



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Portsmouth/Paducah Project Office: *Navigating Through Changing Conditions*



Waste Management Symposia

Phoenix, Arizona

Thursday, March 6, 2014



William Murphie

DOE-PPPO Manager
Panel Chair



Vince Adams

DOE-PPPO
Portsmouth Site Director



Mark Duff

LATA of Kentucky LLC
Project Manager



Dennis Carr

Fluor-B&W Portsmouth LLC
Site Project Director

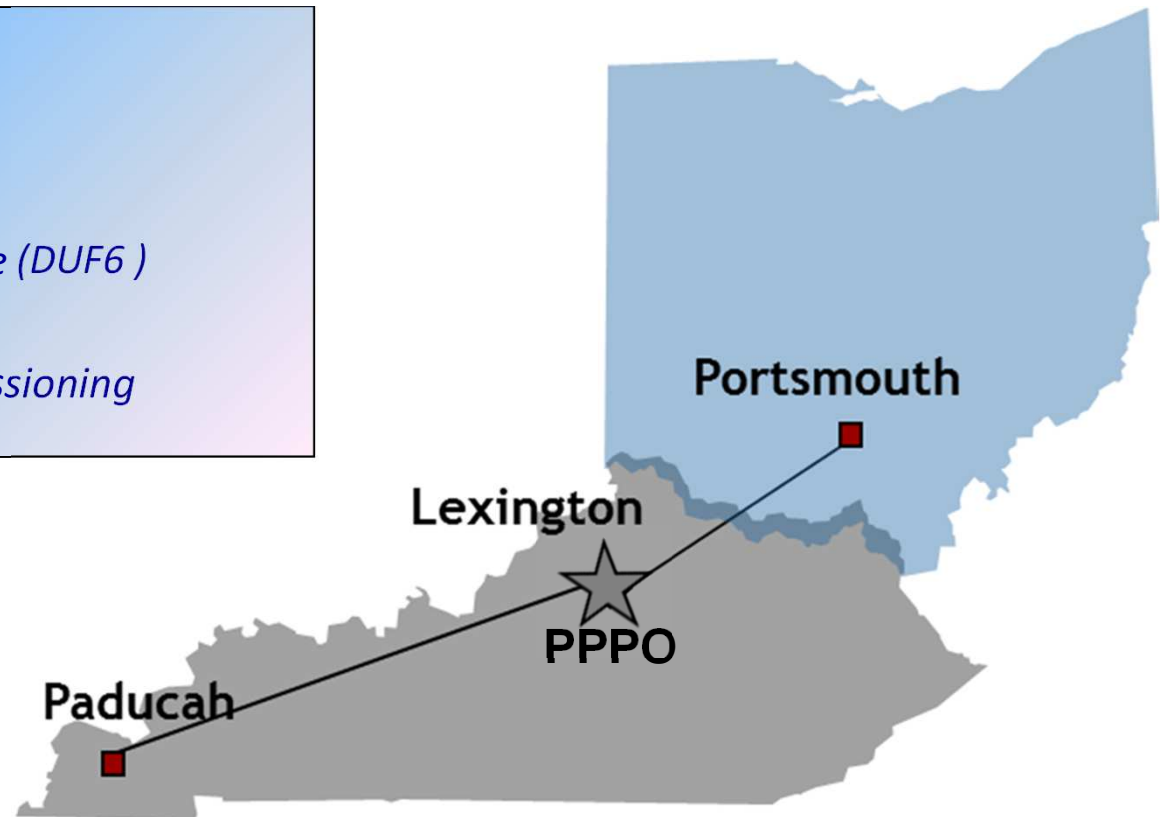


Kent Fortenberry

B&W Conversion Services LLC
Chief Engineer

PPPO Mission:

- *Environmental Remediation*
- *Waste Management*
- *Depleted Uranium Hexafluoride (DUF6) Conversion*
- *Decontamination & Decommissioning*



William Murphie

- Manager, Portsmouth/Paducah Project Office (PPPO)

U.S. Department of Energy office in **Lexington, KY**

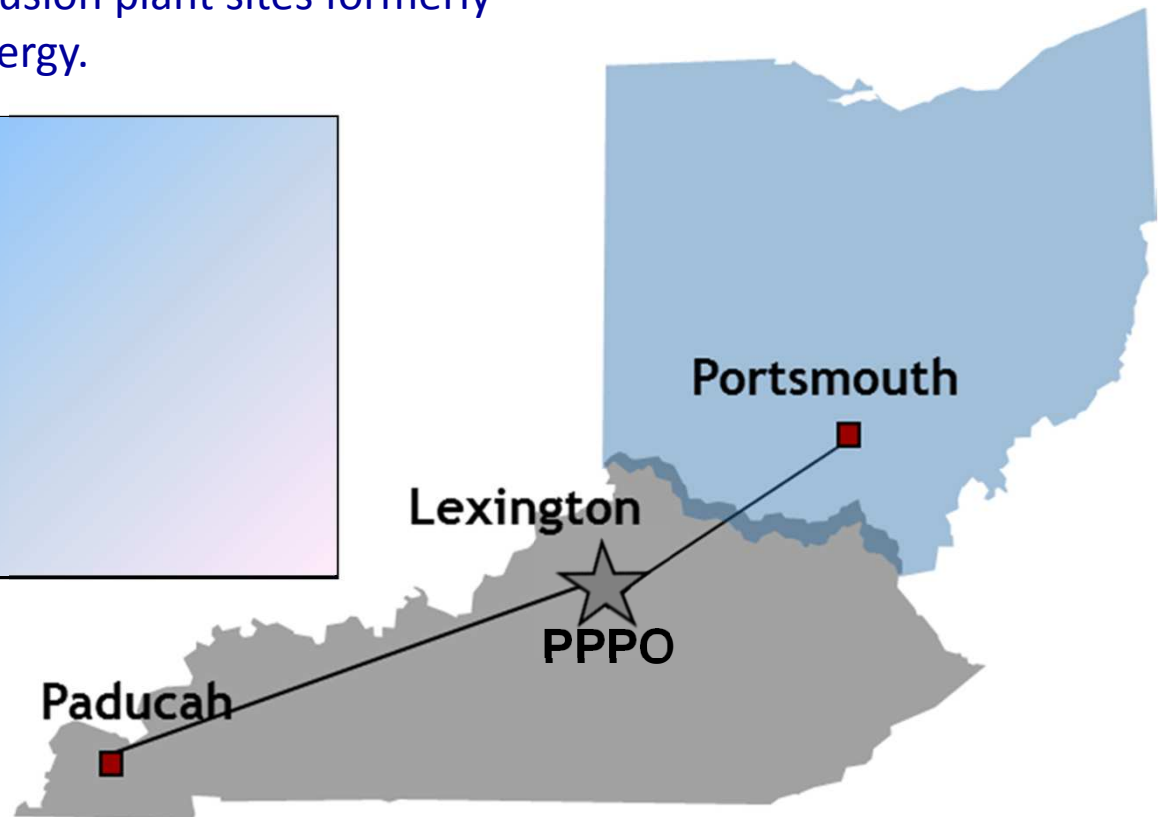
PPPO provides consolidated management in support of cleanup efforts at two gaseous diffusion plant sites formerly operated by the Department of Energy.

Business Support Services:

- Human Resources
- Financial Management
- Public Affairs
- Legal Services

Technical Support Services:

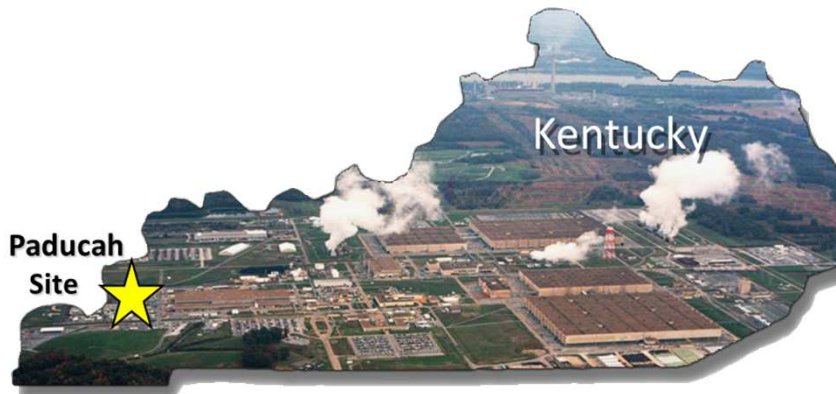
- Project Management
- Risk Management
- Contract Management



- **Maintaining the necessary elements of old and oversized infrastructure (water, sewer, electrical, autoclaves, safety systems) in the near term pending D&D phase**
- **Managing and planning large remediation and D&D projects within funding constraints**
- **Developing/implementing strategy for recycling large quantities of potentially contaminated material**
- **Remediation of significant on-site/off-site chemical contamination**
- **Managing work under an unusual arrangement involving appropriations and transfers of uranium**

Portsmouth

- 3,700-acre federal site, built in early '50s
- Shut-down Gaseous Diffusion Plant (USEC ceased GDP enrichment in 2001)
- Operating DUF6 conversion plant
- ~2,700 jobs (350 USEC-ACP) (as of 2/1/14)



