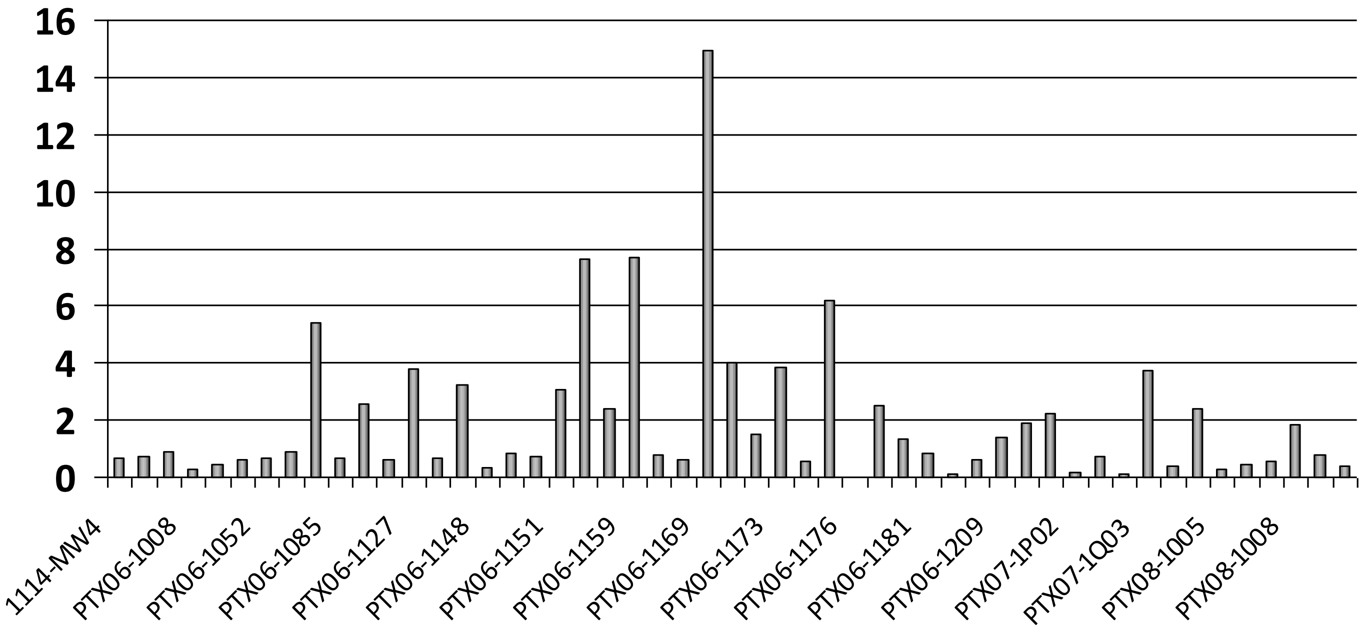
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX08-1005	852,230.18	1,231.30	0.91	0.94
PTX08-1006	1,563,013.25	1,206.26	0.89	1.73
PTX08-1007	1,829,804.09	896.76	0.66	2.03
PTX08-1008	2,443,406.26	9,152.69	6.75	2.71
PTX08-1009	2,628,961.80	4,342.12	3.20	2.91
PTX10-1014	1,308,496.52	2,500.37	1.84	1.45
	80,100,809.7	135,677.4	100	88.7798524601

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

cis-1,2-DICHLOROETHYLENE 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
1114-MW4	2,187,942.97	287.17	0.66	2.43
PTX06-1006	2,435,332.46	319.64	0.73	2.70
PTX06-1007	2,977,699.96	390.82	0.90	3.30
PTX06-1008	1,006,773.04	132.14	0.30	1.12
PTX06-1012	304,319.09	185.61	0.43	0.34
PTX06-1035	2,007,659.81	263.51	0.60	2.23
PTX06-1052	2,194,563.85	288.04	0.66	2.43
PTX06-1053	3,022,608.92	396.72	0.91	3.35
PTX06-1077A	4,049,820.15	2,370.66	5.44	4.49
PTX06-1085	2,190,843.49	287.55	0.66	2.43
PTX06-1086	8,529,727.81	1,119.53	2.57	9.45
PTX06-1126	323,501.29	270.89	0.62	0.36
PTX06-1127	656,811.65	1,654.30	3.79	0.73
PTX06-1131	2,154,780.95	282.82	0.65	2.39

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1134	1,262,268.35	1,421.47	3.26	1.40
PTX06-1148	985,797.67	154.10	0.35	1.09
PTX06-1149	587,540.68	358.58	0.82	0.65
PTX06-1150	1,451,098.96	311.78	0.71	1.61
PTX06-1151	614,409.91	1,336.23	3.06	0.68
PTX06-1155	71,583.99	3,330.67	7.64	0.08
PTX06-1156	553,535.70	1,038.19	2.38	0.61
PTX06-1159	696,054.30	3,361.94	7.71	0.77
PTX06-1160	2,621,764.59	344.11	0.79	2.91
PTX06-1164	81,488.74	267.38	0.61	0.09
PTX06-1169	132,582.55	6,508.15	14.92	0.15
PTX06-1170	128,479.15	1,752.05	4.02	0.14
PTX06-1171	283,817.67	652.64	1.50	0.31
PTX06-1173	147,623.99	1,675.99	3.84	0.16
PTX06-1174	196,538.36	242.22	0.56	0.22
PTX06-1175	334,505.12	2,691.30	6.17	0.37
PTX06-1176	64,962.02	10.56	0.02	0.07
PTX06-1177	215,571.53	1,089.31	2.50	0.24
PTX06-1180	364,995.60	590.20	1.35	0.40
PTX06-1181	2,839,455.80	372.68	0.85	3.15
PTX06-1183	378,842.93	49.72	0.11	0.42
PTX06-1207	2,093,489.12	274.77	0.63	2.32
PTX06-1209	160,275.59	610.05	1.40	0.18
PTX06-1210	185,841.11	824.44	1.89	0.21
PTX06-1211	226,040.91	961.24	2.20	0.25
PTX07-1P02	616,645.36	80.93	0.19	0.68
PTX07-1Q01	2,383,680.14	312.86	0.72	2.64
PTX07-1Q02	277,970.92	36.48	0.08	0.31
PTX07-1Q03	6,220,267.64	1,632.82	3.74	6.89
PTX08-1001	1,251,956.44	164.32	0.38	1.39
PTX08-1003	8,003,427.39	1,050.45	2.41	8.87

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

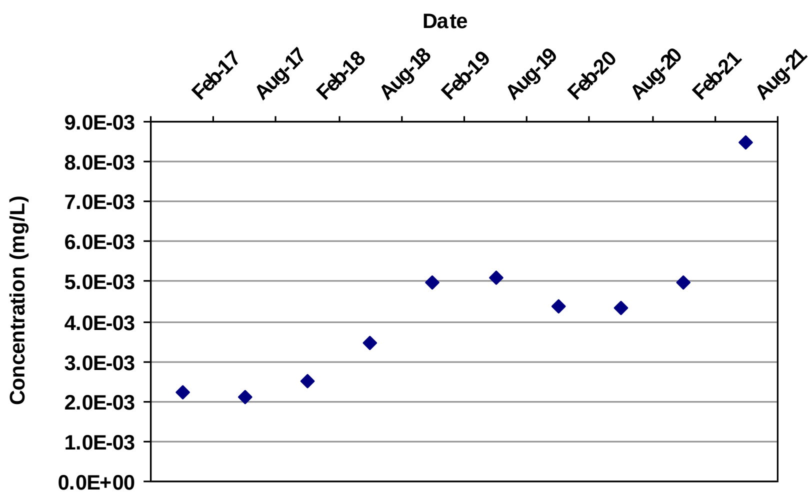
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX08-1005	852,230.18	111.86	0.26	0.94
PTX08-1006	1,563,013.25	188.73	0.43	1.73
PTX08-1007	1,829,804.09	240.16	0.55	2.03
PTX08-1008	2,443,406.26	801.74	1.84	2.71
PTX08-1009	2,628,961.80	345.05	0.79	2.91
PTX10-1014	1,308,496.52	171.74	0.39	1.45
	80,100,809.7	43,616.3	100	88.7798524601

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well:	PTX06-1035	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	RA	**Consolidation Period:**	No Time Consolidation
COC:	TRICHLOROETHYLENE (TCE)	**Duplicate Consolidation:**	Median
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

31

Confidence in Trend:

99.8%

Coefficient of Variation:

0.44

Mann Kendall Concentration Trend: (See Note)

I

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1035	2/1/2017	TRICHLOROETHYLENE (TCE)	2.2E-03		1	1
PTX06-1035	8/1/2017	TRICHLOROETHYLENE (TCE)	2.1E-03		1	1
PTX06-1035	2/1/2018	TRICHLOROETHYLENE (TCE)	2.5E-03		1	1
PTX06-1035	8/1/2018	TRICHLOROETHYLENE (TCE)	3.5E-03		1	1
PTX06-1035	2/1/2019	TRICHLOROETHYLENE (TCE)	5.0E-03		1	1
PTX06-1035	8/1/2019	TRICHLOROETHYLENE (TCE)	5.1E-03		1	1
PTX06-1035	2/1/2020	TRICHLOROETHYLENE (TCE)	4.4E-03		1	1
PTX06-1035	8/1/2020	TRICHLOROETHYLENE (TCE)	4.3E-03		1	1
PTX06-1035	2/1/2021	TRICHLOROETHYLENE (TCE)	5.0E-03		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex | **User Name:** MV

Location: Southwest Sector | **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1035	8/1/2021	TRICHLOROETHYLENE (TCE)	8.5E-03		1	1

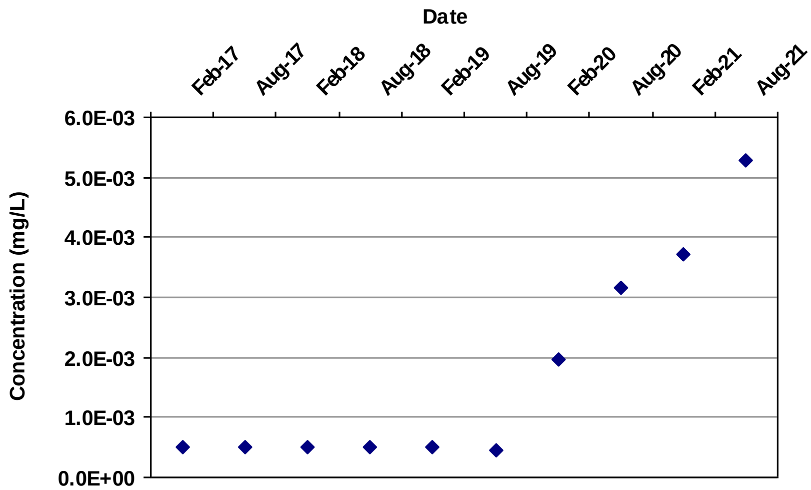
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well:	PTX06-1052	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	SE/SW divide	**Consolidation Period:**	No Time Consolidation
COC:	TRICHLOROETHYLENE (TCE)	**Duplicate Consolidation:**	Median
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

25

Confidence in Trend:

98.6%

Coefficient of Variation:

1.03

Mann Kendall Concentration Trend: (See Note)

I

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1052	2/1/2017	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
PTX06-1052	8/1/2017	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
PTX06-1052	2/1/2018	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
PTX06-1052	8/1/2018	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
PTX06-1052	2/1/2019	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
PTX06-1052	8/1/2019	TRICHLOROETHYLENE (TCE)	4.6E-04		1	1
PTX06-1052	2/1/2020	TRICHLOROETHYLENE (TCE)	2.0E-03		1	1
PTX06-1052	8/1/2020	TRICHLOROETHYLENE (TCE)	3.2E-03		1	1
PTX06-1052	2/1/2021	TRICHLOROETHYLENE (TCE)	3.7E-03		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1052	8/1/2021	TRICHLOROETHYLENE (TCE)	5.3E-03		1	1

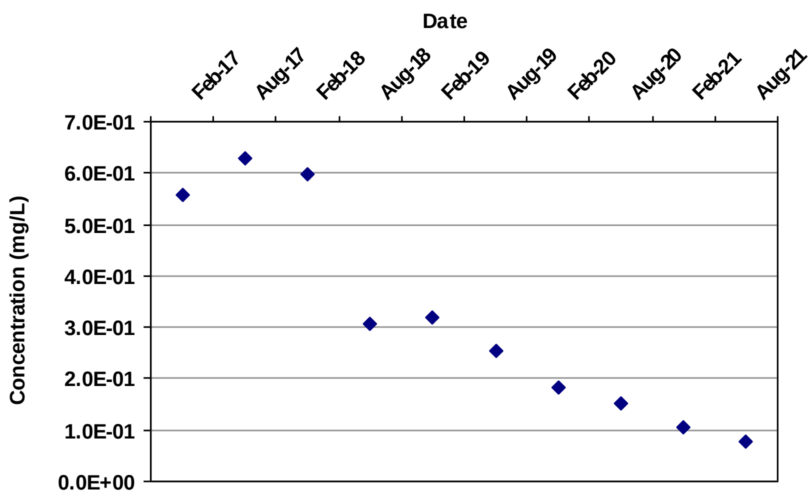
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex | **User Name:** MV

Location: Southwest Sector | **State:** Texas

Well:	PTX06-1052	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	T	**Consolidation Period:**	No Time Consolidation
COC:	CHROMIUM, HEXAVALENT	**Duplicate Consolidation:**	Median
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

-39

Confidence in Trend:

100.0%

Coefficient of Variation:

0.65

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1052	2/1/2017	CHROMIUM, HEXAVALENT	5.6E-01		1	1
PTX06-1052	8/1/2017	CHROMIUM, HEXAVALENT	6.3E-01		1	1
PTX06-1052	2/1/2018	CHROMIUM, HEXAVALENT	6.0E-01		1	1
PTX06-1052	8/1/2018	CHROMIUM, HEXAVALENT	3.1E-01		1	1
PTX06-1052	2/1/2019	CHROMIUM, HEXAVALENT	3.2E-01		2	2
PTX06-1052	8/1/2019	CHROMIUM, HEXAVALENT	2.5E-01		1	1
PTX06-1052	2/1/2020	CHROMIUM, HEXAVALENT	1.8E-01		1	1
PTX06-1052	8/1/2020	CHROMIUM, HEXAVALENT	1.5E-01		1	1
PTX06-1052	2/1/2021	CHROMIUM, HEXAVALENT	1.1E-01		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1052	8/1/2021	CHROMIUM, HEXAVALENT	7.8E-02		1	1

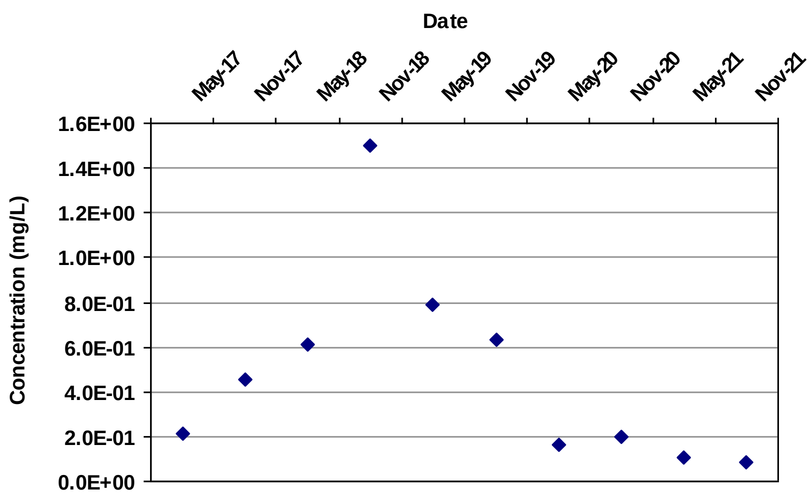
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well:	PTX06-1126	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	S	**Consolidation Period:**	No Time Consolidation
COC:	TRICHLOROETHYLENE (TCE)	**Duplicate Consolidation:**	Median
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

-19

Confidence in Trend:

94.6%

Coefficient of Variation:

0.92

Mann Kendall Concentration Trend: (See Note)

PD

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1126	5/1/2017	TRICHLOROETHYLENE (TCE)	2.1E-01		2	2
PTX06-1126	11/1/2017	TRICHLOROETHYLENE (TCE)	4.6E-01		1	1
PTX06-1126	5/1/2018	TRICHLOROETHYLENE (TCE)	6.1E-01		1	1
PTX06-1126	11/1/2018	TRICHLOROETHYLENE (TCE)	1.5E+00		1	1
PTX06-1126	5/1/2019	TRICHLOROETHYLENE (TCE)	7.9E-01		1	1
PTX06-1126	11/1/2019	TRICHLOROETHYLENE (TCE)	6.3E-01		1	1
PTX06-1126	5/1/2020	TRICHLOROETHYLENE (TCE)	1.7E-01		1	1
PTX06-1126	11/1/2020	TRICHLOROETHYLENE (TCE)	2.0E-01		2	2
PTX06-1126	5/1/2021	TRICHLOROETHYLENE (TCE)	1.1E-01		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1126	11/1/2021	TRICHLOROETHYLENE (TCE)	8.8E-02		1	1

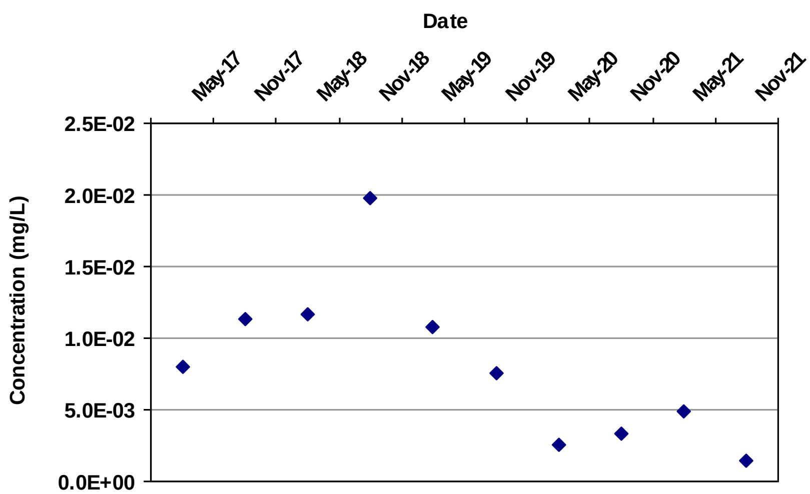
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well:	PTX06-1126	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	S	**Consolidation Period:**	No Time Consolidation
COC:	cis-1,2-DICHLOROETHYLENE	**Duplicate Consolidation:**	Median
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

-25

Confidence in Trend:

98.6%

Coefficient of Variation:

0.68

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1126	5/1/2017	cis-1,2-DICHLOROETHYLENE	8.0E-03		2	2
PTX06-1126	11/1/2017	cis-1,2-DICHLOROETHYLENE	1.1E-02		1	1
PTX06-1126	5/1/2018	cis-1,2-DICHLOROETHYLENE	1.2E-02		1	1
PTX06-1126	11/1/2018	cis-1,2-DICHLOROETHYLENE	2.0E-02		1	1
PTX06-1126	5/1/2019	cis-1,2-DICHLOROETHYLENE	1.1E-02		1	1
PTX06-1126	11/1/2019	cis-1,2-DICHLOROETHYLENE	7.5E-03		1	1
PTX06-1126	5/1/2020	cis-1,2-DICHLOROETHYLENE	2.6E-03		1	1
PTX06-1126	11/1/2020	cis-1,2-DICHLOROETHYLENE	3.3E-03		2	2
PTX06-1126	5/1/2021	cis-1,2-DICHLOROETHYLENE	4.9E-03		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1126	11/1/2021	cis-1,2-DICHLOROETHYLENE	1.5E-03		1	1

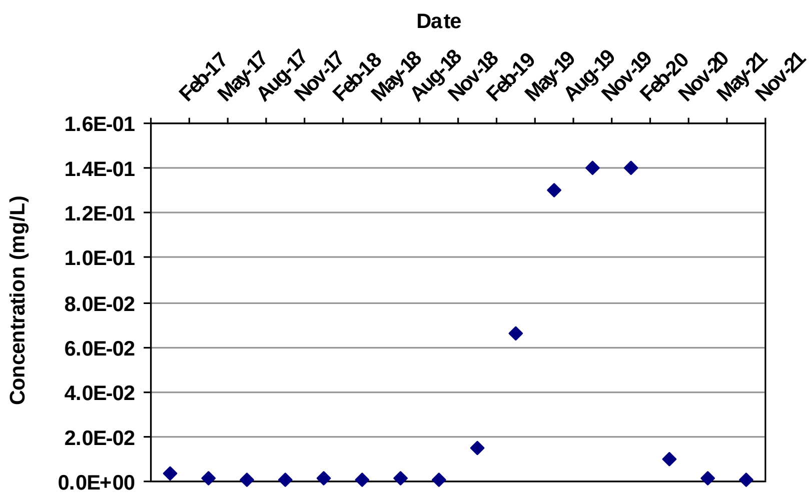
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex | **User Name:** MV

Location: Southwest Sector | **State:** Texas

Well:	PTX06-1173	**Time Period:**	1/1/2017 **to** 12/1/2021
Well Type:	ISPM	**Consolidation Period:**	No Time Consolidation
COC:	TRICHLOROETHYLENE (TCE)	**Duplicate Consolidation:**	Median
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

33

Confidence in Trend:

92.4%

Coefficient of Variation:

1.69

Mann Kendall Concentration Trend: (See Note)

PI

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1173	2/1/2017	TRICHLOROETHYLENE (TCE)	3.3E-03		1	1
PTX06-1173	5/1/2017	TRICHLOROETHYLENE (TCE)	1.1E-03		1	1
PTX06-1173	8/1/2017	TRICHLOROETHYLENE (TCE)	8.5E-04		1	1
PTX06-1173	11/1/2017	TRICHLOROETHYLENE (TCE)	6.1E-04		1	1
PTX06-1173	2/1/2018	TRICHLOROETHYLENE (TCE)	1.5E-03	ND	1	0
PTX06-1173	5/1/2018	TRICHLOROETHYLENE (TCE)	6.5E-04		1	1
PTX06-1173	8/1/2018	TRICHLOROETHYLENE (TCE)	1.3E-03	ND	1	0
PTX06-1173	11/1/2018	TRICHLOROETHYLENE (TCE)	7.4E-04		1	1
PTX06-1173	2/1/2019	TRICHLOROETHYLENE (TCE)	1.5E-02		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: Southwest Sector **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1173	5/1/2019	TRICHLOROETHYLENE (TCE)	6.6E-02		1	1
PTX06-1173	8/1/2019	TRICHLOROETHYLENE (TCE)	1.3E-01		1	1
PTX06-1173	11/1/2019	TRICHLOROETHYLENE (TCE)	1.4E-01		1	1
PTX06-1173	2/1/2020	TRICHLOROETHYLENE (TCE)	1.4E-01		1	1
PTX06-1173	11/1/2020	TRICHLOROETHYLENE (TCE)	1.0E-02		1	1
PTX06-1173	5/1/2021	TRICHLOROETHYLENE (TCE)	1.6E-03		1	1
PTX06-1173	11/1/2021	TRICHLOROETHYLENE (TCE)	6.6E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

NORTH SECTOR MAROS REPORTS

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MAROS COC Assessment

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Toxicity:

Contaminant of Concern	Representative Concentration (mg/L)	PRG (mg/L)	Percent Above PRG
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	1.5E-02	2.0E-03	665.9%

Note: Top COCs by toxicity were determined by examining a representative concentration for each compound over the entire site. The compound representative concentrations are then compared with the chosen PRG for that compound, with the percentage exceedance from the PRG determining the compound's toxicity. All compounds above exceed the PRG.

Prevalence:

Contaminant of Concern	Class	Total Wells	Total Exceedance	Percent Exceedances	Total Detects
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	ORG	23	10	43.5%	20

Note: Top COCs by prevalence were determined by examining a representative concentration for each well location at the site. The total exceedances (values above the chosen PRGs) are compared to the total number of wells to determine the prevalence of the compound.

Mobility:

Contaminant of Concern	Kd/Koc
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	0.00741

Note: Top COCs by mobility were determined by examining each detected compound in the dataset and comparing their mobilities (Koc's for organics, assuming foc = 0.001, and Kd's for metals).

Priority Constituents by Well:

Well Name	Average	Max
OW-WR-38	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX01-1001	TRICHLOROETHYLENE (TCE)	PERCHLORATE
PTX01-1002	1,2-DICHLOROETHANE	ARSENIC
PTX01-1008	2-AMINO-4,6-DINITROTOL	HEXAHYDRO-1,3,5-TRINIT
PTX04-1001	TNX	TRICHLOROETHYLENE (TCE
PTX04-1002	4-AMINO-2,6-DINITROTOL	1,4-DIOXANE (P-DIOXANE)
PTX06-1013	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX06-1023	2,4,6-TRINITROTOLUENE	HEXAHYDRO-1,3,5-TRINIT
PTX06-1048A	MNX	TRICHLOROETHYLENE (TCE
PTX06-1049	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX06-1050	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX06-1069	1,2-DICHLOROETHANE	CHROMIUM, TOTAL

MAROS COC Assessment

Project: Pantex **User Name:** MV

Location: North **State:** Texas

PTX06-1071	OCTAHYDRO-1,3,5,7-TETRA	MANGANESE
PTX06-1079	2,4,6-TRINITROTOLUENE	BORON
PTX06-1080	HEXAHYDRO-1,3,5-TRINITR	BARIUM
PTX06-1081	2,6-DINITROTOLUENE	HEXAHYDRO-1,3,5-TRINIT
PTX06-1117	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX06-1128	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX06-1136	1,2-DICHLOROETHANE	BORON
PTX07-1O01	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX07-1O02	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE
PTX07-1O03	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX07-1O06	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX07-1P02	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX07-1P05	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX07-1R03	1,3-DINITROBENZENE	ARSENIC
PTX08-1001	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX08-1002	HEXAHYDRO-1,3,5-TRINITR	HEXAHYDRO-1,3,5-TRINIT
PTX08-1010	2,4,6-TRINITROTOLUENE	ARSENIC
PTX-BEG3	CHROMIUM, TOTAL	CHROMIUM, HEXAVALENT

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
OW-WR-38										
A4DNT26	NO	50 %	NO	S	0.00	0.0001	NO	No distribution	YES	YES
B	NO	100 %	NO	I	0.37	0.6976	NO	Normal	YES	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	I	0.69	0.0515	NO	No distribution	NO	NO
PTX01-1001										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	Normal	YES	YES
B	NO	100 %	NO	I	0.08	0.0669	NO	Normal	YES	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	ND	0.00	0.0001	YES	Normal	YES	YES
PTX01-1008										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
B	NO	100 %	NO	I	0.11	0.0564	NO	Normal	YES	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
PTX04-1001										
A4DNT26	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
B	NO	100 %	NO	N/A	0.14	0.1812	NO	Normal	NO	NO
RDX	NO	67 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
PTX04-1002										
A4DNT26	YES	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
B	NO	100 %	NO	S	0.12	0.1539	NO	Normal	YES	YES
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	100 %	NO	S	0.25	0.0002	NO	Normal	YES	NO
PTX06-1013										

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
B	NO	100 %	NO	S	0.03	0.4864	NO	Normal	YES	YES
CR6	NO	80 %	NO	NT	0.00	0.0058	YES	No distribution	YES	NO
CR	NO	20 %	NO	NT	0.00	0.0094	YES	No distribution	YES	NO
RDX	YES	100 %	YES	S	0.19	0.0065	NO	Normal	NO	NO
PTX06-1023										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
B	NO	100 %	NO	S	0.05	0.1002	NO	Normal	YES	YES
CR6	NO	100 %	NO	NT	0.00	0.0013	NO	Normal	YES	NO
CR	NO	0 %	NO	ND	0.00	0.0050	NO	No distribution	YES	YES
RDX	YES	40 %	NO	NT	1.12	0.0004	YES	No distribution	YES	NO
PTX06-1048A										
A4DNT26	NO	75 %	NO	S	0.00	0.0001	YES	Normal	YES	YES
B	NO	100 %	NO	D	0.04	0.0819	NO	Normal	YES	YES
RDX	NO	25 %	NO	S	0.00	0.0002	YES	Normal	YES	YES
PTX06-1049										
A4DNT26	NO	100 %	NO	S	0.23	0.0014	YES	No distribution	NO	NO
B	NO	100 %	NO	PI	0.09	0.1286	NO	No distribution	YES	YES
RDX	YES	100 %	YES	I	0.63	0.0040	NO	Lognormal	NO	NO
PTX06-1050										
A4DNT26	NO	100 %	YES	D	0.30	0.0057	NO	Normal	NO	NO
B	NO	100 %	NO	I	0.17	1.0228	NO	Normal	YES	NO
RDX	YES	100 %	YES	I	0.47	0.2769	YES	No distribution	NO	NO
PTX06-1069										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	YES	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
PTX06-1071										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1079										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	YES	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX06-1081										
A4DNT26	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
B	NO	100 %	NO	N/A	0.03	0.0857	NO	Normal	NO	NO
RDX	YES	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
PTX06-1117										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	NO	100 %	NO	N/A	0.04	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	67 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	N/A	0.29	#Error	NO	No distribution	NO	NO
PTX06-1128										
A4DNT26	NO	0 %	NO	N/A	0.00	0.0001	NO	Normal	NO	NO
B	NO	100 %	NO	N/A	0.18	0.7389	NO	Normal	NO	NO
CR6	NO	100 %	NO	N/A	0.00	0.0022	NO	Normal	NO	NO
CR	NO	100 %	NO	N/A	0.00	0.1944	NO	Normal	NO	NO
RDX	YES	100 %	YES	N/A	0.17	0.0116	NO	Normal	NO	NO
PTX07-1O02										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX07-1O03										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	NO	Normal	YES	YES
B	NO	100 %	NO	S	0.05	0.4475	NO	Normal	YES	YES
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	S	0.14	0.0467	NO	Normal	NO	NO
PTX07-1P02										
A4DNT26	NO	0 %	NO	ND	0.00	0.0001	YES	No distribution	YES	YES
B	NO	100 %	NO	I	0.19	1.1078	NO	Normal	YES	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	I	0.65	0.0089	NO	Normal	NO	NO
PTX07-1R03										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
PTX08-1001										
A4DNT26	NO	20 %	NO	PD	0.00	0.0002	YES	No distribution	YES	YES
B	NO	100 %	NO	S	0.25	1.2376	NO	Normal	YES	YES
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	YES	100 %	YES	NT	1.45	0.0973	YES	Lognormal	NO	NO
PTX08-1002										
A4DNT26	NO	89 %	NO	PD	0.79	0.0020	NO	Normal	NO	NO

MAROS Individual Well Summary Report

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC	Priority COC for Well?	Detection Frequency	Recent Sample Above Goal?	MK Trend	COV	95% UCL	Outlier	Distribution Assumption	Attained Cleanup?	
									Normal	Lognormal
B	NO	100 %	NO	NT	0.27	0.6512	NO	Normal	YES	NO
CR6	NO	89 %	NO	NT	0.00	0.0032	YES	No distribution	YES	NO
CR	NO	0 %	NO	ND	0.00	0.0050	NO	No distribution	YES	YES
RDX	YES	100 %	YES	NT	1.75	0.0660	YES	No distribution	NO	NO
PTX08-1010										
A4DNT26	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
B	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR6	NO	100 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
CR	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO
RDX	NO	0 %	NO	N/A	0.00	#Error	NO	No distribution	NO	NO

