



Managed and Operated by
Consolidated Nuclear Security, LLC

Environmental Projects: Public Meeting

November 9, 2021

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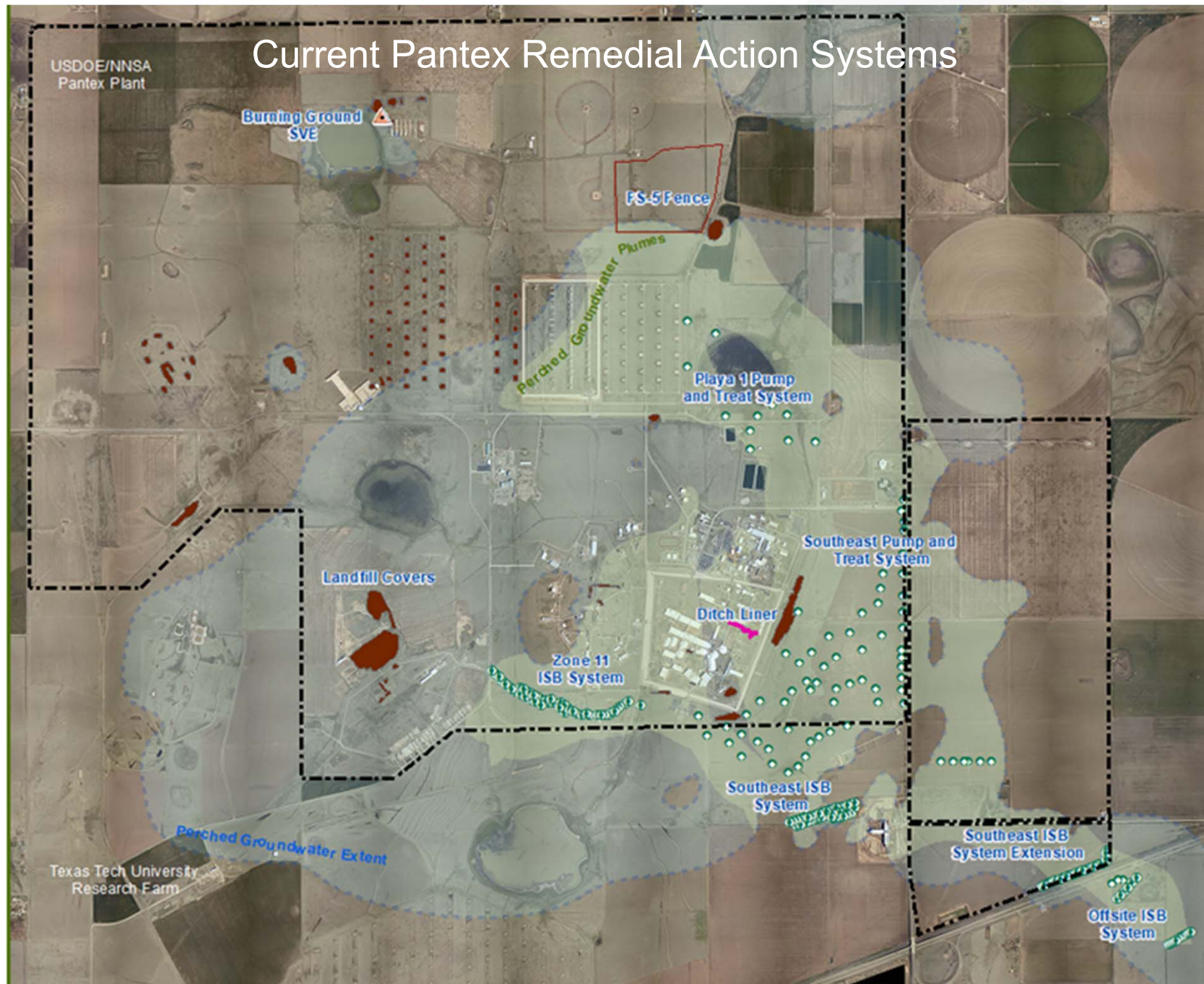
Presentation Highlights

Pantex Overview

Remedial Action Status at Pantex

- Cleanup Actions
- Accomplishments for 2020
 - Pump and Treat Systems
 - *In Situ* Bioremediation Systems
 - Soil Vapor Extraction System
- Five-Year Review (FYR) Milestones Accomplishments