Paducah

- 3,500-acre federal site, built in early '50s
- Shut-down GDP (USEC ceased enrichment in May 2013)
- Operating DUF6 conversion plant
- ~1,400 jobs (750 USEC) (as of 3/1/14)

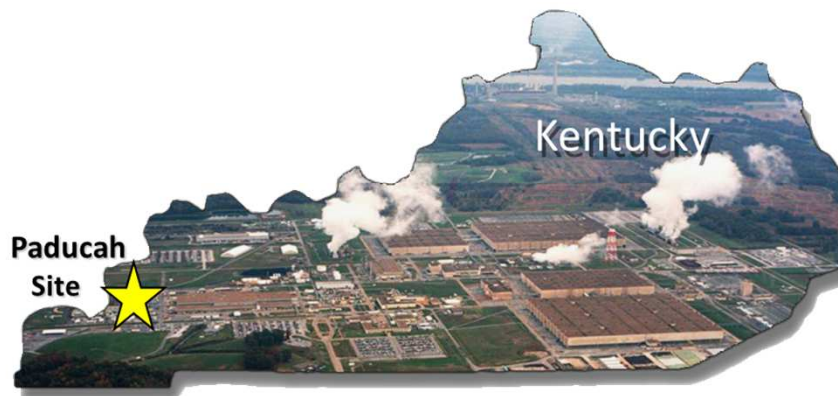
Portsmouth

- Enriched uranium to high assays for weapons/nuclear Navy
- USEC cold standby/cold shutdown, 2001-2010
- American Centrifuge Plant project onsite
- State has primary regulatory role under Ohio EPA Director's Final Findings & Orders (DFF&O)
- Active D&D Project contractor onsite



Paducah

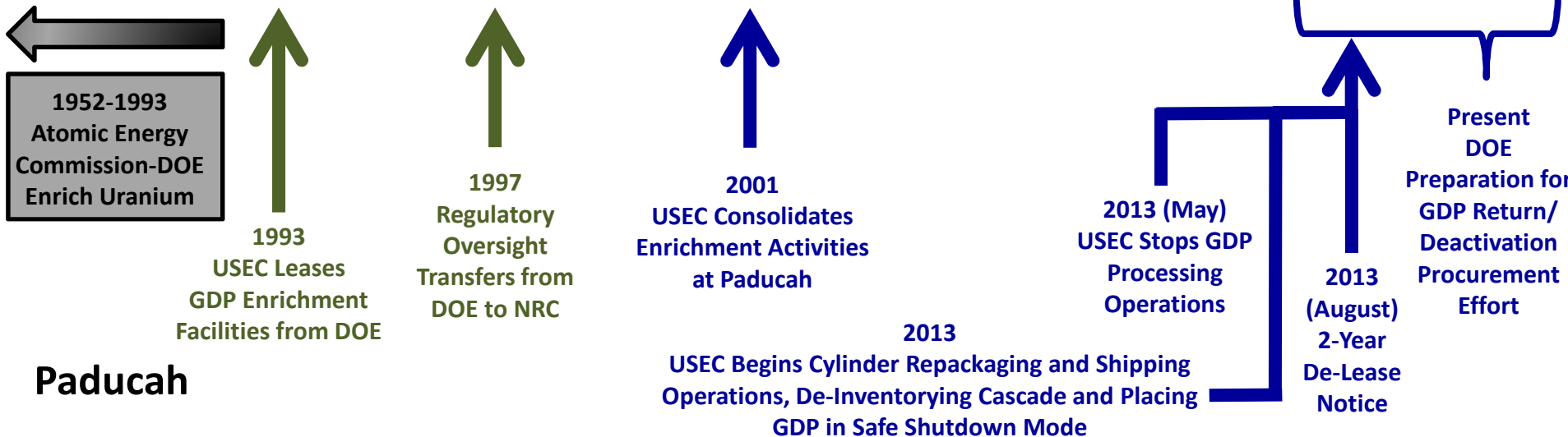
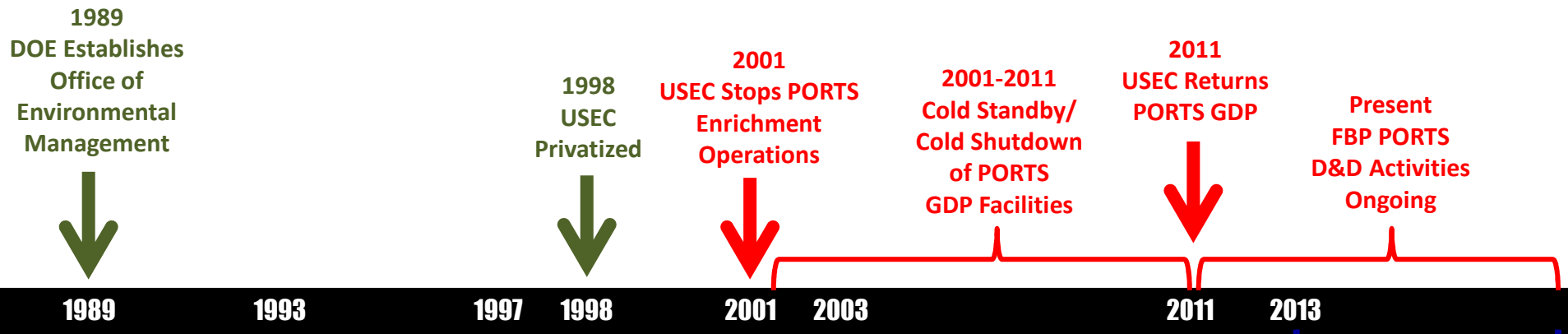
- Enriched uranium to no greater than 5%
- GDP facilities still leased to USEC
- Deactivation contract in procurement
- D&D/cleanup decisions largely undecided; Extensive groundwater remediation in progress
- USEPA/State have joint regulatory role under Tri-Party agreement



Portsmouth/Paducah Timeline



Portsmouth



Paducah

Dr. Vincent Adams

➤ Site Director

U.S. Department of Energy





- ▶ FBP awarded Portsmouth D&D contract in August 2010; Began D&D activities in March 2011.

- Contract expires March 28, 2016 (w/5-yr option)



- ▶ WEMS is responsible for site infrastructure maintenance, training, security and other services.

- Contract expires July 25, 2015



- ▶ BWCS operates the DUF₆ conversion plant, which converts depleted uranium hexafluoride into oxide for reuse or disposal and HF for use in commerce.

- Contract expires Jan. 1, 2016



Restoration Services, Inc.

- ▶ RSI assists DOE with strategic planning, oversight, regulatory & technical support.

- Contract expires Sep. 30, 2016 (w/2-yr option)

Challenges & Priorities

- **Safety**
- **Deactivation of process buildings**
- **Dismantling and disposal of GDP's three process buildings and more than 300 support facilities**
- **Finalize regulatory decisions (demolition and on-site vs. off-site waste disposition)**
- **Continue to drive down mortgage/landlord costs**
 - Outsource services
 - Exit high cost facilities
 - Keep maintenance of old buildings to safe levels
- **Environmental remediation**
- **Right-sizing of facilities**
- **Develop Lifecycle Baseline**
- **Maintain strong collaboration/partnership with stakeholders**

Portsmouth Project Completion

CURRENT



END STATE



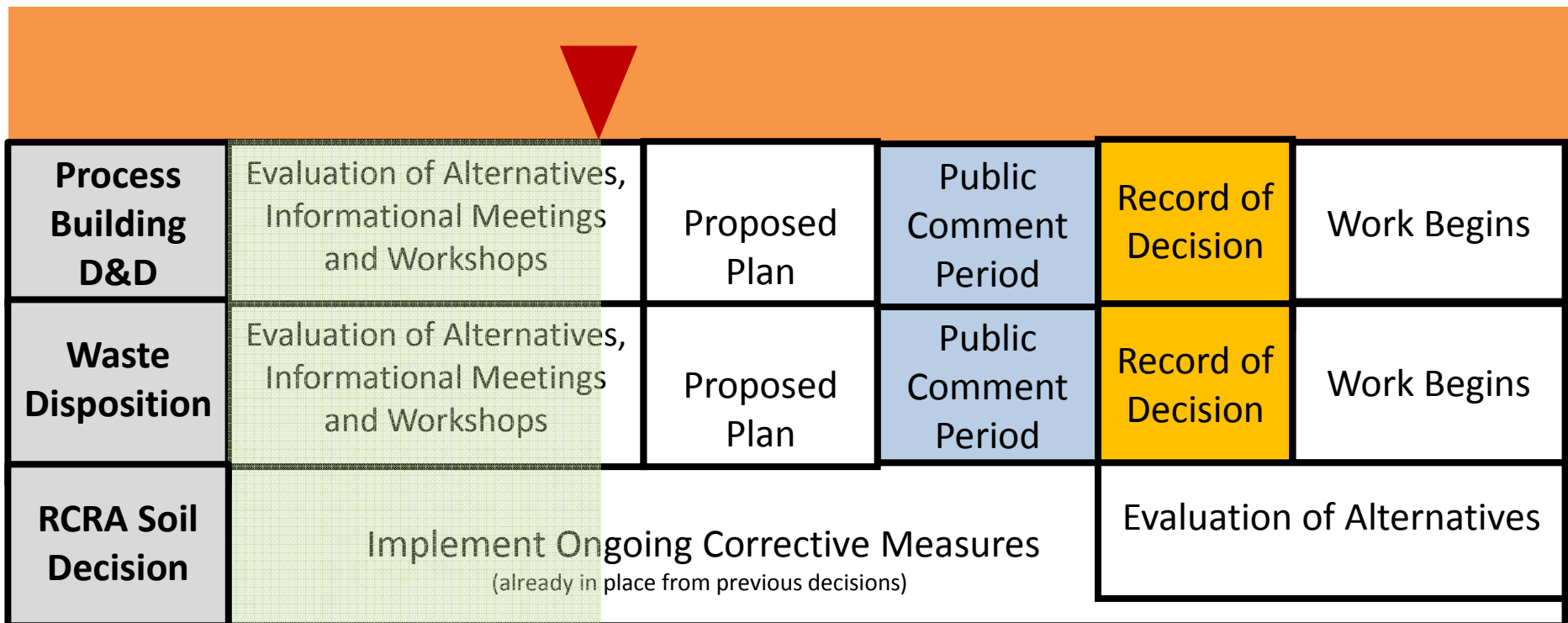
- **Regulatory progress**
- **Demolition projects**
- **Deactivation**
- **Waste shipments**
- **Environmental remediation**
- **Recycling**
- **Community outreach**