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Time Period: 1/1/2017 **to** 12/30/2021
Consolidation Period: No Time Consolidation
Consolidation Type: Average
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
4-AMINO-2,6-DINITROTOLUENE							
OW-WR-38	6	3	0.21	-8	89.8%	No	S
PTX01-1001	8	0	0.03	-10	86.2%	Yes	ND
PTX01-1008	8	0	0.02	-8	80.1%	Yes	ND
PTX04-1001	3	0	0.00	0	0.0%	Yes	ND
PTX04-1002	4	0	0.03	0	37.5%	Yes	ND
PTX06-1013	5	0	0.02	3	67.5%	Yes	ND
PTX06-1023	8	0	0.04	-2	54.8%	Yes	ND
PTX06-1048A	4	3	0.10	-3	72.9%	No	S
PTX06-1049	9	9	0.20	0	46.0%	No	S
PTX06-1050	8	8	0.30	-20	99.3%	No	D
PTX06-1069	1	0	0.00	0	0.0%	Yes	ND
PTX06-1071	1	0	0.00	0	0.0%	Yes	ND
PTX06-1079	1	0	0.00	0	0.0%	Yes	ND
PTX06-1081	3	0	0.00	0	0.0%	Yes	ND
PTX06-1117	2	0	0.00	0	0.0%	Yes	ND
PTX06-1128	3	0	0.00	0	0.0%	Yes	ND
PTX07-1O02	1	0	0.00	0	0.0%	Yes	ND
PTX07-1O03	5	0	0.02	0	40.8%	Yes	ND
PTX07-1P02	8	0	0.09	0	45.2%	Yes	ND
PTX07-1R03	1	0	0.00	0	0.0%	Yes	ND
PTX08-1001	5	1	0.14	-7	92.1%	No	PD
PTX08-1002	8	7	0.72	-12	91.1%	No	PD
PTX08-1010	1	0	0.00	0	0.0%	Yes	ND
BORON							
OW-WR-38	5	5	0.41	8	95.8%	No	I
PTX01-1001	8	8	0.09	20	99.3%	No	I

MAROS Mann-Kendall Statistics Summary

Project: Pantex | **User Name:** MV
Location: North | **State:** Texas

BORON

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX01-1008	8	8	0.11	18	98.4%	No	I
PTX04-1001	3	3	0.00	0	0.0%	No	N/A
PTX04-1002	4	4	0.12	0	37.5%	No	S
PTX06-1013	5	5	0.03	-4	75.8%	No	S
PTX06-1023	8	8	0.05	-2	54.8%	No	S
PTX06-1048A	4	4	0.04	-6	95.8%	No	D
PTX06-1049	8	8	0.10	14	94.6%	No	PI
PTX06-1050	8	8	0.17	24	99.9%	No	I
PTX06-1069	1	1	0.00	0	0.0%	No	N/A
PTX06-1071	1	1	0.00	0	0.0%	No	N/A
PTX06-1079	1	1	0.00	0	0.0%	No	N/A
PTX06-1081	3	3	0.00	0	0.0%	No	N/A
PTX06-1117	2	2	0.00	0	0.0%	No	N/A
PTX06-1128	3	3	0.00	0	0.0%	No	N/A
PTX07-1O02	1	1	0.00	0	0.0%	No	N/A
PTX07-1O03	5	5	0.05	-4	75.8%	No	S
PTX07-1P02	8	8	0.20	26	100.0%	No	I
PTX07-1R03	1	1	0.00	0	0.0%	No	N/A
PTX08-1001	5	5	0.25	-2	59.2%	No	S
PTX08-1002	8	8	0.27	6	72.6%	No	NT
PTX08-1010	1	1	0.00	0	0.0%	No	N/A
CHROMIUM, HEXAVALENT							
OW-WR-38	1	1	0.00	0	0.0%	No	N/A
PTX01-1001	1	1	0.00	0	0.0%	No	N/A
PTX01-1008	1	1	0.00	0	0.0%	No	N/A
PTX04-1002	1	1	0.00	0	0.0%	No	N/A
PTX06-1013	5	4	1.72	0	40.8%	No	NT
PTX06-1023	8	8	0.21	2	54.8%	No	NT
PTX06-1069	1	1	0.00	0	0.0%	No	N/A
PTX06-1071	1	1	0.00	0	0.0%	No	N/A
PTX06-1117	2	2	0.00	0	0.0%	No	N/A
PTX06-1128	3	3	0.00	0	0.0%	No	N/A
PTX07-1O02	1	1	0.00	0	0.0%	No	N/A

MAROS Mann-Kendall Statistics Summary

Project: Pantex　　**User Name:** MV

Location: North　　**State:** Texas

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
CHROMIUM, HEXAVALENT							
PTX07-1O03	1	1	0.00	0	0.0%	No	N/A
PTX07-1P02	1	1	0.00	0	0.0%	No	N/A
PTX07-1R03	1	1	0.00	0	0.0%	No	N/A
PTX08-1001	1	1	0.00	0	0.0%	No	N/A
PTX08-1002	8	7	2.43	-2	54.8%	No	NT
PTX08-1010	1	1	0.00	0	0.0%	No	N/A
CHROMIUM, TOTAL							
OW-WR-38	1	0	0.00	0	0.0%	Yes	ND
PTX01-1001	1	0	0.00	0	0.0%	Yes	ND
PTX01-1008	1	1	0.00	0	0.0%	No	N/A
PTX04-1002	1	1	0.00	0	0.0%	No	N/A
PTX06-1013	5	1	0.42	4	75.8%	No	NT
PTX06-1023	8	0	0.00	0	45.2%	Yes	ND
PTX06-1069	1	0	0.00	0	0.0%	Yes	ND
PTX06-1071	1	0	0.00	0	0.0%	Yes	ND
PTX06-1117	2	2	0.00	0	0.0%	No	N/A
PTX06-1128	3	3	0.00	0	0.0%	No	N/A
PTX07-1O02	1	1	0.00	0	0.0%	No	N/A
PTX07-1O03	1	1	0.00	0	0.0%	No	N/A
PTX07-1P02	1	0	0.00	0	0.0%	Yes	ND
PTX07-1R03	1	0	0.00	0	0.0%	Yes	ND
PTX08-1001	1	0	0.00	0	0.0%	Yes	ND
PTX08-1002	8	0	0.00	0	45.2%	Yes	ND
PTX08-1010	1	0	0.00	0	0.0%	Yes	ND
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN							
OW-WR-38	6	6	0.87	11	97.2%	No	I
PTX01-1001	8	0	0.03	-10	86.2%	Yes	ND
PTX01-1008	8	0	0.02	-8	80.1%	Yes	ND
PTX04-1001	3	2	0.00	0	0.0%	No	N/A
PTX04-1002	4	4	0.25	0	37.5%	No	S
PTX06-1013	5	5	0.19	-6	88.3%	No	S
PTX06-1023	8	3	0.93	1	50.0%	No	NT

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN

Well	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
PTX06-1048A	4	1	0.12	0	37.5%	No	S
PTX06-1049	9	9	0.65	24	99.4%	No	I
PTX06-1050	8	8	0.47	20	99.3%	No	I
PTX06-1069	1	0	0.00	0	0.0%	Yes	ND
PTX06-1071	1	0	0.00	0	0.0%	Yes	ND
PTX06-1079	1	0	0.00	0	0.0%	Yes	ND
PTX06-1081	3	0	0.00	0	0.0%	Yes	ND
PTX06-1117	2	2	0.00	0	0.0%	No	N/A
PTX06-1128	3	3	0.00	0	0.0%	No	N/A
PTX07-1O02	1	1	0.00	0	0.0%	No	N/A
PTX07-1O03	5	5	0.14	-4	75.8%	No	S
PTX07-1P02	8	8	0.67	24	99.9%	No	I
PTX07-1R03	1	0	0.00	0	0.0%	Yes	ND
PTX08-1001	5	5	1.45	-4	75.8%	No	NT
PTX08-1002	8	8	1.74	0	45.2%	No	NT
PTX08-1010	1	0	0.00	0	0.0%	Yes	ND

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events).

The Number of Samples and Number of Detects shown above are post-consolidation values.

MAROS Spatial Moment Analysis Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Effective Date	0th Moment Estimated Mass (Kg)	1st Moment (Center of Mass) Xc (ft)	Yc (ft)	Source Distance	2nd Moment (Spread) Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
4-AMINO-2,6-DINITROTOLUENE							
7/1/2017	9.5E+00	636,053	3,766,796	4,440	5,898,620	3,711,506	15
7/1/2018	8.6E+00	635,922	3,766,873	4,590	5,603,085	3,686,258	16
7/1/2019	7.5E+00	635,938	3,766,893	4,589	6,114,715	3,830,516	18
7/1/2020	6.2E+00	635,484	3,765,924	4,484	5,544,394	1,716,188	13
7/1/2021	5.2E+00	636,168	3,767,078	4,529	17,028,213	4,423,212	16
BORON							
7/1/2017	4.4E+03	637,760	3,766,381	2,918	6,477,358	4,410,382	15
7/1/2018	5.1E+03	637,731	3,766,332	2,898	6,367,812	4,252,203	16
7/1/2019	5.0E+03	637,684	3,766,290	2,896	6,586,084	4,235,662	18
7/1/2020	5.0E+03	637,444	3,765,473	2,539	6,192,919	1,965,257	13
7/1/2021	5.8E+03	638,230	3,766,038	2,361	13,096,482	4,741,926	16
CHROMIUM, HEXAVALENT							
7/1/2017	0.0E+00						3
7/1/2018	0.0E+00						5
7/1/2019	0.0E+00						5
7/1/2020	0.0E+00						4
7/1/2021	1.5E+01	638,673	3,767,746	3,756	18,450,196	4,343,010	14
CHROMIUM, TOTAL							
7/1/2017	0.0E+00						3
7/1/2018	0.0E+00						5
7/1/2019	0.0E+00						5
7/1/2020	0.0E+00						4
7/1/2021	1.5E+02	637,556	3,767,405	3,875	18,345,849	4,681,829	14
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZIN							
7/1/2017	7.8E+01	637,671	3,766,019	2,707	4,553,756	2,514,490	15
7/1/2018	1.1E+02	637,689	3,765,686	2,468	4,069,855	2,255,070	16
7/1/2019	1.3E+02	637,641	3,765,722	2,528	3,609,445	1,980,977	18
7/1/2020	2.2E+02	637,832	3,765,445	2,206	3,863,035	1,422,446	13
7/1/2021	1.1E+02	638,064	3,765,170	1,855	6,413,626	1,266,861	16

MAROS Spatial Moment Analysis Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Spatial Moment Analysis Summary:

Moment Type	Constituent	Coefficient of Variation	Mann-Kendall S Statistic	Confidence in Trend	Moment Trend
0th Moment	4-AMINO-2,6-DINITROTOLU	0.24	-10	99.2%	D
0th Moment	BORON	0.10	4	75.8%	NT
0th Moment	CHROMIUM, HEXAVALENT	2.24	4	75.8%	NT
0th Moment	CHROMIUM, TOTAL	2.24	4	75.8%	NT
0th Moment	HEXAHYDRO-1,3,5-TRINITR	0.43	4	75.8%	NT
First Moment	4-AMINO-2,6-DINITROTOLU	0.01	0	40.8%	S
First Moment	BORON	0.09	-10	99.2%	D
First Moment	CHROMIUM, HEXAVALENT	0.00	0	0.0%	N/A
First Moment	CHROMIUM, TOTAL	0.00	0	0.0%	N/A
First Moment	HEXAHYDRO-1,3,5-TRINITR	0.14	-8	95.8%	D
Second Moment X	4-AMINO-2,6-DINITROTOLU	0.63	2	59.2%	NT
Second Moment X	BORON	0.39	2	59.2%	NT
Second Moment X	CHROMIUM, HEXAVALENT	0.00	0	0.0%	N/A
Second Moment X	CHROMIUM, TOTAL	0.00	0	0.0%	N/A
Second Moment X	HEXAHYDRO-1,3,5-TRINITR	0.25	0	40.8%	S
Second Moment Y	4-AMINO-2,6-DINITROTOLU	0.30	2	59.2%	NT
Second Moment Y	BORON	0.28	-2	59.2%	S
Second Moment Y	CHROMIUM, HEXAVALENT	0.00	0	0.0%	N/A
Second Moment Y	CHROMIUM, TOTAL	0.00	0	0.0%	N/A
Second Moment Y	HEXAHYDRO-1,3,5-TRINITR	0.28	-10	99.2%	D

Note: The following assumptions were applied for the calculation of the Zeroth Moment:

Porosity: 0.25 **Saturated Thickness:** Uniform: 30 ft

Mann-Kendall Trend test performed on all sample events for each constituent. Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events); (ND) Non Detect.

Note: The Sigma XX and Sigma YY components are estimated using the given field coordinate system and then rotated to align with the estimated groundwater flow direction. Moments are not calculated for sample events with less than 6 wells.

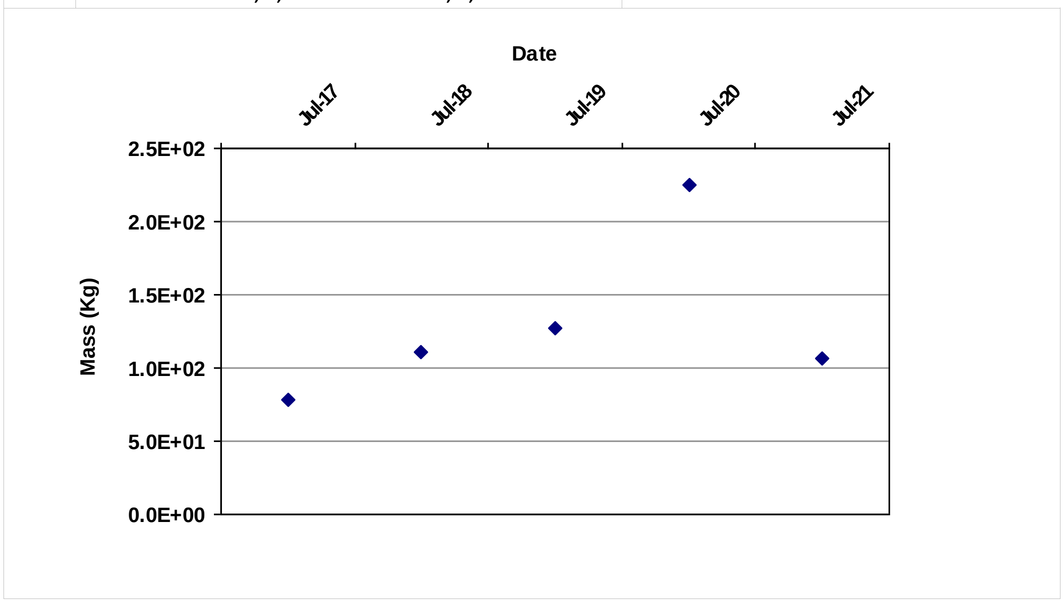
MAROS Zeroth Moment Analysis

Project: Pantex | **User Name:** MV

Location: North | **State:** Texas

Change in Dissolved Mass Over Time

COC: HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE



Porosity: 0.25

Saturated Thickness:

Uniform: 30 ft

Mann-Kendall S Statistic:

4

Confidence in Trend:

75.8%

Coefficient of Variation:

0.43

Zeroth Moment Trend:

NT

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/2017	HEXAHYDRO-1,3,5-TRINITRO-1,3,	7.8E+01	15
7/1/2018	HEXAHYDRO-1,3,5-TRINITRO-1,3,	1.1E+02	16
7/1/2019	HEXAHYDRO-1,3,5-TRINITRO-1,3,	1.3E+02	18
7/1/2020	HEXAHYDRO-1,3,5-TRINITRO-1,3,	2.2E+02	13
7/1/2021	HEXAHYDRO-1,3,5-TRINITRO-1,3,	1.1E+02	16

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

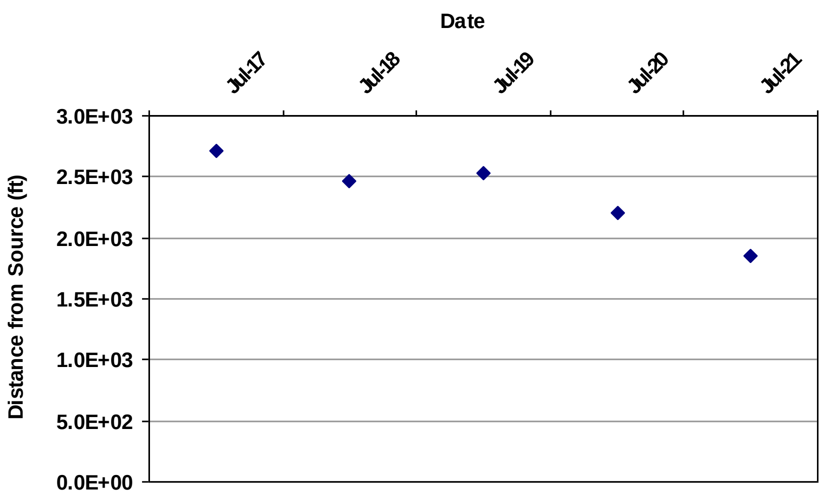
MAROS First Moment Analysis

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC: HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE

Distance from Source to Center of Mass



Mann-Kendall S Statistic: -8

Confidence in Trend: 95.8%

Coefficient of Variation: 0.14

First Moment Trend: D

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	HEXAHYDRO-1,3,5-TRINITRO-	637,671	3,766,019	2,707	15
7/1/2018	HEXAHYDRO-1,3,5-TRINITRO-	637,689	3,765,686	2,468	16
7/1/2019	HEXAHYDRO-1,3,5-TRINITRO-	637,641	3,765,722	2,528	18
7/1/2020	HEXAHYDRO-1,3,5-TRINITRO-	637,832	3,765,445	2,206	13
7/1/2021	HEXAHYDRO-1,3,5-TRINITRO-	638,064	3,765,170	1,855	16

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

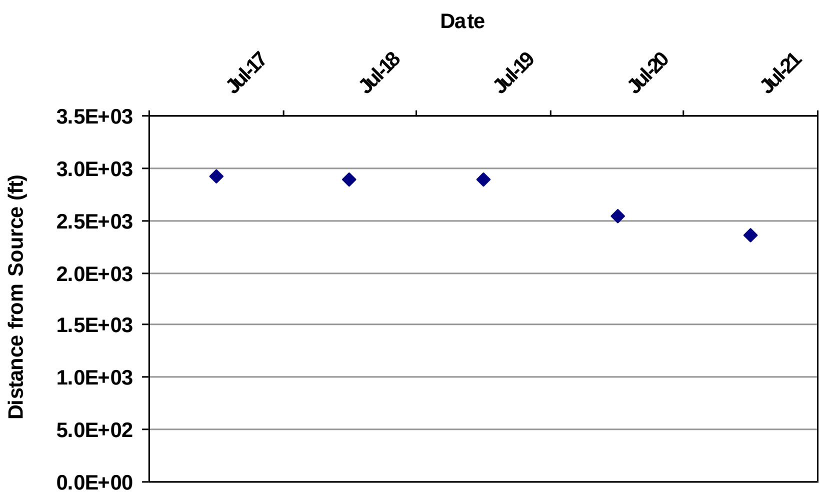
MAROS First Moment Analysis

Project: Pantex **User Name:** MV

Location: North **State:** Texas

COC: BORON

Distance from Source to Center of Mass



Mann-Kendall S Statistic:

-10

Confidence in Trend:

99.2%

Coefficient of Variation:

0.09

First Moment Trend:

D

DATA TABLE

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source	Number of Wells
7/1/2017	BORON	637,760	3,766,381	2,918	15
7/1/2018	BORON	637,731	3,766,332	2,898	16
7/1/2019	BORON	637,684	3,766,290	2,896	18
7/1/2020	BORON	637,444	3,765,473	2,539	13
7/1/2021	BORON	638,230	3,766,038	2,361	16

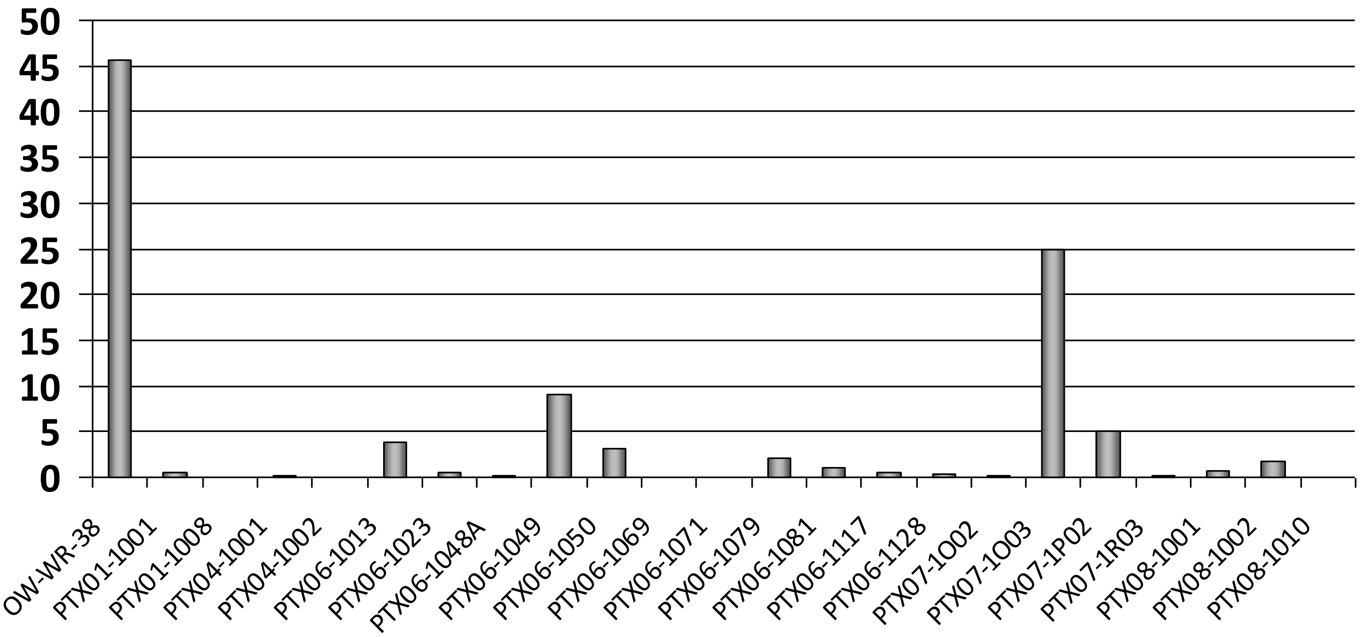
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: North **State:** Texas

HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
OW-WR-38	5,536,280.55	76,006.22	45.70	4.11
PTX01-1001	21,631,539.61	726.82	0.44	16.06
PTX01-1008	927,726.73	31.66	0.02	0.69
PTX04-1001	1,550,251.83	406.94	0.24	1.15
PTX04-1002	2,323,315.69	84.16	0.05	1.73
PTX06-1013	6,433,494.10	6,299.20	3.79	4.78
PTX06-1023	3,783,592.61	993.19	0.60	2.81
PTX06-1048A	11,625,006.68	413.49	0.25	8.63
PTX06-1049	8,886,248.74	15,138.84	9.10	6.60
PTX06-1050	19,985,463.48	5,246.18	3.15	14.84
PTX06-1069	1,506,131.57	51.79	0.03	1.12
PTX06-1071	522,396.13	17.96	0.01	0.39
PTX06-1079	12,887,759.11	3,383.04	2.03	9.57
PTX06-1081	6,890,357.81	1,808.72	1.09	5.12

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: North **State:** Texas

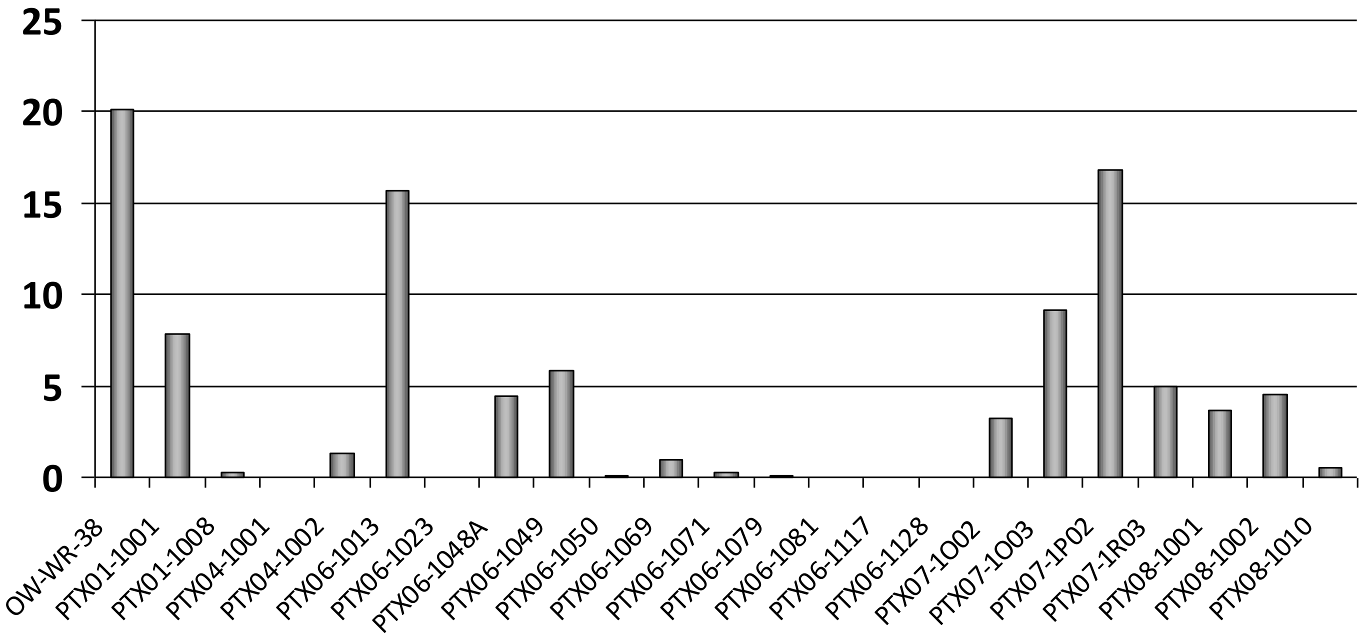
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1117	3,057,064.59	802.48	0.48	2.27
PTX06-1128	2,445,143.03	641.85	0.39	1.82
PTX07-1O02	7,528,172.91	189.71	0.11	5.59
PTX07-1O03	4,524,645.22	41,332.64	24.85	3.36
PTX07-1P02	2,493,591.23	8,509.38	5.12	1.85
PTX07-1R03	7,407,780.52	253.76	0.15	5.50
PTX08-1001	865,855.38	1,047.79	0.63	0.64
PTX08-1002	1,060,275.08	2,894.55	1.74	0.79
PTX08-1010	798,081.82	27.13	0.02	0.59
	134,670,174.4	166,307.5	100	100

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: North **State:** Texas

BORON 7/1/2021



Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
OW-WR-38	5,536,280.55	1,026,011.24	20.14	4.11
PTX01-1001	21,631,539.61	398,615.22	7.83	16.06
PTX01-1008	927,726.73	14,197.70	0.28	0.69
PTX04-1001	1,550,251.83	406.94	0.01	1.15
PTX04-1002	2,323,315.69	68,305.48	1.34	1.73
PTX06-1013	6,433,494.10	800,487.54	15.72	4.78
PTX06-1023	3,783,592.61	993.19	0.02	2.81
PTX06-1048A	11,625,006.68	225,205.45	4.42	8.63
PTX06-1049	8,886,248.74	296,245.33	5.82	6.60
PTX06-1050	19,985,463.48	5,246.18	0.10	14.84
PTX06-1069	1,506,131.57	49,419.94	0.97	1.12
PTX06-1071	522,396.13	13,424.93	0.26	0.39
PTX06-1079	12,887,759.11	3,383.04	0.07	9.57
PTX06-1081	6,890,357.81	1,808.72	0.04	5.12

MAROS Percent of Mass by Well

Project: Pantex **User Name:** MV

Location: North **State:** Texas

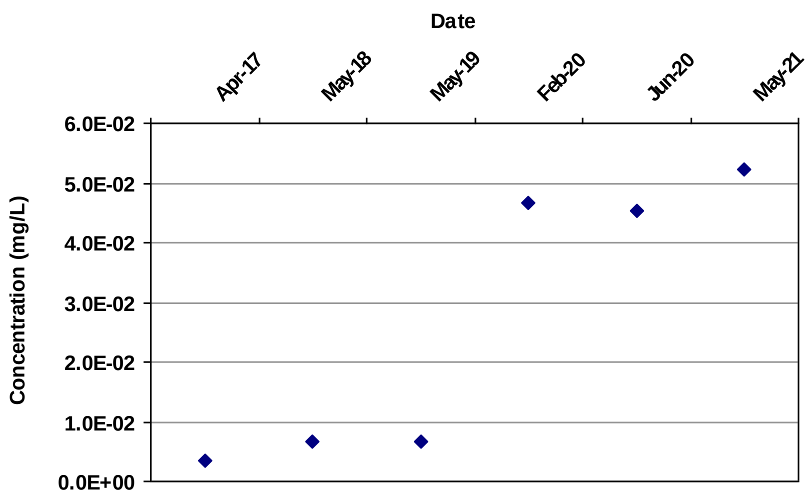
Well	Area (ft2)	Mass (mg)	Percent of Mass	Percent of Area
PTX06-1117	3,057,064.59	802.48	0.02	2.27
PTX06-1128	2,445,143.03	641.85	0.01	1.82
PTX07-1O02	7,528,172.91	164,020.08	3.22	5.59
PTX07-1O03	4,524,645.22	465,586.02	9.14	3.36
PTX07-1P02	2,493,591.23	857,483.73	16.83	1.85
PTX07-1R03	7,407,780.52	254,735.06	5.00	5.50
PTX08-1001	865,855.38	187,284.53	3.68	0.64
PTX08-1002	1,060,275.08	231,285.77	4.54	0.79
PTX08-1010	798,081.82	28,072.53	0.55	0.59
	134,670,174.4	5,093,662.9	100	100

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Well:	OW-WR-38	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	Tail	**Consolidation Period:**	No Time Consolidation
COC:	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-	**Duplicate Consolidation:**	Average
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

11

Confidence in Trend:

97.2%

Coefficient of Variation:

0.87

Mann Kendall Concentration Trend: (See Note)

I

Data Table:

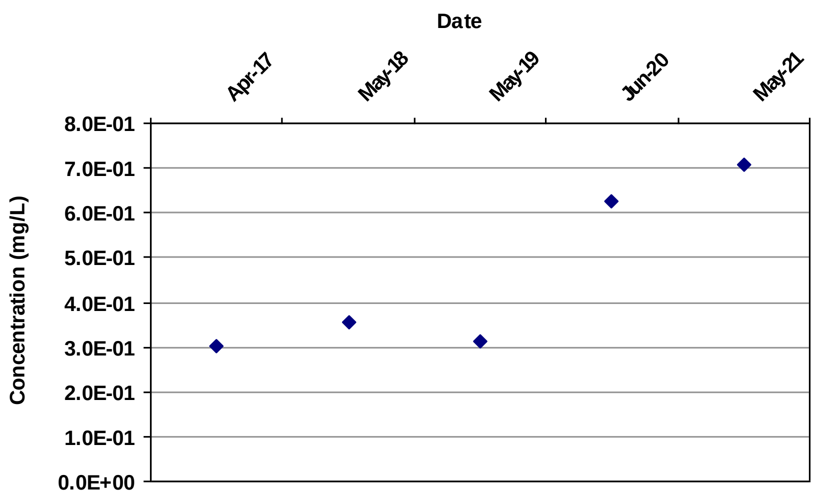
Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
OW-WR-38	4/25/2017	HEXAHYDRO-1,3,5-TRINITRO-	3.4E-03		1	1
OW-WR-38	5/8/2018	HEXAHYDRO-1,3,5-TRINITRO-	6.6E-03		1	1
OW-WR-38	5/1/2019	HEXAHYDRO-1,3,5-TRINITRO-	6.5E-03		1	1
OW-WR-38	2/28/2020	HEXAHYDRO-1,3,5-TRINITRO-	4.7E-02		2	2
OW-WR-38	6/29/2020	HEXAHYDRO-1,3,5-TRINITRO-	4.5E-02		2	2
OW-WR-38	5/20/2021	HEXAHYDRO-1,3,5-TRINITRO-	5.2E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV
Location: North **State:** Texas

Well:	OW-WR-38	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	Tail	**Consolidation Period:**	No Time Consolidation
COC:	BORON	**Duplicate Consolidation:**	Average
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

8

Confidence in Trend:

95.8%

Coefficient of Variation:

0.41

Mann Kendall Concentration Trend: (See Note)

I

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
OW-WR-38	4/25/2017	BORON	3.0E-01		1	1
OW-WR-38	5/8/2018	BORON	3.6E-01		1	1
OW-WR-38	5/1/2019	BORON	3.1E-01		1	1
OW-WR-38	6/29/2020	BORON	6.3E-01		2	2
OW-WR-38	5/20/2021	BORON	7.1E-01		1	1

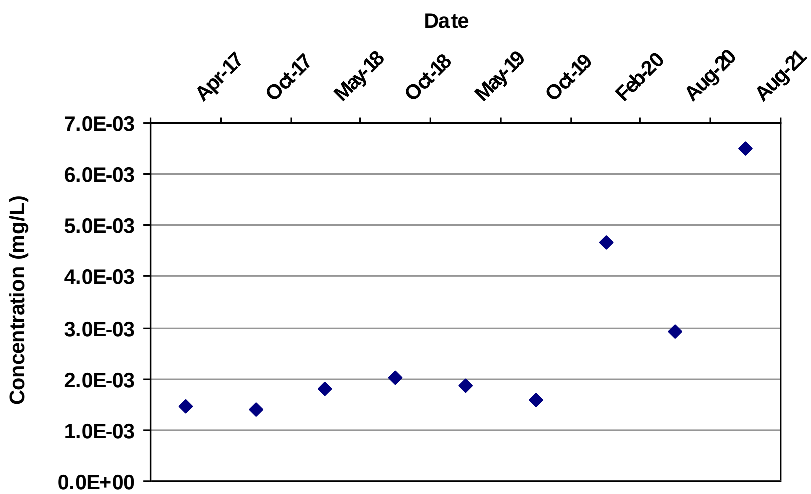
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Well:	PTX06-1049	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	Tail	**Consolidation Period:**	No Time Consolidation
COC:	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-	**Duplicate Consolidation:**	Average
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

24

Confidence in Trend:

99.4%

Coefficient of Variation:

0.65

Mann Kendall Concentration Trend: (See Note)

I

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1049	4/25/2017	HEXAHYDRO-1,3,5-TRINITRO-	1.5E-03		1	1
PTX06-1049	10/3/2017	HEXAHYDRO-1,3,5-TRINITRO-	1.4E-03		2	2
PTX06-1049	5/8/2018	HEXAHYDRO-1,3,5-TRINITRO-	1.8E-03		1	1
PTX06-1049	10/23/2018	HEXAHYDRO-1,3,5-TRINITRO-	2.0E-03		1	1
PTX06-1049	5/1/2019	HEXAHYDRO-1,3,5-TRINITRO-	1.9E-03		1	1
PTX06-1049	10/29/2019	HEXAHYDRO-1,3,5-TRINITRO-	1.6E-03		1	1
PTX06-1049	2/28/2020	HEXAHYDRO-1,3,5-TRINITRO-	4.7E-03		2	2
PTX06-1049	8/20/2020	HEXAHYDRO-1,3,5-TRINITRO-	2.9E-03		1	1
PTX06-1049	8/1/2021	HEXAHYDRO-1,3,5-TRINITRO-	6.5E-03		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects

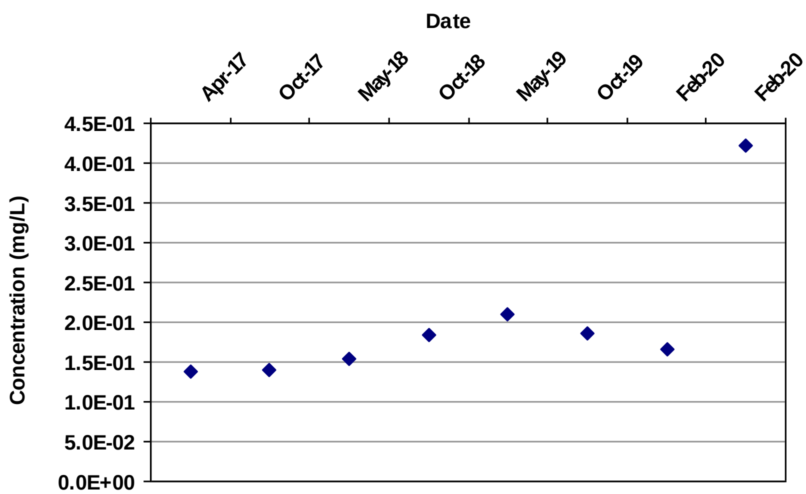
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Project: Pantex **User Name:** MV

Location: North **State:** Texas

Well:	PTX06-1050	**Time Period:**	1/1/2017 **to** 12/30/2021
Well Type:	Tail	**Consolidation Period:**	No Time Consolidation
COC:	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-	**Duplicate Consolidation:**	Average
		Consolidation Type:	Average
		ND Values:	1/2 Detection Limit
		J Flag Values :	Actual Value



Mann Kendall S Statistic:

20

Confidence in Trend:

99.3%

Coefficient of Variation:

0.47

Mann Kendall Concentration Trend: (See Note)

I

Data Table:

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PTX06-1050	4/25/2017	HEXAHYDRO-1,3,5-TRINITRO-	1.4E-01		1	1
PTX06-1050	10/3/2017	HEXAHYDRO-1,3,5-TRINITRO-	1.4E-01		1	1
PTX06-1050	5/8/2018	HEXAHYDRO-1,3,5-TRINITRO-	1.5E-01		1	1
PTX06-1050	10/23/2018	HEXAHYDRO-1,3,5-TRINITRO-	1.8E-01		1	1
PTX06-1050	5/1/2019	HEXAHYDRO-1,3,5-TRINITRO-	2.1E-01		1	1
PTX06-1050	10/29/2019	HEXAHYDRO-1,3,5-TRINITRO-	1.9E-01		1	1
PTX06-1050	2/14/2020	HEXAHYDRO-1,3,5-TRINITRO-	1.7E-01		1	1
PTX06-1050	2/28/2020	HEXAHYDRO-1,3,5-TRINITRO-	4.2E-01		1	1

MAROS Mann-Kendall Statistics Summary

Project: Pantex | **User Name:** MV
Location: North | **State:** Texas

Well	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

APPENDIX D

ELECTRONIC DATA FILES (INCLUDED SEPARATELY)

Southeast Sector

1. SE_Archive_2022.mdb
2. SE_Individual_Wells_2017-2021.mdb
3. SE_Location_Analysis_2017-2021.mdb
4. SE_Moment_Analysis_2017-2021.mdb

Southwest Sector

5. SW_Archive_2022.mdb
6. SW_Individual_Wells_2017-2021.mdb
7. SW_Location_Analysis_2012-2021.mdb
8. SW_Location_Analysis_2017-2021.mdb
9. SW_Moment_Analysis_2017_2021.mdb

North Sector

10. N_Archive_2022.mdb
11. N_Individual_Wells_2017-2021.mdb
12. N_Location_Analysis_2017-2021.mdb
13. N_Moment_Analysis_2017-2021.mdb

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Attachment 12

Ogallala Aquifer Monitoring Network Evaluation
Third Five-Year Review

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Table of Contents

List of Tables

List of Figures

1 Ogallala Aquifer Monitoring Network Evaluation for the Third Five-Year Review

Pantex completed an evaluation of the Ogallala Aquifer Long Term Monitoring (LTM) network and associated data as part of the Third Five-Year Review (FYR). This Attachment focuses on the sufficiency of the network itself; the sampling data evaluation for uncertainty analysis and early detection monitoring objectives is presented in Attachment 13 of the Third FYR. Two important aspects of the Ogallala Aquifer monitoring network evaluation are (1) well locations relative to the perched groundwater plumes or other potential source areas and (2) early detection of potential contaminant breakthrough.

1.1 Evaluation of LTM Network

The current Ogallala Aquifer LTM network consists of 24 monitoring wells (CNS, 2019a). Originally, the system was developed with 26 monitoring wells in the *Long-Term Monitoring System Design Report* (B&W Pantex, 2009a) using fate and transport modeling and related tools. Monitoring wells have been added and removed from the Ogallala Aquifer LTM network because of concerns about providing pathways through the Fine-Grained Zone (FGZ). The current Ogallala LTM well network is presented in Table 1 and illustrated on Figure 1. This evaluation is not intended to replicate those efforts, but rather to evaluate any new data or changes to existing data that may affect these results.

The primary goal of the LTM network in the Ogallala Aquifer is detection monitoring for early warning of vertical migration of contaminants of concern (COCs) from overlying stratigraphic units. The expected condition is that site COCs will not be detected above groundwater protection standards (GWPS) in the Ogallala Aquifer. Contingency plans are outlined in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (B&W Pantex, 2009b; CNS, 2019b) should COCs be detected and validated in the Ogallala Aquifer.

The evaluation of the LTM network for the Ogallala Aquifer consists of reviewing concentrations of metals and radiological constituents relative to their site-specific background values and reviewing detections of organic contaminants relative to their practical quantitation limits (PQLs), consistency of detections, and trend evaluations.

A summary of observations, considerations, and recommendations for optimizing the Ogallala Aquifer LTM network is provided below.

Table 1. Current Ogallala Aquifer Long Term Monitoring Network

Well	Easting	Northing	Date Installed	Date Added to LTM Network
PTX01-1010	630576.88	3771397.26	4/4/2000	4/23/2009
PTX01-1011	629986.45	3771397.29	4/26/2000	4/23/2009
PTX01-1012	632664.21	3773264.13	4/30/2000	4/23/2009
PTX01-1013	628976.89	3773218.25	5/13/2000	4/23/2009
PTX06-1043	640711.00	3765225.21	8/20/1999	4/23/2009
PTX06-1044	642706.18	3764538.54	8/27/1999	4/23/2009
PTX06-1056	643767.03	3754642.87	5/15/2000	4/23/2009
PTX06-1057A	629630.04	3768142.23	8/29/2000	4/23/2009
PTX06-1058	624894.00	3759747.11	8/26/2000	4/23/2009
PTX06-1061	625651.61	3773186.59	9/22/2000	4/23/2009
PTX06-1062A	633017.18	3771685.22	5/14/2001	4/23/2009
PTX06-1064	635900.45	3773557.90	5/31/2001	4/23/2009
PTX06-1068	643403.70	3773360.30	5/16/2001	4/23/2009
PTX06-1072	635047.45	3758434.63	5/19/2001	4/23/2009
PTX06-1076	637327.32	3752978.41	3/25/2002	4/23/2009
PTX06-1137A	647900.89	3758635.67	2/15/2009	4/23/2009 (Replaced PTX06-1137)
PTX06-1138	646285.31	3760503.82	1/21/2009	4/23/2009
PTX06-1139	646768.73	3756376.08	1/29/2009	4/23/2009
PTX06-1140	646959.38	3762807.67	2/5/2009	4/23/2009
PTX06-1141	633445.44	3766872.94	2/17/2009	4/23/2009
PTX06-1143	639244.72	3770496.78	2/25/2009	4/23/2009
PTX06-1144	640252.98	3773320.45	2/26/2009	4/23/2009
PTX06-1157	647101.97	3753701.98	4/1/2010	4/1/2010
PTX07-1R01	627914.28	3764159.91	4/16/2000	4/23/2009

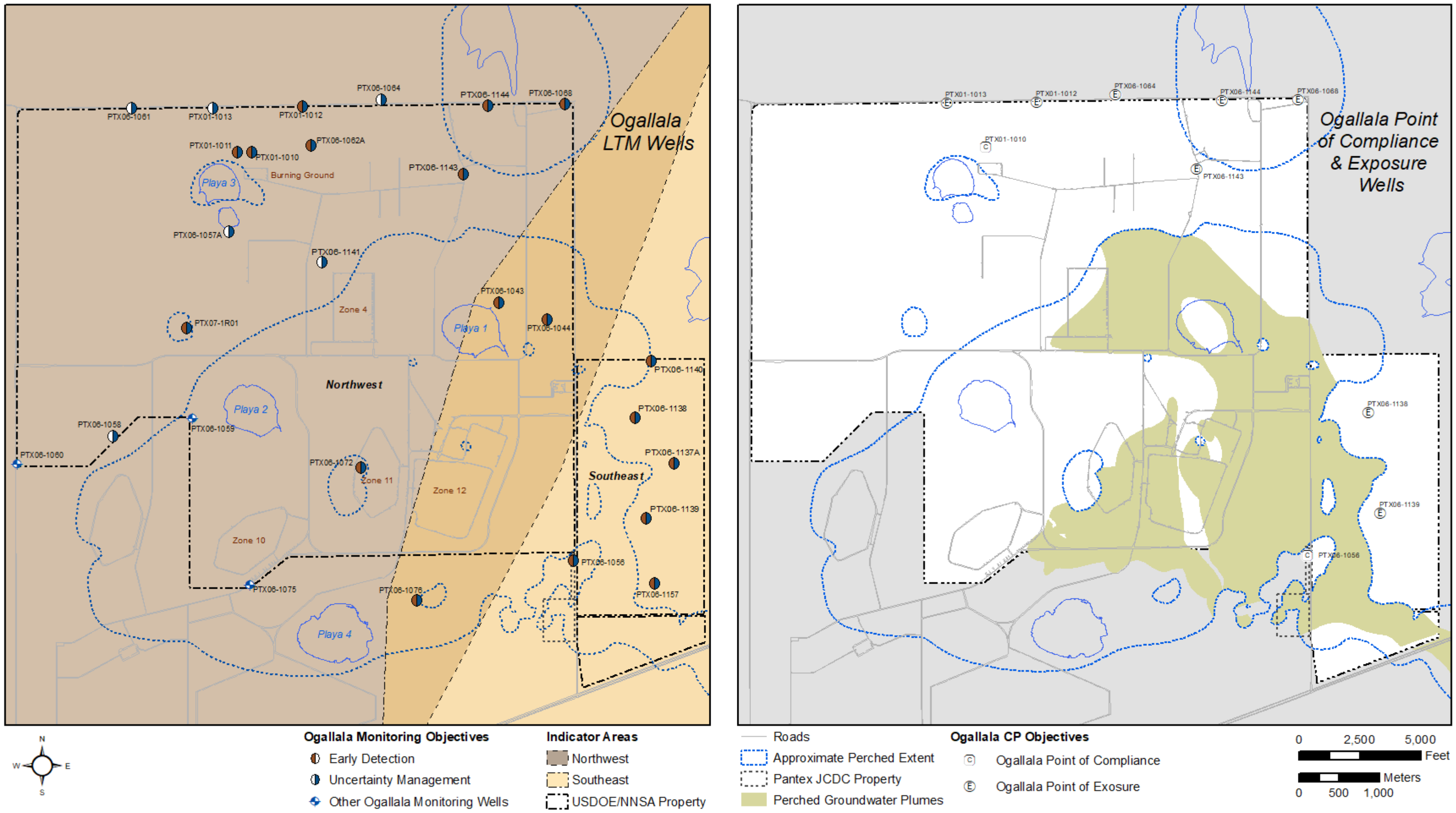

Figure 1. Ogallala Aquifer Monitoring Wells and LTM Network

1.2 Ogallala Well Sampling Results Evaluation

1.2.1 Metals

During the First and Second FYRs, hexavalent chromium (Cr(VI)) was detected in Ogallala Aquifer wells. The site-specific background for Cr(VI) was calculated in 2017 to be 3.2 micrograms per liter (µg/L) using data from Laboratory Method 218.7 (EPA 815-R-11-005) or a similar method to achieve sufficiently low detection limits (CNS Pantex, 2018).

Over the Third FYR period, the following factors have been considered in evaluating Cr(VI) concentrations in the Ogallala Aquifer LTM network:

- Specific wells at Pantex have documented evidence of corrosion, and conversion of total chromium in well materials to Cr(VI) is possible due to biogeochemical conditions in the Ogallala Aquifer. Well corrosion also may contribute to observed increases in concentrations of manganese, molybdenum, and nickel.
- Background concentrations for Cr(VI) were determined using Method 218.7; samples analyzed using alternate methods can result in higher detections of Cr(VI) from preservative interference.
- The colorimetric analytical method can produce false positive detections near the method detection limits. Typically, these detections are not confirmed by total chromium results.

Hexavalent chromium was detected above the site-specific background at several Ogallala wells throughout the FYR period. With the exception of two samples analyzed using an alternative method, Cr(VI) concentrations were within 3.0 µg/L of background concentrations. These concentrations may represent background variability or be related to possible screen corrosion. Wells with background exceedances were PTX06-1044, PTX06-1056, PTX06-1138, PTX06-1140, and PTX06-1157. Hexavalent chromium concentrations in PTX06-1056 were *increasing* throughout the FYR period. Increases in Cr(VI) in PTX06-1056 do not correspond to increasing concentrations of manganese, molybdenum, or nickel; increases in these other metals are often, but not always associated with well corrosion. Data from the 2022 high-volume purge test may be useful in determining why Cr(VI) concentrations have been increasing over the current FYR period.. Long-term Cr(VI) trends in PTX06-1056 are *decreasing* between 2001 and 2021. The other four wells with background exceedances of Cr(VI) appear to be fluctuating around the background concentration with no clear trend.

Boron was detected above the site-specific background at several Ogallala monitoring wells. These concentrations fluctuated around the background concentration of 193.9 µg/L and do not appear to be the result of breakthrough or migration of boron from industrial locations. They are likely within the concentration range of natural background in the aquifer system.

In situ bioremediation (ISB) remedies installed in the perched groundwater unit may mobilize arsenic, barium, and manganese as a side effect of generating anaerobic conditions. Sampling and trend analysis of monitoring results should continue in the Ogallala Aquifer with concentrations and trends compared against site-specific background estimates. Monitoring well concentrations and trends for arsenic, barium, and manganese do not indicate that mobilized metals from perched groundwater are impacting the Ogallala Aquifer.

1.2.2 Organic Contaminants

Five site COCs were detected in Ogallala wells during the Third FYR period. Detected COCs included 4-amino, 2,6-dinitrotoluene (DNT4A), 1,2-dichloroethane (DCA12), 1,4-dioxane, perchlorate, and RDX. Perchlorate was the most widely detected COC in the Ogallala well network with 23 wells with detections. Of the 23 wells with detected perchlorate, three monitoring wells had a single sampling event in which concentrations exceeded background levels of 0.96 µg/L.

Perchlorate detections in the Ogallala may be related to land use changes in the surrounding region rather than Pantex Plant activities. Land use changes from natural grasslands in the southern high plains to rainfed agriculture can cause increased drainage and recharge of those areas. Increased recharge from cultivation causes naturally accumulated perchlorate in unsaturated soils to be mobilized downward to the Ogallala Aquifer (Scanlon et al., 2008). Concentrations of perchlorate in groundwater are predicted to increase in the southern high plains from continued mobilization of perchlorate reservoirs beneath agricultural ecosystems.

Both DNT4A, a breakdown product of the high explosive 2,4,6-trinitrotoluene (TNT), and DCA12 were consistently detected and with *increasing* concentration trends in PTX06-1056 throughout the FYR period. Two wells, PTX06-1068 and PTX07-1R01, had a detection of 1,4-dioxane in 2017; however, all subsequent samples were nondetect, including a validation sample in PTX06-1068. RDX was detected in a single well, PTX07-1R01, in 2020 at an estimated level below the detection limit of 0.256 µg/L. The subsequent sample at PTX07-1R01 in 2021 was nondetect for RDX. All COCs detected in the Ogallala Aquifer were below GWPS during the FYR period. In 2022, DNT4A was detected in PTX06-1056 just over the GWPS of 1.2 µg/L.

Pantex has fully implemented conditions specified in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (B&W Pantex, 2009b; CNS, 2019b) and has proactively evaluated potential sources for contamination at PTX06-1056. A nearby perched well (PTX06-1108) that was drilled in 1996 deeply into the FGZ in an area of limited perched saturation was plugged to address the potential for that well to act as a conduit through the FGZ. A high-volume purge/time-series sampling event was conducted in August 2022 at PTX06-1056. Results indicated that concentrations of DNT4A dropped off rapidly during the test, indicating that PTX06-1056 is near the edge of any contamination (CERCLA 5-Year Review Site Inspection, September 2022).

The detection of DNT4A exceeding the GWPS triggers actions in the contingency plan to determine the source of contamination and establish response actions. Additional Ogallala Aquifer monitoring wells are planned to be installed to determine the extent of contamination within the Ogallala Aquifer (CNS, 2022). Monitoring wells should be installed in areas without perched zone saturation to limit the potential for contamination being drawn through the FGZ during well construction.

1.3 LTM Well Sampling

Recommendations for LTM improvements from the First and Second FYRs were incorporated in the *Update to the Long-Term Monitoring System Design Report* (CNS Pantex, 2019a). The Ogallala Aquifer LTM network was evaluated qualitatively to formulate recommendations for updating the LTM network.

Recommendations included reducing the sampling frequency in four wells along the northern Pantex Plant boundary, removing 5-year Appendix IX sampling from four wells in areas located away from soil source areas or not overlain by perched groundwater, and removing two wells from the LTM network that were previously plugged and abandoned with regulatory approval.

2 Summary and Recommendations

No changes are needed to the current Ogallala Aquifer LTM network in terms of sampling frequency. Additional locations should be added to the network in the area of PTX06-1056 and upgradient (southwest of the Southeast ISB) to delineate DNT4A within the Ogallala Aquifer and to identify the location(s) where contamination is migrating downward. Numerical modeling performed to support the Baseline Human Health Risk Assessment in 2005 recognizes the potential for migration of contaminants from perched groundwater to the Ogallala Aquifer (BWXT Pantex/SAIC, 2005). This modeling predicted that breakthrough was first expected near the location of plugged and abandoned well PTX06-1054 (approximately 3,000 feet upgradient of PTX06-1056) followed by slow plume movement to the northeast. This modeling was performed with conservative assumptions without perched groundwater remediation (i.e., the SEPTS and SEISB) and without the consideration of possible degradation of HEs. Uncertainty simulations performed as part of the modeling bounded the maximum predicted concentration of RDX in the Ogallala Aquifer with and without degradation. Under both scenarios, some HEs were expected to reach the area of PTX06-1056, so detections of HEs in this area is not unexpected (BWXT Pantex/SAIC, 2005).

3 References

BWXT Pantex and SAIC, 2005. *Baseline Human Health Risk Assessment Report for Zones 10, 11, and 12, Fire Training Area, Ditches and Playas, and Independent Sites Groundwater, Pantex Plant, Amarillo, Texas*, BWXT Pantex and SAIC for the U.S. Department of Energy and National Nuclear Security Administration.

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Scanlon, B.R., R.C. Reedy, W.A. Jackson, and B. Rao, 2008. "Mobilization of naturally occurring perchlorate related to land-use change in the southern High Plains", Texas. *Environmental Science and Technology, 42* (23): 8648-8653.

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Attachment 13

Groundwater Data Evaluation Third Five-Year Review

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Table of Contents

List of Tables

List of Figures

1 Perched Groundwater Uncertainty Management/Early Detection Data Evaluation for the Five-Year Review

Early detection and uncertainty management wells were proposed in the LTM Design Report (B&W Pantex, 2009a). The purpose of uncertainty management wells in the perched groundwater and Ogallala Aquifer is to confirm expected low, background, or nondetect concentrations identified in the Resource Conservation and Recovery Act (RCRA) Facility Investigations. Additionally, uncertainty management wells ensure that there are no deviations from expected conditions, fill potential data gaps, and fulfill long term monitoring (LTM) requirements for soil units evaluated in the baseline risk assessment. The purpose of early detection wells is to monitor for breakthrough of contaminants of concern (COCs) to the Ogallala Aquifer from the overlying affected strata before potential points of exposure have been impacted. LTM wells are sampled according to periodic updates to the original, approved Sampling and Analysis Plan (SAP) (B&W Pantex, 2009b; CNS, 2019a).

This Attachment focuses on the following two subsets of the uncertainty management/early detection wells:

1. Group 1: Locations where contaminant concentrations have not been detected or confirmed, or locations where concentrations identified in previous investigations have fallen below groundwater protection standards (GWPS), practical quantitation limits (PQLs) (e.g., Burning Ground [BG] and Old Sewage Treatment Plant areas), or are within background ranges. Group 1 wells are typically Ogallala Aquifer monitoring wells, although some perched groundwater wells are in areas where there are no active groundwater remedial actions and limited historical industrial use. These wells are evaluated in the quarterly progress reports produced from 2017 through 2021 with results summarized in the Third Five-Year Review (FYR).
2. Group 2: Uncertainty management wells located near groundwater contamination source areas. These wells are evaluated to assess whether combined remedial actions are producing the expected result and confirm that source strength and mass flux are decreasing over time. Every 5 years, these wells also are evaluated for contaminants not specified in the Record of Decision (ROD), new constituents of potential concern (COPCs), or "to be considered" contaminants associated with historical industrial activities.

For this evaluation, indicator parameters, consisting of widespread or high-concentration site COCs, are evaluated for uncertainty management and early detection monitoring for the Third FYR. Sampling data for naturally occurring constituents are screened against background concentrations previously developed for Pantex. The data also are evaluated with respect to the laboratory PQLs and the GWPS in the SAP to provide an understanding of whether there is a threat of endangerment to human health or the Ogallala Aquifer. **Figure 1** depicts the wells used in this evaluation. Additionally, because the evaluation of uncertainty management and early detection well types is similar, they will be evaluated together for unexpected conditions in the sections below.

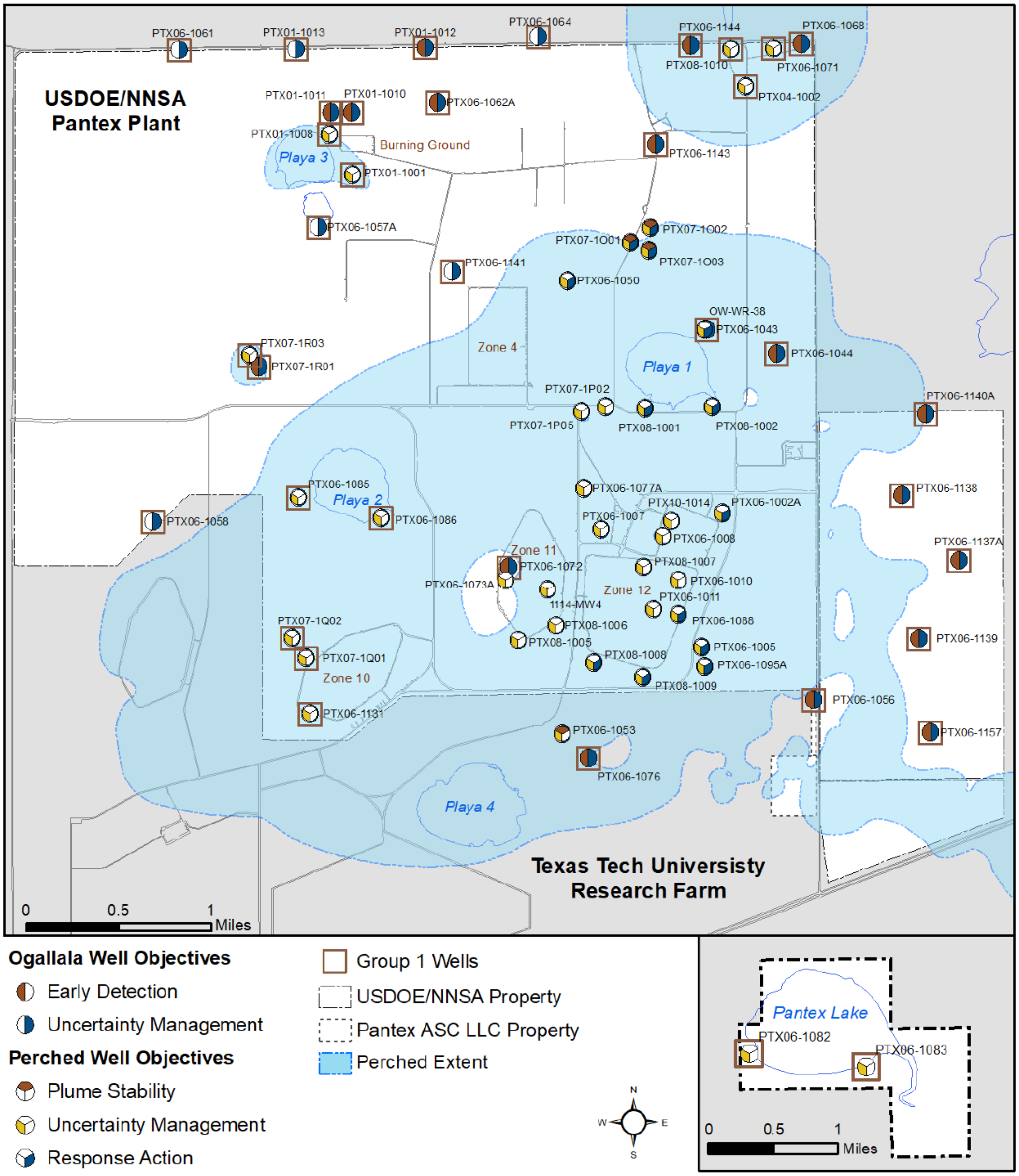

Figure 1. Uncertainty Management/Early Detection Well Network

1.1 Group 1 Wells

Group 1 wells include 37 locations, 13 perched unit monitoring wells and 24 Ogallala Aquifer monitoring wells, in areas where concentrations of COCs are low or were not detected during earlier site investigations. **Table 1** provides a summary of indicator COC detections during the FYR period that are considered to be unexpected conditions in Group 1 perched groundwater wells. The table includes comparisons of the detections to naturally occurring background concentrations (where applicable), the laboratory PQL, and the GWPS provided in the approved SAP. Sample results below the PQL (laboratory 'J' flagged data) are not included in **Table 1**. Refer to the respective *Annual Progress Reports* (2017 through 2021) for a complete comparison of Group 1 detections, including flagged results. Unexpected conditions during the FYR period include the following:

- PTX06-1085, located southwest of Playa 2, had a first low-level detection of hexavalent chromium (Cr(VI)) in 2021 (0.146 μg/L). Previous samples were nondetect for Cr(VI), but the detection limit for the most recent sample was significantly lower (0.02 μg/L) than for previous samples (10 to 15 μg/L), which may have resulted in nondetect results for low-level Cr(VI) concentrations. The Cr(VI) detection was below the background concentration of 3.2 μg/L.
- PTX06-1131, located at the southwest boundary of Zone 10, had a first detection of Cr(VI) in 2021 (2.51 μg/L). Previous samples were nondetect for Cr(VI), but the detection limit for the most recent sample was significantly lower (0.02 μg/L) than for previous samples (10 to 15 μg/L), which may have resulted in nondetect results for low-level Cr(VI) concentrations. The Cr(VI) detection was below the background concentration of 3.2 μg/L. PTX06-1131 also had a third detection of total Cr, which has been steadily increasing (but remains below the GWPS of 100 μg/L) from 22.6 μg/L in 2011 to 61.5 μg/L in 2021. Increasing concentrations of total Cr may be the result of corrosion of the stainless steel screen in PTX06-1131.
- PTX07-1Q01, located adjacent to the western boundary of Zone 10, had a first detection of DNT4A (0.559 μg/L) above the detection limit of 0.259 μg/L. Nearby monitoring well PTX07-1Q02 had a single detection of DNT4A in 2007 of 1.285 μg/L. These wells will continue to be monitored annually to trend the concentrations and evaluate responses with respect to the Groundwater Contingency Plan.