Current Pantex Remedial Action Systems



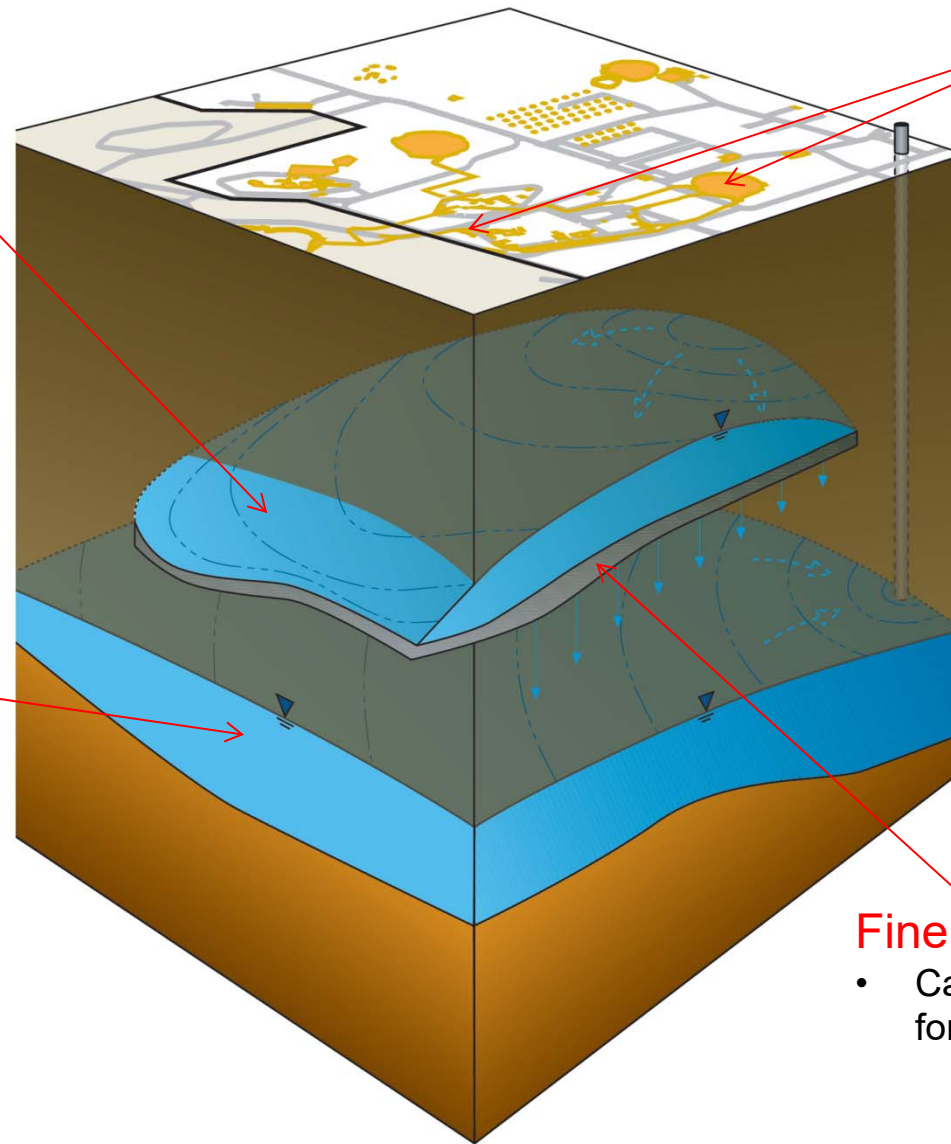
Groundwater Flow at Pantex

Perched Aquifer

- Depth: 200-300 ft bgs
- Saturated thickness: <1 to 75 ft (avg 15 -20')

Ogallala Aquifer

- Regional drinking water resource
- Depth: 400-500 ft bgs
- Saturated thickness ranges from 100-400 ft occurs 100-200 ft beneath perched aquifer



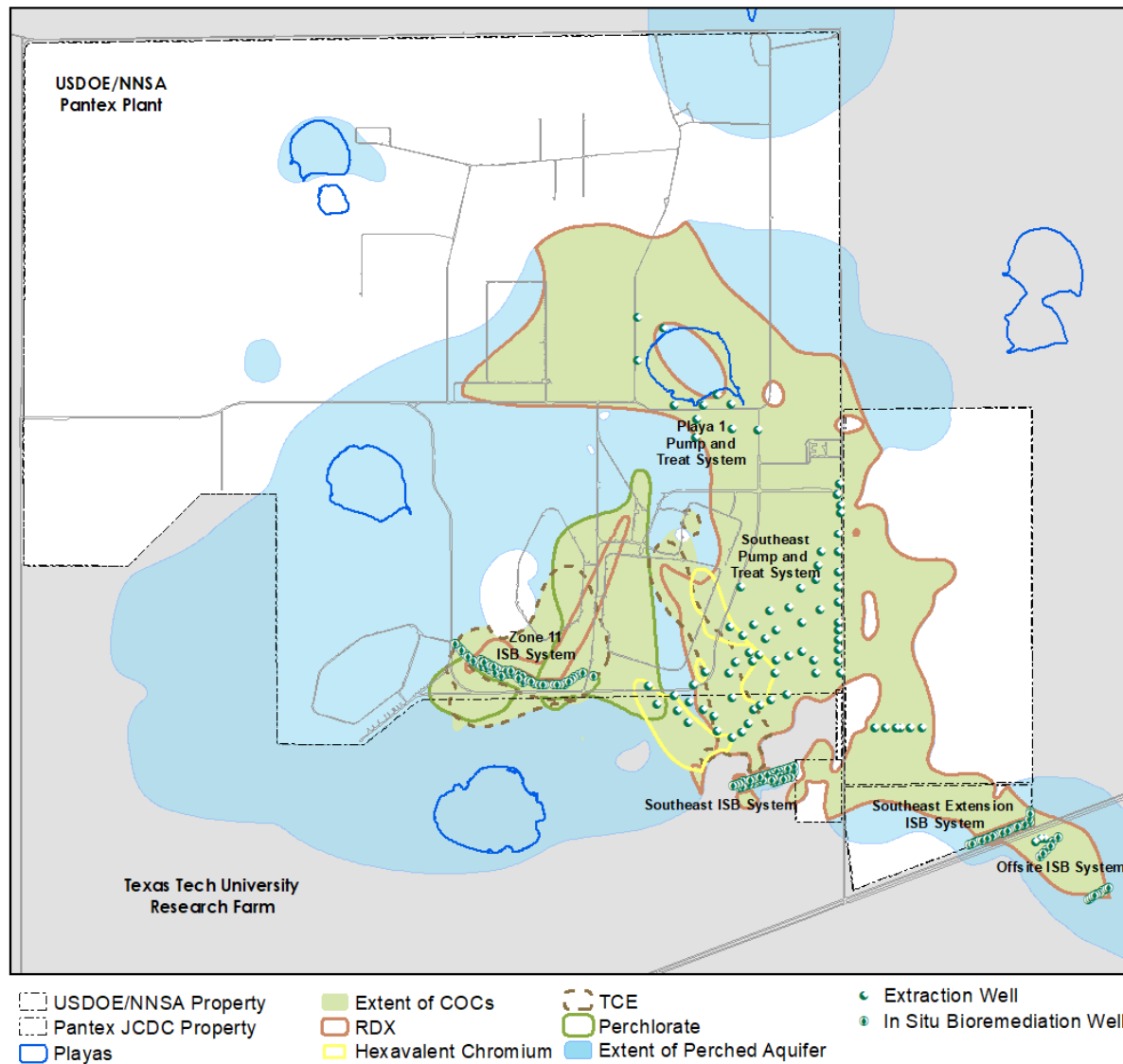
Playas/Ditches

- Past discharges of legacy wastes expanded our perched aquifer and contributed high explosive, solvents, perchlorate and chromium to perched groundwater

Fine Grained Zone (FGZ)