➤ **Regulatory Drivers**

- Ohio EPA Director’s Final Findings & Orders (DFF&O)
- Consent Decree

➤ **Regulatory Progress**

- Proposed Plans for Waste Disposition and Process Building D&D expected in 2014



➤ Demolition projects

- Steam plant
 - New steam boiler saves more than \$1M per year in maintenance and operating costs
 - Greatly reduces greenhouse gas emissions
- ~300,000 square feet of total footprint reduction in FY13

➤ Deactivation (Cut & Cap)

- More than 80 cell equivalents removed to date with more than 1,100 converters shipped

➤ Waste Shipments: Other shipping includes RCRA mixed waste, TSCA mixed waste, low level waste and asbestos

➤ Environmental Remediation: ~400 lbs. of TCE removed through pump and treat operations

Steam Plant Before



Steam Plant After



Recycling & Reuse

- More than 27M lbs. of material recycled to date through asset transfer agreement with local community reuse organization
 - \$2.2M returned to DOE for site cleanup work
- Best in Class EM Sustainability Award winner
- Asset revitalization
 - Transfer of four water wells to Village of Piketon
 - Excess wells fill village's need for more water capacity
 - Transferred 1.8M+ lbs. of excess personal property, 100 vehicles
 - Pike County tie-in to site sewage plant



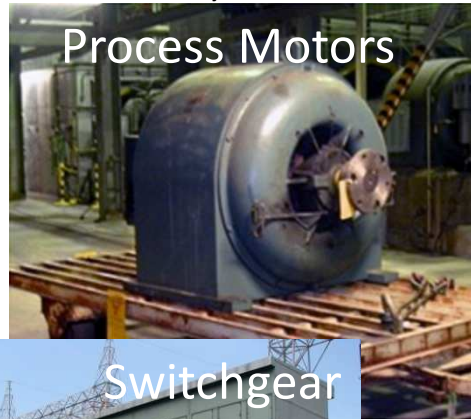
200-ton synchronous condenser

Mixed steel,
copper, aluminum
50,000 tons



Towers

1,740 motors
10,000 tons



Process Motors

190 miles
cable
2,000 tons



Cable

Transformers



Transformers
8,000 tons

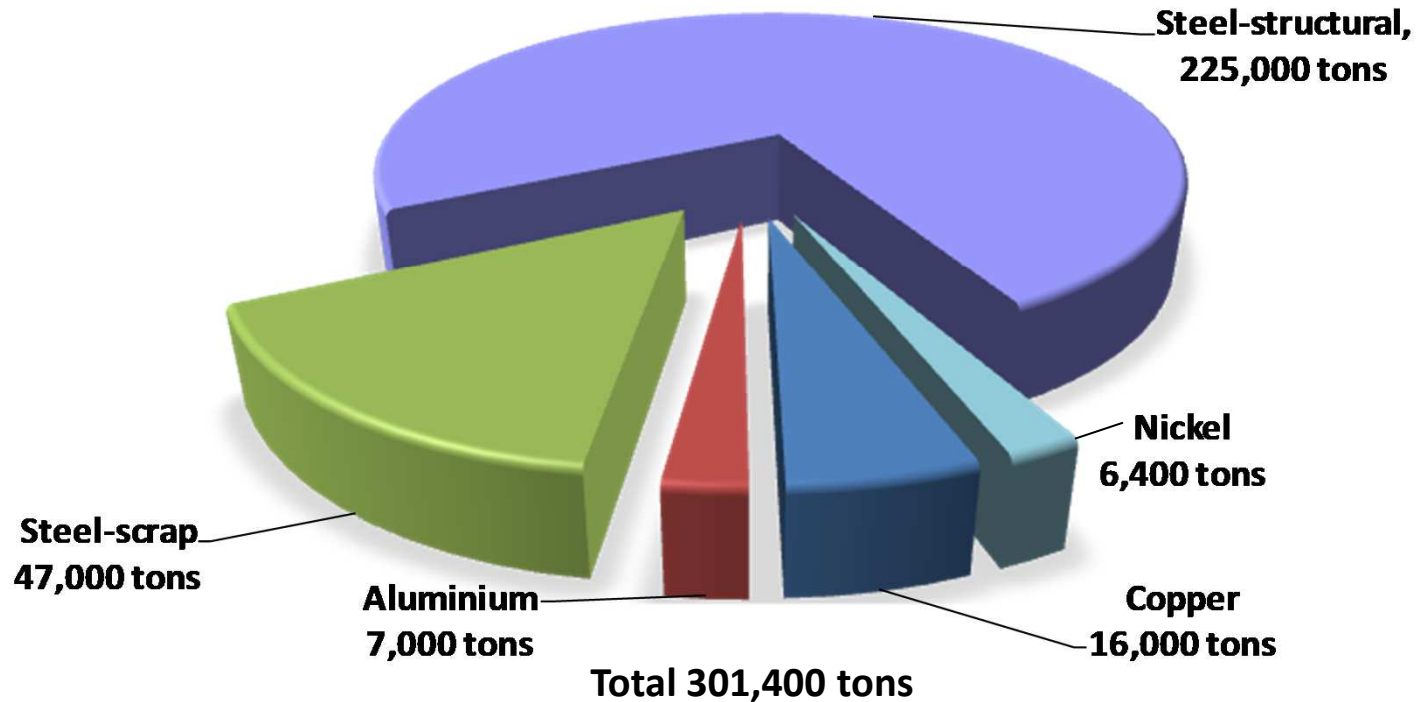


Switchgear



5,000+ tons
excess
material

Recyclable Metals at PORTS (by material type)



- **Volumetrically contaminated**
- **Classified**
- **Up to 30,300 tons**
 - PORTS – 6,400 tons
 - ORO – 5,600 tons
 - PAD – 18,300 tons
- **Less than 1% of annual global nickel market**
- **PORTS nickel requires removal from converters (segmentation) and purification**
- **Segmentation**
 - Nickel will be removed from process gas equipment and safely stored
 - Activity incorporated into latest PORTS Lifecycle Cost Baseline
- **Purification**
 - Bench-scale treatability study for purification technology

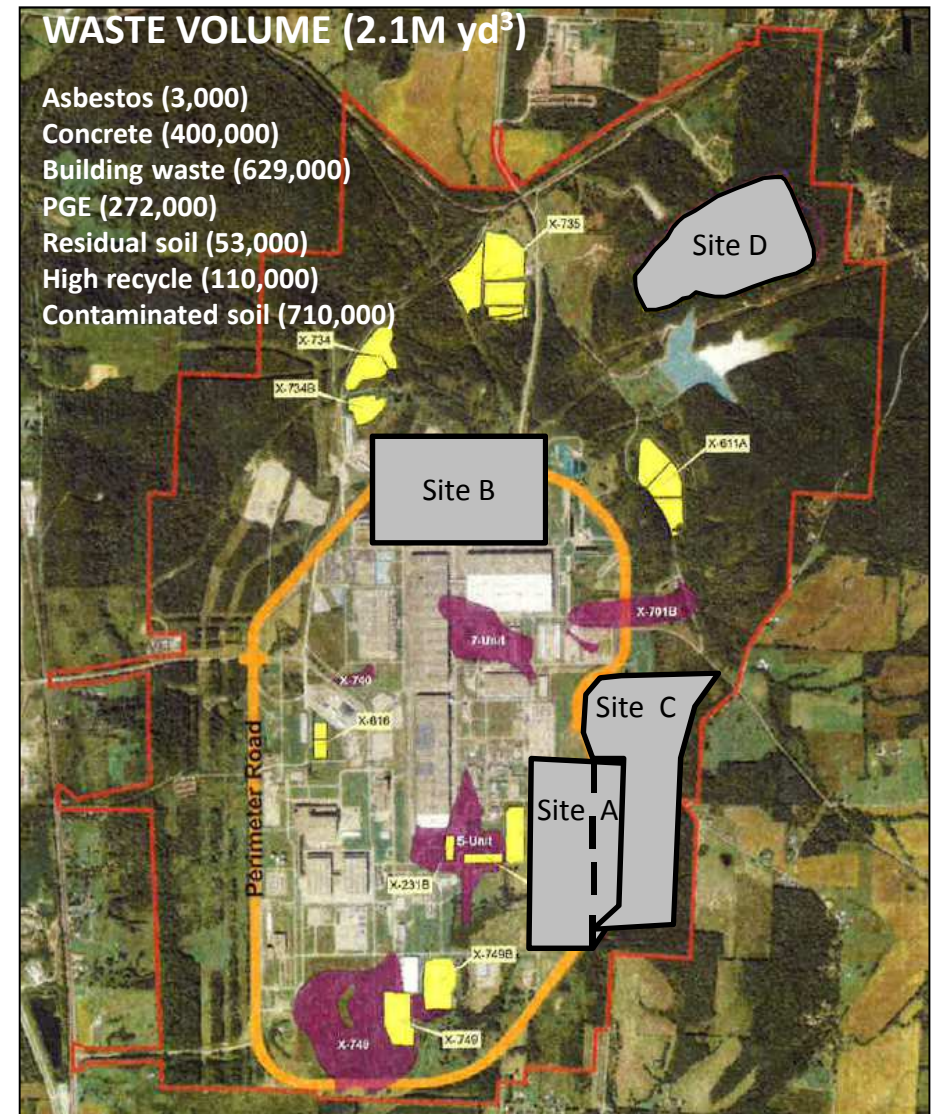
- **Portsmouth Site Specific Advisory Board**
- **Elected officials** (monthly meetings with commissioners)
- **Southern Ohio Diversification Initiative (SODI)**
- **Regular meetings with Ohio EPA**
- **Educational Outreach**
 - Fourth Annual DOE Science Alliance
 - Inaugural South Central Ohio Regional Science Bowl
 - Appearances at regional universities and high schools
 - High school Annual Site Environmental Report (ASER) program through Ohio University