1.2 Group 2 Wells

COC trends were calculated for four time frames for all Group 2 wells. Trends for the full dataset for each well, for the time since the start of remedial actions (2009 through 2021), for the current FYR period (2017 through 2021), and for the last four sampling events were calculated using both Linear Regression (LR) and Mann-Kendall (MK) trending methods. The full dataset for each well includes all sample results collected between 1992 and 2021. For wells installed after 1992, the dataset includes data from the date of the first sample through 2021 Trend (MK and LR) analyses are summarized in tables in **Attachment 9** of the FYR, with details of trend calculations in **Attachment 6** of the FYR. Trends reported in **Table 2** for unexpected conditions use the MK method for data collected since the start of remedial actions. The MK trend evaluation is appropriate for datasets that show no distinct data distribution. This review only included wells sampled at least once during the current FYR period.

Table 2 summarizes data from wells where MK statistical trend results using data since the start of remedial actions for each well did not meet expected conditions for at least one COC as defined in the *Update to the LTM Design Report* (CNS Pantex, 2019b). Trends for other priority COCs are shown in the table for comparison.

Of the 25 Group 2 wells, 16 exhibit overall long-term *increasing* or *probably increasing* trends for some COCs when the expected condition is a decreasing or stable trend. Many of the expected conditions described in the *Update to the LTM Design Rep*ort refer to long-term stabilization of concentrations or long-term decreasing trends. A certain level of variability is expected over short-term trend evaluations such as those for the FYR or the most recent four sampling results. Therefore, "unexpected conditions" are evaluated by reviewing trends for the dataset of concentrations collected since the start of remedial actions (2009 through 2021) for each well.

Unexpected conditions for COCs exceeding GWPS are identified in **Table 2** and consist of the following:

- 1114-MW4, located in eastern Zone 11, has observed *probably increasing* trends of perchlorate since the start of remedial actions. Over the current FYR period, perchlorate has a *decreasing* trend; however, trichloroethene (TCE) has an *increasing* trend over the current FYR period. Changing trends in perchlorate and TCE may be a result of shifting groundwater flow directions that have drawn these COCs further east.
- OW-WR-38, located northeast of Playa 1, has an *increasing* trend of RDX since the start of remedial actions. The *increasing* trend of RDX is a likely result of changes in Playa 1 Pump and Treat System (P1PTS) operation over the current FYR period. When considering all available RDX data between 1992 and 2021, there is no trend in the data.
- PTX06-1005, located just east of the Zone 12 industrial area, has *increasing* trends for TCE and tetrachloroethene (PCE) since the start of remedial actions. During the current FYR period, TCE and PCE had *stable* and *probably decreasing* trends, respectively.
- PTX06-1007, located just north of the Zone 12 industrial area, has *increasing* trends for RDX since the start of remedial actions. During the current FYR period, RDX had no trend. Perchlorate and 4-amino, 2,6-dinitrotoluene (DNT4A) are above GWPS, and during the previous FYR, the trend for perchlorate was *increasing*. The trend for perchlorate has since switched to decreasing and the trend for DNT4A was *decreasing* but has since changed to no trend.
- PTX06-1008, located in the Zone 12 North industrial area, has *increasing* trends of 1,2-dichloroethane (DCA12) and chloroform since the start of remedial actions. During the current FYR period, chloroform and DCA12 both exhibited no trend. Chloroform has had only a single exceedance of the GWPS of 80 μg/L in July 2020 (91.4 μg/L), followed by a lower concentration of 59 μg/L in May 2021. The GWPS exceedances and long-term increasing trends are not expected at this location and may indicate some ongoing sources of DCA12 and chloroform.
- PTX06-1011, located in the eastern Zone 12 industrial area, has an *increasing* trend of Cr(VI) since the start of remedial actions. The Cr(VI) concentration has remained below the GWPS of 100 μg/L, but the concentration is currently greater than half the GWPS (54.625 μg/L in May

2021). The Cr(VI) trend during the current FYR period is *stable*. PTX06-1011 has a history of well screen corrosion and has not been rehabilitated since 2013. The well is currently scheduled for rehabilitation within the next two to three years.

- PTX06-1095A, located southeast of the Zone 12 industrial area, has *increasing* trends of 1,3,5-trinitrobenzene (TNB135) and PCE with a *probably increasing* trend of 2-amino-4,6-dinitrotoluene (DNT2A) since the start of remedial actions. During the current FYR period, TNB135, PCE, and DNT2A all had *decreasing* or *stable* trends. PTX06-1095A is installed within the Southeast Pump and Treat System (SEPTS) and downgradient of the sodium dithionate permeable reactive barrier (PRB) pilot study area. Longer term *increasing* trends may be the result of declining treatment effectiveness over time of the PRB pilot study, and recent *decreasing* trends indicate that the expected declining concentrations are now occurring.
- PTX07-1O03, located north of Playa 1 near the northern extent of perched saturation, has an *increasing* trend of RDX since the start of remedial actions. During the current FYR period, the trend for RDX was *stable* between 46 μg/L and 34 μg/L and may indicate the RDX concentrations have stagnated near the northern extent of saturation.
- PTX07-1P02, located just southwest of Playa 1, has an *increasing* trend of RDX since the start of remedial actions. During the current FYR period, the trend for RDX is also *increasing*. RDX concentrations may be responding to rising water levels around Playa 1 since 2015 resulting from higher-than-average precipitation, decreased P1PTS operation, and treated water discharges to Playa 1.
- PTX08-1006, located just southeast of Zone 11, has *increasing* trends of DNT2A and TCE since the start of remedial actions. During the current FYR period, the trend for DNT2A was *increasing* and the trend for TCE was stable. Concentrations for TCE have been variable during the current FYR period with concentrations about two times higher in March and August 2021 than historically observed. Variability in TCE concentrations may be the result of plume movement from source areas and shifting groundwater flow directions caused by the SEPTS. Groundwater from this area will either be treated by the Zone 11 in situ bioremediation (ISB) or captured by the SEPTS.
- PTX08-1007, located in the northern Zone 12 industrial area, has an *increasing* trend for DCA12 and a *probably increasing* trend for 1,4-dioxane since the start of remedial actions. During the current FYR period, trends for both DCA12 and 1,4-dioxane were *increasing*. Concentrations have increased dramatically for both DCA12 and 1,4-dioxane during the current FYR period. Concentrations of chloroform, 1,4-dioxane, and 1,2-DCA are associated with a soil gas plume from SWMU 136 and the increasing trends may be linked to the repair of several major water leaks in Zone 12 in recent years. The previously leaking water from the surface may have diluted VOC concentrations in groundwater beneath Zone 12.
- PTX08-1008, located just south of the Zone 12 industrial area, has *increasing* trends for DNT4A, perchlorate, TCE, PCE, and 1,4-dioxane since the start of remedial actions. During the current FYR period, only perchlorate had a *decreasing* trend, while DNT4A, PCE, TCE, and 1,4-

dioxane had *increasing* trends. *Increasing* trends are likely caused by groundwater flow directions shifting more to the east as a result of the SEPTS operation. Similarly, the recent *decreasing* trend for perchlorate may also be caused by this shift in groundwater flow directions as the historical perchlorate plume centerline was further east than other COCs and it will shift east of PTX08-1008 before DNT4A, PCE, TCE, or 1,4-dioxane will.

1.3 Additional Data Evaluation

1.3.1 Evaluation of Appendix IX Analyte Concentrations

Table 3 summarizes all detections of analytes above the laboratory PQL that are not considered to be indicator parameters but were analyzed in 2021 as part of the comprehensive sampling event in support of the Third FYR (Appendix IX analytes). Additional discussion of these detections is presented below. Note that several wells had detections of metals considered to be corrosion indicators (nickel and manganese), and these are not specifically included in this discussion.

- Six wells had detections of trichlorofluoromethane (Freon-11) above the PQL of 1 μg/L, but below the GWPS of 10,950 μg/L. The maximum detected concentration was 14.1 μg/L in PTX08-1007. Several of these wells (1114-MW4, PTX06-1008, and PTX06-1011) have had similar historical detections.
- Six wells had detections of 1,1-dichloroethene (1,1-DCE), a potential breakdown product of TCE and 1,1,1-trichloroethane, above the PQL of 1 μg/L and below the GWPS of 7 μg/L. One of three samples from PTX06-1155 exceeded the GWPS with a concentration of 7.04 μg/L. This sample was lab qualified as "D," indicating that dilution of the sample occurred that resulted in higher sample PQLs.
- One well, PTX08-1006, had a detection of 1,1,2-trichloroethane above the PQL of 1 μg/L and below the GWPS of 5 μg/L.

1.3.2 Modified Appendix IX Indicator Parameters

In addition to the nonindicator parameters, there are a few analytes that are considered to be indicator parameters. These indicator parameters are not sampled for sitewide, but they are included in the modified Appendix IX list. In other words, these COCs are not sampled for regularly in wells far from specific sources, but they are sampled for as part of the FYR. **Table 4** presents the results of indicator parameter analyses both for wells that are sampled once every 5 years and for wells that are not near sources but are monitored regularly. The analytes include the following:

- Perchlorate,
- 1,4-Dioxane,
- Chloroform, and
- Hexavalent chromium.

As summarized in **Table 4**, there were no detections above GWPS at these wells. PTX06-1005 had the highest detections of 1,4-dioxane (2.64 μg/L), chloroform (4.89 μg/L), and Cr(VI) (45.143 μg/L). PTX06-1005 is located east of the Zone 12 industrial area, where RDX is the priority COC, and is upgradient of the SEPTS. Chloroform concentrations in PTX06-1005 have increased since the last FYR period from below the PQL of 1 μg/L to about 7 μg/L in 2019. PTX06-1005 has also had fluctuating detections of 1,4-dioxane approaching the GWPS of 7.7 μg/L, possibly caused by the influence of the SEPTS on the groundwater divide in this area evidenced by the perchlorate plume migrating into western SEPTS extraction wells. Analyses of indicator parameters not associated with Zone 12 sources have been added to the analyte list for this well to evaluate the influence of the SEPTS on potential movement of the groundwater flow divide.

1,4-dioxane was detected in PTX04-1002 (2.64 μg/L) above the PQL and below the GWPS. Historical results indicate sporadic detections of 1,4-dioxane at PTX04-1001 and PTX04-1002, always at levels below the GWPS.

Hexavalent chromium was detected at multiple wells below the background concentration of 3.2 μg/L. Well PTX06-1071, that had a Cr(VI) detection of 27.6 μg/L in 2016 using the less reliable colorimetric method SW7196A declined to 1.039 μg/L in 2021 using the more precise ion chromatography method E218.7.

1.3.3 Trending of Appendix IX Analytes

Concentration trends also were evaluated for all Appendix IX analytes detected in uncertainty management/early detection wells to determine whether there may be emerging COCs or whether unexpected plumes are moving from the soil management areas. All calculated trends are summarized in **Attachment 9**, with details of the trend analyses presented in **Attachment 6**.

1.3.3.1 Appendix IX VOC Trends

All Appendix IX volatile organic compounds (VOCs) were evaluated for *increasing* or *probably increasing* trends in perched unit monitoring wells. Trends discussed below are for VOCs not identified in the ROD or as degradation products of ROD-selected COCs. A discussion of wells with increasing trends for unexpected Appendix IX VOC analytes for the full dataset (1992 through 2021) is provided below.

- 1114-MW4 has an *increasing* trend of Freon 11. Freon 11 concentrations have decreased in the two samples since 2011.
- PTX06-1005, PTX08-1006, and PTX08-1009 had *increasing* trends for methylene chloride. Trends for each of these wells can be attributed to increasing detection limits and the way nondetect values are handled, rather than trends in the measured values.

1.3.3.2 Appendix IX Metals Trends

Concentration trends also were evaluated for select metals in perched unit wells. In the past, all metals considered to be corrosion indictors were screened out because increasing trends were most likely caused by stainless steel screen corrosion. Metals data from ISB in situ performance monitoring wells downgradient of the ISB remedies also were screened out because of the likely mobilization of the metals arsenic, barium, and manganese in the treatment zones. In addition, Cr and Cr(VI) are ROD-identified COCs and are not included for analysis here. Calculated trend data for chromium species; secondary metals arsenic, barium, and manganese; and the corrosion-related metal nickel are presented in **Attachment 9**. All other metals with *increasing* or *probably increasing* trends over the full dataset (1992 through 2021) are summarized in **Table 5**.

As shown in **Table 5**, all of the current and historical metals detections in wells with increasing trends are below site-specific background concentrations. Because all Appendix IX metals detections are within the range of natural occurrence in perched groundwater, none of the trends represent new or migrating contamination resulting from site industrial activities. Increasing trends can arise because of either changing laboratory detection limits or statistical artifacts[1].

1.3.3.3 Radiological Data Trends

Mann-Kendall concentration trends for the full historical dataset (1992 through 2021) for the radiological parameters total uranium, uranium-238, uranium-233/234, and uranium-235/236 were reviewed. Perched groundwater wells with *increasing* or *probably increasing* trends that were sampled during the current FYR period are included in **Table 6**.

As depicted in **Table 6**, the detected concentrations of these parameters in all current monitoring wells exhibiting increasing trends have been below or very near the site-specific background levels. PTX10-1014 had a 2021 uranium-238 concentration of 3.1 picocuries per liter (pCi/L) compared to the background concentration of 2.7 pCi/L. Uranium-238 concentrations at PTX10-1014 have been fairly consistent between 2.6 pCi/L and 3.5 pCi/L between 1995 and 2021 with no trend indicated.

2 Ogallala Aquifer Data Evaluation for the FYR

Pantex completed an evaluation of the Ogallala Aquifer monitoring data as part of the Third FYR. This evaluation included the following:

- Calculating short- and long-term trends for all Pantex COCs, as well as for the modified Appendix IX analytes defined in the Compliance Plan; and
- Comparing all Ogallala Aquifer data to site-specific background and GWPS levels, where applicable.

All Ogallala Aquifer wells—all uncertainty management/early detection wells and wells along the western side of Pantex that provide an understanding of water quality coming onto Pantex Plant—were evaluated. The locations of these wells are depicted on **Figure 1**.

[1] Statistical trend methods typically substitute one-half the detection limit for nondetect values. Variable detection limits in a dataset with a high percentage of nondetect results can introduce "false" trends when values for nondetects vary and the calculation method interprets them as changing concentrations. Detection limits for chromium and other metal analyses have changed over time and appear to have introduced artificial trends at several locations (Helsel, D. R. (2005). Nondetects and Data Analysis. Hoboken, NJ, Wiley).

2.1 Short-Term Trends in Ogallala Aquifer Wells

Mann-Kendall trends for Appendix IX analytes and COCs were calculated for the current FYR period for all Ogallala Aquifer wells in the LTM network. Trending results for Ogallala Aquifer wells are summarized in **Attachment 9**, with detailed trend data provided in **Attachment 6**. **Table 7** summarizes the Ogallala Aquifer wells that exhibited *increasing* or *probably increasing* Mann-Kendall trends for the current FYR period (2017 through 2021). Pantex considered the sampling results from the Third FYR period when calculating these short-term trends, as these data would represent the first indication of breakthrough from the perched groundwater. All *increasing* or *probably increasing* trends were identified for naturally occurring metals, except for detections of DNT4A and DCA12 at PTX06-1056.

Each trend where measured concentrations within the current FYR period exceeded background levels is discussed in the paragraphs below.

<u>PTX06-1044</u>

The concentration trend for boron was *probably increasing* during the current FYR period, and was *increasing* for all available data (1999 through 2021). Concentrations of boron in PTX06-1044 were only slightly above the background concentration of 193.9 µg/L with a maximum observed concentration of 232 µg/L on 4/29/2021.

<u>PTX06-1056</u>

Concentration trends for DNT4A, DCA12, Cr(VI), and vanadium were *increasing* during the current FYR period, and the concentration trend for arsenic was *probably increasing* during the current FYR period. Concentration trends for all available data (2001 through 2021) were *increasing* for DNT4A, DCA12, and arsenic. Cr(VI) had a *decreasing* trend between 2001 and 2021, and vanadium had no trend. Concentrations of Cr(VI) have recently exceeded the background concentration of 3.2 µg/L.

Increasing concentrations in PTX06-1056 indicate that site-related constituents from the perched groundwater have moved into the Ogallala Aquifer upgradient (southwest) of PTX06-1056. Specifically, concentrations of DNT4A, a breakdown product of TNT and with a similar release history as RDX from Building 12-24, the source of the plume near the SEISB, migrates more rapidly in groundwater and has been indicative of the eventual arrival of RDX in perched groundwater.

Pantex has fully implemented conditions specified in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (CNS, 2019c) and has proactively evaluated potential sources for contamination at PTX06-1056. A nearby perched well (PTX06-1108) that was drilled in 1996 deeply into the FGZ in an area of limited perched saturation was plugged to address the potential for that well to act as a conduit through the FGZ. A high-volume purge/time-series sampling event was conducted in August 2022 in PTX06-1056. Results indicated that concentrations of DNT4A dropped off rapidly during the test, indicating that PTX06-1056 is near the edge of any contamination (CERCLA 5-Year Review Site Inspection, September 2022).

The detection of DNT4A exceeding the GWPS triggers actions in the contingency plan to determine the source of contamination and implement response actions. Additional Ogallala Aquifer monitoring wells are planned to be installed to determine the extent of contamination within the Ogallala Aquifer (CNS Pantex, 2022). Monitoring wells should be installed in areas without perched zone saturation to limit the potential for contamination to be drawn through the FGZ during well construction.

2.2 Long-Term Trends in Ogallala Aquifer Wells

Long-term Mann-Kendall trends were calculated for all Ogallala Aquifer wells in the LTM network using the full sampling dataset for each well (1995 through 2021). A summary of calculated trends is included in **Attachment 9**, with details of trend calculations in **Attachment 6**. **Table 8** summarizes the Ogallala Aquifer wells that exhibited *increasing* or *probably increasing* long-term trends for the full Ogallala dataset for each well from 1995 through 2021. As depicted in **Table 8**, there were *increasing* or *probably increasing* trends for metals concentrations in 23 wells and one *increasing* trend for DNT4A and DCA12 at one location (PTX06-1056). Each trend where concentration exceeded background levels during the current FYR period is discussed in the paragraphs below.

Several wells in the Ogallala Aquifer appear to have increasing or variable long-term trends for chromium. These trends may be artifacts of changing analytical methods with different detection limits. Potential artificial trend generation caused by the trend analysis method is discussed in Footnote 1 in Section 1.3.3.2.

PTX06-1043

Long-term concentration trends for arsenic, barium, total chromium, and vanadium were *increasing* between 1999 and 2021. The long-term concentration trend for boron was *probably increasing*. Only boron had detections slightly exceeding the background concentration of 193.9 µg/L during the current FYR period, with concentrations fluctuating between 166 µg/L and 210 µg/L. The current FYR period trend for boron was stable.

PTX06-1044

Long-term concentration trends for arsenic, boron, and vanadium were *increasing* between 1999 and 2021. Only concentrations of boron exceeded the background concentration of 193.9 µg/L during the current FYR period with a maximum observed concentration of 232 µg/L on 4/29/2021.

PTX06-1056

Long-term concentration trends for arsenic, barium, total chromium, DCA12, and DNT4A were *increasing* between 2001 and 2021, and the long-term concentration trend for molybdenum was *probably increasing* between 2001 and 2021. There is no established background concentration for DCA12 or DNT4A, so recent *increasing* concentrations indicate that site-related constituents from the perched groundwater have moved into the Ogallala Aquifer upgradient (southwest) of PTX06-1056. Specifically, concentrations of DNT4A, a breakdown product of TNT and with a release history that predates most other site COCs, are indicative of the movement of HE plumes.

As discussed in Section 2.1, Pantex has fully implemented conditions specified in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (CNS, 2019c) and has proactively evaluated potential sources for contamination at PTX06-1056.

Concentrations of other constituents with long-term *increasing* or *probably increasing* trends are below background levels and generally estimated below the detection limit at PTX06-1056.

PTX06-1058

Long-term concentration trends for total chromium and iron were *increasing* between 2001 and 2021. The concentration of total chromium exceeded the background level of 31.8 μg/L in 2008. The background exceedance is an isolated event with subsequent samples below the background level. There is no established background concentration for iron, so concentrations exceeding the detection limit of 100 μg/L indicate unexpected conditions. Iron is not a site-related COC, and total chromium concentrations have since dropped below background levels. PTX06-1058 is located in an area of limited perched saturation and in an area of no site-related COCs exceeding GWPS in the perched groundwater.

PTX06-1140

Long-term concentration trends for arsenic and barium were *increasing* between 2010 and 2021, and long-term concentration trends for boron, total chromium, and vanadium were *probably increasing* between 2010 and 2021. The concentration of boron has recently exceeded background levels of 193.9 μg/L, but concentrations have been fluctuating around the background with no trend indicated in the current FYR period. Recent background exceedances in PTX06-1140 are likely related to natural variation in the background concentration.

PTX06-1144

Long-term concentration trends for arsenic and boron were *increasing* between 2009 and 2021. The concentration of boron has recently exceeded background levels of 193.9 μg/L, but concentrations have been fluctuating around the background with no trend indicated in the current FYR period. Recent background exceedances in PTX06-1144 are likely related to natural variation in the background concentration.

PTX06-1157

Long-term concentration trends for boron, total chromium, and vanadium were *increasing* between 2010 and 2021, and long-term concentration trends for arsenic were *probably increasing* between 2011 and 2021. The concentration of boron has recently exceeded background levels of 193.9 μg/L, but concentrations have been fluctuating around the background with no trend indicated in the current FYR period. Recent background exceedances in PTX06-1157 are likely related to natural variation in the background concentration.

2.3 Organic/Perchlorate Detections in Ogallala Aquifer Wells During Current FYR

All validated Ogallala Aquifer well data was reviewed for any organic/perchlorate compounds detected during the current FYR period (2017 through 2021). The following discussion summarizes all detections during this period.

- RDX was detected in wells PTX01-1011 and PTX07-1R01 at concentrations below the PQL (J flagged). Each of the detections was a single event and did not represent a trend. A recent 2022 detection of RDX occurred in PTX06-1157 above the PQL. DNT4A, typically the first HE to be detected in monitoring wells, was not detected in PTX06-1157. Continued sampling and verification at this well is ongoing.
- DNT4A was detected in wells PTX06-1056 and PTX06-1076. Detections in PTX06-1056 have been consistently above the PQL and increasing. A 2022 sample exceeded the GWPS. As discussed in Sections 2.1 and 2.2, Pantex has fully implemented conditions specified in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (CNS, 2019c) and has proactively evaluated potential sources for contamination at PTX06-1056. Detections of DNT4A in PTX06-1076 have been below the PQL (J flagged).
- DCA12 has been detected in wells PTX06-1056, PTX06-1139, and PTX06-1157. Detections at PTX06-1056 have been consistently above the PQL and increasing. Detections in both PTX06-1139 and PTX06-1157 were below the PQL (J flagged), and detections in both wells were a single event that did not represent a trend.
- 1,4-Dioxane was detected in wells PTX06-1068, PTX06-1141, and PTX07-1R01. Each of the detections was a single event and did not represent a trend. Detections for PTX06-1141 and PTX07-1R01 were below the PQL (J flagged). The detection at PTX06-1068 was just above the PQL, and subsequent sampling events have been nondetect.
- Perchlorate has been detected in wells PTX01-1010, PTX01-1011, PTX01-1012, PTX01-1013, PTX06-1043, PTX06-1044, PTX06-1057A, PTX06-1058, PTX06-1059, PTX06-1060, PTX06-1061, PTX06-1062A, PTX06-1064, PTX06-1072, PTX06-1074, PTX06-1075, PTX06-1076, PTX06-1141, PTX06-1143, PTX06-1144, and PTX07-1R01. With the exception of a single event in PTX01-1012, all detections were below the PQL (J flagged) and at or very near the background level of 0.96 μg/L.

Note that none of these COCs were detected above their respective GWPS during the current FYR period; however, DNT4A was detected above the GWPS in 2022 in well PTX06-1056.

2.4 Metals Detections in Ogallala Aquifer Wells

All validated Ogallala Aquifer well data was reviewed during the current FYR period (2017 through 2021). For metals, the detections were first compared to their site-specific background concentrations, if applicable. The concentrations were then compared to their GWPSs, if applicable. Metals background exceedances include the following:

- The site-specific background concentration for boron (193.9 μg/L) was exceeded in numerous cases (see Sections 2.1 and 2.2). These detections are thought to be caused by the geochemical variability of boron rather than by a breakthrough of boron from the perched groundwater. In addition, some of the deeper wells may extend into the deeper Dockum Formation, which may be influencing boron concentrations. As more boron data is collected, refinement of the site-specific boron background estimation may be pursued to encompass the greater variability seen in Ogallala wells.
- The site-specific background manganese concentration (16 μg/L) was exceeded in three wells. Manganese concentrations appear to be affected by sample turbidity or stainless steel screen corrosion.
- Hexavalent chromium exceeded the site-specific background concentration of 3.2 μg/L in six wells with one of those wells also exceeding the site-specific background concentration for total chromium (31.8 μg/L). Hexavalent chromium concentrations were generally around the background concentration, with the exception of a single event at PTX06-1138 which had a much higher detection limit resulting from dilution (2 μg/L compared to 0.2 μg/L). Subsequent samples in PTX06-1138 had concentrations below the background level.
- The site-specific background nickel concentration (15 μg/L) was exceeded in two wells likely affected by stainless steel screen corrosion.

No metals were detected above their respective GWPSs during the current FYR period.

3 Radiological Data Review

Radiological data collected as part of the FYR process is included in the modified Appendix IX list. These COCs include total uranium (U) and the uranium isotopes U-234, U-235, and U-238. **Table 9** summarizes the perched and Ogallala Aquifer samples that contained these COCs at levels that exceeded background levels in 2021. One Ogallala Aquifer and two perched groundwater wells had detections of at least one of the uranium isotopes that exceeded the corresponding background level. Based on a review of these radiological data, the exceedances are not thought to be indicative of depleted uranium for the following reasons:

- Considering a minimum uncertainty of 10 percent and the measured error counts in each of the isotopic results, the uncertainty range includes background values for most exceedances.
- Measured results are consistent with past data collected from the same location, all of which was evaluated as part of the 2004 Radiological Investigation Report and determined not to be indicative of a depleted uranium impact (BWXT Pantex, 2004).

Isotopic ratios of U-234 to U-238 calculated using the results of samples that included an exceedance are similar to the U-234 to U-238 ratio of the background values for the Ogallala Aquifer (particularly when radiological error is considered).

4 Summary and Recommendations

All perched groundwater uncertainty management/early detection data and Ogallala Aquifer data collected during the review period were evaluated. The following general statements summarize the Ogallala Aquifer data:

- Several Group 1 perched groundwater uncertainty management/early detection wells had unexpected conditions. PTX04-1002, located near Pratt Playa, had a detection of 1,4-dioxane above the PQL but below the GWPS. PTX06-1085 southwest of Playa 2 and PTX06-1131 southwest of the Zone 11 ISB each had a first detection of Cr(VI) above the PQL and below background levels. PTX06-1131 also had steadily increasing concentrations of total chromium with the most recent concentration exceeding background levels. Finally, PTX07-1Q01, located adjacent to Zone 10, had a first detection of DNT4A above the PQL. Sampling will continue at all uncertainty management and early detection wells in Group 1.
- Not all Group 2 perched groundwater uncertainty management/early detection wells are meeting expected long-term trends after 15 years of remedial actions. However, considering the scale and complexity of the site and remedial action components directed toward the downgradient plumes, this is not unexpected. Overall trend results for the current FYR period show continued decreasing or stabilizing trends and ongoing source depletion, supporting the conclusion that remedial actions are effective in reducing mass and mass flux in the perched unit. These trends will continue to be evaluated as additional data is collected.
- Ogallala monitoring well PTX06-1056 showed both short-term and long-term *increasing* concentrations of DNT4A and DCA12. DNT4A exceeded the GWPS in PTX06-1056 in 2022. Pantex has fully implemented conditions specified in the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (CNS, 2019c) and has proactively evaluated potential sources for contamination at PTX06-1056. A nearby perched well (PTX06-1108) that was drilled in 1996 deeply into the FGZ in an area of limited perched saturation was plugged to address the potential for that well to act as a conduit through the FGZ. Monitoring will continue at PTX06-1056 to evaluate concentrations relative to GWPSs and trends of COCs.
- Several Ogallala Aquifer wells had increasing trends in metals concentrations, but all metals except for boron and total chromium were below site-specific background levels, and no metals exceeded GWPSs.
- Boron concentrations continue to exceed site-specific background levels in many wells in both the perched groundwater and Ogallala aquifers, but these concentrations appear to be the result of natural variations. In addition, some of the deeper wells may extend into the Dockum Formation, which may be influencing boron concentrations in Ogallala monitoring wells. Current estimates of site-specific background levels for boron may not be representative of the variability in distinct locations. Background concentrations may be reevaluated after collection of more data.

