ENHANCED MISSION DELIVERY INITIATIVE

CNS | consolidated nuclear security, llc
PANTEX PLANT | Y-12 NATIONAL SECURITY COMPLEX

May 2024

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CONTENTS

EXECUTIVE SUMMARY

The National Nuclear Security Administration (NNSA) Enhanced Mission Delivery Initiative (EMDI) drives improved efficiency and collaboration across the Nuclear Security Enterprise (NSE). Consolidate Nuclear Security (CNS) leadership fully supports EMDI through four avenues:

1. **CNS workforce-driven:** Championing thousands of Pantex Plant (Pantex) and Y-12 National Security Complex (Y-12) bottom-up improvements.
2. **CNS leadership-driven:** Spearheading strategic Pantex and Y-12 improvements.
3. **CNS/NNSA Production Office (PFO/YFO) partnering:** Partnering with PFO/YFO executives to lead EMDI initiatives for the NSE.
4. **CNS NSE support:** Collaborating on NNSA headquarters EMDI initiatives.

This report features noteworthy completed, in-progress, and planned initiatives in the above categories.

CNS will provide ongoing EMDI updates via this twice-yearly publication, monthly PFO/YFO updates, regular *NNSA Accelerator* input, and additional publications as requested.

INTRODUCTION

Pantex and Y-12 have continually postured to meet remarkable increases in mission scope, increased staffing needs, and expanding operational demands. Change in the breadth and depth of responsibility requires a need to innovate, recapitalize, eliminate waste, and refine processes. To accomplish these needs, CNS is pushing boundaries, embracing change, and fostering collaboration through EMDI.

PURPOSE

The purpose of the CNS EMDI publication is to share a noteworthy collection of CNS completed, in-progress, and planned initiatives that reduce red tape and remove barriers in support of the mission. This collection of successful achievements demonstrates that improvement is possible and vital to mission success.

PILLARS

The CNS Mission Success framework relies on four strategic pillars to bolster capabilities and achieve mission goals. The CNS EMDI improvement projects within this publication are categorized by these pillars:

1. **People:** Our engaged, agile workforce supports dynamic missions with unique and diverse skills and an unwavering commitment to operational excellence.
2. **Technology and Innovation:** Our innovators develop and deploy smart, advanced technologies and creative ideas to solve challenges, improve operations, and meet mission needs.
3. **Processes and Systems:** Our lean, adaptive processes and integrated systems enable efficient and intelligent operations.
4. **Infrastructure:** Our efficient, modern footprint enables reliable operations and responsive mission delivery.

DATA SOURCING

The CNS EMDI Team collected data from several sources, including the enterprise Continuous Improvement Project Repository (CIPitory) database that currently houses 1,300 improvement projects, Continuous Improvement (CI) celebrations, Foundations for Performance Excellence courses, and feedback from managers. The highlights in this report include large- and medium-scale efforts from the past three years and planned efforts over the next 5 years.

IMPROVEMENT HIGHLIGHTS

This section highlights **CNS bottom-up workforce-driven** and **CNS leadership-driven** improvements in the following groupings: enterprise improvements, Pantex improvements, and Y-12 improvements.

CNS ENTERPRISE IMPROVEMENTS

A collection of past EMDI projects at the CNS enterprise-level was reviewed and consolidated into the CNS strategic pillars. Figure 1 summarizes the projects categorized into sub-pillars.

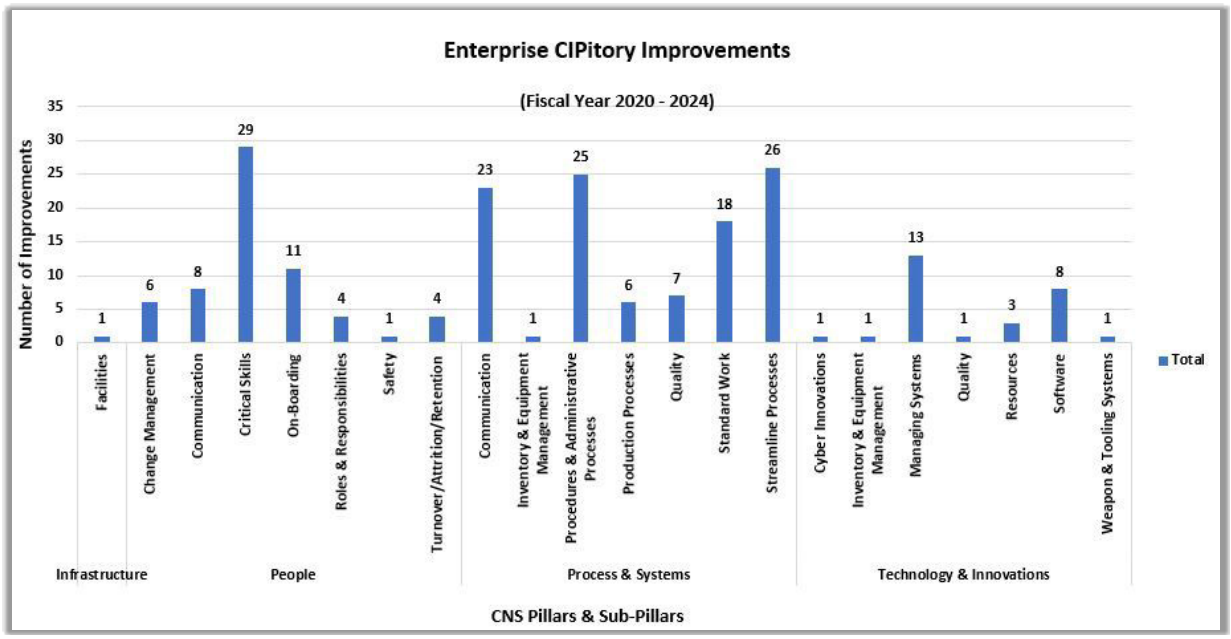

Figure 1. Enterprise CIPitory improvements.

Selected projects that highlight EMDI across CNS sites in each strategic pillar are described below.

Infrastructure

A Better Approach to Maintenance

The Maintenance Advanced Technology Initiative is a multiyear effort that establishes a blueprint for connecting commercial technologies to each site's network. This provides a safer approach for collecting equipment data, affords the Conditional-Based Maintenance Team increased capacity to analyze data, and increases access to critical data. Early stages of the project have been a huge success, providing real-time

Figure 2. Permanent sensors.

vibration data on water towers. Figure 2 illustrates the placement of permanent sensors capable of providing real-time data on machine performance.