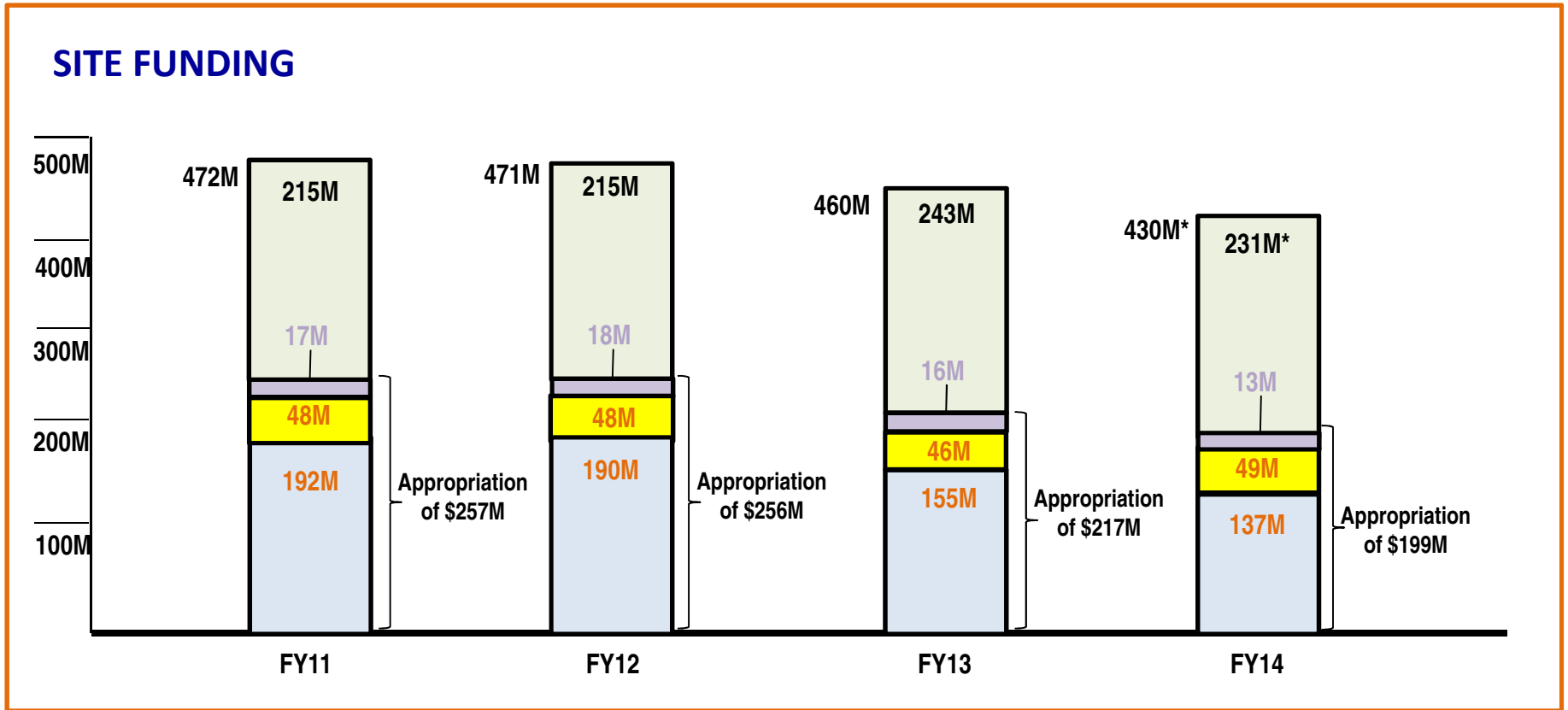
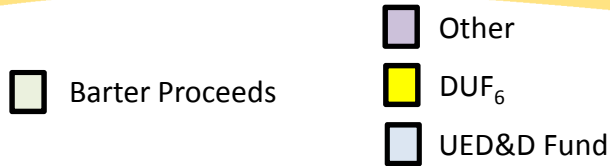


Inaugural South
Central Ohio
Regional
Science Bowl



- Chunk into smaller, more manageable projects consistent with DOE Order 413.3B
- **If** on-site disposal is selected, opportunity exists for obtaining contaminated soil instead of purchasing clean soil for OSWDF construction
 - Removal of current landfills and groundwater plumes and place in OSWDF
 - Permanent solution to groundwater issue by removing sources
 - Cost savings by eliminating indefinite pump and treat
 - Eliminate future natural resource damage assessment claims
 - Enhances site potential and drives stakeholder support





* FY14 Barter Proceeds Are Estimated

Dennis Carr

Site Project Director

Fluor-B&W Portsmouth LLC

Scope of Work

- Dismantling and disposal of Gaseous Diffusion Plant facilities
 - 3 large process facilities
 - More than 300 support facilities
- Clean up contaminated soil
- Ensure effective groundwater remediation
- Assess existing closed/capped landfills
- Leave site in a condition that supports community's vision





- Bringing site workforce formerly under NRC regulatory authority back under DOE oversight

Lessons Learned

- Developing a DOE site safety culture by rallying workforce around D&D mission
- Incidents that show gaps but drive safety improvements:
 - Crane incidents
 - Electrical pole strike
 - Chlorine odor

Lessons Learned



Safety Recognition



Priorities & Actions

- Using National Safety Council Survey to strengthen safety culture
- ISMS Phase 2 Verification
- Increased safety communications & involvement
 - Company Employee Safety Team
 - Daily Safety Sheet
 - Safety Pocket Guide
 - Health & Safety Fair



Daily Safety Sheet



Company Employee Safety Team

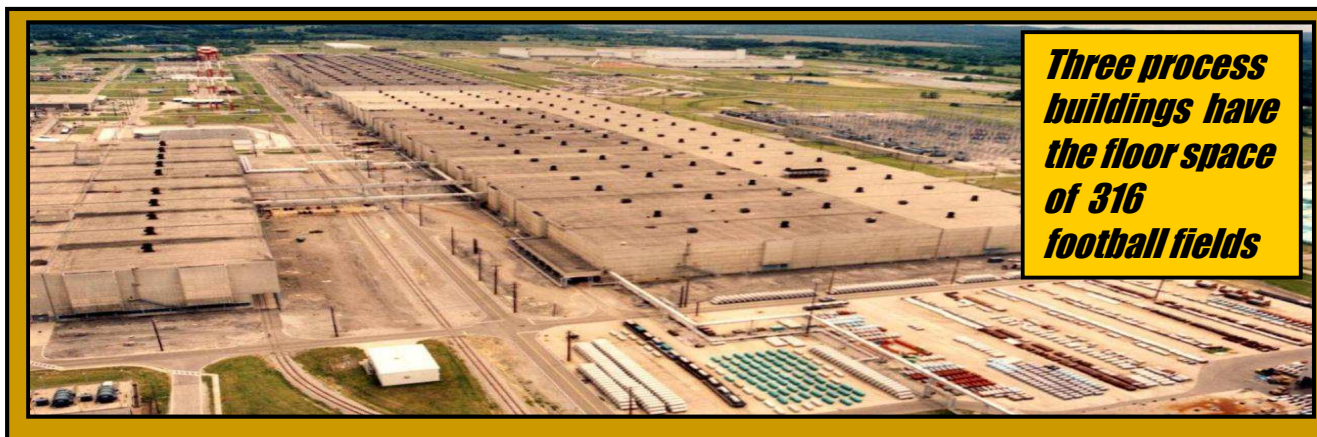


Safety Pocket Guide



Issues

- 65 year-old facilities with 145 acres under roof
- 22 Haz Cat 2 facilities
- Deteriorating roofs in former processing buildings and material storage areas
- 2.2 gigawatt electric grid excessive for D&D mission and future use but part of national electric grid
- Sewage treatment facilities + other utilities with single points of failure
- Safety systems—extensive/must be maintained until facilities can be vacated or demolished