- Causes perched water to form

Groundwater Plumes at Pantex

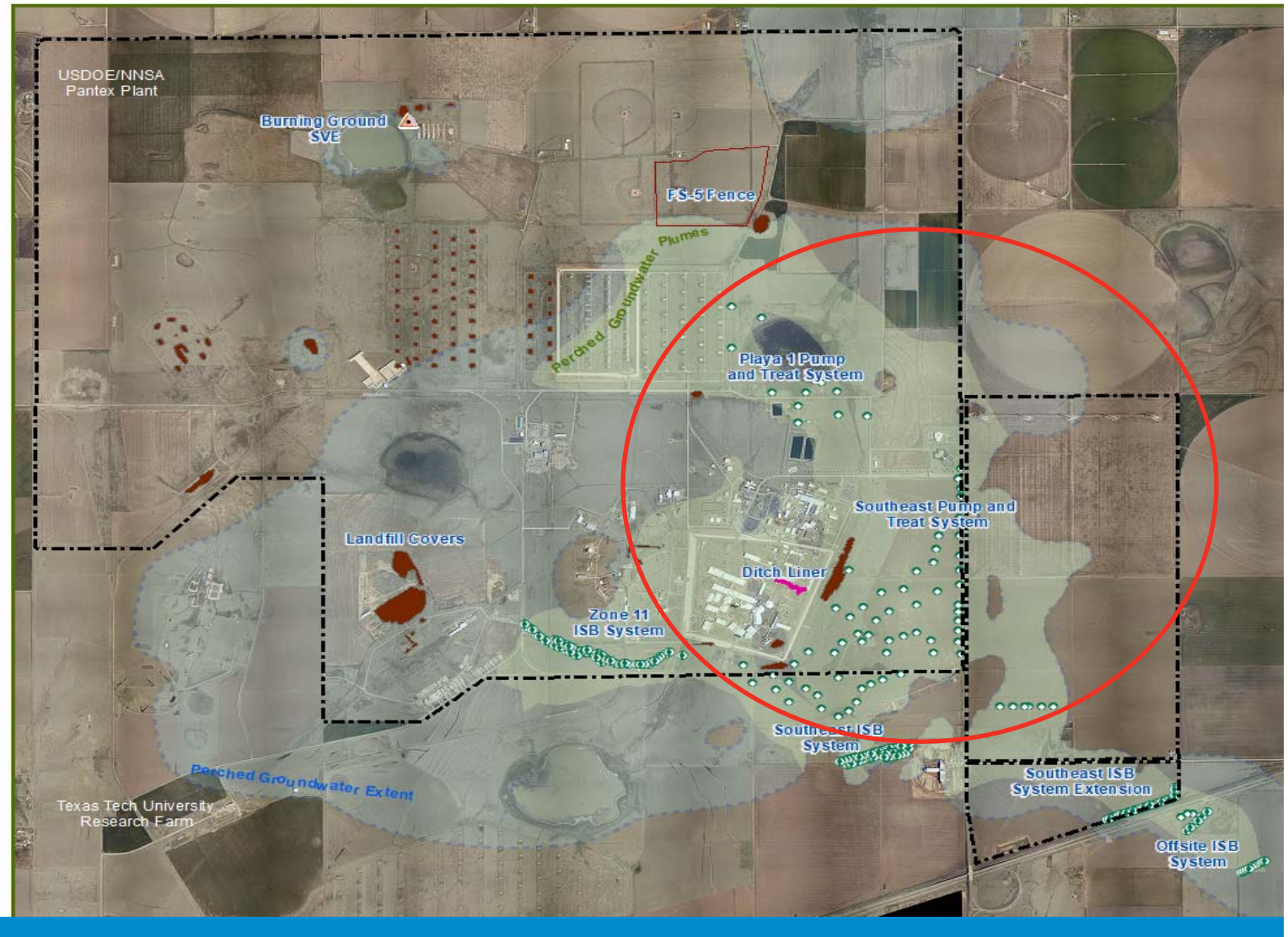


- **Perched Groundwater Extent as of Dec 2020**
- **Main contaminants:**
 - High explosives (RDX)
 - Metals (Cr^{+6})
 - Solvents (TCE)
 - Perchlorate
- **Mainly contained within DOE controlled boundaries; one area of migration offsite requiring action.**

Pump and Treat Systems



Pantex
Plant
Remedial
Action
Systems



Pump and Treat Systems

2020 Accomplishments:

- 103.6 Mgal treated
- 398 lbs of contaminants removed

Challenges:

- Current drip irrigation system is under repair.
- Need options for use of treated water

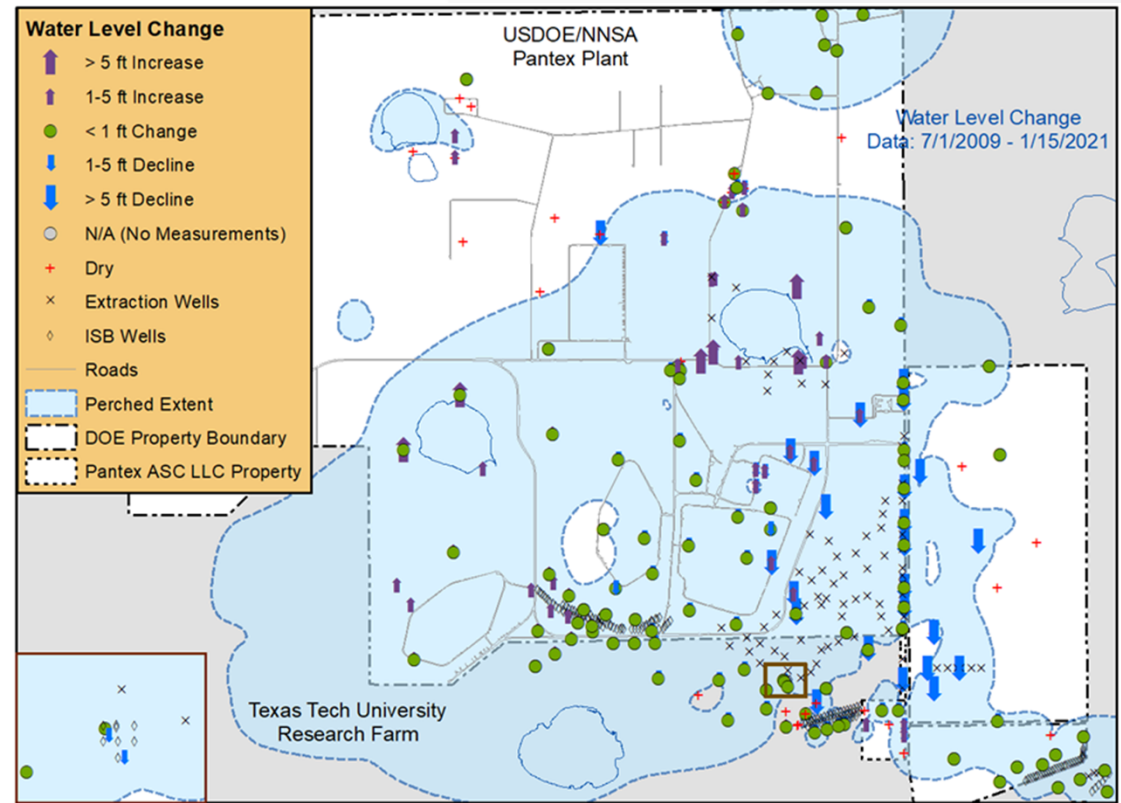
Current Path Forward:

- Repair on current irrigation system complete by late 2021
- New Pivot Irrigation east of FM 2373 – (construction phase initiated)
- Inject in perched groundwater near Playa 2 (late 2021)

Accomplishments

(Since startup)

- 2.9 billion gallons treated
- 1.7 billion gallons beneficially used
- Declining water levels in areas under the influence of the systems



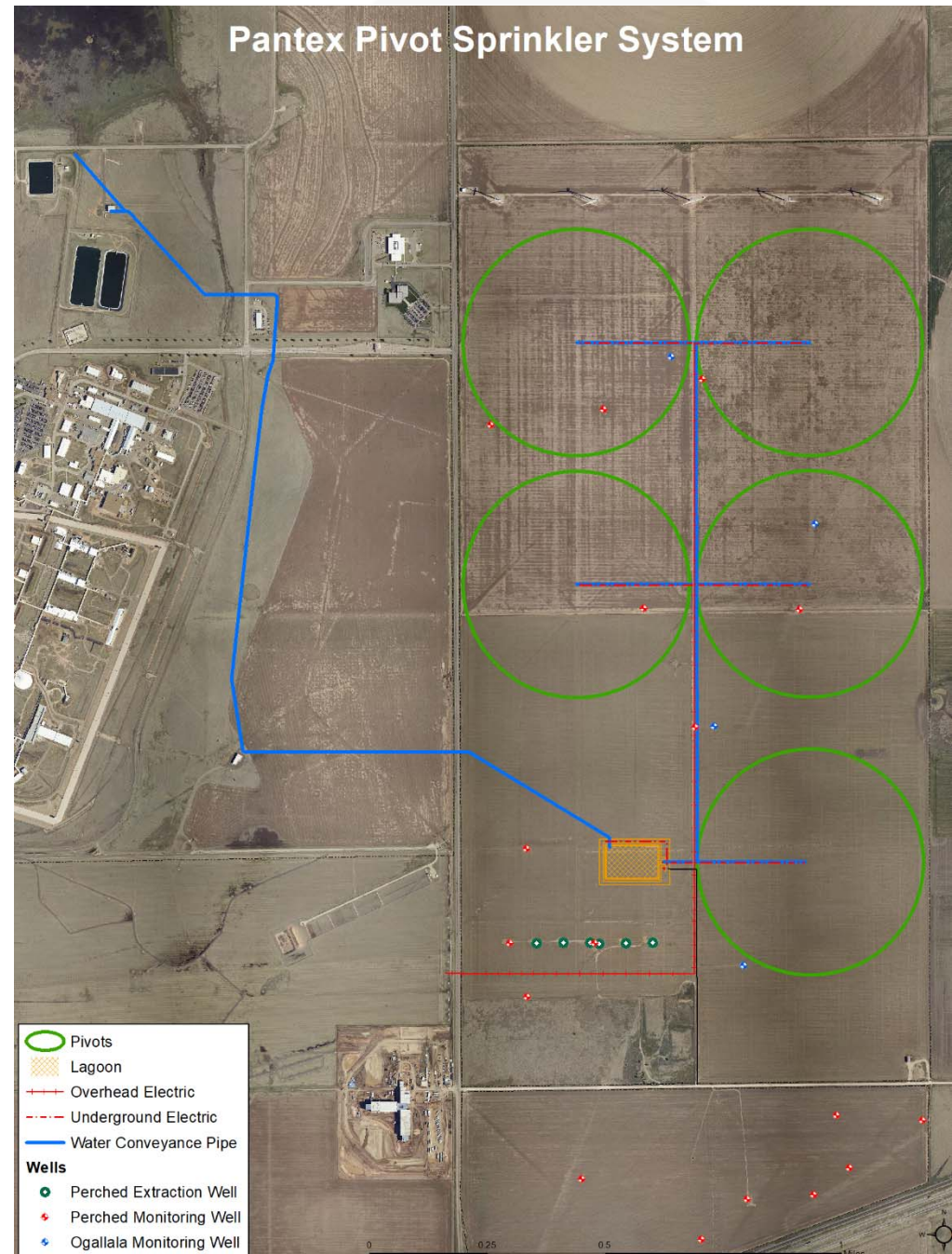
Pivot Sprinkler East of FM 2373

Milestones:

- Design began in Oct 2020
- Begin construction in Fall 2021
- Complete construction in 2022

System Components:

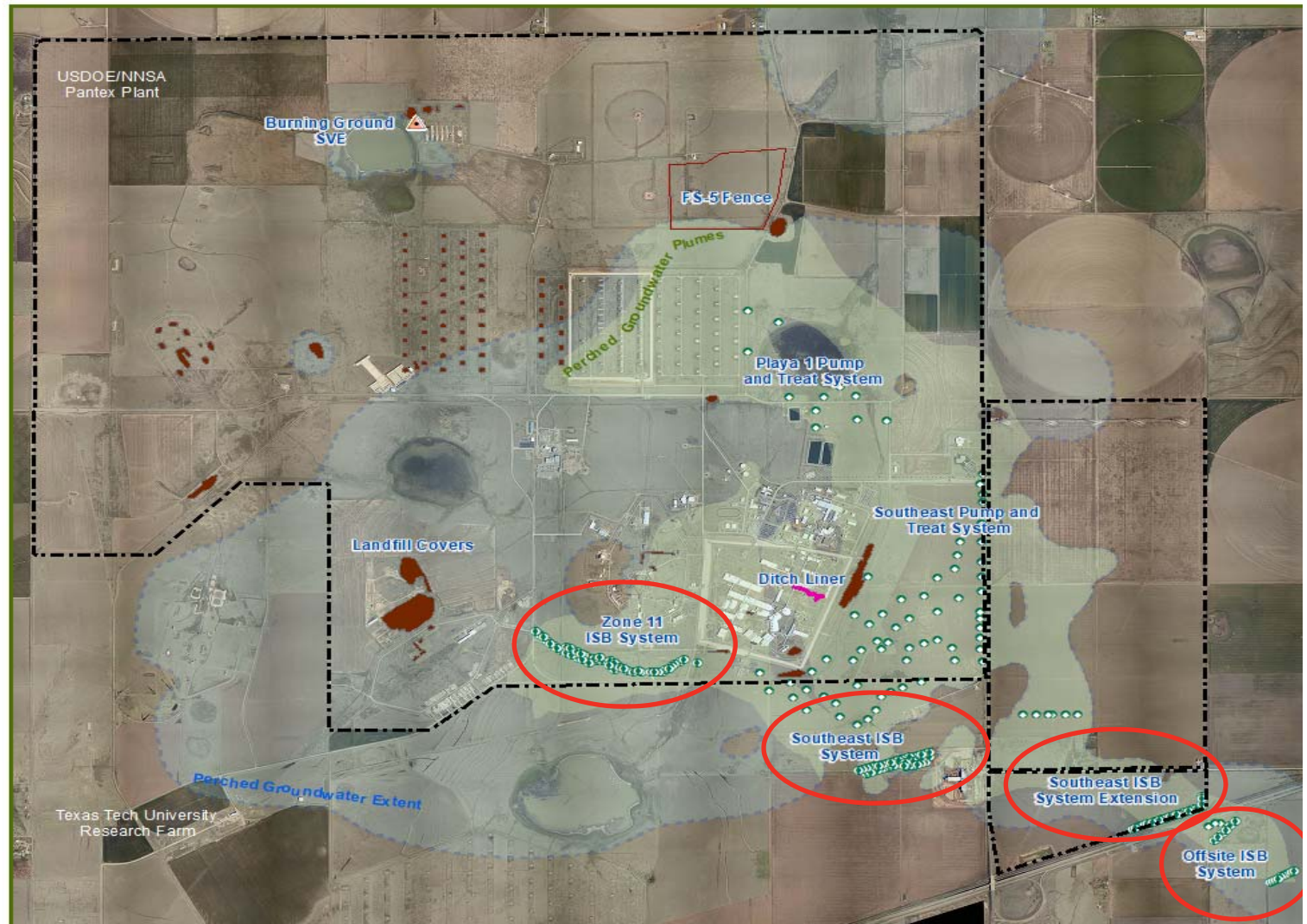
- 5 pivot sprinklers, subsurface conveyance line and lagoon pond
- SCADA system to communicate with SEPTS and P1PTS