5 References

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Table 1. Perched Groundwater Group 1 Wells with COC Detections

Well ID	Sample ID	Sample Date	Sample Type	Analyte	Measured Value (µg/L)	Detection Limit (µg/L)	Lab Qualifier	PTX Qualifier	Background (µg/L)	> Background?	PQL (µg/L)	>PQL?	GWPS (µg/L)	> GWPS	Expected Condition?	Explanation
PTX01-1001	20211025M00258	10/25/2021	N	Chromium, Hexavalent	0.257	0.02		J	3.2	N	0.02	Y	100	N	Y	This well has historically had near detection limit Cr(VI) detections.
PTX01-1008	20211025M00257	10/25/2021	N	Chromium, Hexavalent	0.152	0.02		J	3.2	N	0.02	Y	100	N	Y	This well has historically had near detection limit Cr(VI) detections.
PTX04-1002	20210721M00169	7/21/2021	N	1,4-Dioxane	2.64	1				NA	1	Y	7.7	N	Y	Consistently detected since 2005. Result below the GWPS.
PTX04-1002	20210721M00169	7/21/2021	N	Chromium, Hexavalent	3.011	0.02			3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX04-1002	20170712M00523 20180718M00150 20190724M00237 20210721M00169	7/12/2017 7/18/2018 7/24/2019 7/21/2021	N N N N	HMX	0.854 0.788 0.572 0.715	0.26 0.269 0.275 0.259		J- J 		NA	0.281	Y	360	N	Y	This well has historically had low-level intermittent high explosive and volatile organic compound detections.
PTX06-1071	20210720M00166	7/20/2021	N	Chromium, Hexavalent	1.039	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1082	20210720M00164	7/20/2021	N	Chromium, Hexavalent	0.565	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1083	20210720M00165	7/20/2021	N	Chromium, Hexavalent	0.996	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1085	20210728M00182	7/28/2021	N	Chromium, Hexavalent	0.146	0.02			3.2	N	0.02	Y	100	N	N	First detection.
PTX06-1086	20210804M00196	8/4/2021	N	Chromium, Hexavalent	0.111	0.02			3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX06-1131	20210426M00091	4/26/2021	N	Chromium, Hexavalent	2.51	0.02		J	3.2	N	0.02	Y	100	N	N	First detection. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX06-1131	20210426M00091	4/26/2021	N	Chromium, Total	61.5	10			31.8	Y	10	Y	100	N	N	Increasing concentrations in samples every 5 years.
PTX07-1Q01	20210727M00179	7/27/2021	N	Chromium, Hexavalent	0.907	0.02			3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX07-1Q01	20210727M00179	7/27/2021	N	DNT4A	0.559	0.259				NA	0.281	Y	1.2	N	N	First detection exceeding detection limits.

Table 1. Unexpected Perched Groundwater Group 1 Wells with COC Detections (continued)

Well ID	Sample ID	Sample Date	Sample Type	Analyte	Measured Value (µg/L)	Detection Limit (µg/L)	Lab Qualifier	PTX Qualifier	Background (µg/L)	> Background?	PQL (µg/L)	>PQL?	GWPS (µg/L)	> GWPS	Expected Condition?	Explanation
PTX07-1Q02	20210727M00180	7/27/2021	N	Chromium, Hexavalent	0.518	0.02			3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX07-1R03	20210810M00208	8/10/2021	N	Chromium, Hexavalent	0.699	0.02		J	3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX08-1010	20210721M00170	7/21/2021	N	Chromium, Hexavalent	0.444	0.02			3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.

Table 2. Group 2 Wells with Unexpected Trends

Well ID	COC Expected Condition - LTM Design	COC>GWPS	Mann-Kendall Trends - SSRA											
			RDX	TNT	DNT2A	DNT4A	TNB135	PERC	TCE	PCE	CR-6	DIOXANE14	DCA12	TCLME
1114-MW4	Long-term decreasing trend	PERC, TCE	N/A	ND	ND	Increasing	ND	Probably Increasing	No Trend	Stable	N/A	No Trend	Decreasing	Probably Increasing
OW-WR-38	Long-term stabilization of concentrations	RDX, TNX	Increasing	ND	N/A	N/A	ND	Not Analyzed	Increasing	ND	N/A	N/A	ND	ND
PTX06-1002A	Long-term stabilization of concentrations	RDX, TNX	Probably Decreasing	ND	No Trend	Stable	N/A	Not Analyzed	No Trend	N/A	Decreasing	N/A	Probably Increasing	ND
PTX06-1005	Long-term stabilization of concentrations	RDX, DNT2A, TNB135, TCE, PCE	Decreasing	Decreasing	Decreasing	Decreasing	No Trend	Not Analyzed	Increasing	Increasing	No Trend	Stable	Increasing	Increasing
PTX06-1007	Long-term decreasing trend	RDX, DNT4A, PERC	Increasing	ND	N/A	No Trend	ND	Decreasing	Probably Decreasing	ND	N/A	Probably Decreasing	ND	N/A
PTX06-1008	Long-term decreasing trend	DCA12, Chloroform	ND	ND	ND	Stable	ND	Stable	Stable	ND	Decreasing	N/A	Increasing	Increasing
PTX06-1010	Long-term decreasing trend	CR, CR-6	Decreasing	N/A	No Trend	Decreasing	ND	Not Analyzed	Increasing	No Trend	Decreasing	ND	No Trend	Increasing
PTX06-1011	Stable or decreasing trend below GWPS	TCE	No Trend	ND	N/A	N/A	N/A	Decreasing	No Trend	Stable	Increasing	Probably Decreasing	Increasing	Increasing
PTX06-1053	Stable or decreasing trend below GWPS	DNT2A	Probably Decreasing	ND	Increasing	Decreasing	ND	N/A	ND	ND	Decreasing	N/A	ND	ND
PTX06-1088	Long-term stabilization of concentrations	RDX, TCE, PCE, CR, CR-6	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Not Analyzed	Decreasing	No Trend	Stable	No Trend	No Trend	Increasing
PTX06-1095A	Long-term stabilization of concentrations	RDX, DNT2A, DNT4A, TNB135, TCE, PCE	Decreasing	Increasing	Probably Increasing	Decreasing	Increasing	Not Analyzed	No Trend	Increasing	Increasing	Probably Decreasing	Increasing	Increasing
PTX07-1O03	Long-term decreasing trend	RDX	Increasing	ND	Stable	ND	ND	Not Analyzed	No Trend	ND	N/A	N/A	ND	ND
PTX07-1P02	Stable or decreasing trend below GWPS	RDX, TNX	Increasing	ND	ND	ND	ND	N/A	ND	ND	N/A	Decreasing	ND	ND
PTX08-1006	Long-term decreasing trend	RDX, DNT2A, DNT4A, PERC, TCE	Decreasing	ND	Increasing	Decreasing	N/A	Decreasing	Increasing	Decreasing	N/A	Decreasing	Decreasing	Decreasing
PTX08-1007	Long-term decreasing trend	RDX, TCE, DIOXANE14, DCA12	Probably Decreasing	ND	ND	N/A	ND	Increasing	Stable	Stable	Decreasing	*Probably Increasing*	Increasing	Increasing
PTX08-1008	Long-term stabilization of concentrations	RDX, DNT4A, PERC, TCE, PCE, CR, CR-6, DIOXANE14, DCA12	N/A	ND	ND	Increasing	ND	Increasing	Increasing	Increasing	Decreasing	Increasing	No Trend	Increasing

Notes:
Trends are based on Mann-Kendall analyses for the samples taken since the start of remedial actions at each well (2009 through 2021).
SSRA = Since the Start of Remedial Action
ND = Nondetect
NT = No Trend
N/A = insufficient data, < 4 samples during the review period
RDX = Hexahydro-1,3,5-Trinitro-1,3,5-Triazine
TNT = 2,4,6-Trinitrotoluene
DNT24 = 2,4-Dinitrotoluene
DNT26 = 2,6-Dinitrotoluene
TNB135 = 1,3,5-Trinitrobenzene
PERC = Perchlorate
TCE = Trichloroethene
PCE = Tetrachloroethene
CR-6 = Chromium, Hexavalent
DIOXANE14 = 1,4-Dioxane
DCA12 = 1,2-Dichloroethane
TCLME = Chloroform

Table 3. Summary of Appendix IX Analyte Detections

Well ID	Sample ID	Sample Date	Sample Type	Analyte	Measured Value (µg/L)	Detection Limit (µg/L)	Lab Qualifier	PTX Qualifier	Background (µg/L)	> Background?	Lab PQL (ug/L)	> Lab PQL?	GWPS (µg/L)	> GWPS?
1114-MW4	20210824M00234	8/24/2021	N	Trichlorofluoromethane	3.89	1		J		NA	1	Y	10950	N
PTX06-1005	20210224M00059	2/24/2021	N	Trichlorofluoromethane	9.95	1				NA	1	Y	10950	N
PTX06-1008	20210504M00113	5/4/2021	N	Trichlorofluoromethane	2.21	1				NA	1	Y	10950	N
PTX06-1011	20210512M00130	5/12/2021	N	Trichlorofluoromethane	6.39	1				NA	1	Y	10950	N
PTX06-1088	20210512M00129	5/12/2021	N	Trichlorofluoromethane	1.05	1				NA	1	Y	10950	N
PTX06-1127	20211110M00295	11/10/2021	N	1,1-Dichloroethene	1.88	1				NA	1	Y	7	N
PTX06-1155	20210330ZSB018	3/30/2021	N	1,1-Dichloroethene	2.4	1				NA	1	Y	7	N
PTX06-1155	20210330ZSB019	3/30/2021	D	1,1-Dichloroethene	2.5	1				NA	1	Y	7	N
PTX06-1155	20211110ZSB067	11/10/2021	N	1,1-Dichloroethene	7.04	2	D			NA	2	Y	7	Y
PTX06-1169	20210329ZSB012	3/29/2021	N	1,1-Dichloroethene	4.1	1				NA	1	Y	7	N
PTX06-1169	20211129ZSB082	11/29/2021	N	1,1-Dichloroethene	2.95	1				NA	1	Y	7	N
PTX06-1171	20210818M00222	8/18/2021	N	1,1-Dichloroethene	1.59	1		J		NA	1	Y	7	N
PTX06-1210	20211019ZSB054	10/19/2021	N	1,1-Dichloroethene	2.74	2	D			NA	2	Y	7	N
PTX06-1211	20211020M00253	10/20/2021	N	1,1-Dichloroethene	3.8	1		J		NA	1	Y	7	N
PTX08-1006	20210303M00073	3/3/2021	N	1,1,2-Trichloroethane	3.02	1				NA	1	Y	5	N
PTX08-1007	20210512M00131	5/12/2021	N	Trichlorofluoromethane	14.1	1				NA	1	Y	10950	N

Notes:
NA = Not applicable
Sample Type N = normal, not duplicate
Sample Type D = duplicate
PQL = practical quantitation limit
GWPS = groundwater protection standard
Y = Yes
N = No

Table 4. Summary of Indicator Parameter Analytes Included in the Appendix IX List

Well ID	Sample ID	Sample Date	Sample Type	Analyte	Measured Value (µg/L)	Detection Limit (µg/L)	Lab Qualifier	PTX Qualifier	Background (µg/L)	> Background?	Lab PQL (ug/L)	> Lab PQL?	GWPS (µg/L)	> GWPS?	Expected Condition?	Explanation
PTX01-1001	20211025M00258	10/25/2021	N	Chromium, Hexavalent	0.257	0.02		J	3.2	N	0.02	Y	100	N	Y	This well has historically had near detection limit Cr(VI) detections.
PTX01-1001	20211025M00258	10/25/2021	N	Perchlorate	0.347	1	J	J	0.96	N	1	N	26	N	Y	Result below the PQL.
PTX01-1008	20211025M00257	10/25/2021	N	Chromium, Hexavalent	0.152	0.02		J	3.2	N	0.02	Y	100	N	Y	This well has historically had near detection limit Cr(VI) detections.
PTX04-1002	20210721M00169	7/21/2021	N	Chromium, Hexavalent	3.011	0.02			3.2	N	0.02	Y	100	N	Y	This well has historically had low-level Cr(VI) detections. The detection limit was significantly lower during the current FYR period than the previous FYR period.
PTX04-1002	20210721M00169	7/21/2021	N	1,4-Dioxane	2.64	1				NA	1	Y	7.7	N	N	Consistent with historical observations.
PTX06-1005	20210224M00059	2/24/2021	N	Chloroform	4.89	1				NA	1	Y	80	N	N	Concentrations have increased from about 1 µg/L during the current FYR period.
PTX06-1005	20210224M00059	2/24/2021	N	1,4-Dioxane	2.49	1		J		NA	1	Y	7.7	N	N	Concentrations have fluctuated between nondetect and 7.7 µg/L.
PTX06-1005	20210224M00059	2/24/2021	N	Chromium, Hexavalent	45.143	2	I		3.2	Y	2	Y	100	N	N	Concentrations have been consistently around 50 µg/L since 2014 when Cr(VI) concentrations decreased sharply from close to 1,000 µg/L.
PTX06-1071	20210720M00166	7/20/2021	N	Chromium, Hexavalent	1.039	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1082	20210720M00164	7/20/2021	N	Chromium, Hexavalent	0.565	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1083	20210720M00165	7/20/2021	N	Chromium, Hexavalent	0.996	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1085	20210728M00182	7/28/2021	N	Chromium, Hexavalent	0.146	0.02			3.2	N	0.02	Y	100	N	Y	First detection, result below background.
PTX06-1086	20210804M00196	8/4/2021	N	Chromium, Hexavalent	0.111	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX06-1131	20210426M00091	4/26/2021	N	Chromium, Hexavalent	2.51	0.02		J	3.2	N	0.02	Y	100	N	Y	First detection, result below background.
PTX07-1Q01	20210727M00179	7/27/2021	N	Chromium, Hexavalent	0.907	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX07-1Q02	20210727M00180	7/27/2021	N	Chromium, Hexavalent	0.518	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.
PTX07-1R03	20210810M00208	8/10/2021	N	Chromium, Hexavalent	0.699	0.02		J	3.2	N	0.02	Y	100	N	Y	Result below background.
PTX08-1010	20210721M00170	7/21/2021	N	Chromium, Hexavalent	0.444	0.02			3.2	N	0.02	Y	100	N	Y	Result below background.

Notes:
NA = Not applicable
Sample Type N = normal, not duplicate
Sample Type D = duplicate
PQL = practical quantitation limit
GWPS = groundwater protection standard
Y = Yes
N = No

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Table 5. Select Metals Exhibiting Increasing Trends in Perched Groundwater

Well	Metal	Mann-Kendall Trend - All Data	Background (µg/L)	2021 Concentration (µg/L)	Sample Date
1114-MW4	Copper	Increasing	122	3.66	8/24/2021
1114-MW4	Selenium	Increasing	11	2.85	8/24/2021
OW-WR-38	Vanadium	Increasing	34.8	6.64	5/10/2021
PTX01-1001	Copper	Increasing	122	0.419	10/25/2021
PTX01-1001	Selenium	Increasing	11	ND	10/25/2021
PTX01-1001	Vanadium	Increasing	34.8	7.29	10/25/2021
PTX04-1002	Vanadium	Increasing	34.8	6.36	7/21/2021
PTX06-1005	Selenium	Increasing	11	4	2/24/2021
PTX06-1008	Selenium	Increasing	11	7.34	5/4/2021
PTX06-1008	Vanadium	Increasing	34.8	15.4	5/4/2021
PTX06-1010	Selenium	Increasing	11	4.7	5/12/2021
PTX06-1012	Vanadium	Probably Increasing	34.8	ND	3/30/2021
PTX06-1023	Vanadium	Increasing	34.8	10.2	2/8/2021
PTX06-1082	Thallium	Increasing	33.9	ND	7/20/2021
PTX06-1082	Vanadium	Increasing	34.8	6.11	7/20/2021
PTX06-1086	Lead	Probably Increasing	14	ND	8/4/2021
PTX06-1088	Lead	Probably Increasing	14	ND	5/12/2021
PTX06-1095A	Vanadium	Increasing	34.8	5.03	5/10/2021
PTX06-1153	Vanadium	Increasing	34.8	13	5/26/2021
PTX06-1166	Vanadium	Increasing	34.8	9.79	7/21/2021
PTX07-1Q02	Vanadium	Increasing	34.8	7.81	7/27/2021
PTX07-1R03	Vanadium	Increasing	34.8	10.1	8/10/2021
PTX08-1006	Selenium	Probably Increasing	11	3.92	3/3/2021
PTX08-1008	Selenium	Increasing	11	3.99	5/11/2021
PTX08-1009	Selenium	Increasing	11	4.5	3/1/2021
PTX08-1010	Selenium	Probably Increasing	11	ND	7/21/2021

Notes:
Trends are calculated by the Mann-Kendall method for the full dataset (1992 through 2021).

Table 6. Perched Unit Radiological Data Exhibiting Increasing Trends

Well	Metal	Mann-Kendall Trend - All Data	Background (pCi/L)	2021 Concentration (pCi/L)	Date
OW-WR-38	U-233/234	Increasing	5.5	1.62	5/10/2021
PTX01-1001	U-238	Probably Increasing	2.7	1.82	10/25/2021
PTX04-1002	U-238	Increasing	2.7	1.86	7/21/2021
PTX06-1007	U-238	Increasing	2.7	1.96	11/9/2021
PTX06-1008	U-233/234	Increasing	5.5	3.2	5/4/2021
PTX06-1008	U-238	Increasing	2.7	1.83	5/4/2021
PTX06-1010	U-238	Probably Increasing	2.7	1.83	5/12/2021
PTX06-1011	U-233/234	Increasing	5.5	2.45	5/12/2021
PTX08-1005	U-233/234	Increasing	5.5	2.93	3/3/2021
PTX08-1005	U-238	Increasing	2.7	1.8	3/3/2021
PTX08-1006	U-233/234	Increasing	5.5	3.72	3/3/2021
PTX08-1006	U-238	Probably Increasing	2.7	2	3/3/2021
PTX08-1008	U-233/234	Increasing	5.5	2.51	5/11/2021
PTX08-1008	U-238	Increasing	2.7	1.23	5/11/2021
PTX08-1009	U-238	Probably Increasing	2.7	1.24	3/1/2021

Notes:
Trends are calculated by the Mann-Kendall method for the full dataset (1992 through 2021).

Table 7. Increasing Trends in Ogallala Wells Five-Year Review Period

Well	COC	Mann-Kendall Trend - FYRP	Mann-Kendall Trend - All Data	First Sample Date	Last Sample Date	Background (µg/L)	Most Recent 2021 Concentration (µg/L)	Detections > Background in FYRP?
PTX01-1011	BA	**Probably Increasing**	Decreasing	1/28/2002	8/3/2021	890	127	N
PTX01-1012	AS	**Probably Increasing**	**Increasing**	4/28/2003	1/26/2021	12	4.14	N
PTX01-1013	AS	**Probably Increasing**	**Increasing**	6/8/2000	1/26/2021	12	3.64	N
PTX06-1043	V	**Increasing**	**Increasing**	10/14/1999	8/2/2021	34.8	16.7	N
PTX06-1044	B	**Probably Increasing**	**Increasing**	10/13/1999	10/20/2021	193.9	192	Y
PTX06-1056	AS	**Probably Increasing**	**Increasing**	8/20/2001	8/2/2021	12	5.98	N
PTX06-1056	CR-6	**Increasing**	Decreasing	8/20/2001	8/2/2021	3.2	5.96	Y
PTX06-1056	DCA12	**Increasing**	**Increasing**	8/9/2000	8/2/2021	N/A	1	N/A
PTX06-1056	DNT4A	**Increasing**	**Increasing**	8/20/2001	8/2/2021	N/A	0.723	N/A
PTX06-1056	V	**Increasing**	No Trend	8/20/2001	8/2/2021	34.8	21.2	N
PTX06-1059	B	**Increasing**	No Trend	4/4/2001	7/26/2021	193.9	181	N
PTX06-1064	AS	**Probably Increasing**	**Probably Increasing**	4/21/2003	10/20/2021	12	3.36	N
PTX06-1068	B	**Increasing**	Stable	8/26/2002	10/19/2021	193.9	167	N
PTX06-1076	BA	**Increasing**	**Increasing**	6/18/2002	10/20/2021	890	125	N
PTX06-1137A	NI	**Increasing**	Decreasing	11/10/2009	10/18/2021	15	ND	N
PTX06-1139	MO	**Increasing**	No Trend	9/30/2009	8/9/2021	36.6	7.75	N
PTX06-1141	AS	**Increasing**	**Increasing**	6/27/2011	1/27/2021	12	4.46	N
PTX06-1141	B	**Probably Increasing**	Stable	10/14/2009	1/27/2021	193.9	165	N
PTX06-1143	BA	**Increasing**	**Increasing**	5/5/2010	10/19/2021	890	149	N

Notes:
Trends are calculated by the Mann-Kendall method for the current FYR period (2017-2021) and for all available data.
Bold values indicate **Increasing** or **Probably Increasing** trends.
FYRP = Five Year Review Period
ND = nondetect
N/A = not applicable
AS = Arsenic
B = Boron
BA = Barium
MO = Molybdenum
V = Vanadium
CR-6 = Chromium, Hexavalent
DCA12 = 1,2-Dichloroethane
DNT4A = 4-Amino-2,6-Dinitrotoluene
NI = Nickle

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Table 8. Increasing Long-Term Trends in Ogallala Aquifer Wells

Well	COC	Mann-Kendall Trend - All Data	Mann-Kendall Trend - Current FYR Period	First Sample Date	Last Sample Date	Background (µg/L)	2021 Concentration (µg/L)	Detections > Background in FYRP?
PTX01-1010	AS	Increasing	No Trend	4/26/2000	8/3/2021	12	3.55	N
PTX01-1010	CR	Probably Increasing	N/A (<4 Samples in Dataset)	4/26/2000	2/1/2021	31.8	5.61	N
PTX01-1011	AS	Increasing	No Trend	1/28/2002	8/3/2021	12	3.88	N
PTX01-1012	AS	Increasing	Probably Increasing	4/28/2003	1/26/2021	12	4.14	N
PTX01-1013	AS	Increasing	Probably Increasing	6/8/2000	1/26/2021	12	3.64	N
PTX06-1043	AS	Increasing	No Trend	10/14/1999	8/2/2021	12	4.5	N
PTX06-1043	B	Probably Increasing	Stable	10/14/1999	8/2/2021	193.9	183	Y
PTX06-1043	BA	Increasing	No Trend	10/14/1999	8/2/2021	890	125	N
PTX06-1043	CR	Increasing	N/A (<4 Detections in Dataset)	10/14/1999	8/2/2021	31.8	ND	N
PTX06-1043	V	Increasing	Increasing	10/14/1999	8/2/2021	34.8	16.7	N
PTX06-1044	AS	Increasing	No Trend	10/13/1999	10/20/2021	12	3.62	N
PTX06-1044	B	Increasing	Probably Increasing	10/13/1999	10/20/2021	193.9	192	Y
PTX06-1044	V	Increasing	Stable	10/13/1999	10/20/2021	34.8	17	N
PTX06-1056	AS	Increasing	Probably Increasing	8/20/2001	8/2/2021	12	5.98	N
PTX06-1056	BA	Increasing	No Trend	8/20/2001	8/2/2021	890	105	N
PTX06-1056	CR	Increasing	No Trend	8/20/2001	8/2/2021	31.8	5.09	N
PTX06-1056	DCA12	Increasing	Increasing	8/9/2000	8/2/2021	N/A	1	N/A
PTX06-1056	DNT4A	Increasing	Increasing	8/20/2001	8/2/2021	N/A	0.723	N/A
PTX06-1056	MO	Probably Increasing	Stable	8/20/2001	8/2/2021	36.6	4.86	N
PTX06-1058	CR	Increasing	N/A (<4 Detections in Dataset)	4/4/2001	7/26/2021	31.8	4.85	N
PTX06-1058	FE	Increasing	No Trend	4/4/2001	7/26/2021	N/A	164	N/A
PTX06-1059	AS	Probably Increasing	No Trend	4/4/2001	7/26/2021	12	4.36	N
PTX06-1062A	AS	Increasing	No Trend	8/21/2001	8/3/2021	12	4.35	N
PTX06-1062A	CR	Increasing	N/A (<4 Samples in Dataset)	8/21/2001	2/1/2021	31.8	7.98	N
PTX06-1062A	TL	Probably Increasing	N/A (<4 Samples in Dataset)	8/21/2001	2/1/2021	33.9	ND	N
PTX06-1062A	U-238	Increasing	N/A (<4 Samples in Dataset)	7/28/2004	2/1/2021	2.7	1.79	N
PTX06-1062A	V	Increasing	N/A (<4 Samples in Dataset)	8/21/2001	2/1/2021	34.8	14.1	N
PTX06-1064	AS	Probably Increasing	Probably Increasing	4/21/2003	10/20/2021	12	3.36	N
PTX06-1068	AS	Increasing	No Trend	8/26/2002	10/19/2021	12	3.51	N
PTX06-1072	AS	Increasing	No Trend	9/25/2001	8/2/2021	12	4.73	N
PTX06-1072	B	Probably Increasing	No Trend	9/25/2001	8/2/2021	193.9	136	N
PTX06-1072	CR	Increasing	N/A (<4 Samples in Dataset)	9/25/2001	1/27/2021	31.8	ND	N
PTX06-1072	V	Probably Increasing	N/A (<4 Samples in Dataset)	9/25/2001	1/27/2021	34.8	18.1	N
PTX06-1075	BA	Probably Increasing	No Trend	6/17/2002	7/26/2021	890	93.4	N
PTX06-1076	AS	Increasing	No Trend	6/18/2002	10/20/2021	12	6.02	N

Table 8. Increasing Long-Term Trends in Ogallala Aquifer Wells (continued)

Well	COC	Mann-Kendall Trend - All Data	Mann-Kendall Trend - Current FYR Period	First Sample Date	Last Sample Date	Background (µg/L)	2021 Concentration (µg/L)	Detections > Background in FYRP?
PTX06-1076	BA	Increasing	Increasing	6/18/2002	10/20/2021	890	125	N
PTX06-1076	CR	Increasing	All Non-Detect	6/18/2002	10/20/2021	31.8	ND	N
PTX06-1137A	AS	Increasing	No Trend	10/20/2014	10/18/2021	12	4.48	N
PTX06-1138	MO	Probably Increasing	Stable	10/1/2009	10/18/2021	36.6	3.51	N
PTX06-1139	AS	Increasing	Stable	8/5/2014	8/9/2021	12	5.31	N
PTX06-1140	AS	Increasing	No Trend	10/20/2014	10/18/2021	12	4.46	N
PTX06-1140	B	Probably Increasing	No Trend	10/5/2009	10/18/2021	193.9	197	Y
PTX06-1140	BA	Increasing	Stable	5/4/2010	10/18/2021	890	119	N
PTX06-1140	CR	Probably Increasing	N/A (<4 Detections in Dataset)	10/5/2009	10/18/2021	31.8	ND	N
PTX06-1140	V	Probably Increasing	No Trend	10/5/2009	10/18/2021	34.8	18.5	N
PTX06-1141	AS	Increasing	Increasing	6/27/2011	1/27/2021	12	4.46	N
PTX06-1143	AS	Increasing	No Trend	6/8/2011	10/19/2021	12	3.45	N
PTX06-1143	B	Probably Increasing	No Trend	10/15/2009	10/19/2021	193.9	150	N
PTX06-1143	BA	Increasing	Increasing	5/5/2010	10/19/2021	890	149	N
PTX06-1144	AS	Increasing	No Trend	10/30/2014	10/19/2021	12	3.9	N
PTX06-1144	B	Increasing	No Trend	11/4/2009	10/19/2021	193.9	179	Y
PTX06-1157	AS	Probably Increasing	No Trend	6/7/2011	8/9/2021	12	4.3	N
PTX06-1157	B	Increasing	No Trend	6/15/2010	8/9/2021	193.9	217	Y
PTX06-1157	CR	Increasing	No Trend	6/15/2010	8/9/2021	31.8	4.16	N
PTX06-1157	MN	Probably Increasing	Stable	6/15/2010	8/9/2021	16	8.52	N
PTX06-1157	V	Increasing	No Trend	6/15/2010	8/9/2021	34.8	20.3	N

Notes:

Trends are calculated by the Mann-Kendall method for the full dataset (1995 through 2021). DCA12 = 1,2-Dichloroethane

ND = nondetect
DNT4A = 4-Amino-2,6-Dinitrotoluene
N/A = not applicable
MN = Manganese
AS = Arsenic
MO = Molybdenum
B = Boron
TL = Thallium
BA = Barium
U-238 = Uranium-238
CR = Chromium, Total
V = Vanadium

Table 9. Radiological Results that Exceed Background

Well ID	Aquifer	Sample ID	Sample Date	Sample Type	Analyte	Measured Value (pCi/L)	Lab Qualifier	PTX Qualifier	Rad Error Count	Background (pCi/L)	> Background?	GWPS (pCi/L)	> GWPS?	Expected Condition?	Explanation
PTX06-1141	Ogallala	20210127M00020	1/27/2021	N	U-233/234	5.83			0.579	5.5	Y	30	N	Y	Similar to historical results, not indicative of depleted uranium.
PTX10-1014	Perched	20210818M00219	8/18/2021	N	U-238	3.1			0.39	2.7	Y	30	N	Y	Similar to historical results, not indicative of depleted uranium.
PTX10-1014	Perched	20210818M00220	8/18/2021	D	U-238	3.39			0.467	2.7	Y	30	N	Y	Similar to historical results, not indicative of depleted uranium.

Notes:
Sample Type N = Normal, not duplicate
Sample Type D = Duplicate

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Attachment 14

Risk Evaluation for the Pantex Third Five-Year Review

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Table of Contents

List of Tables (located at end of this Attachment)

List of Figures (located at end of this Attachment)

List of Acronyms

BCG	biota concentration guide
BKG	background
COC	contaminant of concern
COPC	contaminant of potential concern
COPEC	contaminant of potential ecological concern
DCE	dichloroethene
DNT	dinitrotoluene
DOE	United States Department of Energy
EPA	United States Environmental Protection Agency
ERA	ecological risk assessment
FYR	five-year review
GAC	granular activated carbon
GWPS	Groundwater Protection Standards
HA	health advisory
HE	high explosive
HHRA	human health risk assessment
HQ	hazard quotient
ISB	in-situ bioremediation
LOAEL	lowest observed adverse effect level
μg/L	micrograms per liter
MCL	maximum contaminant level
MDC	maximum detected concentration
MSC	medium-specific concentration
NOAEL	no observed adverse effect level
%	percent
PAH	polycyclic aromatic hydrocarbon
PCE	tetrachloroethene
PCL	protective concentration level
PQL	practical quantitation limit
RA	remedial action
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
ROD	Record of Decision
RRR	Risk Reduction Rule
SEPTS	Southeast Pump and Treat System
SLERA	Screening-Level Ecological Risk Assessment

TAC	Texas Administrative Code
TCA	trichloroethane
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TPAH	total polycyclic aromatic hydrocarbon
TRRP	Texas Risk Reduction Program
TRV	toxicity reference value
UCL	upper confidence limit

1 RISK EVALUATION FOR THE FIVE-YEAR REVIEW

The United States Environmental Protection Agency (EPA) guidance for conducting Five-Year Reviews (FYRs) was used to complete this risk evaluation. The guidance suggests review of factors that would affect risk conclusions. The evaluation of each of those factors is provided in the following sections. Any change in risk or standards is also evaluated with respect to whether a change in the remedial action (RA) or Groundwater Protection Standards (GWPS) is necessary. As found in EPA guidance (2001), if the current GWPS falls within the EPA risk range of 1E-06 to 1E-04 and the RA objectives can be met, then no change to the standards or RA is necessary. However, if risk will not be addressed adequately, then the RA may need to be re-evaluated.