Priorities & Actions

- Repair/replace critical components
 - Autoclaves & cranes
 - Sewage treatment plant equipment and lift stations
 - Water treatment plant sanitary water pumps/mixers
 - Maintain a variety of 50-year-old HVAC systems

- Eliminate single point failures in infrastructure systems (i.e., System Health Report)

- Evaluate maintenance practices for further efficiencies



Water Treatment

System Health Report

PARAMETER MEASURED	CRITERIA	MEASURED	RATING	COLOR	MINIMUM AVAILABILITY	ACTUAL	COLOR	ACTUAL	COLOR
Air Plant									
BASED ON AERIAL DATA, Monthly Sampling									
OVERALL SYSTEM									
MATERIAL CONDITION									
X-330 #6, #8 & #9 Comp. (3.8 KSCFM)	Daily Avg. No. Avail.	2.7 or more	2.4 to 2.6	2.5 to 2.3	0 to 1.8	100	4	4	4
A-330 #7 Comp. (2.8 KSCFM)	Daily Avg. No. Avail.	0.9 or more	0.75 to 0.85	0.60 to 0.74	0 to 1.8	100	1.7	1.7	1.7
Diesel Comp. (7.0 KSCFM)	Daily Avg. No. Avail.	1.8 or more	1.6 to 1.7	1.3 to 1.5	0.00 to 0.84	100	0.7	2.0	2.0
Avg. Daily Capacity of X-330 Electric Compressor	Avg. No. Running	10.0 or more	0.4 to 0.5	0.7 to 1.0	1.1 to 2.0	100	1.0	1.0	1.0
General X-330 Equipment Condition	status	17.6 or more	13.8 to 17.5	10.0 to 13.7	0.0 to 10.0	100	6.2	1.0	1.0
X-670 #1, #2 & #3 Air Comp. (3.8 KSCFM)	Daily Avg. No. Avail.	Excellent	Good	Fair	Poor	100	15.0	16.5	16.5
Avg. Daily Capacity of X-670 Electric Compressors	Daily Avg. No. Avail.	2.7 or more	2.4 to 2.6	2.0 to 2.3	0 to 1.8	100	0.0	0.0	0.0
Cooling Water Availability General X-670 Equipment Condition	status	Excellent	Good	Fair	Poor	100	2.0	2.0	2.0
Recovery Improvement Plan	status	Excellent	Good	Fair	Poor	100	0.0	0.0	0.0
CONDITION MONITORING									
Adverse Trends	Adverse Trend	none	manageable	intermittent	intermittent	100	0.0	0.0	0.0
		none	manageable	intermittent	intermittent	100	0.0	0.0	0.0
		none	manageable	intermittent	intermittent	100	0.0	0.0	0.0
		none	manageable	intermittent	intermittent	100	0.0	0.0	0.0



Priorities & Actions

- Implemented 5-5-5 Plan
 - Charter: 5 people/5 months/\$5 million savings
 - Identified \$13.5 million in annual savings
 - Reassigned 91 employees to higher priority site work
 - Reduced active PMs 23% and corrective maintenance by 64%
- Laundry/Respirator services subcontracted saving \$1M annually
- GFE vehicles converted to GSA. Garage performing GSA maintenance saves \$230K annually
- X-710 Laboratory outsourcing in progress
 - Additional cost savings when Lab and other buildings vacated



Lessons Learned



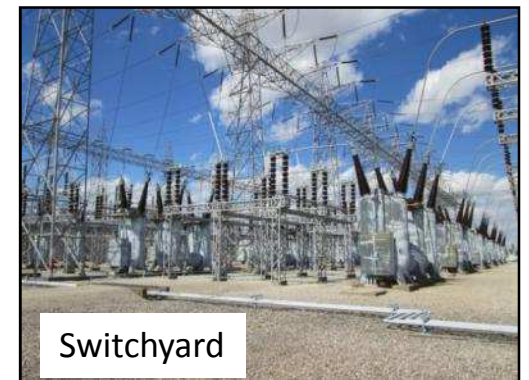
Issues

- Oversized infrastructure built to operate three production buildings
 - 13 miles of underground cable supporting site buildings
 - Sewage treatment plant daily capacity of 600k gallons (200% of current need)
- Infrastructure system not designed to support D&D activities

Priorities & Actions

- Repair or replace old roofs
- Install enclosure around new Boiler Plant
- Reduce sanitary water usage by 38% to support conversion to public water supply
- Transfer facilities to new 13.8kV distribution system
- No significant demolition until first process building vacated

Lessons Learned





Scope

- Operate and manage the Uranium Barter Transfer Program – mission critical
- Support nuclear decontamination and uranium downblending operations
- Support D&D through component sampling and processing
- Manage and process the accountable nuclear inventory at the site
- Complete the nickel recovery bench scale evaluation





Issues

➤ Uranium Barter Operations

- Old facility & challenging to maintain
- Operations personnel have met production goals to support 2,400 MTU per year
- Uranium Barter Program
- 70 % of site funding relies on this operation
- Safety performance – excellent!

Priorities & Actions

➤ Ash and Gunk

- Perform cost/benefit analysis on processing material on or off site
- Complete processing by Sept. 30, 2014

➤ Complete installation and start-up of cold boxes for heel cylinder processing





Scope

- Remove Process Gas Equipment (PGE)* to achieve Criticality Incredible condition and to support “cold and dark” status
- Remove Hazardous Waste and accountable nuclear material
- Characterize non-process gas and structural components for disposal
- Remove asbestos containing materials
- Utility isolation & redistribution



Cut & Cap Operations in X-326 Building



* This work is being done under an Ohio EPA-approved RI/FS Sampling Analysis Plan (SAP).



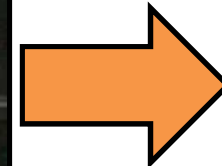
Issues

- Safety – high-risk work
- Non-Destructive Assay (QSNDA)
 - In-situ NDA to Characterize to Open to Atmosphere
 - Ex-situ NDA to Characterize for Transportation/Disposal
- Equipment Size & Weight
 - Hoisting & Rigging
 - Tight Work Spaces
- Aging Infrastructure (Cranes, Elevators, etc.)
- Hydrogen Fluoride and Nitrogen Dioxide Emissions

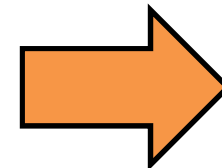


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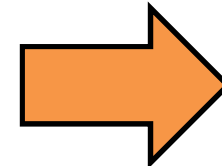
PREPARING THE FUTURE
PORTS
& D PROJECT



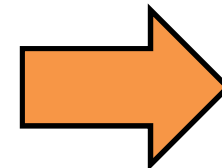
Cell components are housed within heated enclosure
for temperature control



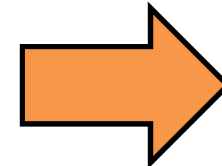
Hatch covers removed to allow access to the converters



Converter detached from the Interconnecting piping using a carbon arc torch

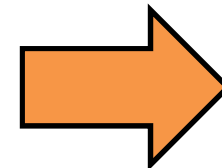


The converter lifting fixture is lowered into place by the overhead bridge crane and attached to the converter



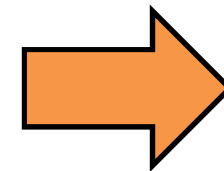
Converter is raised from the cell using the crane

Cut & Cap

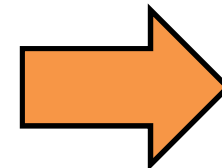


Once removed from the cell housing, the converter is moved to a transfer cart

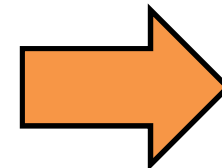
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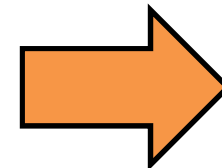
Metal plates are welded to secure the openings and the converter is decontaminated as necessary



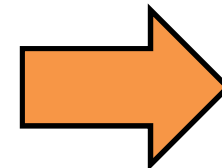
Converter is lowered to the operating floor