People

Strengthening Our Workforce

CNS became the first NNSA entity to secure a subcontract with Oak Ridge Associated Universities (ORAU) through the *NSE Workforce Initiative* to assist with increased hiring demand. Through the subcontract with ORAU and the improved workforce planning strategy, CNS has seen improvement in the applicant pipeline development and hiring cycle time metrics, ensuring CNS has the workforce required to execute the mission. Additionally, Human Resources created a dashboard to better track important metrics for planning and executing hiring activities. The new automated and easy-to-use dashboard, as seen in Figure 3, provides a service to all stakeholders and displays common metrics.

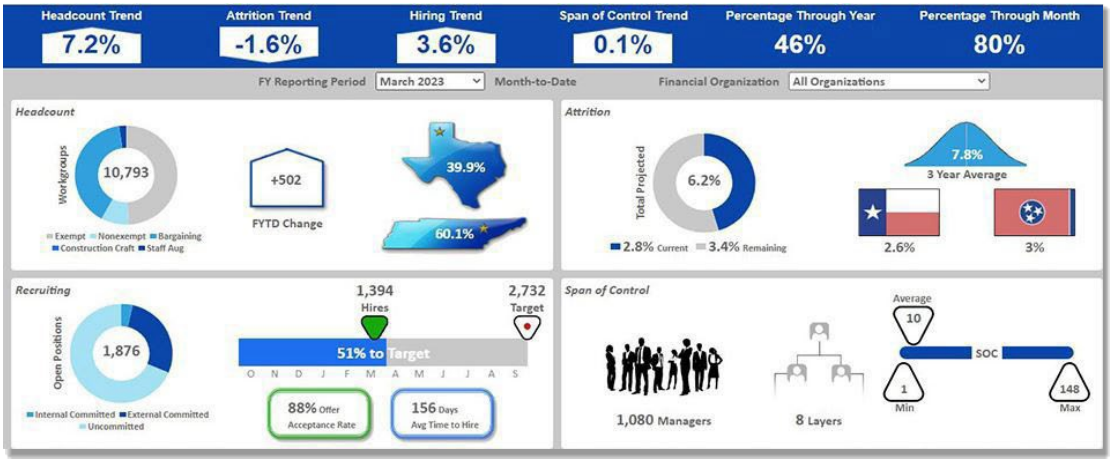

Figure 3. Human Resources dashboard.

Processes and Systems

Taking Care of Our People

The Short-Term Disability and Family Medical Leave Act Administration Project was another noteworthy enterprise initiative. The out-of-state vendor administration of these absences caused long delays in approvals and case management, along with frequent complaints. This project replaced the vendor with four internal CNS case managers who support employees with rapid processing and improved care and case management.

Technology and Innovation

Acquisition Planning Requisition (APR) Aids in Procurement

The Enterprise Acquisition System Integration Planning Value Stream Element Team (VSET) tackled the challenge of improving planning activities associated with large-scale procurements. The team looked for modern solutions to convert planning data directly into purchase requisitions and created the APR system. APR streamlines planning activities, incorporates strategy and forecasting, and provides visibility of planned and committed non-labor funding by Programs and Projects. The system provides robust reporting capabilities that can measure performance across the procurement lifecycle.

Using Tech to Track and Resolve Issues

An Enterprise-level Technology and Innovation Initiative that highlights EMDI was the simplification and integration of Issues Management into Tools for Opportunities - Performance Improvement through Communication (TOPIC). Previously, Pantex and Y-12 used several systems for issues management, and a large portion of the process was executed manually.

TOPIC integrates, consolidates, and replaces multiple legacy systems, providing a single, user-friendly system for correspondence, assessments, and more (Figure 4).

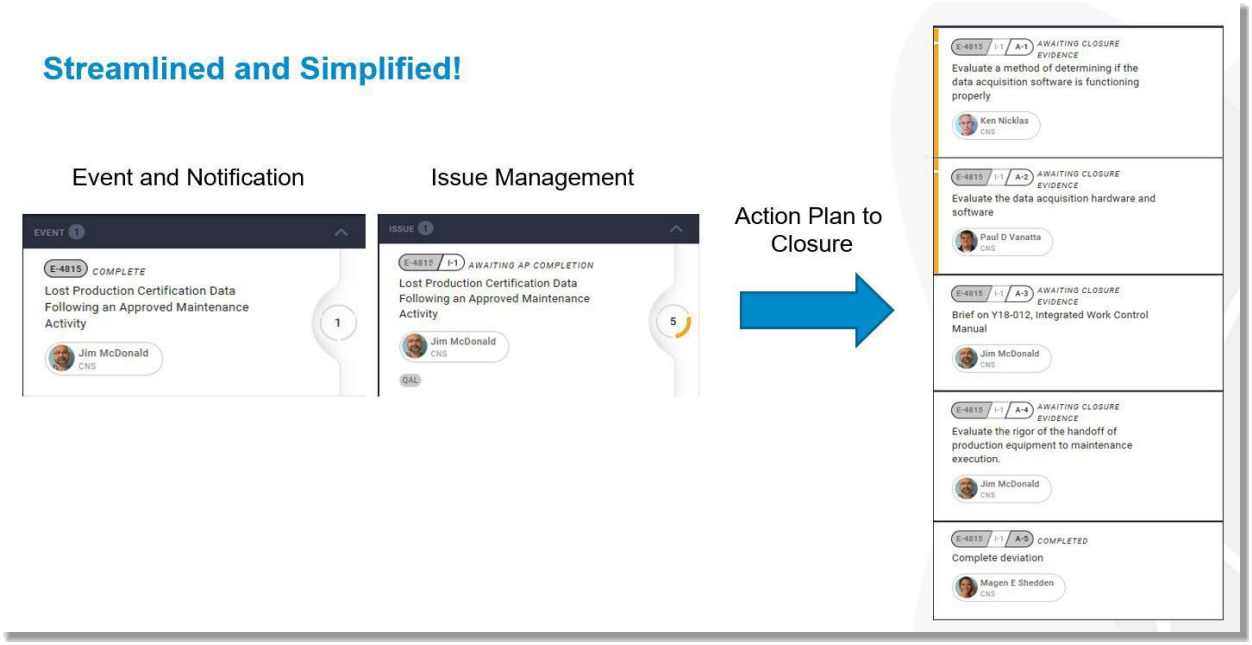

Figure 4. TOPIC example.