Pantex completed a human health risk assessment (HHRA) and ecological risk assessment (ERA) to support the corrective measures/feasibility study and selection of the final remedy. Each of the risk assessments is briefly discussed, and new factors, as discussed in the EPA guidance, are evaluated below.

This third FYR builds on the findings of the *Five-Year Review Report: First Five-Year Review Report Remedial Action Progress Pantex Plant* (Pantex, 2013) and *Five-Year Review Report: Second Five-Year Review Report Remedial Action Progress Pantex Plant* (CNS, 2018). Where needed for understanding of current review, relevant information from previous reviews is provided.

2 HUMAN HEALTH RISK ASSESSMENT EVALUATION

The baseline HHRA was completed for the Pantex Plant to evaluate potential risks to on- and off-site human receptors in the absence of any RA. The baseline HHRA follows the approach and methodology presented in the approved Revised Final *Baseline Risk Assessment Work Plan* (Pantex, 2003). The baseline HHRA provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the RA.

Releases were evaluated in the baseline HHRA for 135 soil units located across the Pantex Plant. The baseline HHRA also evaluated groundwater beneath the units for impacts from soils and areas of focused recharge.

The risk assessments were completed and reported in separate risk assessment reports, as listed below:

- *Burning Ground Human Health Risk Assessment Report* (Pantex, 2006b).
- *Nuclear Weapons Accident Residue Storage Unit Human Health Risk Assessment Report* (Pantex, 2006a).
- *Baseline Human Health Risk Assessment Report for Zones 10, 11, and 12, Fire Training Area, Ditches and Playas, Independent Sites, and Groundwater* (Pantex, 2006c).
- *Firing Site 5 Human Health Risk Assessment Report* (Pantex, 2007a).

- *Playa 4 Human Health Risk Assessment Report* (Pantex, 2007b).

2.1 Standards and To Be Considered Criteria

The Pantex Record of Decision (ROD) (Pantex, 2008) documents the applicable or relevant and appropriate requirements for the soil and groundwater cleanup at Pantex. Pantex primarily developed cleanup values (GWPSs) for the groundwater RA at Pantex. The GWPSs were based on promulgated EPA maximum contaminant levels (MCLs), if available, and calculated values based on methods in the Texas Risk Reduction Rule ([RRR], 30 Texas Administrative Code [TAC] 335 Subchapter S). A lifetime health advisory (HA) was considered for hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) because it is the primary risk driver in groundwater and the plume is widespread. The GWPS for perchlorate documented in the ROD has been revised based on the findings of the Second FYR and is documented in an Explanation of Significant Differences (Pantex, 2022a).

2.1.1 Findings of Third Five-Year Review

Between the Second and Third FYR, there were no changes to MCLs used as the GWPS, and the HA for RDX has not changed. The perchlorate GWPS was revised to 15 μg/L based on the EPA HA. An explanation of significant differences is currently being prepared by Pantex to document the revised GWPS. No changes are recommended for the remaining GWPS values identified in the ROD.

Soil sites were cleaned up or closed to calculated health-based standards developed in accordance with the RRR. Radiological sites were cleaned up to standards developed by the United States Department of Energy (DOE); however, final decision of whether cleanup was protective of human health or the environment was based on a final HHRA and ERA that considered dose and toxicological effects so that a change in standards will not affect the cleanup decisions at those sites.

2.2 Contaminants of Concern

Six new potential contaminants of concern (COCs) (1,4-dioxane, cadmium, arsenic, barium, manganese, and 1,1-dichloroethene [DCE]), one COC by-product (cis-1,2-DCE) were identified during the first FYR and one potential COC (selenium) was identified during the second FYR for future monitoring.

2.2.1 Findings of Third Five-Year Review

For this review, no new COCs were identified for risk evaluation. Per- and Polyfluoroalkyl substances, known as PFAS, are a group of compounds that are emerging contaminants that will be evaluated as the health effects are better determined and as Pantex obtains concentration data before the next FYR.

Potential COCs for monitoring and COCs identified in previous FYRs were reviewed to determine if risk is decreasing or to determine if further analysis is required.

2.2.1.1 Cis-1,2,-DCE

cis-1,2-DCE was identified during the Second FYR as a new COC by-product requiring review. cis-1,2-DCE is a breakdown product of trichloroethene (TCE); however, the breakdown slows due to the lack of strong reducing conditions in some areas of the in-situ bioremediation (ISB). As TCE degradation increased, cis-1,2,-DCE concentrations increased due to the lack of necessary bacteria to completely degrade TCE. Although TCE levels were declining, the Second FYR showed signs of incomplete treatment of the TCE breakdown product cis-1,2-DCE with detections in one treatment well and three downgradient wells at concentrations above the GWPS (i.e., MCL of 70 μg/L). In order to optimize the Zone 11 ISB system for complete degradation of TCE and its breakdown products, bioaugmentation and changes in amendment strategy were implemented to the Zone 11 ISB system in 2015 and 2018. During the Third FYR period (represented by 2017 to 2021 data), cis-1,2-DCE was detected at Zone 11 above the GWPS (i.e., MCL of 70 μg/L) in six treatment zone wells (PTX06-ISB075, PTX06-1177, PTX06-1176, PTX06-1170, PTX06-1169, and PTX06-1164) and four downgradient wells (PTX06-1174, PTX06-1173, PTX06-1155, and PTX06-1012). Since the Second FYR period (represented by 2012 to 2016 data), concentrations of cis-1,2-DCE have declined in the Zone 11 ISB system and in 2021, exceedances of the GWPS were limited to one treatment well (maximum detected concentration [MDC] of 190 in PTX06-1169) and one downgradient well (MDC of 269 in PTX06-1155). Monitoring of cis-1,2-DCE should continue until the GWPS is achieved for all of the wells.

2.2.1.2 Selenium

Selenium was identified as an additional potential COC in the Second FYR due to a detection above the MCL (50 μg/L) in one sample collected from PTX06-1083 (59.2 μg/L) at Pantex Lake in 2016. PTX06-1083 was resampled in July 2021 with similar results (51 μg/L). However, all other selenium results, including another sample at Pantex Lake (PTX06-1082), were below the background concentration of 11 μg/L. Selenium and nitrate are associated with the widespread agricultural practices (livestock). Pantex Lake receives stormwater runoff from surrounding pastures and agricultural operations (Pantex, 2021). Release of nitrate into soils results in release of selenium; therefore, high selenium and nitrate are seen near areas where livestock are grazed consistently. Because selenium is not related to the release of legacy wastes and is likely associated with nearby agricultural practices, it is not identified as a COC.

2.2.1.3 Cadmium

Cadmium was identified as a potential COC at the uncertainty management wells due to a slight MCL exceedance in PTX06-1010 during review of the First FYR data. None of the detected concentrations of cadmium exceeded the MCL during the Second FYR evaluation (2014 through 2016). Recent (2017 through 2021) groundwater monitoring data indicate cadmium concentrations remain below the MCL of 5 µg/L. Cadmium concentrations in PTX06-1010 have declined and all detections since 2011 are below the MCL. The only detected concentration measured in any of the wells during this period was 0.327 µg/L at PTX08-1077 in 2021. Cadmium was not detected in PTX06-1010 or downgradient well PTX06-1088, which were analyzed to track any plume emanating from the area. Given the limited detection of cadmium and the absence of any concentrations above MCLs, the current sampling frequency can be decreased to a five-year frequency, as originally planned for these wells.

2.2.1.4 1,4-Dioxane

There were no changes in toxicity for 1,4-dioxane between the Second FYR and Third FYR. The RA at Zone 11 was designed to address TCE and perchlorate and the designed treatment zone with anaerobic reducing conditions was not intended to degrade 1,4-dioxane. During the Second FYR, the data indicated partial treatment in localized aerobic zones of 1,4-dioxane was likely occurring.

Current (2017-2021) data support partial degradation of 1,4-dioxane and overall decreasing concentrations upgradient and in the source area. Locations with the highest historic concentrations (PTX06-1126 and PTX06-1127) upgradient of the ISB system have continued to decrease from their peak concentrations in 2011. Concentrations at the well located near the source area (PTX08-1006) have continued to decrease since 2009, with all reported concentrations below the GWPS in 2016.

Trending of all data indicated concentrations at some of the farthest downgradient locations are increasing (e.g., concentrations of 1,4-dioxane were below the GWPS of 7.7 μg/L until 2013 and have consistently remained above the GWPS with a November 2021 concentration of 30.7 μg/L in PTX06-1012). Increasing concentrations in the downgradient wells are a result of the plume migrating to the southeast, with the southern leading edge now crossing onto Texas Tech property and the eastern edge moving toward the southeast pump and treat system (SEPTS) (Figure 1).

Despite this, all concentrations remained below a 1E-04 risk level (85 μg/L). Concentrations at two downgradient locations (maximum of 47 μg/L at PTX06-1155 and 41 μg/L at PTX06-1143) were lower than historical maximum concentrations observed at upgradient locations (2011 maximum of 120 μg/L and 100 μg/L) and are generally lower than current 2017-2021 concentrations (maximum of 19 μg/L and 70 μg/L) at upgradient locations PTX06-1126 and PTX06-1127. One downgradient well has remained below the GWPS since the start of sampling in 2009. This demonstrates that the combined anaerobic/aerobic treatment zone has been partially effective in treating 1,4-dioxane.

The recommendations of this FYR are the same as the recommendation from the second FYR – continued monitoring within the Zone 11 plume and downgradient of the Zone 11 ISB system. Additional downgradient wells may need to be added to monitor movement and expansion of the plume in the perched aquifer. Further actions will be determined based on results of sampling and in accordance with the Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan (Pantex, 2019a). If source concentrations continue to decline in the future, and risks at the wells remain below a 1E-04 risk level, further evaluation of 1,4-dioxane will be unnecessary. However, sampling will continue, in accordance with the *Sampling and Analysis Plan* (Pantex, 2019b).

2.2.1.5 Arsenic, Barium, Manganese

As noted in the First and Second FYRs, reducing conditions in the ISB treatment zone caused arsenic, barium, and manganese to become more soluble, resulting in increased perched groundwater concentrations. These metals were not identified as COCs in the ROD as they are a result of treatment of the primary COCs. They are evaluated here as secondary metals. These metals are expected to precipitate out as the water moves downgradient and encounters more-oxidizing conditions that naturally occur within the aquifer. Previous evaluation during the first FYR indicated that there would be risk associated with these metals if they did not precipitate out as expected. This review focuses on whether the analytes are precipitating out below risk levels at downgradient wells and whether the metals were impacting the Ogallala aquifer.

Perched groundwater metal concentrations have increased above the GWPSs (i.e., current MCL for barium, background concentration for arsenic, and calculated screening level for manganese). Note there have been no changes in toxicity values, MCLs, or background that would affect the GWPSs.

Arsenic, barium, and manganese concentration ranges and upper confidence limits (UCLs) were compared to the GWPSs. For this comparison, the EPA ProUCL software (Version 5.1) (EPA, 2016) was used and the recommended UCL was used as the EPC at each well. As expected, the treatment zone continues to contribute higher concentrations of these metals. The closest downgradient concentrations generally indicate lower concentrations than the treatment zone. However, many of the downgradient concentrations continue to exceed the protective concentrations used to evaluate the data. Current conditions (as represented by 2017 to 2021 data) for each of these metals are discussed below:

- Arsenic: The median arsenic concentration from 391 samples from treatment zone wells is 33 μg/L, with an MDC of 620 μg/L and 68% of the results greater than the GWPS of 12 μg/L. By comparison, the median arsenic concentration from 228 downgradient samples is 20 μg/L, with an MDC of 220 μg/L and 55 percent (%) of results greater than GWPS. A summary of the frequency of detection, range of detected concentrations, UCL, and comparison to the GWPS is provided in Table 1 for each of the treatment zone and downgradient wells.

- Barium: The median barium concentration from 244 samples from treatment zone wells is 760 μg/L, with an MDC of 9,900 μg/L and 11% of the results exceeding the GWPS of 2,000 μg/L. By comparison, the median barium concentration from the 238 downgradient samples is 675 μg/L with an MDC of 21,000 μg/L and 24% of downgradient sample results exceed the GWPS of 2,000 μg/L. A summary of the frequency of detection, range of detected concentrations, UCL, and comparison to the GWPS is provided in Table 2 for each of the treatment zone and downgradient wells.

- Manganese: The median manganese concentration from 380 samples from treatment zone wells is 550 μg/L, with an MDC of 99,000 μg/L. By comparison, the median manganese concentration from 238 downgradient samples was 435 μg/L, with an MDC of 9,400 μg/L. Twenty-three percent of treatment zone results and 9% of downgradient sample results exceed the GWPS of 1,700 μg/L. A summary of the frequency of detection, range of detected concentrations, UCL, and comparison to the GWPS is provided in Table 3 for each of the treatment zone and downgradient wells.

As noted in the First and Second FYRs, results in several downgradient wells demonstrate signs of expansion of the treatment zone. Data collected for this Third FYR (from 2017 through 2021) show similar results. The southeast ISB system metal concentrations continued to increase; for example, the arsenic UCL at PTX06-1037 increased from 10.3 μg/L in First FYR data to 34.2 μg/L in Second FYR data to 93.13 μg/L in the Third Five FYR data (Table 1). Because the southeast ISB system is near the extent of the perched aquifer saturated thickness, it is possible the treatment zone will completely expand to the extent of the perched groundwater and metal concentrations will never reach a protective concentration in the perched aquifer in that area.

The Zone 11 ISB system has a greater aquifer extent and saturated thickness than at the southeast ISB system; therefore, concentrations can be monitored at this system to demonstrate that the metals will decline to protective concentrations as the treated water moves downgradient into more-oxidizing conditions. Metal concentrations downgradient of the Zone 11 ISB system appear to be increasing compared to those reported in the First and Second FYRs. For example, the arsenic UCLs at PTX06-1155 and PTX06-1156 increased from 33.3 and 46.8 μg/L, respectively, in First FYR data to 47.6 and 49.8 μg/L, respectively, in Second FYR data to 60.9 *μ*g/L and 58.1 *μ*g/L, respectively in the Third FYR data (Table 1). While it is clear there is some elevated risk due to metals that have been released because of reducing conditions in the Zone 11 ISB treatment zone, the downgradient risks are only slightly elevated. Data indicate that downgradient concentrations are generally lower than treatment zone concentrations indicating that these metals will continue to attenuate as they move downgradient. It is expected that most of these concentrations will reduce below levels that would cause a health-based concern.

It is unclear how the southeast ISB system will respond with time because of the limited extent of the perched aquifer and saturated thickness. The metals will require continued monitoring to determine whether arsenic, barium, and manganese concentrations persist or if concentrations decline over time.

Additionally, sampling of the soluble metals at the Ogallala monitoring wells after the First FYR have confirmed these metals have not impacted the Ogallala aquifer. Concentrations of arsenic, barium, and manganese are below GWPSs and current detections are similar to or below background concentrations. These metals should continue to be sampled in the Ogallala aquifer to confirm the aquifer has not been impacted by the soluble metals in the perched aquifer.

2.2.1.6 1,1-DCE

1,1-DCE (a degradation product of 1,1,1-trichloroethane [TCA], tetrachloroethene [PCE], and TCE) was identified in the Zone 11 area during review of the First FYR data. 1,1-DCE had been sporadically detected, but in 2011, it was detected slightly above the GWPS (i.e., MCL of 7 μg/L) upgradient of the Zone 11 ISB system at PTX06-1126. 1,1-DCE was detected in two monitoring wells in 2016 at concentrations below the GWPS: PTX06-1126 (2.6 μg/L) upgradient of the Zone 11 ISB system, and PTX06-1005 (1.29 μg/L) east of Zone 12. During the Third FYR (represented by 2020 and 2021 data), 1,1-DCE was detected in 11% (59 of 504) of groundwater samples. Two of the concentrations in groundwater samples in the Zone 11 ISB wells were slightly above the GWPS (i.e., MCL of 7 μg/L). 1,1-

DCE was detected in treatment well PTX06-1169 at a concentration of 7.1 µg/L and in downgradient well PTX06-1155 at a concentration of 7.04 µg/L. Concentrations of TCE have been declining; therefore, the production of 1,1-DCE is also expected to decrease. Continued monitoring of 1,1-DCE in this area is recommended. If source concentrations continue to decline in the future, and maximum concentrations decrease below the MCL, further evaluation of 1,1-DCE will be unnecessary. However, sampling will continue, in accordance with the *Sampling and Analysis Plan* (Pantex, 2019b).

2.3 Exposure Pathways

Pantex was evaluated as an industrial site that has controlled exposure (no trespassers assessed) to on-site areas due to strong security measures in place. Potential on-site receptors are industrial and construction workers and potential off-site receptors are resident farmers. These land use types and associated exposure pathways are still appropriate based on the current and projected future land use at Pantex and the surrounding area.

2.3.1 Findings of Third Five-Year Review

2.3.1.1 Perched Groundwater

Between the ROD and the first FYR, there were no significant changes in groundwater flow, direction or flow divide that affected the risk assessment results. Between the first and second FYR, flow directions changed along the eastern side of Zone 11 due to removal of perched water from pump-and-treat operations. With the changes in the flow divide, perchlorate and 1,4-dioxane were predicted to move into the southwestern portion of the SEPTS extraction wellfield. Between the second and third FYR, there have been significant changes in groundwater flow and the flow divide that could affect the RA in the future. Due to removal of perched water, flow directions have continued to change along the eastern side of Zone 11. Several plumes have been affected by the flow direction changes. The effects of the changes in groundwater flow and the associated risk are described below for perchlorate, TCE, RDX, and 1,4-dioxane.

- Perchlorate concentrations remain elevated in Zone 11. Perchlorate, which is not treatable by granular activated carbon (GAC) used at the SEPTS, has moved into the southwestern portion of the SEPTS's extraction well field. This change in the flow direction and perchlorate plume is of concern because risk has not been assessed in the perched groundwater. The southeastern boundary of the perchlorate plume has shifted east and southeast towards the SEPTS well field; portions of the perchlorate plume are being actively remediated by the SEPTS with the addition of a resin pre-treatment system for perchlorate that was installed in 2022. Perchlorate is now in the SEPTS extraction wells with maximum concentrations of 447 µg/L in PTX06-EW-10 and is predicted to spread across more of the SEPTS wellfield in the future. Pantex will continue to monitor the plume expansion and the influent to the SEPTS and monitor the effectiveness of the perchlorate treatment vessel.

  Recent (2022) monitoring has also shown movement of perchlorate south towards the Texas Tech property. Preliminary 2022 groundwater monitoring results indicate there is a potential stream channel outside of the influence of the SEPTS (east of the Zone 11 ISB and west of SEPTS extraction wellfield) with fine-grained soils where the aquifer is more permeable. Perchlorate in this area could potentially migrate to the deeper Ogallala aquifer. Pantex is currently evaluating plans to treat the perchlorate plume moving to the southeast, including the installation of a small ISB system to capture and treat the perchlorate.

- TCE concentrations remain elevated in Zone 11. Similar to perchlorate, the change in flow direction has caused the TCE plume to change direction and the TCE plume in over half of the Zone 11 ISB is now moving to the southeast. Additional injection wells were installed in 2021 to ensure complete treatment of TCE. Also note that the treatment technology in the SEPTS (GAC) is capable of treating the TCE. Pantex will continue to monitor the effects of the changing gradients and will make adjustments as necessary.
- 1,4-Dioxane was detected during the second FYR in PTX06-1005 at a detection above the GWPS of 7.7 μg/L. This location is on the western edge of the SEPTS extraction well field. 1,4-dioxane risk had not been assessed in the southwest area of the perched groundwater in the HHRA. Because 1,4-dioxane had entered the well field, annual sampling of PTX06-1005, PTX06-1095A, and three downgradient extraction wells was added to evaluate 1,4-dioxane. Based on the 2017-2021 data, 1,4-dioxane continues to be present in these wells, but at lower concentrations. None of the detections exceeded the GWPS. Despite the presence, risk evaluation is not currently necessary in the southeast plume area because the concentrations are below GWPS, and upgradient sources barely exceed the GWPS. The highest concentrations of 1,4-dioxane are moving through the Zone 11 ISB. Further actions will be determined based on results of sampling and in accordance with the *Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan* (Pantex, 2019a).
- RDX: During the second FYR, sampling indicated the southeast lobe of the RDX plume had migrated further to the southeast and had reached the fence line and probably beyond. In order to treat high explosive (HE) contaminants, particularly RDX, moving to offsite landowner property, the Southeast ISB Extension was installed in 2017 with additional expansion in 2020 and 2021. Injection events occurred in 2019, 2020, and 2021. Due to observed expansion of the RDX plume to the east, Pantex plans further extension to the north in the future. An offsite ISB system was installed in 2020 to treat the RDX and injected with molasses for the first time from June until October 2021. Two more phases of installation are planned at this system in 2022 and 2023. A lease was obtained at the offsite property where most of the remediation infrastructure was placed. Deed restrictions for groundwater use at these offsite properties, which are used for dryland farming and cattle grazing, are now in place at both affected offsite properties. Pantex will continue to optimize the ISB systems to ensure HE contamination on the neighboring property is addressed. Therefore, risk evaluation of the offsite property is not necessary.

The final perched aquifer LTM network is divided into four areas defined by indicator COC monitoring lists for wells for each area. With the changes in flow directions along the eastern side of Zone 11, the lists of analytes for wells in the southeast and Zone 11 will require review by Pantex to ensure the sampling list monitors current site conditions.

2.3.1.2 Ogallala Aquifer

Early detection, uncertainty management, and other monitoring wells in the Ogallala Aquifer are monitored to identify breakthrough of constituents to the Ogallala Aquifer from overlying perched groundwater, if present. Seven COCs have been detected in these wells in recent (2017 to 2021) groundwater monitoring:

- **Hexavalent chromium** was detected below the GWPS of 100 μg/L in 22 sampled intervals in 17 Ogallala Aquifer monitoring wells in 2021. The detections in all but four of the wells were below the background level of 3.2 μg/L. It is likely that elevated concentrations of chromium may be related to the stainless-steel screens and the confirmed presence of bacterial growth that has been found in many of the perched aquifer and Ogallala Aquifer wells at Pantex, as discussed in the *2021 Annual Progress Report: Remedial Action Progress in Support of Hazardous Waste Permit 50284 and Pantex Plant Interagency Agreement* (Pantex, 2022b).
- **Total Chromium** was detected below the GWPS of 100 μg/L in 12 sampled intervals in 8 Ogallala Aquifer monitoring wells in 2021. All of the detections were below the background level of 31.8 μg/L. Total chromium was not detected in 11 Ogallala Aquifer monitoring wells.
- **4-Amino-2,6-DNT** (a breakdown product of the HE 2,4,6-trinitrotoluene) has been detected at PTX06-1056 since April 2014. 4-Amino-2,6-Dinitrotoluene (DNT) was detected in both semi-annual samples in 2021 at values of 0.624 and 0.723 μg/L, below the GWPS of 1.2 μg/L. These continued detections indicate possible migration of perched groundwater to the Ogallala Aquifer. Although a potential source of contamination (i.e., perched monitoring well PTX06-1108) has been plugged, the concentrations have remained persistently in PTX06-1056 and have not declined since the plug has been removed.

  As the concentrations of 4-amino-2,6-DNT have increased and are close to the GWPS in the most recent January 2022 sampling event (1.1 μg/L, just below the GWPS of 1.2 μg/L) (Pantex, 2022b), additional evaluation (e.g., additional monitoring, source identification, implementation of interim protective measures [if necessary], and delineation of extent) will be conducted, in accordance with the Groundwater Contingency Plan. Pantex continues to proactively evaluate and address potential sources and has performed a time-series sampling event with a high-volume purge of PTX06-1056 in August 2022. The results of the sampling will be reviewed and Pantex will evaluate the need for additional wells to monitor the Ogallala Aquifer. Sampling of the potential new and established wells will continue in accordance with the approved Sampling and Analysis Plan (SAP) to determine if further action is needed and will follow actions described in the Groundwater Contingency Plan.

  Although not detected in the 2021 sampling events, 4-amino-2,6-DNT was detected for the first time below the practical quantitation limit (PQL) and GWPS in PTX06-1076 in the June 2020 sample at a concentration of 0.0933 μg/L; in the August 2020 verification sample at a concentration of 0.0834 μg/L; and in the October 2020 sample at a concentration of 0.0903 μg/L.

- **1,2-Dichloroethane** has been detected consistently at PTX06-1056 since August 2015 and was detected in both semi-annual samples in 2021; all detections were below the PQL and GWPS. 1,2-Dichloroethane was also detected in PTX06-1139 and PTX06-1157 in August 2018 at or below the PQL and below the GWPS; but not detected in subsequent semi-annual sampling events from 2019-2021 in either well.
- **1,4-dioxane** has been detected in PTX06-1068 in October 2017 at a concentration of 1.05 μg/L, slightly above the PQL, but below the GWPS. 1,4-dioxane was not detected in this well previously or in the subsequent 9 rounds of sampling from 2018-2021. In addition, 1,4-dioxane was detected in PTX07-1R01 in October 2017 at a concentration of 0.897 μg/L, below the PQL and GWPS. 1,4-dioxane was not detected previously or in the subsequent 6 rounds of 2018-2021 sampling from this well.
- **RDX** has been detected in PTX01-1101 in July 2019 at a concentration of 0.154 μg/L and in PTX07-1R01 in July 2020 at a concentration of 0.212 μg/L, both detections were below the PQL and GWPS. RDX was not detected in these wells previously or in subsequent sampling events.
- **Perchlorate** was detected below the GWPS of 15 μg/L in 31 sampled intervals in 21 Ogallala Aquifer monitoring wells in 2021. The detections in all but one of the wells were below the background level of 0.96 μg/L. The detected concentration of 0.966 μg/L in PTX06-1061 slightly exceeded the background level (0.96 μg/L) and likely represents background variability.

In summary, several COCs have been detected in the Ogallala Aquifer. 1,4-dioxane and RDX were detected at low concentrations inconsistently. Perchlorate and total chromium are present at concentrations consistent with background concentrations. Hexavalent chromium was detected in four wells at concentrations above background, but it likely due to the well screening and bacterial growth. Two COCs (4-amino-2,6-DNT and 1,2-DCA) detected in the Ogallala Aquifer in particular warrant further monitoring. One Ogallala Aquifer well, PTX06-1056, had continued detections of 4-amino-2,6-DNT and 1,2-DCA above the laboratory PQL, but below the GWPS in 2017-2021, indicating possible migration of perched groundwater to the Ogallala Aquifer. In addition, sporadic detections of 4-amino-2,6-DNT have occurred in 2020 in PTX06-1076 below the PQL and GWPS. In response to these detections, Pantex will conduct additional sampling (i.e., high volume purge and sampling) and evaluate the need for placement of additional wells in the Ogallala aquifer for monitoring. Pantex has fully implemented conditions specified in the Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan (Pantex, 2019). Pantex continues to sample and monitor in accordance with the approved SAP to determine if further actions are necessary and will follow actions described in the Groundwater Contingency Plan.

2.4 Toxicity and Other Contaminant Characteristics

Pantex used the Texas Commission on Environmental Quality (TCEQ) toxicity/chemical/physical properties tables for chemicals and radionuclide slope factors from EPA (Health Effects Assessment Summary Table) for evaluation of risk in the baseline HHRA.

2.4.1 Findings of Third Five-Year Review

No specific guidance changes in radionuclide slope factors were found during review. Some chemical toxicity changes have been implemented, as documented in Texas Risk Reduction Program (TRRP) tables (TCEQ, 2021a). Pantex focused on changes for analytes that have been detected in groundwater. Soil sites are also controlled at Pantex and undergo a site review to evaluate needed worker protection and necessary soil control measures. Work procedures must be approved prior to any activity that will disturb the soils. Based on the recommendations from the First FYR, Pantex now regularly updates the toxicity values and cleanup values for use in the worker protection review for construction activities. Therefore, a review of the impact of new toxicity values is not required for the soil sites.

Table 4 lists analytes with toxicity values that have changed since the second FYR, current medium-specific concentrations (MSCs), and comparison of 2021 MDCs to the current MSCs. The comparison was conducted to identify any analytes for which risk might need to be calculated. As a result of the comparison, Pantex concluded that none of the detected analytes were of concern from a risk perspective. Most of the analytes fell into the following categories:

- The analyte is currently identified as a groundwater COC (2-amino-4,6-DNT, 4-amino-2,6-DNT, and RDX).
- The MDC is less than naturally occurring background and the MSC (cobalt).
- The analyte was not detected in any 2021 groundwater samples (bromomethane and 2-hexanone).

The MDCs of the amino-dinitrotoluenes and RDX exceeded the current MSCs. However, these chemicals were identified as groundwater COCs in the HHRA and treatment systems are in place to address elevated concentrations of these chemicals.

The MDC of manganese exceeded the current MSC. However, manganese is elevated as a result of reducing conditions in the ISB treatment zone. It is expected to precipitate out as the groundwater moves downgradient and encounters more oxidizing condition.

Table 5 compares the current GWPSs to the 2021 MSCs. Note that 5 of the MSCs that have similar health effects were adjusted so the cumulative hazard index does not exceed 1. The 2021 MSCs are less than the current GWPSs for 1,4-dioxane and perchlorate; and the 2021 adjusted MSCs are less than the current GWPSs for 2-A-4,6-DNT and 4-A-2,6-DNT.

- For 1,4-dioxane, although the 2021 MSC of 0.85 μg/L is less than the current GWPS, the GWPS remains at 7.7 μg/L because it is approximately equal to a 1E-05 cancer risk, which is within the target cancer risk range.
- For perchlorate, the 2021 MSC is the EPA interim HA of 15 μg/L; the interim HA will be adopted as the new GWPS starting in January 2023.
- For 2-amino-4,6-dinitrotoluene and 4-amino-2,6-dinitrotoluene, the 2021 adjusted MSCs of 0.7 μg/L are less than the current GWPSs of 1.2 μg/L. However, the values are similar and in addition, there is uncertainty associated with the screening toxicity values used to calculate the 2021 adjusted MSCs. There are no EPA verified toxicity values or provisional toxicity values for these two chemicals due to a paucity of chemical-specific information. EPA employed an alternative analogue approach, which uses data from a related compound (i.e., 2,4,6-TNT), to calculate the screening toxicity values and cautions the user concerning the uncertainty associated with these values (EPA, 2020). Therefore, the GWPSs remain at 1.2 μg/L.

In summary, only the GWPS for perchlorate will change.

1,4-Dioxane is a concern in Zone 11 where it was likely used as a stabilizer for chlorinated solvents such as TCE. The first FYR recommended evaluation over time to determine if the source is depleting. The second FYR recommended continued monitoring in the Zone 11 plume and downgradient from the Zone 11 ISB system to evaluate potential expansion of the plume. As a result of these recommendations, 1,4-dioxane sampling is now conducted at all upgradient and downgradient wells for the Zone 11 ISB as well as Zone 11 areas where a release could have occurred. Figure 1 shows the progression of the plume from 2012 to 2021. The figure shows that the 1,4-dioxane plume is migrating to the southeast, with the southern leading edge now crossing onto Texas Tech property and the eastern edge moving toward the SEPTS. The recommendations of this FYR are the same as the recommendation from the second FYR – continued monitoring within the Zone 11 plume and downgradient of the Zone 11 ISB system. Additional downgradient wells may need to be added to monitor movement of the plume in the perched aquifer. Further actions will be determined based on results of sampling and in accordance with the Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan (Pantex, 2019a).