In Situ Bioremediation Systems



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In Situ Bioremediation (ISB) Systems

(1) Zone 11 ISB:

- Perchlorate and TCE reduced near or below groundwater protection standards (GWPS) at most wells

(2) Southeast ISB:

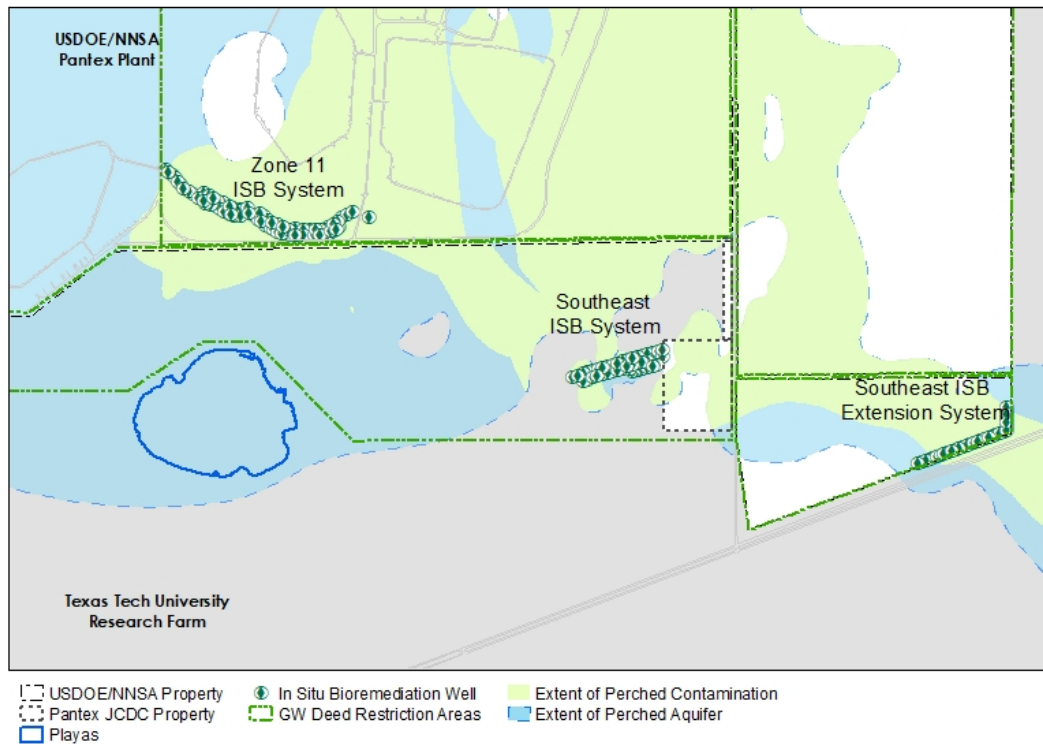
- High explosives reduced below groundwater protection standards (GWPS)
- Hexavalent chromium reduced in all wells.

(3) Southeast Extension ISB:

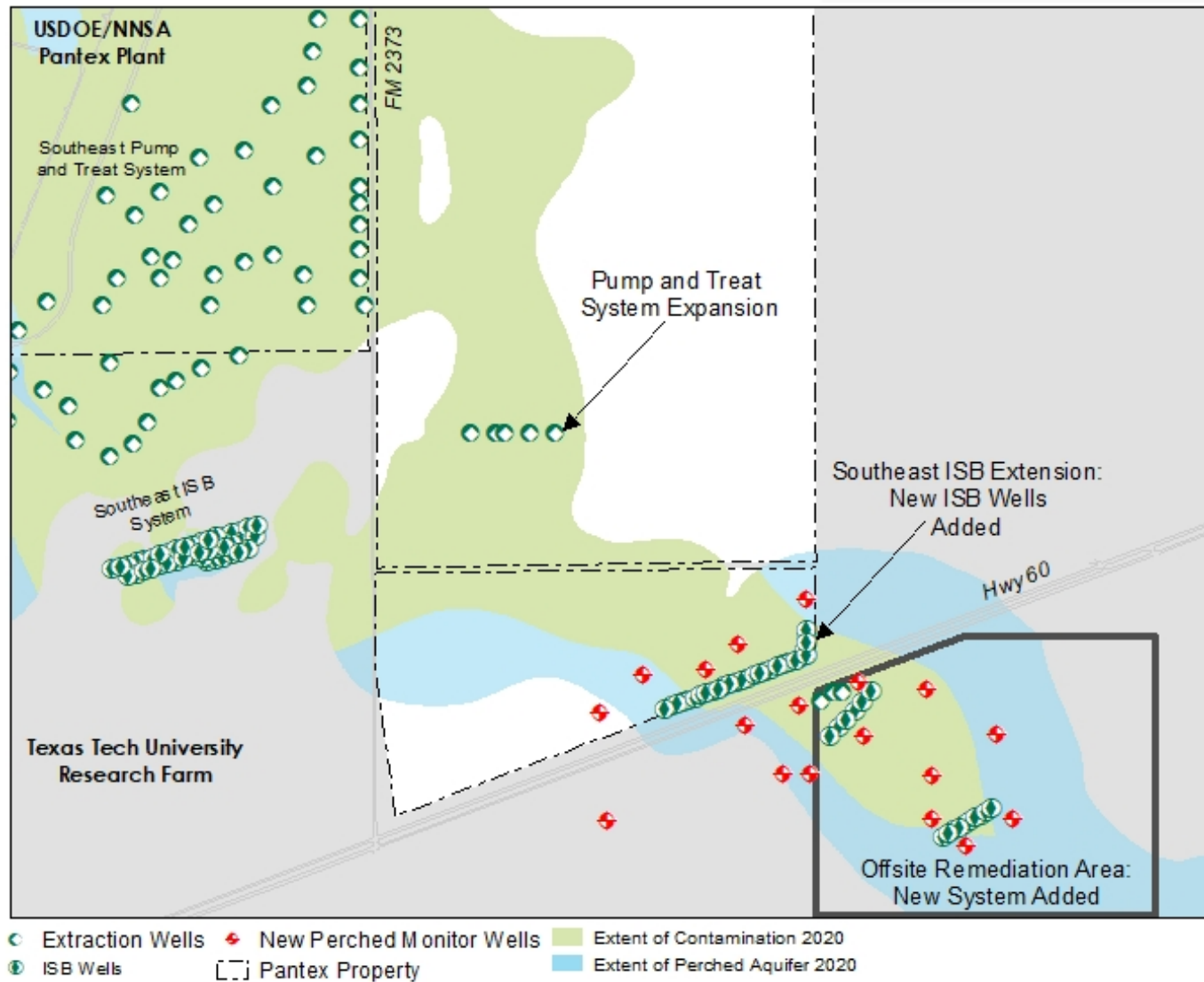
- Expected reduction of HE in next 2 years