PANTEX IMPROVEMENTS

Past Pantex EMDI projects were reviewed and consolidated into the CNS strategic pillars. Figure 5 summarizes the projects categorized into sub-pillars.

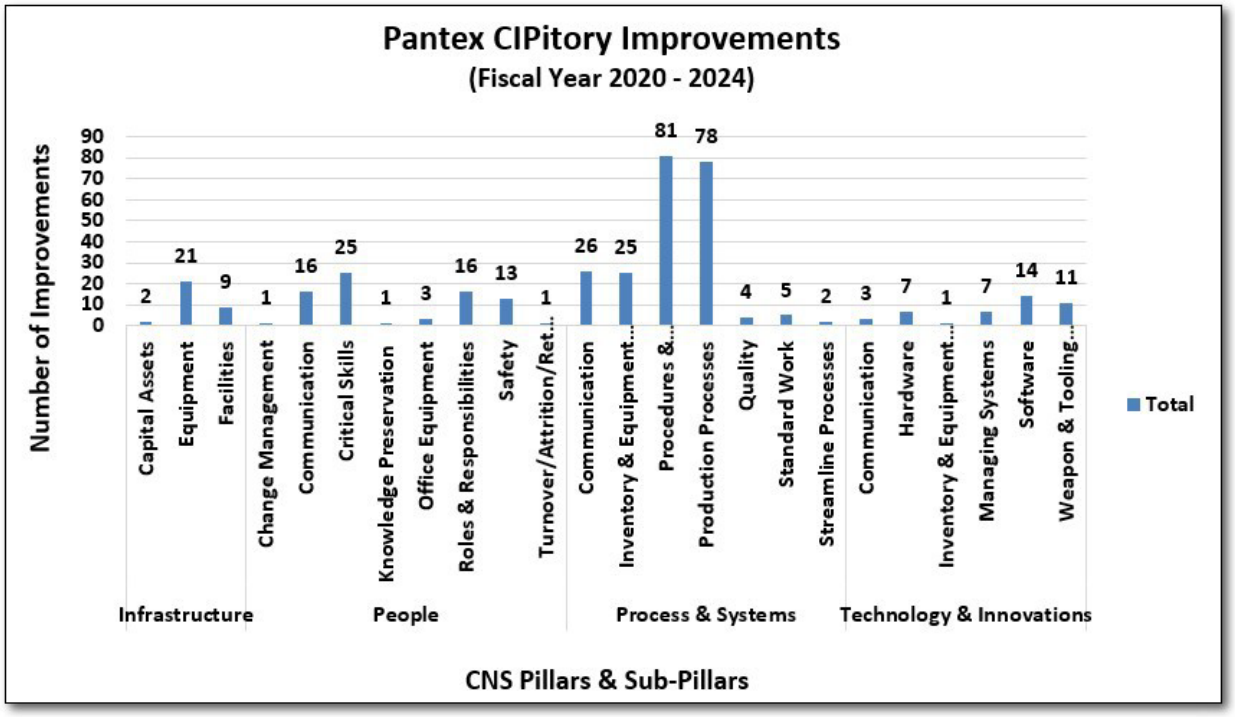

Figure 5. Pantex CIPitory improvements.

Infrastructure

On-site Disposition of Weapons Containers Saves Time and Money

Waste Operations purchased a new excavator, as seen in Figure 6, for dispositioning unclassified non-hazardous weapons components and containers. Waste Operations created an innovative solution with a new excavator capability that saves labor cost by decreasing the amount of material handling time. As the containers and other items are disfigured, they drop into a large 40-ft container, which is then easily loaded onto a trailer and trucked to a recycler. Security personnel can now perform their review on-site and avoid the need to travel with the items and wait for a vendor to perform the disposition. As more weapons programs use it for dispositioning components and containers on-site, the new machinery will solve the persistent challenge with off-site recycling, streamline processes, improve safety, and save significant time and money.

Figure 6. Waste Operations' new excavator.

Reducing Downtime

The Pantex Radiation Air Monitoring System (RAMS) Maintenance Process Improvement Team developed a schedule for replacing RAMS on a rotational cycle to avoid calibration date expirations, improved planner/scheduler paperwork processes, and reduced downtime for operations. Transitioning to a set schedule versus an on-demand process supported a more methodical process that allowed better resource management. Since implementation, the team has decreased RAMS maintenance facility downtime to zero days and unplanned overtime to zero hours.

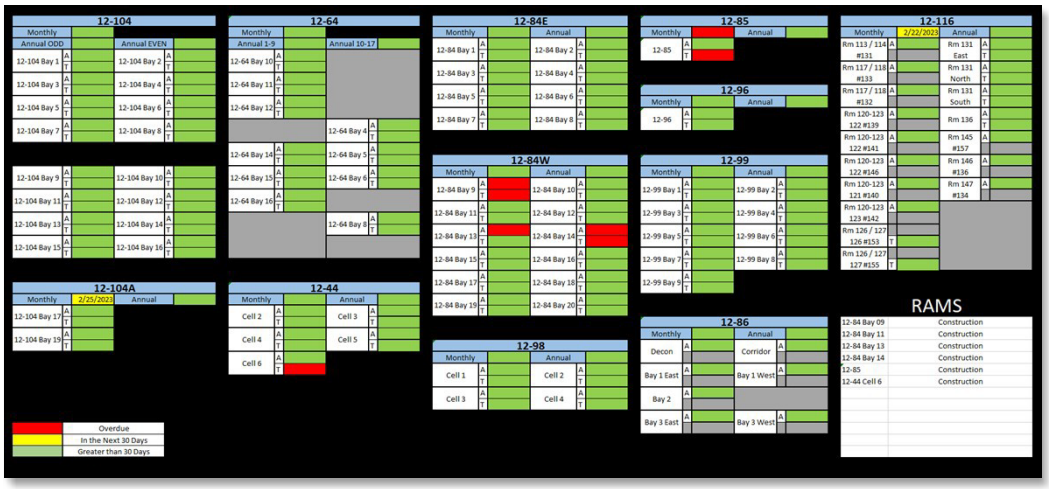

Figure 7. RAMS status board.

People

Delivering for the Future

The Pantex Production Optimization effort maximized the output of Pantex production for FY 2022 Directed Stockpile Work (DSW) deliverables and positioned the plant to sustain stewardship of future DSW deliverables. The team tackled more than 60 tactical and strategic actions. Highlights include implementing an enhanced multi-tier staffing plan, realigning Weapons Training staff to support W88 and B61 program needs, increased tiered escalation and facility downtime visibility, and technical procedure improvements.