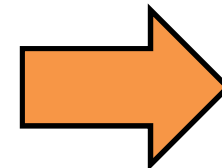
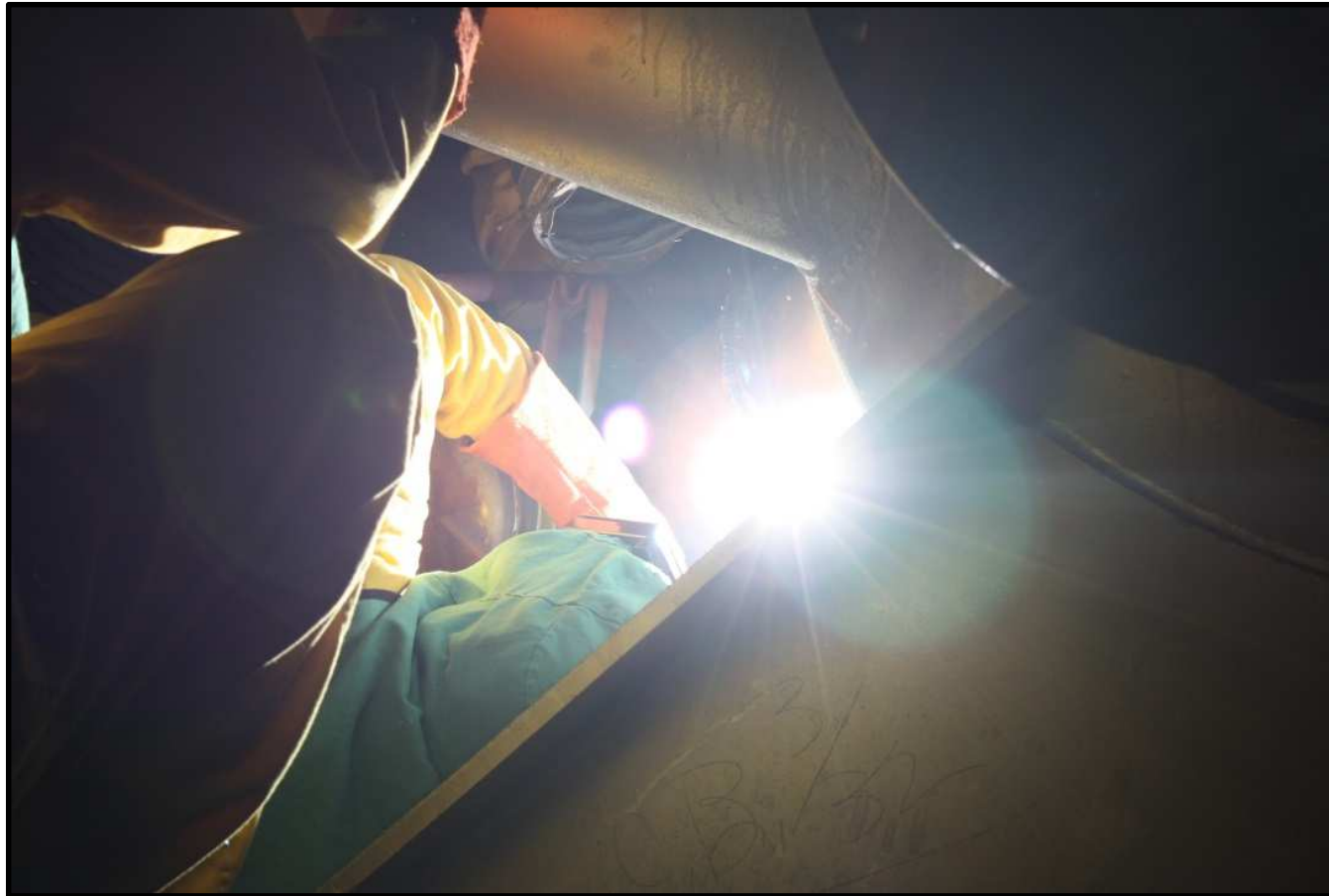
Converter is placed in soft-sided shipping bag
for storage prior to shipment



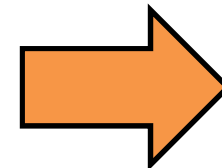
Compressors are housed within a heated enclosure for temperature control



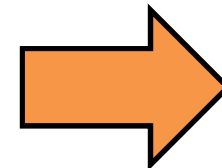
Enclosure is removed for easy access



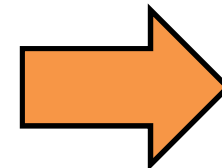
Compressor detached from interconnecting piping using a carbon arc torch



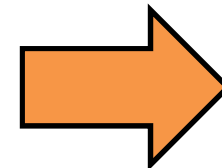
Metal plates are welded to secure the openings



Compressor is lifted from the cell housing

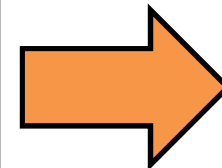


The compressor is lowered to the operating floor

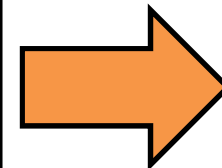


The compressor is secured in a soft-sided shipping container for storage prior to shipment

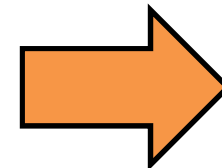
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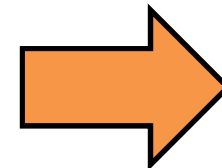
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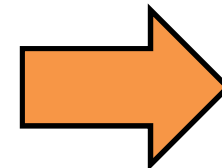
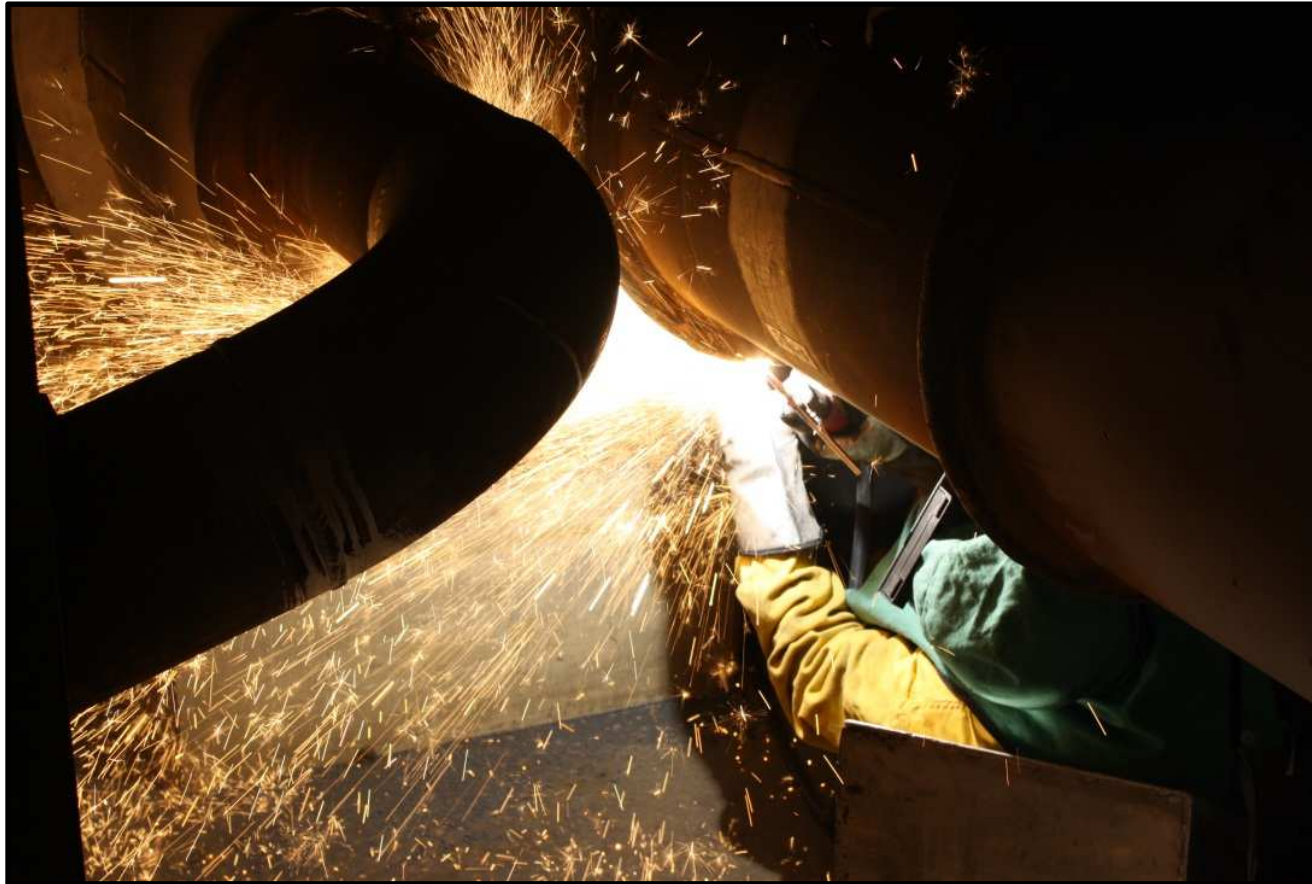
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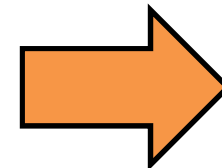
Interconnecting piping is cut into sections using a carbon arc torch



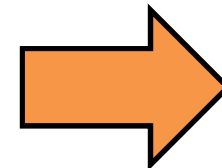
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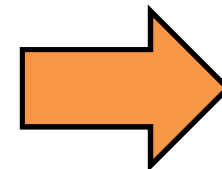
Interconnecting piping is cut into sections using a carbon arc torch