2020 Accomplishments :

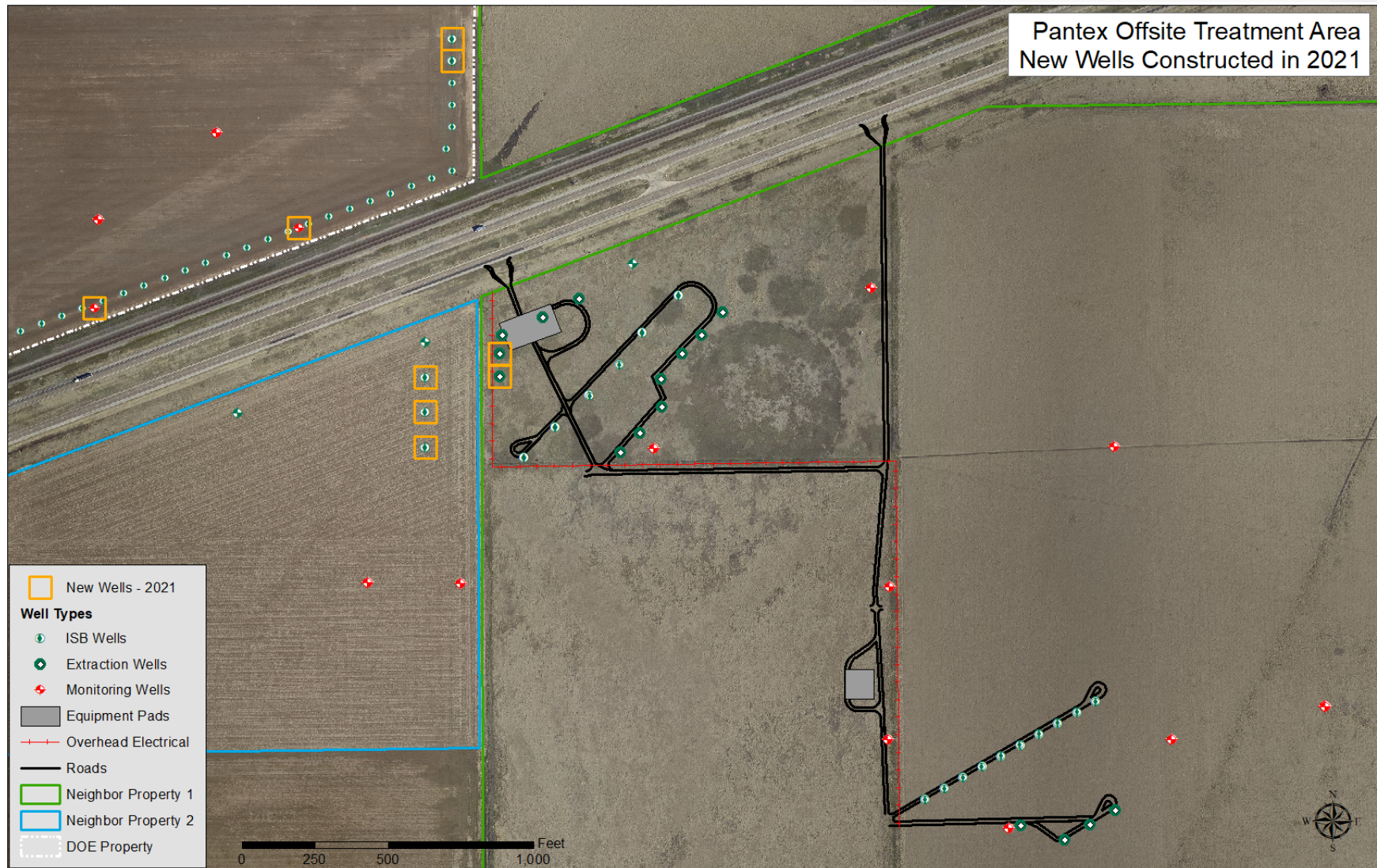
- Zone 11 ISB
 - 6 new ISB wells added on the northwest to further cutoff TCE plume
 - Completed one injection event including new wells
- Southeast ISB Extension
 - 4 new ISB wells added
 - Completed one injection event