> *"We went from having significant concerns regarding our ability to deliver to reinstating customer confidence and demonstrating that our processes will help us continue to deliver in the future."*
>
> Colby Yeary – Pantex Site Manager

Meeting Employees Training Needs

Significant increases in site deliverables necessitated improvements to Pantex Production Technician Training. A cross-functional team led by Weapons Training personnel revised how training is delivered by creating a new accessible training schedule using SharePoint and Tableau. This new system allows for better synchronization of training schedules that better align with Production Technician schedules. Additionally, the team increased the number of students per class with new video equipment and monitoring.

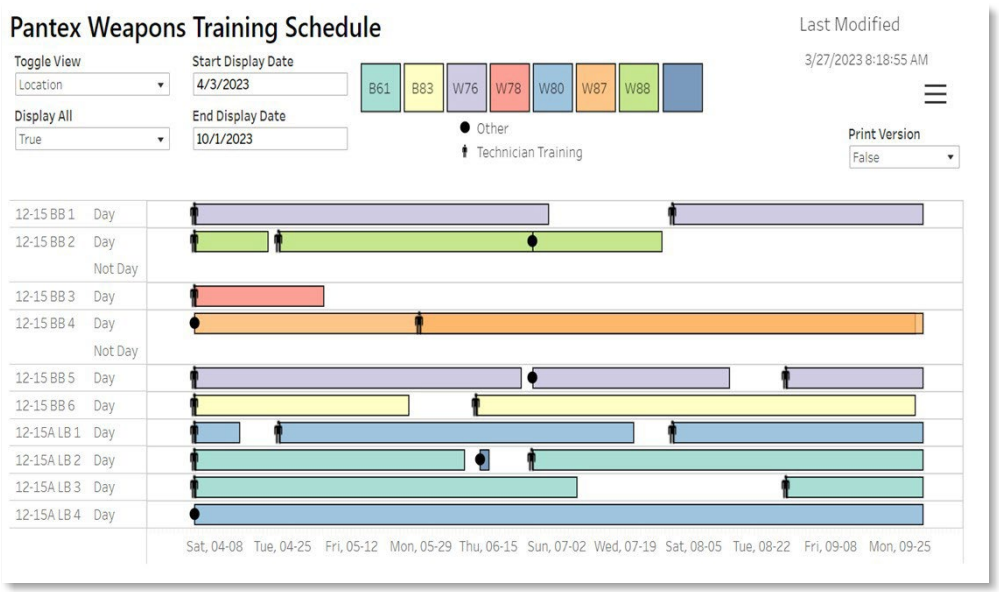

Figure 8. Example of new Weapons Training schedule.

Processes and Systems

Reducing Waste through New Packaging

The B61 VSET completed several process improvements that increase product flow and reduce overall process cycle time. One such improvement was updating the packaging procedures for neutron generators. Multiple packaging methods existed between programs for neutron generators. These processes produced confusion due to multiple configurations and excess amounts of packaging waste. The team worked with Design Agencies and updated procedures, aligning packaging procedures for Legacy and Mod 12 components.

Additionally, the team transitioned to a pelican case for packaging, shown in Figure 9, saving $1.2K in packaging materials per generator. Furthermore, the new packing process reduced processing time from 1 hour to 10 minutes per unit.

Figure 9. 710234 Pelican case.

Pantex Fire Systems Asset Management VSET Decreasing Compensatory and Signal Measures

From FY 2015 to 2022, there was an average of 57 open compensatory measures and 63 open signals. A dedicated VSET was put together to reduce these numbers. From December 2022 to April 2023, this team stood-up the Pantex Fire-Trouble Maintenance organization to tackle open Pantex fire-trouble signals and to correct all deficiencies identified during preventive maintenance in real time. This team reduced the rate of the fire-trouble signals by approximately 65% in that short timeframe. In doing so, the team brought its number well below the U.S. Department of Energy (DOE) standard. They are maintaining less than 30 compensatory measures and less than 20 signals, the lowest level the organization has experienced in nearly a decade.

Technology and Innovation

Metrology Modernizing Calibration

Another completed project was use of a new "MOX" calibration recall software. This software increased awareness and visibility to the overall performance of the Metrology department, helping to modernize the approach to calibration recalls and provide more accurate, real-time data on laboratory performance amongst other command signals.

In conjunction, the Metrology Software Interoperability Improvements Project will integrate the calibration recall software, MOX, with various software production personnel used to track instrument statuses to create an accurate view visible to all internal customers.

Pantex Pellet Pressing VSET Initiative

This VSET identified the need to define requests by High Explosives customers prior to placing them on the schedule. Data taken from 2019 to 2021 found that only 73% of initial requests were submitted correctly the first time. The team created a process to ensure initial requests are submitted correctly the first time. The solution was to develop a SharePoint site for all initial requests with clear, conscious questions. This has allowed the customer to communicate effectively with High Explosives personnel.

Y-12 IMPROVEMENTS

Past Y-12 EMDI projects were reviewed and consolidated into the CNS strategic pillars. Figure 10 summarizes the projects categorized into sub-pillars.

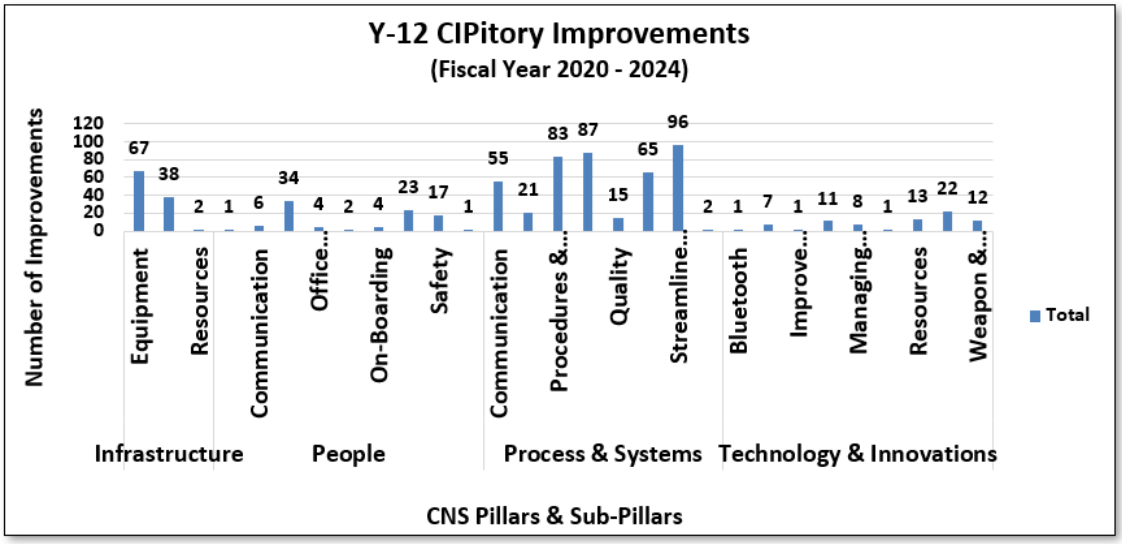

Figure 10. Y-12 CIPitory improvements.