A range of internal conditions can be seen in these pipe sections

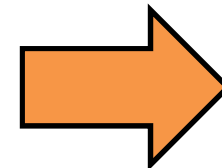


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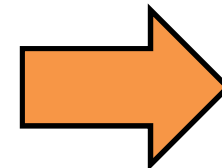
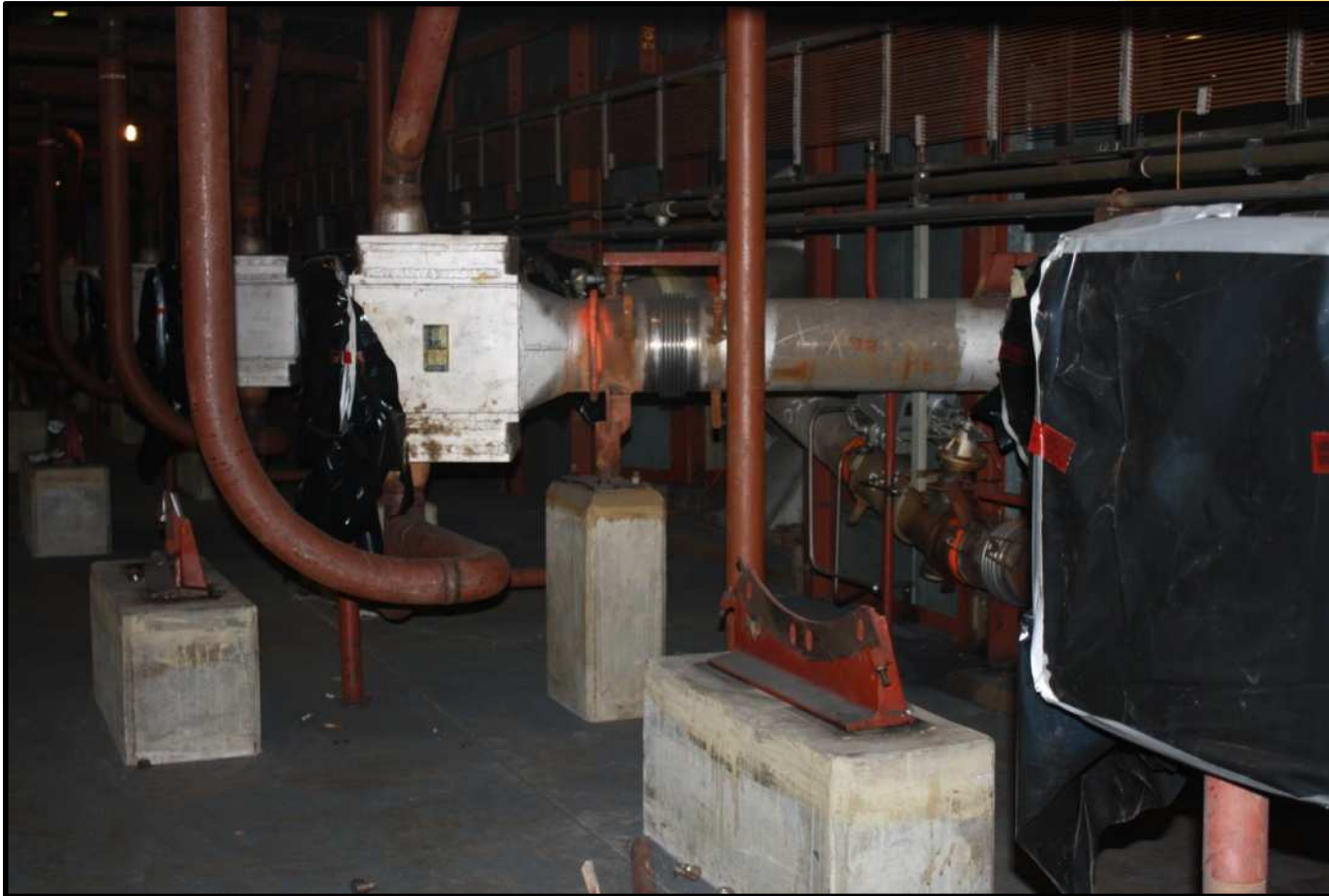


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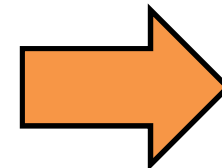
Cut & Cap



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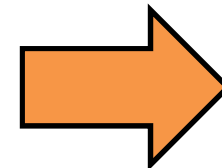


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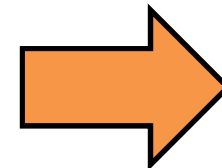
Process gas cooler being removed from
the Freon and process gas systems

Cut & Cap



Process gas cooler being removed from
the Freon and process gas systems

Cut & Cap



View of empty cell following removal of all process equipment



Scope

- Disposition legacy & waste/material generated by the D&D project.
- Recycling



Lessons Learned





Issues

- PGE components
 - Most (>90%) are expected to be transportable as fissile excepted and require NDA measurements
 - Generation and management of data under the QSNDA program is the major issue in disposition
 - Legacy waste
 - Inventory has been greatly reduced, but the most difficult material remains
 - Lot 14
 - Legacy UF6 trap material

Lessons Learned



Priorities & Actions

- Expand the population of fissile excepted components through sampling and NDA
- Support shipment of 2,300 components (500+ shipments) or 70 cell equivalents
- Reduce legacy mixed waste inventory to meet the Site Treatment Plan
- Complete the processing, packaging, and shipment of the remaining USEC legacy material
- Complete shipment and disposal of 500 MTU of former uranium sales material





- Complete site soil characterization and establish background conditions in support of attaining a remedy decision for any identified soil contamination
- Signed RODs in place this year for demolition and waste disposal and next year for soil remediation