Southeast Plume Remediation Systems



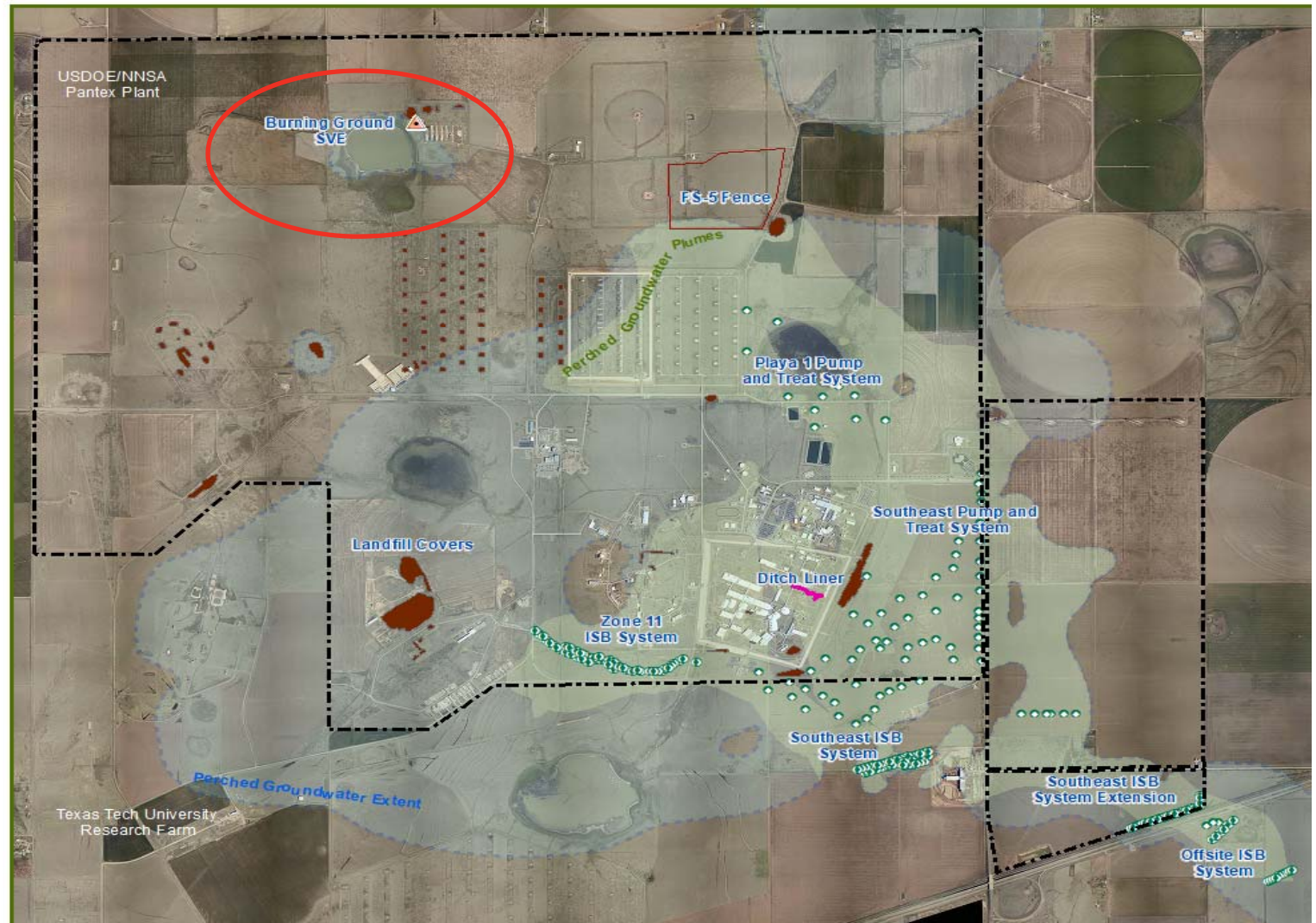
Offsite ISB System



Soil Vapor Extraction System



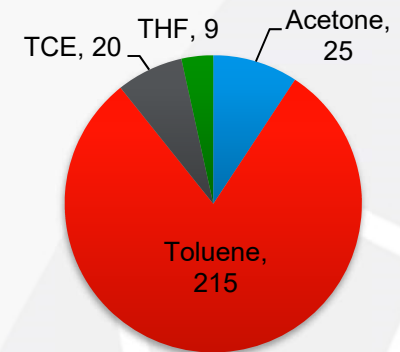
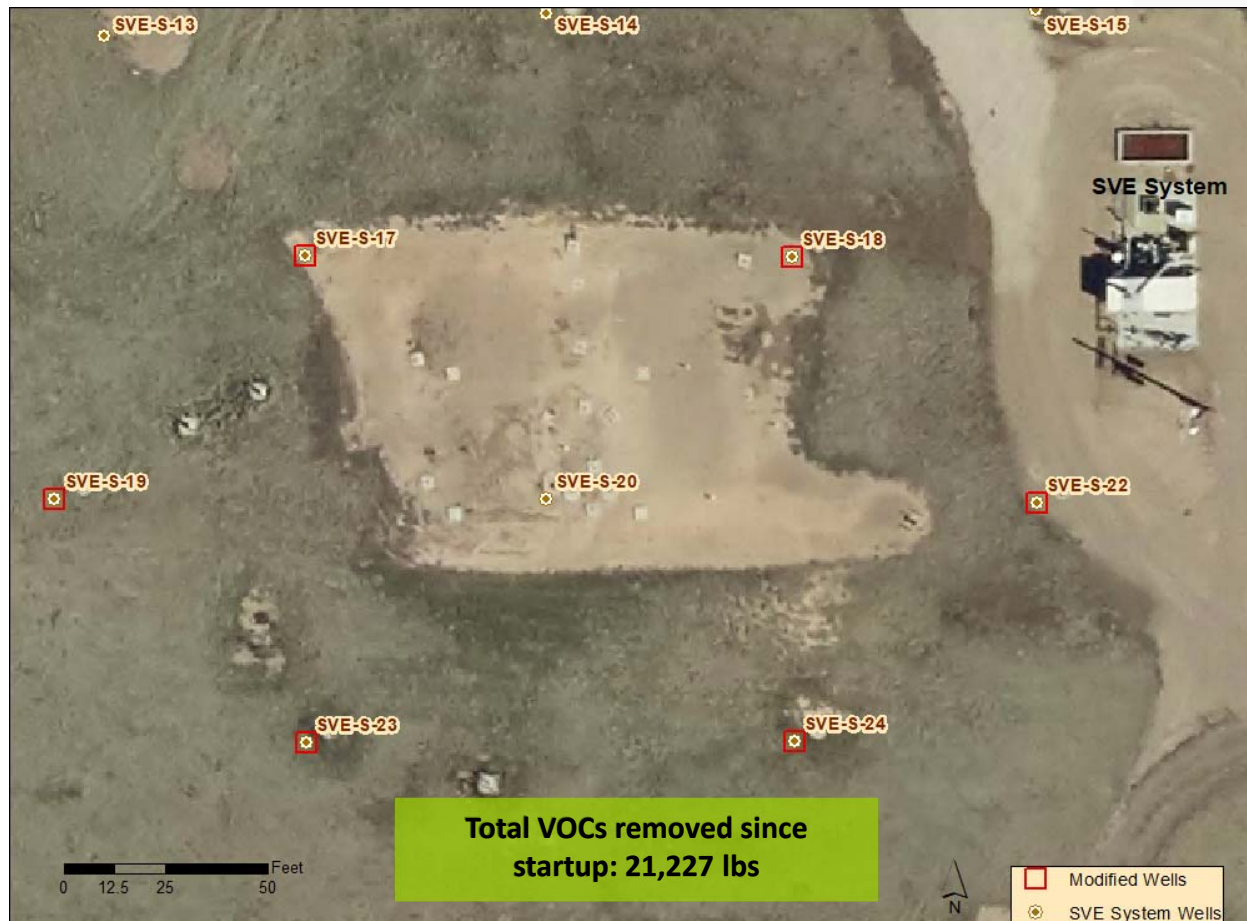
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Soil Vapor Extraction System