Infrastructure

Maximizing Use of Space

The Vehicle Maintenance Center (VMC) Parts Department Restructure addressed a growing concern of delays in vehicle maintenance. The team installed new shelving and integrated shop-managing system software to better account for inventory. The reorganization of the physical storage space used by VMC improved parts monitoring, allowing for optimal inventory levels, appropriate parts forecasting, and reduced need for management oversight (Figure 11).

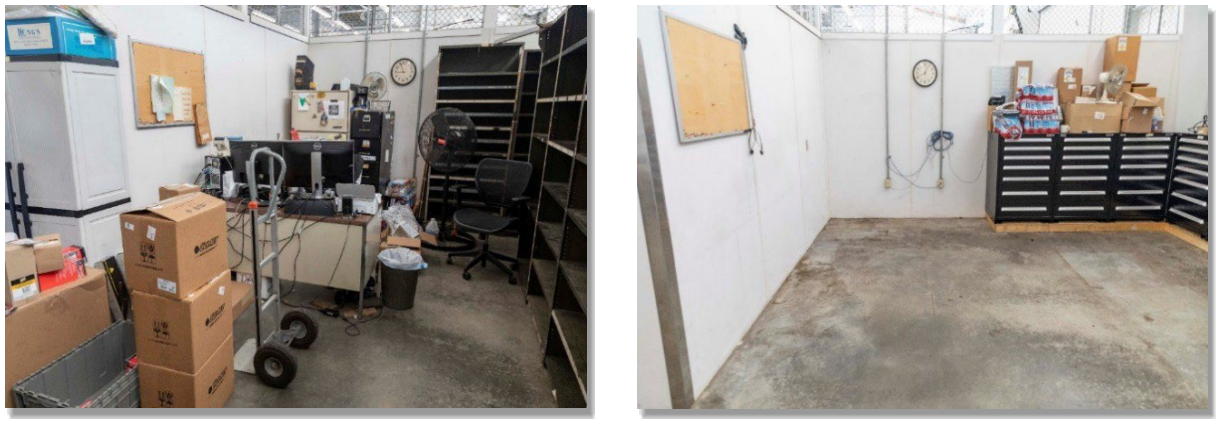

Figure 11. Before and after 5S completion.

Maximizing Work During Scheduled Outages

In Building 9204-2E, the Environmental Room team seized an opportunity to maximize equipment availability by leveraging winter outage time. In total, the team achieved the following:

- Corrected seven single points of failure
- Installed two breathing air sample stations which allow section isolation and return-to-service without waiting for air sample results, which saves 2 days per breach
- Completed 38 Building 9204-2E work packages; 17 directly supported the Environmental Room

Increasing Processing Capacity

Maintaining an adequate supply of lithium is an essential component of CNS mission. Numerous improvements were implemented in small-scale wet chemistry (SSWC) to decrease the processing time and increase throughput in anticipation of processing a new feedstock, while still meeting the throughput demand required for the lithium electrolytic cell. A second line for processing was added in FY 2023 to double the throughput capacity of the process.

Additionally, the three overnight holding steps previously used in the process were reduced to 2-hour holding periods after kinetic studies showed the overnight holding period was not necessary to maximize contaminant removal. This has reduced the time for a run through SSWC from nearly 1.5 weeks to approximately 3 days.

Figure 12. Small-scale wet chemistry processing.

People

On-the-Job Training (OJT)

The transition of Y-12 Production OJT scope to the Organizational Development and Training department formalized and enhanced training processes and methodologies, supported development and maintenance of standardized curriculum, and delivered consistent training through dedicated OJT trainers with a singular training mission. Field training specialists continue to work with Production Operations and Y-12 Engineering to develop OJT program content and maintaining the OJT framework documentation.

Criticality Safety Training

Another training project is the development and implementation of new criticality safety evaluation (CSE) classroom trainings, briefings, and exams to educate Y-12 Production employees on the importance of the CSEs in each individual area of Enriched Uranium Operations. The CSE trainings will provide production operators and engineers the background knowledge of why the controls are necessary, and will require attendees to proficiently demonstrate their knowledge and understanding of the criticality safety requirements for their area processes.

Processes and Systems

Better Configuration Equals Less Downtime

In Building 9215 Third Mill, very large pieces of material are rolled and processed. Knowing the weight of the components being processed is essential for both the safety of the personnel handling the material, as well as accurate accountability of the material itself. The Depleted Uranium Metal Cycle Team determined that locating the scales closer to the rolling mill would eliminate the need to move the components more than 150 ft down a tight hallway. A new scale was purchased and located approximately 10 ft from the rolling mill, as shown in Figure 13. In addition to improving the safety of the operation by reducing the travel of the large item on a forklift, 32 minutes per billet were saved in processing time.