2.5 Changes in Risk Assessment Methods

For this assessment, new TCEQ and EPA guidance was evaluated to determine if new methods were developed.

2.5.1 Findings of Third Five-Year Review

During the first and second FYRs, the evaluation of new guidance released by the EPA and TCEQ since the baseline HHRAs indicated that further risk evaluation was not necessary and no changes in GWPS or RA were recommended. No changes to TCEQ risk assessment guidance were found during this third FYR. In 2019, EPA published *Guidelines for Human Exposure Assessment* (EPA, 2019). This document replaces the 1992 *Guidelines for Exposure Assessment*. The updated guidelines include information about planning exposure assessments, models that predict exposure, details on planning human exposure studies, and uncertainty and variability in exposure assessments. Much of this content focuses on actions before or during the RI phase. Where changes to exposure guidance are specific and substantive, they are reflected in updated EPA Regional Screening Levels and updated TRRR MSCs. Thus, these changes are captured by comparison of site concentrations/GWPSs to the updated MSCs (Table 5). After review of the new guidance, it was determined that no changes in the GWPS or RA are recommended based on changes in risk assessment methods.

3 Ecological Risk Assessment Evaluation

The *Site-Wide Ecological Risk Assessment Report* (Pantex, 2005) evaluated potential risks to ecological receptors. Pantex followed a tiered ERA process from the State of Texas (TNRCC, 2001) that is consistent with EPA guidance (1989). The tiered process starts with a Tier 1 assessment that consists of a checklist that is used to evaluate habitat present at each RA unit, the types of contaminants, affected media, and the probability that ecological receptors in aquatic or terrestrial habitat may be exposed to the contamination. The Tier 1 checklist focuses the continuing risk assessment only to the affected media and habitat that require further assessment or allows a unit to be excluded from further consideration. Because many of the units at Pantex are within industrial areas that are not suitable habitat for wildlife receptors, those units were excluded from further risk assessment for the terrestrial habitat. However, those units were evaluated for their potential to impact downstream aquatic areas (i.e., playas at or near Pantex). All other units that were not excluded through the Tier 1 checklist were evaluated in a Tier 2 ERA for terrestrial and aquatic habitats. A site-specific Tier 3 ERA was not conducted.

Pantex contains two types of habitat: upland/grassland, and playa (wetland). The playas are ephemeral wetlands and were addressed as both a wet and dry habitat (full time for both, and ½ year wet and dry). The receptors evaluated included representatives from each of the foraging/lifestyle guilds at the Pantex Plant and included surrogate species for threatened and endangered species identified at the Pantex Plant. The conclusion from the site-wide ERA was: "based on the results of the individual Tier 2 Screening-Level Ecological Risk Assessments (SLERAs) conducted at each of the upland corrective action units, the individual Tier 2 SLERAs conducted at Playas 1, 2, 3, and 4, and Pantex Lake, the cumulative site-wide ERA, and sediment transport modeling, ecological risks are not anticipated and further evaluation in a Tier 3 Site Specific ERA or remedial planning (i.e., calculation of protective concentration levels [PCLs]) is not necessary; thus, no further action from an ecological perspective is recommended for the current inactive sites."

EPA guidance on conducting FYRs was used to complete this risk evaluation. The guidance suggests review of factors that would affect risk conclusions. Those factors and evaluations are provided below.

3.1 Standards and To Be Considered Criteria

No RA was required at Pantex for ecological receptors; therefore, no standards, cleanup values, or other criteria were considered.

3.2 Exposure Pathways

The exposure pathways considered in the ERA are still applicable at Pantex. No additional receptors require evaluation.

3.3 Toxicity and Other Contaminant Characteristics

3.3.1 Toxicity Changes

3.3.1.1 Findings of Third Five-Year Review

The screening-level benchmark tables were incorporated in the TCEQ ERA guidance until the 2017 version was published. At that time the screening-level benchmark tables for surface water, sediment, and soil were removed from the document to facilitate updates without having to revise the ERA guidance. The benchmark tables and supporting documentation are now collectively known as TCEQ publication RG-263B (TCEQ, 2018b) and are maintained on the TCEQ ERA website (available online at: <www.tceq.texas.gov/goto/era>). Instead, RD-263B is updated periodically and has been occurring annually since 2017. Any updates to the benchmarks are listed in a worksheet labeled "List of Updates" in the Excel workbook.

Between the Second and Third FYR, the number of updates per year were as follows: 11 in 2018, 8 in 2019, 12 in 2020, 16 in 2021, and 10 in 2022. Please note that "updates" is a broad term and can mean any of the following: revising footnotes for clarity, removing screening values, adding screening values, revising screening values. Of the 57 updates since 2018, the majority have been for surface water. There have only been three updates for soil and eight updates for sediment. In fact, for soil only one of the three updates resulted in a change to a value; the benchmarks for all polycyclic aromatic hydrocarbons (PAHs) were removed and replaced with the lowest conservative wildlife PCL. See below for further discussion on the PAHs in soil and sediment.

For sediment only five updates affected actual values. Two of the five updates concerned PFOS, which was not evaluated historically but will be evaluated in future efforts at Pantex. The three other numerical updates were for copper (benthic PCL corrected), vinyl chloride (benchmark corrected), and 3-methyl-4-chlorophenol (benchmarks were re-evaluated). The copper PCL was not used in the Sitewide ERA and the other two chemicals were not part of the analytical suite at the Playas.

While surface water has received the majority of the updates since the second FYR, these updates would not substantially affect the previous ERA conclusions at Pantex. The primary surface water bodies at Pantex are the playas and they were evaluated in *The Site-Wide Ecological Risk Assessment Report* (Pantex, 2005). As noted in Section 3.1, no RA was required at Pantex for ecological receptors. Even in the event that use of an updated surface water benchmark would result in selection of a new contaminant of potential ecological concern (COPEC) or further evaluation of an already selected COPEC, these results would not have substantively altered the ERA conclusions. In most cases the underlying cause of unacceptable surface water concentrations is elevated concentrations in sediment or surrounding soil which then become the target of an RA. Neither of these media had unacceptable risks to ecological receptors. As a result, updates to the surface water benchmarks would not significantly alter the previous ERA results.

One major guidance change in 2018 focused on the evaluation of PAHs in soil and sediment. PAHs almost always occur in the environment as mixtures. Therefore, TCEQ indicated that the benchmarks and PCLs provided for total PAHs (TPAHs) are the most relevant for evaluating risk in an ERA. Values for individual, low molecular weight, and high molecular weight PAHs should only be used where there are no benchmarks or PCLs available for TPAHs (e.g., for surface water). As a result, the TCEQ has replaced the soil benchmarks for low and high molecular weight PAHs (LPAHs and HPAHs) with a TPAHs benchmark.

This focus on TPAH would have limited effect on the sediment evaluations conducted previously at Pantex. The Sitewide ERA noted that: "TCEQ guidance provides sediment benchmarks for total PAHs, HPAHs, and LPAHs, in addition to individual PAHs. Due to the additive toxicity of PAHs, PAH concentrations in sediment are compared to all applicable types of benchmarks, when available. Any detected PAH compound not eliminated during the initial screening step is not screened out during the second step unless all three benchmarks are met, where available. For example, a low molecular wight PAH (such as naphthalene) is not screened out unless the benchmarks for naphthalene, LPAHs, and total PAHs are met." Thus, the previous level of TPH screening for sediment in the Sitewide ERA was sufficiently rigorous.

This focus on TPAH also would have limited effect on the soil evaluations conducted previously at Pantex. For soil, the sitewide ERA had noted that "TCEQ ERA guidance only lists soil benchmarks for acenaphthene (20 mg/kg plants) and flourene (30 mg/kg soil invertebrates). Other databases (e.g., LANL, EPA Regions 5 and 6) also do not include benchmarks for total PAHs; therefore, the lowest value provided in the TCEQ guidance is used as a conservative surrogate for a total PAH screening level." In the 2018 guidance the TCEQ has replaced all soil PAH benchmarks with the lowest Conservative PCL for total PAHs (2.8 mg/kg) for wildlife from the Ecological PCL Database, which is lower than the benchmark used in the Sitewide ERA.

In the Sitewide ERA, identification of initial contaminants of potential concern (COPCs) that bioaccumulate precedes the application of ecological benchmarks and is used to retain COPCs for food-chain analysis regardless of their concentration relative to ecological benchmarks. However, TCEQ does not identify PAHs as bioaccumulative. The ecological benchmarks presented in the Benchmark Tables evaluate direct exposure to specific media for selected receptors and are not expected to evaluate bioaccumulation concerns. The soil benchmarks were used for evaluation of direct exposure to terrestrial plants and macroinvertebrates.

Total PAHs were selected as initial COPCs in soil at Playas 1, 3, and 4. The maximum TPAH concentrations at Playas 3 and 4 were 0.024 and 0.95 mg/kg, respectively, both below the PCL of 2.8 mg/kg. The Playa 1 maximum TPAH concentration was 2.95 mg/kg, just above the PCL of 2.8 mg/kg but total PAHs were only detected in 27 of 106 samples. Inclusion of the new TPAH screening value in soil would not alter the conclusions of the Sitewide ERA.

The radionuclide benchmarks are biota concentration guides (BCGs) from DOE's *A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota* (DOE, 2002) and were updated in 2019 (DOE, 2019). A comparison between the two versions indicated that none of the BCGs had changed; therefore, no rescreening of radiological data at Pantex is necessary for the ERA.

The other toxicity reference values (TRVs) were derived through use of dose-based no observed adverse effect levels (NOAELs) and lowest observed adverse effect levels (LOAELs). Sources for NOAEL and LOAEL TRVs are not typically specified in ERA guidance. The NOAEL and LOAEL TRVs for wildlife used in the ERA were derived from laboratory or field studies reported in literature that were evaluated for population scale or relevant responses (e.g., growth, reproductive success, fecundity, offspring impacts, and mortality). No new information was found regarding the original sources of TRVs used in the ERA; therefore, no recalculation of risk is necessary for the ERA.

Even in the 2018 guidance, TCEQ only makes limited suggestions about potential sources of TRVs. However, TCEQ and its contractor (West Texas A&M University) have developed an Ecological PCL Database or "PCL Database" that provides default ecological PCLs for soil and sediment for a variety of wildlife receptors and COCs (https://pcl.wtamu.edu/pcl/PCL_Calculator.jsp). The PCL Database was officially released to the public in January 2017 and is updated periodically. TCEQ (2018) refers to the PCL Database as a source for assessment levels, toxicity profiles, TRVs, life history information, and uptake factors (e.g., bioaccumulation factors). Specifically, the guidance notes that "TRVs are available from the PCL Database for use in Tier 2 and Tier 3 ERAs and follow a standard methodology for development." As a result of the TRV information available in the PCL Database, any future ERAs at Pantex would primarily use this information for consistency purposes.

3.4 Changes in Risk Assessment Methods

Pantex conducted the ERA using guidance from the State of Texas, as well as considering EPA guidance. For this assessment, State of Texas and EPA guidance were evaluated to determine if new methods were developed and to determine the potential impacts to the ERA conclusions.

3.4.1 Findings of Third Five-Year Review

Pantex conducted the ERAs using guidance from the State of Texas, as well as considering EPA guidance. The *Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas* (TNRCC, 2001) was published in 2001, with 2006 (TCEQ, 2006), 2014 (TCEQ, 2014), and 2017 (TCEQ, 2017c) updates. The most significant technical updates were incorporated into the January 2017 version and discussed during the Second FYR. The third FYR focused on the 2018 updates. One major update to risk assessment methods was identified:

- Major – Evaluating Risk from PAHs in soil and sediment. See previous discussion in Section 3.3.1.1.

ERAs for soil, surface water, and sediment media were completed using methods described in the 2001 guidance. As a result, the sites were re-revaluated for risk at Pantex Plant in light of the new guidance in Section 3.3.1.1. As the revised PAH evaluation methodologies would not result in any changes to the conclusions of the ERA, further evaluation is not recommended. No other changes in risk assessment methods have impacted previous risk assessments or conclusions.

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Table 1. Data and Statistical Summary for Arsenic at the ISB Systems

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect			Detected Concentration		UCL	UCL> GWPS[1]?	Freq of Detect			Detected Concentration		UCL	UCL> GWPS[1]?
					Min	Max						Min	Max		
Down-Gradient Wells															
PTX06-1123	SE	14	/	14	6.4	70	**29.2**	Yes	Well not sampled.						
PTX06-1037	SE	20	/	20	5.1	55	**34.2**	Yes	11	/	11	17	220	**93.13**	Yes
PTX06-1045	SE	Well was dry during this period							0	/	4	NA	NA	NA	NA
PTX06-1153	SE	15	/	17	2	6.4	4.5	No	2	/	16	4.9	5.7	NA	No[2]
PTX06-1154	SE	20	/	20	40	120	**79**	Yes	15	/	16	32	130	**88.49**	Yes
PTX06-1012	Z11	18	/	19	1.8	8.5	5.4	No	15	/	16	5.6	16	11.78	No
PTX06-1148	Z11	10	/	12	1.5	2.9	2.5	No	1	/	16	1.1	1.1	NA	No[2]
PTX06-1149	Z11	12	/	12	17	41	**33**	Yes	15	/	16	9	44	**31.35**	Yes
PTX06-1150	Z11	11	/	12	1.8	5.1	3.2	No	3	/	16	1.1	48	NA	Yes[2]
PTX06-1155	Z11	20	/	20	24	81	**47.6**	Yes	16	/	16	24	84	**60.86**	Yes
PTX06-1156	Z11	20	/	20	31	85	**49.8**	Yes	16	/	16	42	74	**58.13**	Yes
PTX06-1173	Z11	Well added to monitoring program following Second FYR							16	/	16	30	82	**62.82**	Yes
PTX06-1174	Z11	Well added to monitoring program following Second FYR							16	/	16	41	98	**73.02**	Yes
PTX06-1175	Z11	Well added to monitoring program following Second FYR							1	/	16	3	3	NA	No[2]
PTX06-ISB079	Z11	Well added to monitoring program following Second FYR							6	/	6	23	36	**30.71**	Yes
PTX06-ISB082	Z11	Well added to monitoring program following Second FYR							6	/	6	41	51	**49.39**	Yes
PTX06-1191	SE Ext	Well added to monitoring program following Second FYR							0	/	5	NA	NA	NA	NA
PTX06-1194	SE Ext	Well added to monitoring program following Second FYR							0	/	5	NA	NA	NA	NA
PTX06-1196	SE Ext	Well added to monitoring program following Second FYR							0	/	5	NA	NA	NA	NA

Table 1. Data and Statistical Summary for Arsenic at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect			Detected Concentration		UCL	UCL> GWPS[1]?	Freq of Detect			Detected Concentration		UCL	UCL> GWPS[1]?
					Min	Max						Min	Max		
Treatment Zone Wells															
PTX06-1100	PS	5	/	5	5.8	26.1	24.9	Yes	5	/	5	12	200	NA	Yes[2]
PTX06-ISB014	SE	13	/	13	49	110	84.4	Yes	Well not sampled.						
PTX06-ISB019	SE	6	/	6	52	88.7	78.4	Yes	Well not sampled.						
PTX06-ISB021	SE	Well added to monitoring program following Second FYR							4	/	4	120	270	NA	Yes[2]
PTX06-ISB024	SE	Well added to monitoring program following Second FYR							2	/	2	24	32	NA	Yes[2]
PTX06-ISB030B	SE	11	/	11	13	85	63	Yes	14	/	15	42	240	155.4	Yes
PTX06-ISB036	SE	1	/	1	--	50.8	NA	Yes	Well not sampled.						
PTX06-ISB038	SE	16	/	16	26	99	70.9	Yes	15	/	15	35	130	80.44	Yes
PTX06-ISB042	SE	10	/	10	34	67	53.4	Yes	1	/	3	16	16	NA	Yes[2]
PTX06-ISB046	SE	16	/	16	23	76	54.7	Yes	15	/	15	32	400	197.8	Yes
PTX06-ISB048	SE	14	/	14	63	160	99.1	Yes	12	/	12	17	110	73.15	Yes
PTX06-1164	Z11	4	/	6	2	14	9	No	2	/	16	0.6	12	NA	No[2]
PTX06-1169	Z11	1	/	1	--	69	NA	Yes[2]	6	/	6	55	70	69.04	Yes
PTX06-1170	Z11	8	/	8	33	53	44.2	Yes	16	/	16	16	50	33.88	Yes
PTX06-1176	Z11	4	/	5	1.5	4.1	NA	No[2]	15	/	16	4.3	240	96.22	Yes
PTX06-1177	Z11	5	/	5	1.7	48	NA	Yes[2]	16	/	16	16	380	217	Yes
PTX06-1209	Z11	Well added to monitoring program following Second FYR							0	/	1	NA	NA	NA	NA
PTX06-1210	Z11	Well added to monitoring program following Second FYR							1	/	1	44	44	NA	Yes[2]
PTX06-ISB055	Z11	15	/	15	5.7	33.8	21	Yes	11	/	13	9.1	69	39.44	Yes

Table 1. Data and Statistical Summary for Arsenic at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect			Detected Concentration Min	Detected Concentration Max	UCL	UCL> GWPS[1]?	Freq of Detect			Detected Concentration Min	Detected Concentration Max	UCL	UCL> GWPS[1]?
PTX06-ISB059	Z11	13	/	14	4.7	25.7	**12.6**	**Yes**	12	/	13	4.8	200	**94.89**	**Yes**
PTX06-ISB063	Z11	15	/	15	5.6	58.4	**25.2**	**Yes**	9	/	10	6.2	17	**13.76**	**Yes**
PTX06-ISB064	Z11	Well added to monitoring program following Second FYR							3	/	4	44	90	NA	**Yes[2]**
PTX06-ISB065	Z11	2	/	2	44.7	47.7	NA	**Yes**	Well not sampled.						
PTX06-ISB068	Z11	Well added to monitoring program following Second FYR							2	/	4	160	270	NA	**Yes[2]**
PTX06-ISB069A	Z11	14	/	14	13	41.7	**26.9**	**Yes**	9	/	9	14	30	**24.73**	**Yes**
PTX06-ISB071	Z11	Well added to monitoring program following Second FYR							8	/	9	7.7	16	**13.67**	**Yes**
PTX06-ISB073	Z11	14	/	14	9.2	71.6	**30.4**	**Yes**	11	/	13	9.6	170	**81.02**	**Yes**
PTX06-ISB075	Z11	17	/	17	47	590	**249.3**	**Yes**	16	/	16	91	260	**205.3**	**Yes**
PTX06-ISB077	Z11	11	/	13	4.1	113	**55.1**	**Yes**	10	/	10	8.2	13	11.8	No
PTX06-ISB079	Z11	Well added to monitoring program following Second FYR							12	/	12	9.9	36	**25.86**	**Yes**
PTX06-ISB081	Z11	13	/	13	13	81.5	**34.2**	**Yes**	Well not sampled.						
PTX06-ISB082	Z11	12	/	12	12	68.6	**43.5**	**Yes**	16	/	16	31	51	**43.71**	**Yes**
PTX06-ISB085A	Z11	9	/	9	26	77.3	**57.2**	**Yes**	Well not sampled.						
PTX06-ISB133	Z11	Well added to monitoring program following Second FYR							1	/	2	9.6	9.6	NA	No
PTX06-ISB135	Z11	Well added to monitoring program following Second FYR							3	/	3	2.1	78	NA	**Yes[2]**
PTX06-ISB137	Z11	Well added to monitoring program following Second FYR							1	/	2	18	18	NA	**Yes[2]**
PTX06-1213	SE Ext	Well added to monitoring program following Second FYR							1	/	1	290	290	NA	**Yes[2]**
PTX06-1214	SE Ext	Well added to monitoring program following Second FYR							1	/	1	97	97	NA	**Yes[2]**
PTX06-ISB301	SE Ext	Well added to monitoring program following Second FYR							0	/	1	NA	NA	NA	NA

Table 1. Data and Statistical Summary for Arsenic at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect	Detected Concentration		UCL	UCL>	Freq of Detect			Detected Concentration		UCL	UCL>
			Min	Max		GWPS[1]?				Min	Max		GWPS[1]?
PTX06-ISB302	SE Ext	Well added to monitoring program following Second FYR					7	/	8	130	390	**278.5**	**Yes**
PTX06-ISB303	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB304	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB305	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB306	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB307	SE Ext	Well added to monitoring program following Second FYR					6	/	8	110	290	**215**	**Yes**
PTX06-ISB308	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB309	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB310	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB311	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB312	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB313	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB314	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB315	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB316	SE Ext	Well added to monitoring program following Second FYR					1	/	1	7.1	7.1	NA	No[2]
PTX06-ISB317	SE Ext	Well added to monitoring program following Second FYR					6	/	8	150	620	**620**	**Yes**
PTX06-ISB318	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB319	SE Ext	Well added to monitoring program following Second FYR					1	/	2	160	160	NA	**Yes[2]**
PTX06-ISB320	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB321	SE Ext	Well added to monitoring program following Second FYR					5	/	7	100	500	**322.8**	**Yes**

Table 1. Data and Statistical Summary for Arsenic at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect	Detected Concentration		UCL	UCL> GWPS[1]?	Freq of Detect			Detected Concentration		UCL	UCL> GWPS[1]?
			Min	Max						Min	Max		
PTX06-ISB322	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB323	SE Ext	Well added to monitoring program following Second FYR					0	/	1	NA	NA	NA	NA
PTX06-ISB324	SE Ext	Well added to monitoring program following Second FYR					1	/	1	4.4	4.4	NA	No[2]
PTX06-ISB325	SE Ext	Well added to monitoring program following Second FYR					7	/	7	4.3	450	**315.3**	**Yes**
PTX06-ISB327	SE Ext	Well added to monitoring program following Second FYR					1	/	1	8.7	8.7	NA	No
PTX06-ISB329	SE Ext	Well added to monitoring program following Second FYR					3	/	3	4.7	260	NA	**Yes[2]**
PTX06-ISB331	SE Ext	Well added to monitoring program following Second FYR					1	/	1	2.3	2.3	NA	No[2]

All concentrations are µg/L. For duplicate pairs the larger of the two results was used.
Bold = UCL exceeds GWPS.
[1]The MCL for arsenic is 10 µg/L. The background concentration (12 µg/L) is used for the GWPS as the RRR allows cleanup to background when background concentrations are higher than the MCL.
[2]Maximum detected concentration used for comparison.
[3]Summary statistics exclude one low outlier concentration from 5/15/2013.
NA = Not applicable.
UCL = Upper confidence limit.

Table 2. Data and Statistical Summary for Barium at the ISB Systems

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2022)						
		Freq of Detect			Detected Concentration Min	Detected Concentration Max	UCL	UCL> MCL[1]?	Freq of Detect			Detected Concentration Min	Detected Concentration Max	UCL	UCL> MCL[1]?
Down-Gradient Wells															
PTX06-1037	SE	20	/	20	790	2700	1925	No	11	/	11	2100	2600	**2435**	**Yes**
PTX06-1123	SE	14	/	14	1200	9600	3956	Yes	Samples not collected.						
PTX06-1153	SE	20	/	20	240	579	360	No	16	/	16	350	520	443.7	No
PTX06-1154	SE	20	/	20	5860	21000	15467	Yes	16	/	16	10000	21000	**17708**	**Yes**
PTX06-1012	Z11	20	/	20	360	840	556	No	16	/	16	340	950	733.5	No
PTX06-1148	Z11	13	/	13	130	480	370	No	16	/	16	410	740	573.4	No
PTX06-1149	Z11	13	/	13	137	1500	1081	No	16	/	16	170	1500	901.7	No
PTX06-1150	Z11	13	/	13	100	160	136	No	16	/	16	150	590	285.8	No
PTX06-1155	Z11	20	/	20	570	2100	1177	No	16	/	16	700	1500	1237	No
PTX06-1156	Z11	20	/	20	1600	4100	2919	Yes	16	/	16	3100	5400	**4302**	**Yes**
PTX06-1173	Z11	Well added to monitoring program following Second FYR							16	/	16	520	3900	1944	No
PTX06-1174	Z11	Well added to monitoring program following Second FYR							16	/	16	370	3400	1771	No
PTX06-1175	Z11	Well added to monitoring program following Second FYR							16	/	16	150	530	325.4	No
PTX06-ISB079	Z11	Well added to monitoring program following Second FYR							6	/	6	760	1200	1061	No
PTX06-ISB082	Z11	Well added to monitoring program following Second FYR							6	/	6	660	920	818.2	No
PTX06-1191	SE Ext	Well added to monitoring program following Second FYR							5	/	5	190	290	272.1	No
PTX06-1194	SE Ext	Well added to monitoring program following Second FYR							5	/	5	150	230	223.7	No
PTX06-1196	SE Ext	Well added to monitoring program following Second FYR							5	/	5	160	250	253.7	No[3]

Table 2. Data and Statistical Summary for Barium at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2022)				
		Freq of Detect	Detected Concentration Min	Detected Concentration Max	UCL	UCL> MCL[1]?	Freq of Detect	Detected Concentration Min	Detected Concentration Max	UCL	UCL> MCL[1]?
Treatment Zone Wells											
PTX06-1100	SE	5 / 5	2400	13000	12989	Yes	5 / 5	3800	6100	**6231**	**Yes**
PTX06-ISB030B	SE	No samples collected during this period.					4 / 4	2500	7700	NA	Yes[2]
PTX06-ISB038	SE	No samples collected during this period.					4 / 4	850	2800	NA	Yes[2]
PTX06-ISB042	SE	No samples collected during this period.					2 / 2	250	430	NA	No
PTX06-ISB046	SE	No samples collected during this period.					4 / 4	780	1400	NA	No
PTX06-ISB048	SE	No samples collected during this period.					2 / 2	890	920	NA	No
PTX06-ISB055	Z11	No samples collected during this period.					9 / 9	1300	2300	1983	No
PTX06-ISB059	Z11	No samples collected during this period.					9 / 9	780	2800	1676	No
PTX06-ISB063	Z11	No samples collected during this period.					6 / 6	1100	1700	1559	No
PTX06-ISB069A	Z11	No samples collected during this period.					5 / 5	650	910	905.4	No
PTX06-ISB071	Z11	No samples collected during this period.					5 / 5	600	940	928.8	No
PTX06-ISB073	Z11	No samples collected during this period.					9 / 9	630	1500	1046	No
PTX06-ISB075	Z11	No samples collected during this period.					12 / 12	240	840	712.9	No
PTX06-ISB077	Z11	No samples collected during this period.					5 / 5	450	750	749.7	No
PTX06-ISB079	Z11	No samples collected during this period.					8 / 8	790	1300	1131	No
PTX06-ISB082	Z11	No samples collected during this period.					8 / 8	660	930	840.2	No
PTX06-1164	Z11	2 / 2	170	340	NA	No[2]	12 / 12	230	950	719.6	No
PTX06-1169	Z11	1 / 1	--	2100	NA	No[2]	6 / 6	500	2000	**2570**	**Yes**
PTX06-1170	Z11	No samples collected during this period.					12 / 12	130	740	390.2	No
PTX06-1176	Z11	1 / 1	--	190	NA	No[2]	12 / 12	980	7400	**4538**	**Yes**
PTX06-1177	Z11	1 / 1	--	180	NA	No[2]	12 / 12	610	9900	**6812**	**Yes**
PTX06-ISB302	SE Ext	Well added to monitoring program following Second FYR					5 / 5	160	540	569.3	No[3]

Table 2. Data and Statistical Summary for Barium at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2022)						
		Freq of Detect	Detected Concentration		UCL	UCL> MCL[1]?	Freq of Detect			Detected Concentration		UCL	UCL> MCL[1]?
			Min	Max						Min	Max		
PTX06-ISB304	SE Ext	Well added to monitoring program following Second FYR					1	/	1	190	190	NA	No
PTX06-ISB305	SE Ext	Well added to monitoring program following Second FYR					1	/	1	170	170	NA	No
PTX06-ISB306	SE Ext	Well added to monitoring program following Second FYR					1	/	1	160	160	NA	No
PTX06-ISB307	SE Ext	Well added to monitoring program following Second FYR					5	/	5	180	1500	1057	No
PTX06-ISB308	SE Ext	Well added to monitoring program following Second FYR					1	/	1	180	180	NA	No
PTX06-ISB309	SE Ext	Well added to monitoring program following Second FYR					1	/	1	180	180	NA	No
PTX06-ISB310	SE Ext	Well added to monitoring program following Second FYR					1	/	1	180	180	NA	No
PTX06-ISB311	SE Ext	Well added to monitoring program following Second FYR					1	/	1	190	190	NA	No
PTX06-ISB312	SE Ext	Well added to monitoring program following Second FYR					1	/	1	170	170	NA	No
PTX06-ISB313	SE Ext	Well added to monitoring program following Second FYR					1	/	1	180	180	NA	No
PTX06-ISB314	SE Ext	Well added to monitoring program following Second FYR					1	/	1	200	200	NA	No
PTX06-ISB315	SE Ext	Well added to monitoring program following Second FYR					1	/	1	260	260	NA	No
PTX06-ISB316	SE Ext	Well added to monitoring program following Second FYR					1	/	1	900	900	NA	No
PTX06-ISB317	SE Ext	Well added to monitoring program following Second FYR					5	/	5	210	1400	1150	No
PTX06-ISB318	SE Ext	Well added to monitoring program following Second FYR					1	/	1	170	170	NA	No
PTX06-ISB319	SE Ext	Well added to monitoring program following Second FYR					1	/	1	180	180	NA	No
PTX06-ISB320	SE Ext	Well added to monitoring program following Second FYR					1	/	1	220	220	NA	No
PTX06-ISB321	SE Ext	Well added to monitoring program following Second FYR					5	/	5	210	1200	917.7	No
PTX06-ISB322	SE Ext	Well added to monitoring program following Second FYR					1	/	1	200	200	NA	No
PTX06-ISB323	SE Ext	Well added to monitoring program following Second FYR					1	/	1	210	210	NA	No
PTX06-ISB324	SE Ext	Well added to monitoring program following Second FYR					1	/	1	570	570	NA	No
PTX06-ISB325	SE Ext	Well added to monitoring program following Second FYR					5	/	5	210	1200	1036	No

Table 2. Data and Statistical Summary for Barium at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2022)				
		Freq of Detect	Detected Concentration		UCL	UCL> MCL[1]?	Freq of Detect	Detected Concentration		UCL	UCL> MCL[1]?
			Min	Max				Min	Max		
PTX06-ISB327	SE Ext	Well added to monitoring program following Second FYR					1 / 1	96	96	NA	No
PTX06-ISB329	SE Ext	Well added to monitoring program following Second FYR					3 / 3	120	650	NA	No
PTX06-ISB331	SE Ext	Well added to monitoring program following Second FYR					1 / 1	160	160	NA	No

All concentrations are µg/L. For duplicate pairs the larger of the two results was used.
Bold = UCL exceeds MCL
[1]The MCL for barium is 2000 µg/L.
[2]Maximum detected concentration used for comparison.
[3]Maximum detected concentration used for comparison as the 95UCL exceeds the maximum detected concentration.
MCL = Federal maximum contaminant level
NA = Not applicable
UCL = Upper confidence limit.