Installed in February 2002

- Remedial goal to reduce the mass of Volatile Organic Compounds (VOCs) – highest historical concentration ~ 1845 ppmv; highest current concentration ~ 100 ppmv



2020 Accomplishments

Future Operations:

- Continue to evaluate declining source
- Plan to pulse system in 2020 - 2022 to evaluate potential for future closure

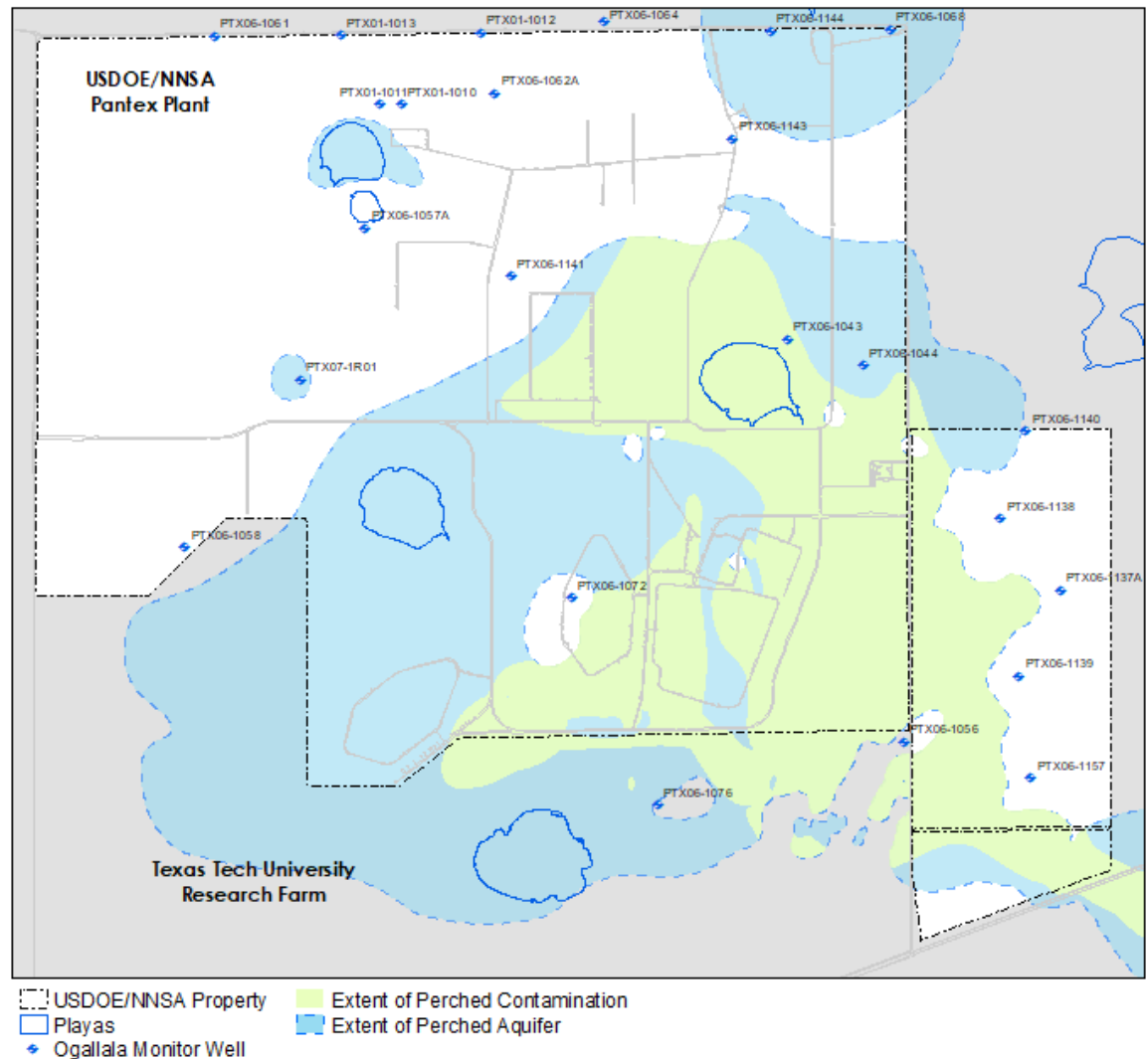
Ogallala Detection Monitoring

Monitoring Information:

- 24 wells monitored
 - Including one well located on neighbor property (PTX06-1064, located north of Pantex property)
- All detected analytes below the Groundwater Protection Standard (GWPS)

Challenges with Recent Detections:

- DNT4A, a high explosive, and 1,2-DCA, a volatile organic compound, continue to be detected below GWPS at PTX06-1056
- DNT4A detect at PTX06-1076
- Continue to monitor to determine if action is needed



* DNT4A – 4-amino-2,6-dinitrotoluene 1,2-DCA – 1,2-dichloroethane

Five Year Review Follow-Up Actions – 2020-2021

- **Address the perchlorate plume that is moving into the SEPTS well field**
 - Continue monitoring the plume expansion and the influent to the SEPTS
 - Evaluation of perchlorate treatment at the SEPTS has been performed and new perchlorate treatment vessel will be installed to address plume
- **Address minor deficiencies in landfill protective soil covers**
 - Completed repairs and maintenance of covers on Landfill 3
 - A long-term contract has been used to address minor deficiencies in the soil covers. Annual tasks are set up to address findings
- **Address the TCE plume that extends west, outside of the Zone 11 ISB system**
 - Expanded ISB treatment to northwest (6 new ISB wells added)

Questions

Reports and slides can be found at:

<http://pantex.energy.gov/mission/environment/environmental-cleanup-documents>

Remediation Summary Booklet – available here and on our website

Fact Sheets – available here and on our website

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