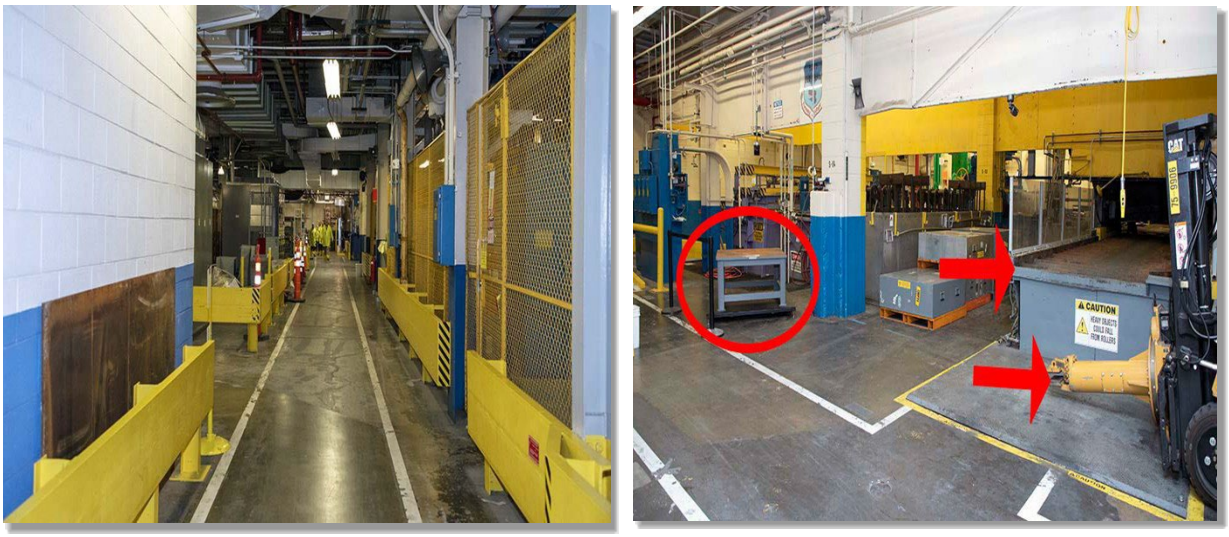

Figure 13. Before and after 9215 Third Mill operations.

Streamlining Quality Level Determinations (QLDs)

A QLD must be completed before procurement can occur on a majority of items and services. The longer it takes to approve QLDs, the longer it takes to acquire materials and services. Process failures result in sporadic and long QLD cycle times. In FY 2022, the average calendar duration of a QLD review was 111 hours. To reduce errors and cycle time, several improvements were instituted. New QLD training was created, as well as revisions to the QLD form and moving it to process workflow management eFlow software. These improvements have reduced the average QLD review to 58 hours and also led to a 52% decrease in frequency of the most common error, "Incorrect Risk Identification and Mitigation Actions." The total projected QLD review duration savings for FY 2023 is 13,356 calendar hours.

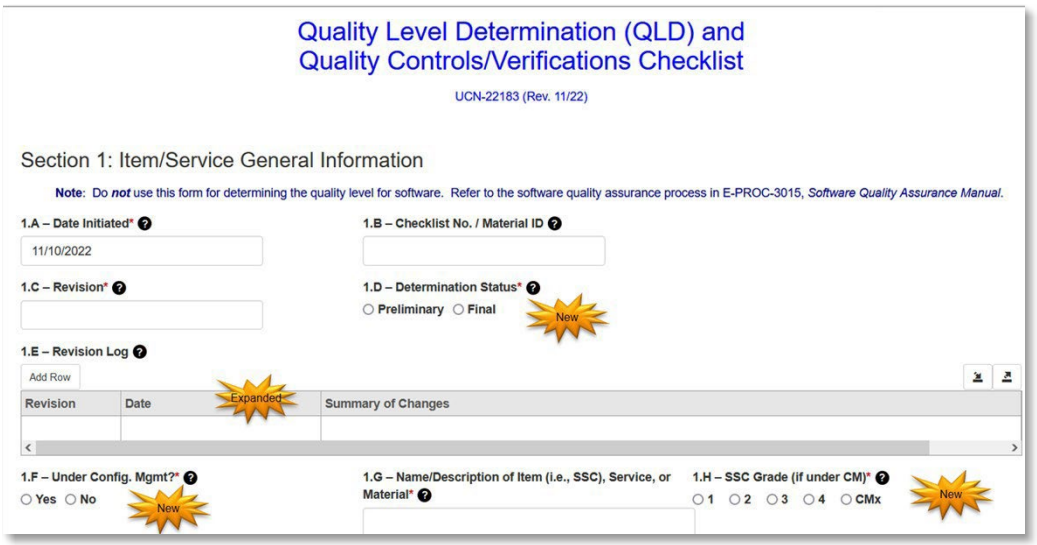

Figure 14. QLD Checklist update.

Increasing Safety Through Better Processes

In Building 9215 Enriched Uranium Machining, a need was identified to develop a faster and safer operation for marking ingots. The team researched and determined that a dot peen marking machine was the perfect choice (Figure 15). The new marking machine allows personnel to enter the part ID on a screen via keyboard, then another person verifies the ID is correct before the ID is marked on the component. The project also repurposed a new hood purchased for a different project to provide dedicated exhaust for the operation. The new machine allows for maximum material utilization. Many benefits have been realized to include: reduced marking error, reduced injury risk, consistency in spacing and depth of penetration, a faster process, no material loss, and the repurposing of an existing hood.

Figure 15. Dot peen marking machine.

Technology and Innovation

Leveraging New Machines to Improve Tooling

One recent project highlights how Y-12 leveraged technology and innovation to improve machining operations. The Depleted Uranium Machining Operations Team purchased and implemented the use of a HAAS VF-1 CNC vertical mill (Figure 16). The new machine executes several operations that previously had to be accomplished using two separate machines. The new process reduces the number of inserts needed, material travel time, and part handling, which reduces potential for operator injury, errors in setup, and damage to the part. An additional benefit is a reduction in production bottlenecks by making the K&T 5-axis machine available that was previously used in this operation.

Figure 16. HAAS VF-1 CNC machine.

Automating Systems to Reduce Process Time

An ongoing project is the U.S. High Performance Research Reactor (USHPRR) Packing Certification Automation Project that aims to fully automate the current lengthy manual Certificate of Conformance (CoC) for each shipment. The manual process takes weeks of resource hours to put together, includes a variety of documents, and is not sustainable with anticipated increase in out-years of more shipments. The project expects a fully automated CoC generator that is user-friendly and quickly produces a variety of documents with real-time data in the correct formatting for submittal to a customer, eventually reducing time, effort, and frustration for future USHPRR shipments.

Smart Factory: Improving Processes through Data

In Building 9201-5N/W, the Smart Factory application was chosen as the tool to improve data collection and tracking on the machines. Smart Factory allows actual cycle times per part and setup to be gathered by barcode, scanning the machine controller and the part cards. This application also allows the parts to be automatically clocked to the next routing step based on completion of the previous operation. Real-time inventory can also be viewed for that machine or bay of machines. In addition to the benefits of scheduling, the system also decreases error potential for the machinist by displaying the part program, machine number, and Shop Floor Control.

Figure 17. Smart Factory at work.