Table 3. Data and Statistical Summary for Manganese at the ISB Systems

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect			Detected Concentration		UCL	UCL>	Freq of Detect			Detected Concentration		UCL	UCL>
					Min	Max		SL[1]?				Min	Max		SL[1]?
Down-Gradient Wells															
PTX06-1153	SE	20	/	20	36	460	217.9	No	17	/	17	31	370	160.1	No
PTX06-1154	SE	20	/	20	430	2300	1,336	No	16	/	16	510	1,500	971.6	No
PTX06-1037	SE	20	/	20	180	3400	**2,091**	**Yes**	11	/	11	880	2,000	**1,750**	**Yes**
PTX06-1045	SE	Well is dry during this period							3	/	4	2.8	4.1	NA	No[2]
PTX06-1123	SE	14	/	14	370	3100	1,514	No	Samples not collected from this well.						
PTX06-1012	Z11	20	/	20	3.6	23.6	14.5	No	16	/	16	3.3	26	12.25	No
PTX06-1148	Z11	13	/	13	7.25	47	30.6	No	16	/	16	13	240	147.1	No
PTX06-1149	Z11	13	/	13	34	4600	**3,424**	**Yes**	16	/	16	2.4	2,100	1,644	No
PTX06-1150	Z11	13	/	13	2.3	12	6.8	No	15	/	16	1.4	2,000	1,532	No
PTX06-1155	Z11	20	/	20	480	6200	**2,287**	**Yes**	16	/	16	470	2,000	1,300	No
PTX06-1156	Z11	20	/	20	380	10300	**5,158**	**Yes**	16	/	16	710	2,000	1,296	No
PTX06-1173	Z11	Well added to monitoring program following Second FYR							16	/	16	670	6800	**2602**	**Yes**
PTX06-1174	Z11	Well added to monitoring program following Second FYR							16	/	16	370	9400	**3403**	**Yes**
PTX06-1175	Z11	Well added to monitoring program following Second FYR							16	/	16	2.2	170	86.35	No
PTX06-ISB079	Z11	Well added to monitoring program following Second FYR							6	/	6	280	500	443	No
PTX06-ISB082	Z11	Well added to monitoring program following Second FYR							6	/	6	360	5800	515.6	No
PTX06-1191	SE Ext	Well added to monitoring program following Second FYR							5	/	5	2.9	7.7	6.262	No
PTX06-1194	SE Ext	Well added to monitoring program following Second FYR							5	/	5	2.98	49	34.8	No
PTX06-1196	SE Ext	Well added to monitoring program following Second FYR							5	/	5	1.8	96	206.6	No

Table 3. Data and Statistical Summary for Manganese at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect			Detected Concentration		UCL	UCL>	Freq of Detect			Detected Concentration		UCL	UCL>
					Min	Max		SL[1]?				Min	Max		SL[1]?
Treatment Zone Wells															
PTX06-1100	PS	5	/	5	410	885	831.5	No	5	/	5	600	960	936	No
PTX06-ISB014	SE	13	/	13	280	1920	1,171	No	No samples collected during this period.						
PTX06-ISB019	SE	6	/	6	450	1670	1,349	No	No samples collected during this period.						
PTX06-ISB021	SE	Well added to monitoring program following Second FYR							4	/	4	3,300	87,000	NA	**Yes**[2]
PTX06-ISB024	SE	Well added to monitoring program following Second FYR							2	/	2	330	1,100	NA	No[2]
PTX06-ISB030B	SE	11	/	11	370	9100	**4,915**	**Yes**	15	/	15	400	4,700	**2,637**	**Yes**
PTX06-ISB036	SE	1	/	1	--	1020	NA	No[2]	Samples not collected from this well.						
PTX06-ISB038	SE	16	/	16	400	19000	**7,357**	**Yes**	15	/	15	220	6,000	**2,987**	**Yes**
PTX06-ISB042	SE	10	/	10	180	3570	**1,746**	**Yes**	3	/	3	440	590	NA	No[2]
PTX06-ISB046	SE	16	/	16	240	5800	**2,177**	**Yes**	15	/	15	290	20,000	**7,898**	**Yes**
PTX06-ISB048	SE	14	/	14	110	2900	1,238	No	12	/	12	130	750	447.5	No
PTX06-1164	Z11	6	/	6	39	1000	706.5	No	16	/	16	37	2,500	1170	No
PTX06-1169	Z11	1	/	1	--	810	NA	No[2]	6	/	6	570	800	729.7	No
PTX06-1170	Z11	8	/	8	560	1600	1,339	No	16	/	16	1,000	3,200	**1,710**	**Yes**
PTX06-1176	Z11	5	/	5	1.3	960	**5,516**	**Yes**	16	/	16	550	18,000	**6,912**	**Yes**
PTX06-1177	Z11	5	/	5	3.2	26000	**15,453**	**Yes**	16	/	16	710	20,000	**4,820**	**Yes**
PTX06-1209	Z11	Well added to monitoring program following Second FYR							1	/	1	430	430	NA	No[2]
PTX06-1210	Z11	Well added to monitoring program following Second FYR							1	/	1	830	830	NA	No[2]
PTX06-ISB055	Z11	15	/	15	640	2600	1,605	No	13	/	13	580	55,000	**70,637**	**Yes**
PTX06-ISB059	Z11	15	/	15	520	5720	**2,376**	**Yes**	13	/	13	290	40,000	**38,447**	**Yes**
PTX06-ISB063	Z11	15	/	15	330	1400	976.1	No	10	/	10	350	610	490.9	No

Table 3. Data and Statistical Summary for Manganese at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)							Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect			Detected Concentration		UCL	UCL>	Freq of Detect			Detected Concentration		UCL	UCL>
					Min	Max		SL[1]?				Min	Max		SL[1]?
PTX06-ISB064	Z11	Well added to monitoring program following Second FYR							4	/	4	1,200	69,000	NA	**Yes[2]**
PTX06-ISB065	Z11	2	/	2	303	422	NA	No[2]	Samples not collected from this well.						
PTX06-ISB068	Z11	Well added to monitoring program following Second FYR							4	/	4	16,000	28,000	NA	**Yes[2]**
PTX06-ISB069A	Z11	15	/	15	120	1400	860.9	No	9	/	9	45	900	462.1	No
PTX06-ISB071	Z11	Well added to monitoring program following Second FYR							9	/	9	150	630	421.7	No
PTX06-ISB073	Z11	15	/	15	130	2800	1,337	No	13	/	13	42	67,000	**72,813**	**Yes**
PTX06-ISB075	Z11	17	/	17	120	2100	753.8	No	16	/	16	45	120	98.29	No
PTX06-ISB077	Z11	15	/	15	130	1700	1,196	No	9	/	9	220	960	641.3	No
PTX06-ISB078	Z11	No samples collected during this period.							No samples collected during this period.						
PTX06-ISB079	Z11	Well added to monitoring program following Second FYR							16	/	16	260	500	405.5	No
PTX06-ISB081	Z11	13	/	13	670	6300	**3,209**	**Yes**	No samples collected during this period.						
PTX06-ISB082	Z11	12	/	12	400	16000	**7,642**	**Yes**	16	/	16	360	580	487.3	No
PTX06-ISB085A	Z11	9	/	9	470	1780	1,332	No	No samples collected during this period.						
PTX06-ISB130	Z11	Well added to monitoring program following Second FYR							1	/	1	610	610	NA	No[2]
PTX06-ISB133	Z11	Well added to monitoring program following Second FYR							2	/	2	22,000	55,000	NA	**Yes[2]**
PTX06-ISB135	Z11	Well added to monitoring program following Second FYR							3	/	3	61	95,000	NA	**Yes[2]**
PTX06-ISB137	Z11	Well added to monitoring program following Second FYR							2	/	2	29,000	65,000	NA	**Yes[2]**
PTX06-1213	SE Ext	Well added to monitoring program following Second FYR							1	/	1	16,000	16,000	NA	**Yes[2]**
PTX06-1214	SE Ext	Well added to monitoring program following Second FYR							1	/	1	750	750	NA	No[2]
PTX06-ISB301	SE Ext	Well added to monitoring program following Second FYR							1	/	1	2	2	NA	No[2]
PTX06-ISB302	SE Ext	Well added to monitoring program following Second FYR							8	/	8	4	62,000	**72,268**	**Yes**

Table 3. Data and Statistical Summary for Manganese at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect	Detected Concentration		UCL	UCL>	Freq of Detect			Detected Concentration		UCL	UCL>
			Min	Max		SL[1]?				Min	Max		SL[1]?
PTX06-ISB303	SE Ext	Well added to monitoring program following Second FYR					1	/	1	17	17	NA	No[2]
PTX06-ISB304	SE Ext	Well added to monitoring program following Second FYR					1	/	1	37	37	NA	No[2]
PTX06-ISB305	SE Ext	Well added to monitoring program following Second FYR					1	/	1	7.1	7.1	NA	No[2]
PTX06-ISB306	SE Ext	Well added to monitoring program following Second FYR					1	/	1	30	30	NA	No[2]
PTX06-ISB307	SE Ext	Well added to monitoring program following Second FYR					8	/	8	38	21,000	**10,408**	**Yes**
PTX06-ISB308	SE Ext	Well added to monitoring program following Second FYR					1	/	1	25	25	NA	No[2]
PTX06-ISB309	SE Ext	Well added to monitoring program following Second FYR					1	/	1	19	19	NA	No[2]
PTX06-ISB310	SE Ext	Well added to monitoring program following Second FYR					1	/	1	89	89	NA	No[2]
PTX06-ISB311	SE Ext	Well added to monitoring program following Second FYR					1	/	1	18	18	NA	No[2]
PTX06-ISB312	SE Ext	Well added to monitoring program following Second FYR					1	/	1	5	5	NA	No[2]
PTX06-ISB313	SE Ext	Well added to monitoring program following Second FYR					1	/	1	4.1	4.1	NA	No[2]
PTX06-ISB314	SE Ext	Well added to monitoring program following Second FYR					1	/	1	99	99	NA	No[2]
PTX06-ISB315	SE Ext	Well added to monitoring program following Second FYR					1	/	1	110	110	NA	No[2]
PTX06-ISB316	SE Ext	Well added to monitoring program following Second FYR					1	/	1	1,600	1,600	NA	No[2]
PTX06-ISB317	SE Ext	Well added to monitoring program following Second FYR					8	/	8	130	70,000	**40,268**	**Yes**
PTX06-ISB318	SE Ext	Well added to monitoring program following Second FYR					1	/	1	25	25	NA	No[2]
PTX06-ISB319	SE Ext	Well added to monitoring program following Second FYR					2	/	2	70	17,000	NA	**Yes[2]**
PTX06-ISB320	SE Ext	Well added to monitoring program following Second FYR					1	/	1	91	91	NA	No[2]
PTX06-ISB321	SE Ext	Well added to monitoring program following Second FYR					7	/	7	24	99,000	**66,400**	**Yes**
PTX06-ISB322	SE Ext	Well added to monitoring program following Second FYR					1	/	1	130	130	NA	No[2]
PTX06-ISB323	SE Ext	Well added to monitoring program following Second FYR					1	/	1	50	50	NA	No[2]
PTX06-ISB324	SE Ext	Well added to monitoring program following Second FYR					2	/	2	560	610	NA	No[2]

Table 3. Data and Statistical Summary for Manganese at the ISB Systems (Continued)

Well ID	System	Second Five-Year Review Data (2012 - 2016)					Third Five-Year Review Data (2017 - 2021)						
		Freq of Detect	Detected Concentration		UCL	UCL>	Freq of Detect			Detected Concentration		UCL	UCL>
			Min	Max		SL[1]?				Min	Max		SL[1]?
PTX06-ISB325	SE Ext	Well added to monitoring program following Second FYR					7	/	7	42	77,000	**109,723**	**Yes**
PTX06-ISB327	SE Ext	Well added to monitoring program following Second FYR					1	/	1	1,600	1,600	NA	No[2]
PTX06-ISB329	SE Ext	Well added to monitoring program following Second FYR					3	/	3	450	10,000	NA	**Yes**[2]
PTX06-ISB331	SE Ext	Well added to monitoring program following Second FYR					1	/	1	19	19	NA	No[2]

All concentrations are μg/L. For duplicate pairs the larger of the two results was used.
Bold = UCL exceeds SL.
[1]The SL for manganese corresponding to a hazard quotient (HQ) of 1 for a resident is 1700 μg/L.
[2]Maximum detected concentration used for comparison.
[3]Summary statistics exclude one low outlier concentration from 5/15/2013.
FYR = Five-Year Review.
NA = Not applicable.
SL = screening level corresponding to a HQ of 1 for a residential receptor.
UCL = Upper confidence limit.

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Table 4. Detected Groundwater Analytes with Toxicity Changes Potentially Affecting Risk

Analyte	MDC in 2021	BKG	2021 MSC	Basis	Notes
2-Amino-4,6-dinitrotoluene	**12.3**	-	3.65	N	Compound is a groundwater COC.
4-Amino-2,6-dinitrotoluene	**27.9**	-	3.65	N	Compound is a groundwater COC.
Cyclotrimethylenetrinitramine (RDX)	**2100**	-	2	HA	Compound is a groundwater COC.
Manganese	**95000**	16	876	n >S	Reducing conditions in ISB treatment zones have caused this metal to become more soluble. It is expected to precipitate out as the water moves downgradient and encounters more oxidizing conditions.
Cobalt	1.59	5	10.95	n >S	MDC is less than naturally occurring background and MSC.
Bromomethane	All ND	-	51.1	N	Chemical not detected in any samples.
2-Hexanone	All ND	-	182.5	N	

All concentrations are µg/L.
Bolded chemicals have MDCs exceeding MSCs.
Basis: n = basis for MSC is a non-cancer endpoint
>S = solubility limit exceeded
HA = health advisory
BKG = background.
MDC = maximum detected concentration.
MSC = medium specific concentration.

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Table 5. Comparison of Current GWPSs to 2021 MSCs

Groundwater COC	2021 MDC	Current GWPS	Source/Basis	2021 MSC	Basis	2021 MSC Adjusted Level[1]	Notes
Metals							
Boron	2710	7300	ROD/GW-RESnc	7300	n	--	2021 MSC is same as GWPS
Chromium, Hexavalent	1138.815	100	ROD/MCL	100	MCL	--	2021 MSC is same as GWPS
Chromium, Total	1380	100	ROD/MCL	100	MCL	--	2021 MSC is same as GWPS
VOCs							
Chloroform	59	80	ROD/MCL	80	MCL	--	2021 MSC is same as GWPS
1,2-Dichloroethane	71.1	5	ROD/MCL	5	MCL	--	2021 MSC is same as GWPS
1,4-Dioxane	70.3	7.7	ROD/GW-RESc	0.85	c	--	Although 2021 MSC < GWPS, GWPS remains at 7.7 µg/L[2]
Tetrachloroethene	9.45	5	ROD/MCL	5	MCL	--	2021 MSC is same as GWPS
Trichloroethene	367	5	ROD/MCL	5	MCL	--	2021 MSC is same as GWPS
High Explosives							
4-Amino-2,6-Dinitrotoluene	27.9	1.2	ROD/GW-RESnc adj	3.6	n	0.7	Although 2021 adj MSC < GWPS, GWPS remains at 1.2[3]
2-Amino-4,6-Dinitrotoluene	12.3	1.2	ROD/GW-RESnc adj	3.6	n	0.7	Although 2021 adj MSC < GWPS, GWPS remains at 1.2[3]
1,3-Dinitrobenzene	0.0913	3.7	ROD/GW-RESc	3.7	n	--	2021 MSC is same as GWPS
2,4-Dinitrotoluene	3.59	1	ROD/PQL	1	PQL	--	GWPS is the PQL
2,6-Dinitrotoluene	1.29	1	ROD/PQL	1	PQL	--	GWPS is the PQL
HMX	278	360	ROD/GW-RESnc adj	1800	n	360	2021 adj MSC is same as GWPS
RDX	2100	2	HA	2	HA	--	GWPS is the Lifetime HA
TNT (2,4,6-Trinitrotoluene)	39.9	3.6	ROD/GW-RESnc adj	18	n	3.6	2021 adj MSC is same as GWPS
1,3,5-Trinitrobenzene	1850	220	ROD/GW-RESnc adj	1100	n	220	2021 adj MSC is same as GWPS
Other							
Perchlorate	447	26	ROD[4]/GW-RESnc	15	HA	--	The EPA Interim HA will be adopted as the new GWPS

All concentrations are µg/L

[1]Level adjusted for a cumulative hazard index of 1 for multiple chemicals that have similar health effects

[2]The current GWPS of 7.7 µg/L is approximately equal to a 1E-05 cancer risk, which is within the target cancer risk range

[3]The current GWPS and 2021 adjusted MSC values are similar; in addition, there is uncertainty associated with the toxicity values used to calculate the MSC

[4]Cleanup level from ROD and Pantex Plant Ogallala Aquifer and Perched Groundwater Contingency Plan (Pantex, 2009)

Adj = adjusted
BKG = background
GWPS = groundwater protection standard
HA = health advisory
MCL = Federal maximum contaminant level
MDC = maximum detected concentration
RES = residential
c = basis for MSC is a cancer endpoint
n = basis for MSC is a non-cancer endpoint
MSC = media specific concentration
PQL = practical quantitation limit
ROD = Record of Decision

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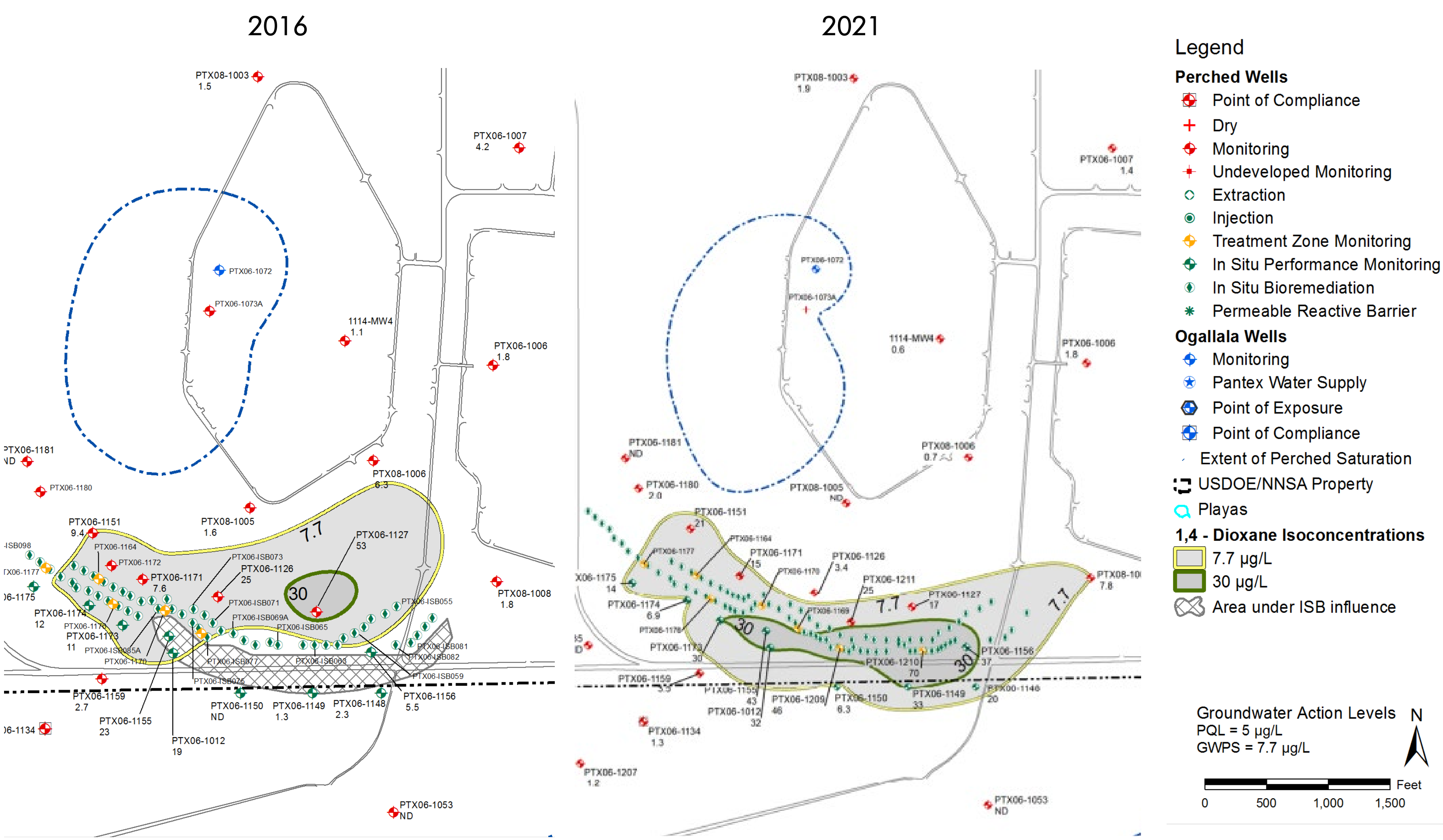
Figure 1. Comparison of the 1,4-Dioxane Plume as Measured in 2016 and 2021



Sources: Pantex 2017, 2022

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Attachment 15

EJScreen Community Report

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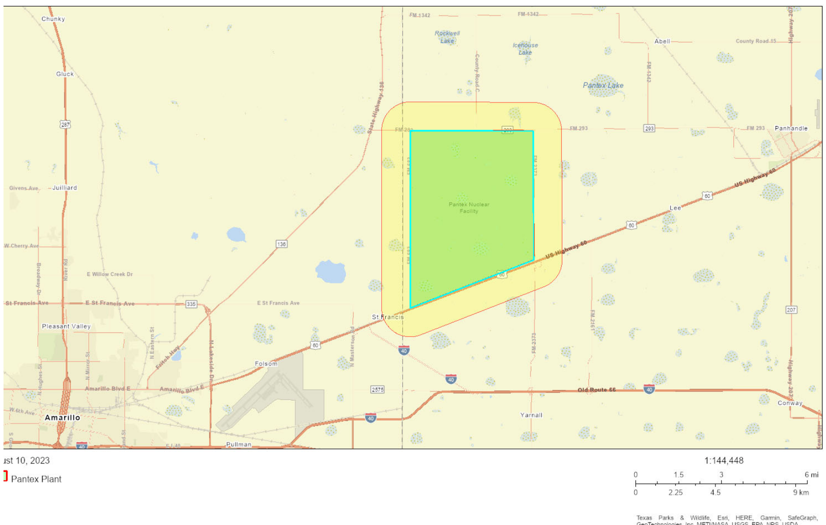
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Carson County, TX

1 mile Ring around the Area
Population: 107
Area in square miles: 45.89



COMMUNITY INFORMATION

Low income: 19 percent	People of color: 23 percent	Less than high school education: 7 percent	Limited English households: 0 percent
Unemployment: 3 percent	Persons with disabilities: 13 percent	Male: 53 percent	Female: 47 percent
53 years Average life expectancy	$34,445 Per capita income	Number of households: 36	Owner occupied: 84 percent

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
No language data available.	

BREAKDOWN BY RACE

White: 84%	Black: 1%	Asian: 0%	Hispanic: 13%
American Indian: 8%	Hawaiian/Pacific Islander: 0%	Other race: 1%	Two or more races: 6%

BREAKDOWN BY AGE

From Ages 1 to 4	8%
From Ages 1 to 18	20%
From Ages 18 and up	80%
From Ages 65 and up	22%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	100%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic popultion can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

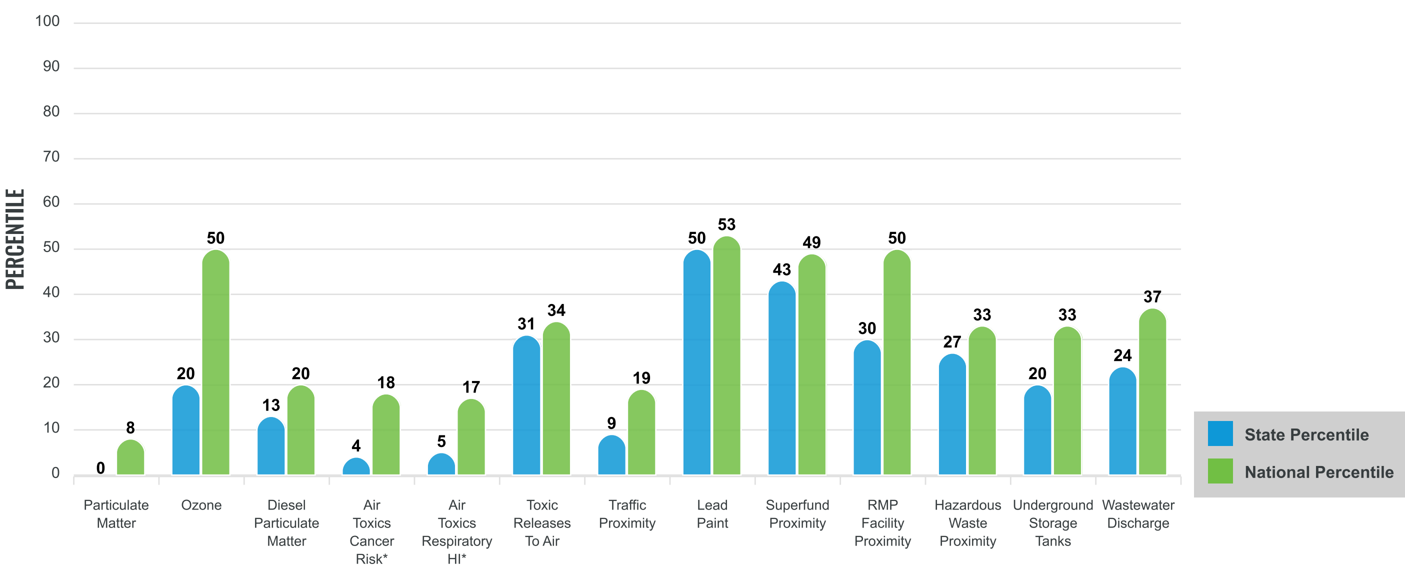
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

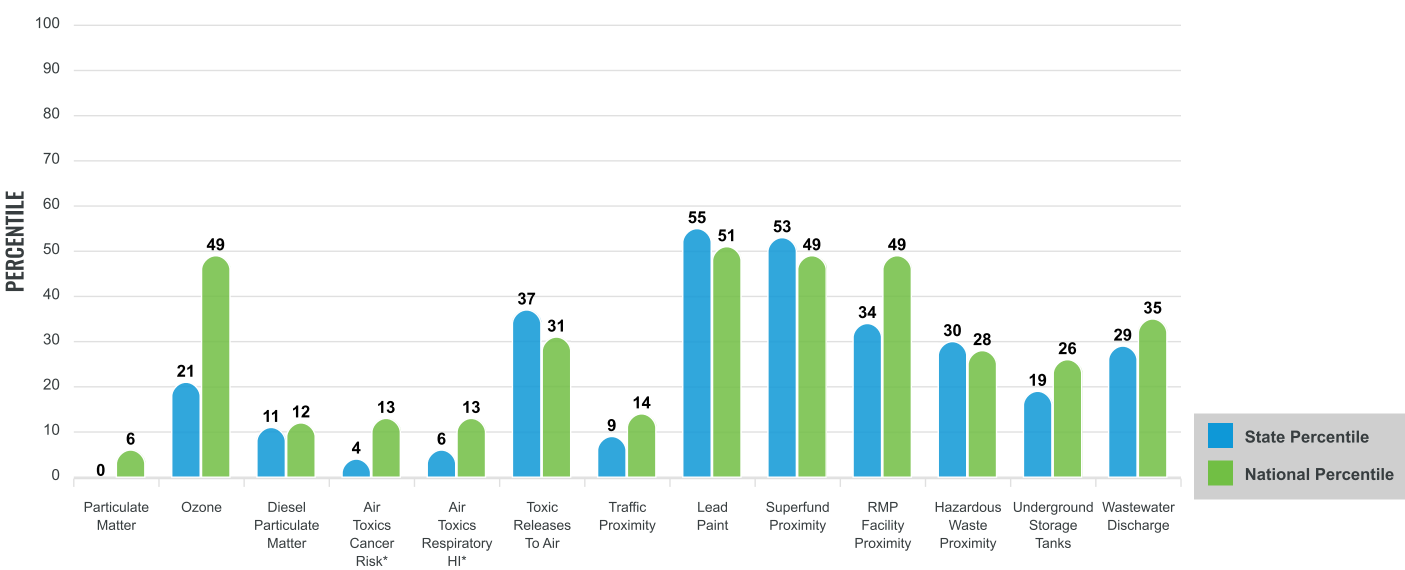
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 1 mile Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	5.63	9.11	0	8.08	6
Ozone (ppb)	61.7	64.6	25	61.6	55
Diesel Particulate Matter ($\mu g/m^3$)	0.086	0.218	12	0.261	12
Air Toxics Cancer Risk* (lifetime risk per million)	20	31	1	28	3
Air Toxics Respiratory HI*	0.2	0.3	1	0.31	4
Toxic Releases to Air	220	12,000	44	4,600	33
Traffic Proximity (daily traffic count/distance to road)	6.7	150	9	210	13
Lead Paint (% Pre-1960 Housing)	0.38	0.17	82	0.3	64
Superfund Proximity (site count/km distance)	0.066	0.085	65	0.13	53
RMP Facility Proximity (facility count/km distance)	0.29	0.63	51	0.43	67
Hazardous Waste Proximity (facility count/km distance)	0.18	0.75	37	1.9	32
Underground Storage Tanks (count/km^2)	0.14	2.3	20	3.9	29
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.00035	0.91	36	22	40
SOCIOECONOMIC INDICATORS					
Demographic Index	21%	46%	17	35%	35
Supplemental Demographic Index	10%	17%	26	14%	32
People of Color	23%	58%	16	39%	42
Low Income	19%	34%	30	31%	35
Unemployment Rate	3%	5%	45	6%	42
Limited English Speaking Households	0%	8%	0	5%	0
Less Than High School Education	7%	16%	37	12%	46
Under Age 5	8%	6%	71	6%	78
Over Age 64	22%	14%	82	17%	74
Low Life Expectancy	16%	20%	12	20%	18

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund 1
Hazardous Waste, Treatment, Storage, and Disposal Facilities 1
Water Dischargers 18
Air Pollution 1
Brownfields 0
Toxic Release Inventory 1

Other community features within defined area:

Schools 0
Hospitals 0
Places of Worship 0

Other environmental data:

Air Non-attainment .... No
Impaired Waters .... No

Selected location contains American Indian Reservation Lands* .... No
Selected location contains a "Justice40 (CEJST)" disadvantaged community .... Yes
Selected location contains an EPA IRA disadvantaged community .... Yes

Report for 1 mile Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	16%	20%	12	20%	18
Heart Disease	6.5	5.9	62	6.1	60
Asthma	8.7	9.2	31	10	17
Cancer	6.7	5.2	80	6.1	59
Persons with Disabilities	11.4%	12.3%	49	13.4%	42

CLIMATE INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	8%	10%	66	12%	56
Wildfire Risk	66%	30%	72	14%	87

CRITICAL SERVICE GAPS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	10%	15%	48	14%	48
Lack of Health Insurance	9%	18%	19	9%	60
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Footnotes

Report for 1 mile Ring around the Area