Ultrasonic Technology Saves Time

Depleted Uranium Machining personnel looked to modern machine tools to make another improvement in the machining area. A current operation to machine a particular feature takes multiple machines dozens of hours to complete the feature. The team identified the DMG 65 Ultrasonic Machine as an option for combining all work into one machining setup. After an immense amount of coordination and collaboration across organizations, the DMG process was implemented. The result of implementing the use of the modern machine tool has reduced the cycle time and decreased the number of machines needed to complete the task. This improvement also reduces the number of inserts needed, including specialty made tooling, reduces motion or material travel and setup time, and decreases tool and part handling which decreases error potential and potential for damage.

Barcode Scanning Increases Throughput

Chip management and disposition is essential in any machining environment. In Building 9201-5N/W, numerous drums of chips are processed each week. The chips are transported to the Uranium Chip Oxidizing Facility. To help process the drums, the team looked to technological advancements. A barcode scanning system was deployed to scan and track the drums, which reduced time required to upload waste data into SAP, a task that previously was all manual entry. A weekly and monthly schedule was established, along with a process flow on the dock, to allow for more efficient material handling. An increase in throughput has also been realized as a significant growth in drums processed.

Figure 18. Barcode system in use.

PROJECT SUMMARY TABLE

Table 1. Project Table

Project Title	Impact	Site	Completion Date
1. Maintenance Advanced Technology Initiative	Provides a safer and more efficient method for collecting equipment data.	Enterprise	April 2022
2. Recruiting and Onboarding Improvement	Reduced cycle time for hiring and onboarding new employees.	Enterprise	September 2021
3. Short-Term-Disability/ Family Medical Leave Act	Providing improved case care for CNS employees.	Enterprise	July 2021
4. APR System	Streamlines planning activities by incorporating procurement strategy and project forecasting.	Enterprise	September 2023
5. Issues Management in TOPIC	Incorporates several legacy systems into one, user-friendly platform.	Enterprise	March 2021
6. Weapons Container Disposition	Reduces labor cost, decreases handling time, and allows on-site security reviews.	Pantex	October 2023
7. Pantex RAMS	Reduced RAMS maintenance facility downtime to zero days.	Pantex	June 2023
8. Pantex Production Optimization	Ensured Pantex can continue to deliver future DSW scope.	Pantex	August 2023
9. Pantex Production Technician Training	Better aligned training schedules with customer needs and increased student throughput.	Pantex	April 2022
10. Neutron Generator Packaging	Reduced packaging costs and lowered process time.	Pantex	June 2023

Project Title	Impact	Site	Completion Date
11. Fire Systems Asset Management	Reduced the rate of fire-trouble signals.	Pantex	October 2022
12. MOX Migration	Provides more accurate, real-time data on lab performance.	Pantex	April 2022
13. Pantex Pellet Pressing	Created direct communication between customer and High Explosives personnel.	Pantex	May 2022
14. Vehicle Maintenance Improvement	Allows for optimal inventory level, accurate parts forecasting, and reduced need of area oversight.	Y-12	March 2023
15. Maximizing Outages	Corrected several single-point failures, completed multiple Beta-2E work packages, and installed breathing air sampling stations.	Y-12	January 2023
16. Small-Scale West Chemistry	Significantly reduced processing time.	Y-12	September 2023
17. Y-12 Production OJT	Formalized and enhanced training processes through dedicated OJT trainers.	Y-12	Activities Ongoing
18. Criticality Safety Training	Enhancing Criticality Safety Engineers' understanding of requirements and processes.	Y-12	September 2022
19. Third Mill Reconfiguration	Reduced processing time per billet.	Y-12	February 2023
20. Streamlining QLDs	Reduced frequency of most common error and saved thousands of calendar hrs. in review time in FY 2023.	Y-12	March 2023
21. Dot Peen Marking	Reduced marking errors, decreased risk for injury, faster processing, and more accurate spacing and depth of marking.	Y-12	November 2021
22. Depleted Uranium Machining Operations Equipment Modernization	Reduced processing time and made the K&T 5-axis machine available for additional scope.	Y-12	March 2022
23. USHPRR Packing Certification	Fully automated process produces documents with real-time data, correctly formatted for customer submittal.	Y-12	August 2021

Project Title	Impact	Site	Completion Date
24. Smart Factory	Improves data collection and tracking on machines, provides cycle time per part and setup, and provides real-time inventory on parts.	Y-12	Activities Ongoing
25. Ultrasonic Technology	Reduced cycle time and number of dedicated machines.	Y-12	October 2023
26. Barcode Scanning	Reduced time to upload waste data in SAP and increased disposal capacity.	Y-12	March 2023

CNS EMDI LEADERSHIP AND PARTNERSHIPS

This section details ongoing and forward-looking EMDI improvement initiatives in the following categories:

1. **CNS NSE support**
2. **CNS/PFO/YFO partnering**
3. **CNS leadership-driven systems**
4. **CNS workforce-driven systems**

CNS NUCLEAR SECURITY ENTERPRISE SUPPORT

CNS is committed to collaborating on NNSA headquarters EMDI initiatives. Highlights include the following:

1. **Product Realization Process (PRP) subgroup:** Participates in weekly and monthly working groups and sub-team meetings. The PRP subgroup is focused on working to pilot/replace documents. PRP training completed in February 2024, and included W80-4, W87-1, and W93 program teams. Pilot deployment is scheduled for the spring of 2024.
2. **First Production Unit (FPU) earned value reporting:** Finalized the post-FPU guidance for earned value reporting as negotiated with the B61-12 and the W88 Alt 370.
3. **Stockpile Modernization Working Group Clean Sheet Team:** Focused on how the enterprise goes from requirements in-hand to rate production from Pantex in 5 years. Actively participating in proposal development and final reporting to NA-10 leadership in late March 2024.
4. **Post-FPU Earned Value Management Systems:** Pantex submitted a streamlined reporting product to the W88 Alt 370 Federal Program Office for review and is evaluating their feedback for implementation. The near-term objective is to streamline post-FPU reporting and standardize it with NA-125 programs already in Phase 6.6 and

to give NNSA continued capability to accurately evaluate and monitor portfolio performance.

5. **Schedule Integration:** The Federal Program Office and site representatives are partnering to understand and analyze the current schedule integration challenges and create a solution to meet schedule integration environment needs and define and score various integration concepts.
6. **Change Control:** Focus is to revise Baseline Change Thresholds, establish a multi-site change board in accordance with new thresholds, and create Scope Control Elements/Variance thresholds.

CNS/PFO/YFO EMDI PARTNERING

CNS leadership is committed to partnering with PFO/YFO leadership to spearhead broad-reaching technology and innovation and infrastructure EMDI improvements. CNS has proposed the following initiatives to further mission delivery across the NNSA:

Technology and Innovation

1. **PFO/YFO/CNS partner to draft a Wireless Technology standard for consideration and use by NNSA headquarters:** As the lead, PFO/YFO/CNS form a diverse team of subject matter experts from other DOE sites to draft a complex-wide wireless network technologies standard for both unclassified and classified operating environments. This standard would greatly enable digital transformation.
    a. **Wireless Technology:** Establish complex-wide standardized wireless network technologies for both unclassified and classified operating environments.
    b. **Current Technology:** Put a regulatory construct in place that allows management and operating contractors to more readily deploy technologies in order to stay current with accepted state-of-the-art technologies such as wireless and Bluetooth.
2. **PFO/YFO/CNS partner to develop a Pantex- and Y-12-specific plan for the phased implementation of Bluetooth instrumentation and equipment:** Develop a formal path to allow Bluetooth instrumentation at Pantex and Y-12. This will realize multiple benefits including increased levels of operational safety, quality, and mission-related productivity (operations and equipment functions). Examples include:
    a. **Bluetooth to Buy-Down Risk:** Use industry-available Bluetooth instruments to buy-down the risk of putting electrical maintenance personnel in danger when working on energized panels.
    b. **Resource Benefits:** Bluetooth acceptance would make significant resources available that are currently being use to "de-Bluetooth" much of the standard equipment that is procured. It would also open resources used to physically gather equipment data in the field.

3. **PFO/YFO/CNS partner to influence the creation of a Central Federal Authorizing Official (AO):** Establish a single threat/risk acceptance authority, mission AO for NNSA, concerning all nuclear weapons design data that can represent the digital thread of data to achieve the weapons manufacturing process digital twin identified as a priority by NNSA leadership. This central federal AO will make the risk decisions for digital engineering, digital transformation, and digital twin for the cradle-to-grave design, manufacturing, and modifications of all nuclear weapons.

    a. ***If unable to pursue a Central Federal AO function, then*** **PFO/YFO/CNS partner to develop and propose NNSA Standards for Cyber and Software Quality Assurance (SQA):** A great deal of work has already been accomplished within the Energy Facility Contractors Group (EFCOG) to establish cyber and SQA standards for NNSA. PFO/YFO and CNS partnering to build on the EFCOG efforts and further draft proposed standards for consideration by NNSA headquarters will streamline site office decisions in the approval process.

Infrastructure

1. **PFO/YFO/CNS partner to build Sole-Source Commercial Standards for Pantex and Y-12:** Fully utilize the authority DOE has to employ commercial standards to build Pantex and Y-12 production and research and development facilities under sole-source commercial (low regulatory) standards like the U.S. Department of Defense does. Currently, other transactional authority is the only methodology to do this function.

CNS LEADERSHIP-DRIVEN SYSTEMS

CNS Enterprise Risk Management

CNS leaders champion improvement through the above initiatives and drive enterprise risk management for EMDI mission success at every level of the organization.

CNS's best-in-class risk management program holistically evaluates, prioritizes, and manages organizational and company-wide risks to the goals and objectives for Pantex and Y-12. CNS is actively working EMDI improvements for the Top 10 Opportunities and Threats (Figure 20).

Figure 20. CNS Top Ten Opportunities and Threats.

CNS WORKFORCE-DRIVEN CONTINUOUS IMPROVEMENT PROGRAM

The CNS CI Program uses an integrated collection of teaming concepts and tools that help organizations get better at improving the way work is done. The most important CI concept is that those who do the work are invaluable in identifying frustrations in that work; therefore, they need to participate in identifying improvement solutions.

Elements of the CI Program include tiered escalation, VSETs, equipping the workforce, expert facilitation, and visibility and reinforcement.

Tiered escalation binds the various value streams together and consists of a series of tiered meetings that focus work teams on communication of work scope, delivery, and resolving issues in their own areas. Issues or work barriers are raised to the most appropriate level of management or functional group for resolution.

VSETs are enduring groups focused on delivering product within cost, schedule, and quality while continually identifying and implementing sustained improvements to increase the ability to achieve greater productivity and efficiency.

Equipping the workforce consists of multiple CI training courses. They vary by level of exposure to CI concepts and tools.

Black Belts provide expert facilitation services for complex process improvements, also known as kaizens. Black Belts use Lean, Six Sigma, and other leadership and project management tools to scope, analyze, and expertly facilitate teams on multifaceted improvement projects to meet safety, security, quality, timeliness, and cost savings goals.

The CI Program provides reinforcement through visibility of results. This is accomplished through project documentation in the CIPitory, CI publications, enrichment sessions, CI celebrations, executive leadership team highlights, benchmarking, and management "Go & Sees."

CONCLUSION

EMDI tenets of finding inefficiencies and improving the way our organizations work are essential steps toward fostering innovation and efficiency at both Pantex and Y-12. By streamlining bureaucratic processes and eliminating unnecessary and overly-cumbersome policies and procedures, CNS empowers individuals and teams to reach their full potential. This enhances agility, creativity, and adaptability in response to rapidly changing environments. As leadership continues to champion these principles, the way is paved for a more prosperous future, where untapped potential can flourish, leading to a sustainable and prominent stance within the NNSA Enterprise.

ABBREVIATIONS

AO	Authorizing Official
APR	Acquisition Planning Requisition
CI	Continuous Improvement
CIPitory	Continuous Improvement Project Repository
CNS	Consolidated Nuclear Security
CoC	Certificate of Conformance
CSE	criticality safety evaluation
DOE	U.S. Department of Energy
DSW	Directed Stockpile Work
EFCOG	Energy Facility Contractors Group
EMDI	Enhanced Mission Delivery Initiative
FPU	First Production Unit
NNSA	National Nuclear Security Administration
NSE	Nuclear Security Enterprise
OJT	on-the-job training
ORAU	Oak Ridge Associated Universities
Pantex	Pantex Plant
PFO	Pantex Field Office
PRP	Product Realization Process
QLD	Quality Level Determination
RAMS	Radiation Air Monitoring System
SQA	Software Quality Assurance
SSWC	small-scale wet chemistry
TOPIC	Tools for Opportunities - Performance Improvement through Communication
USHPRR	U.S. High Performance Research Reactor
VMC	Vehicle Maintenance Center
VSET	Value Stream Element Team
Y-12	Y-12 National Security Complex
YFO	Y-12 Field Office