Kent Fortenberry, Chief Engineer
B&W Conversion Services, LLC



Piketon

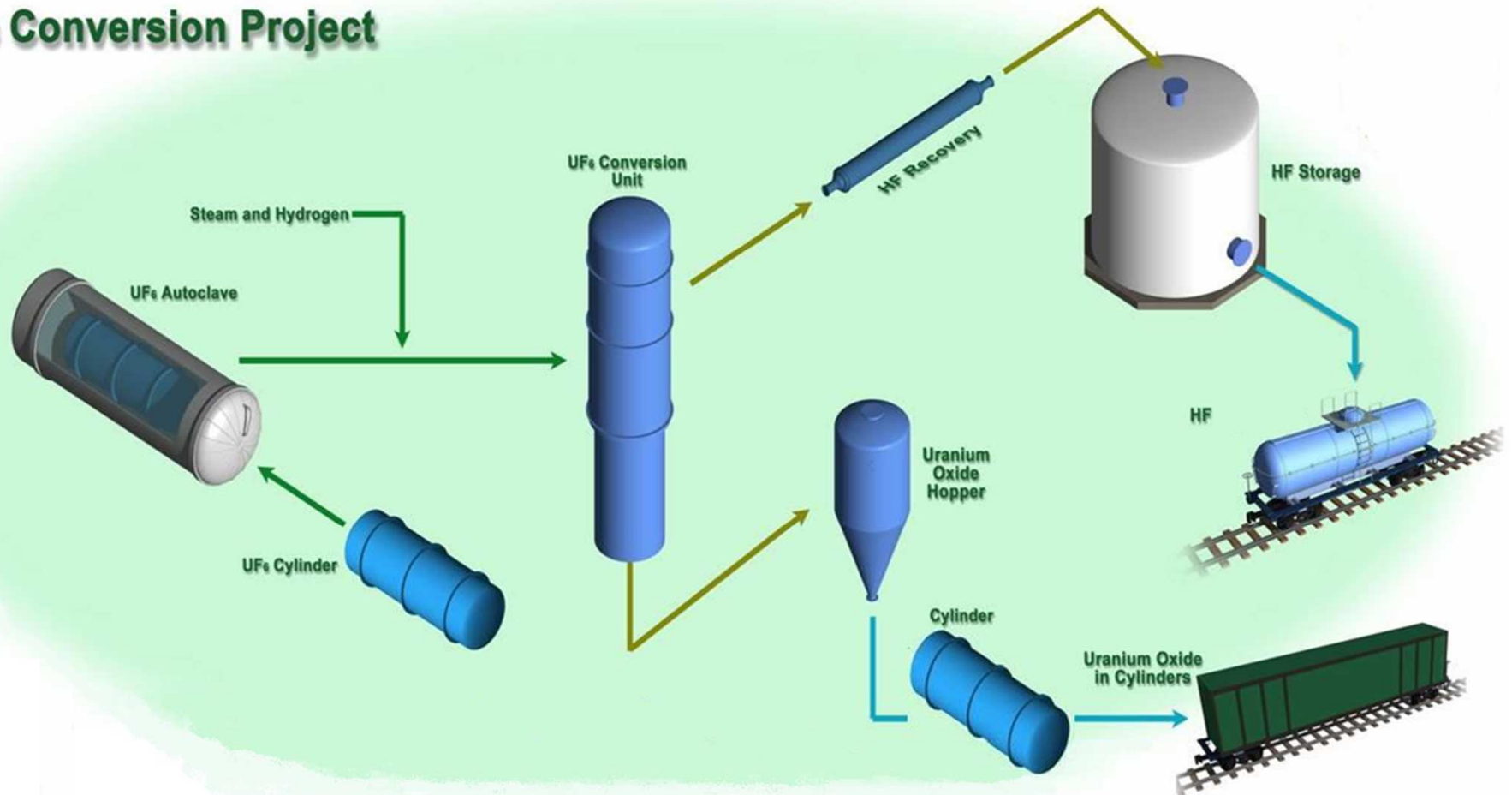
Three lines
20,000 cylinders

800,000 metric tons
in storage at both sites

Paducah

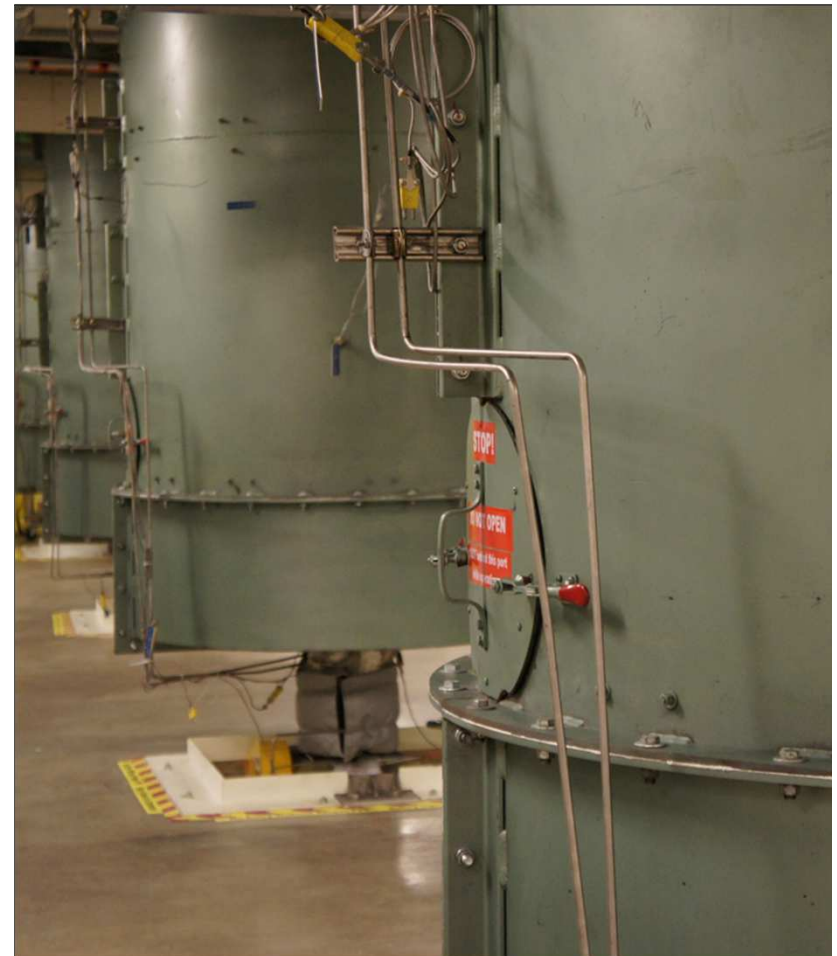
Four lines
45,000 cylinders

DUF₆ Conversion Project



FY2013 Production Results

- 13,579 metric tons of DUF₆ processed
- 2,279,000 gallons of Hydrofluoric Acid safely shipped offsite
- Increased availability by approximately 150% from 2012
- Increased process throughput by 38% from 2012
- More than doubled FY2012 production



Conversion of DUF₆:

2011 270 metric tons

2012 6,170 metric tons

2013 **13,579 metric tons**

Total 20,019 metric tons



HF safely shipped:

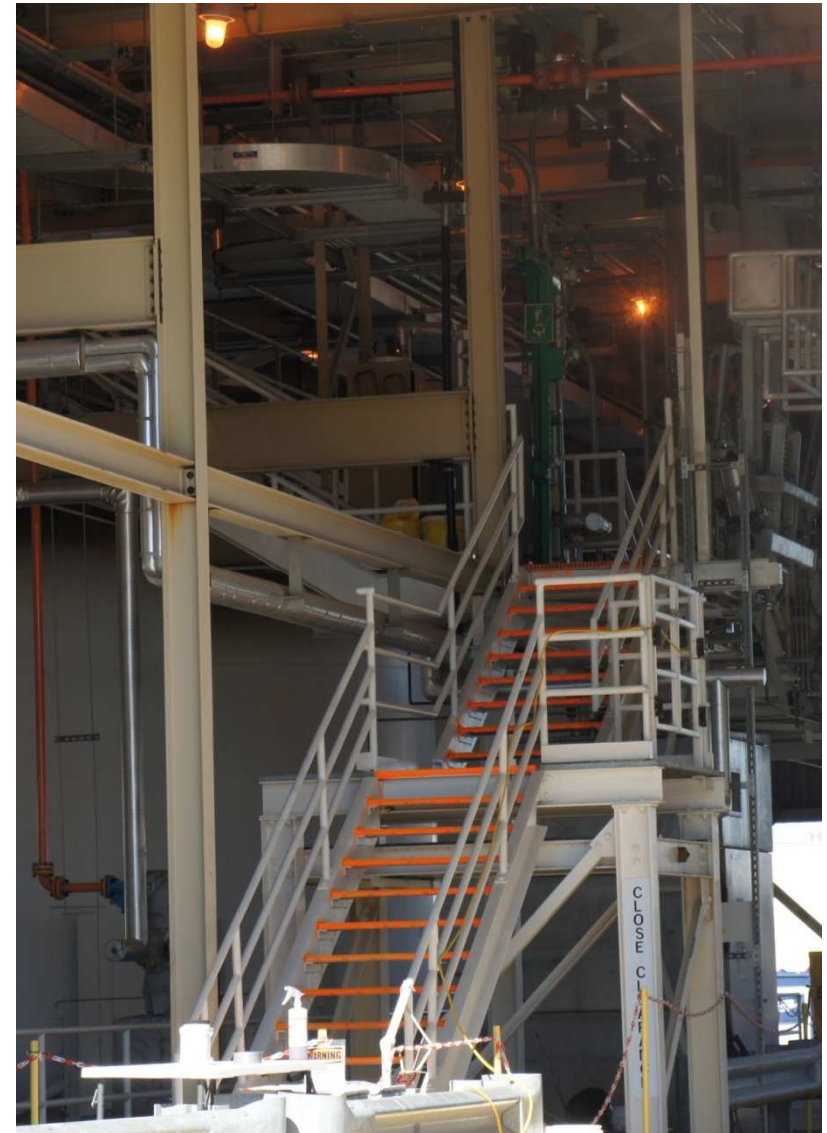
2011 21,000 gallons

2012 1,501,000 gallons

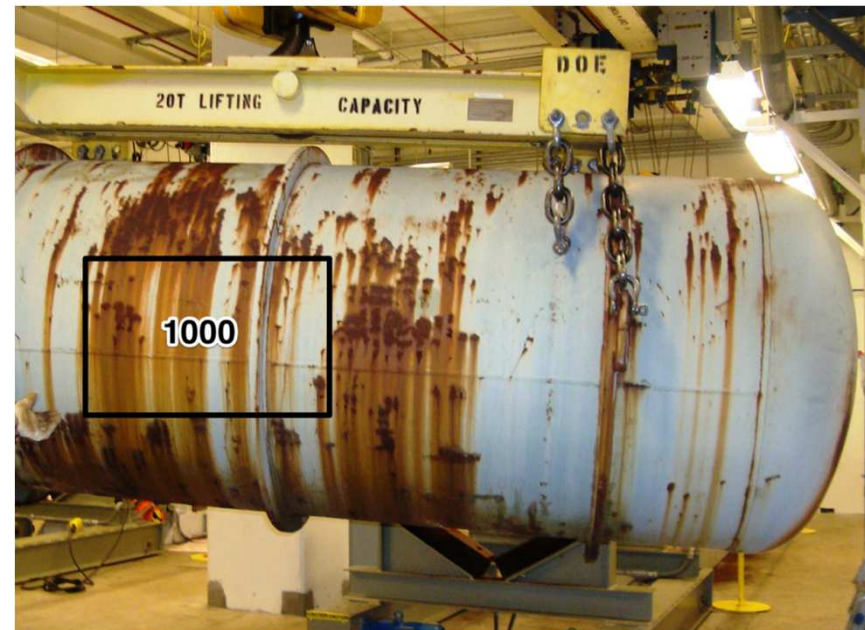
2013 2,279,000 gallons

Total 3,801,000 gallons

2014 target: 4,300,000 gallons



Moving from start-up to full operations



Each plant has processed 1,000 cylinders as of January 2014

**Increasing both throughput and availability
at both plants**



Increasing availability by:

- Adding off-gas blowers for redundancy
- Improving support system operation
 - H2 generator system
 - Deionized water system
 - Plant chilled water system
- Correcting material compatibility conditions
 - Valve position indicators
 - Rotary valve rotors
 - Distributor plates
 - Off-gas blowers



Increasing availability:

- Providing isolation capability to support maintenance
 - Off-gas isolation valves
 - Boiler isolation valves
 - HF storage tank pump isolation

- Application of lessons learned and increased operating experience



Increasing throughput by:

- Addressing powder discharge limitations
- Optimizing fluidizing bed process kinetics
- Improving cylinder heating, feed-out, and heeling



Commissioning challenges:

- Integrated facility testing
- Immature programs
- Scale-up/first-of-a-kind process
- Multiple separate, but dependent, operating units
- Specialty parts/foreign suppliers
- Staff training



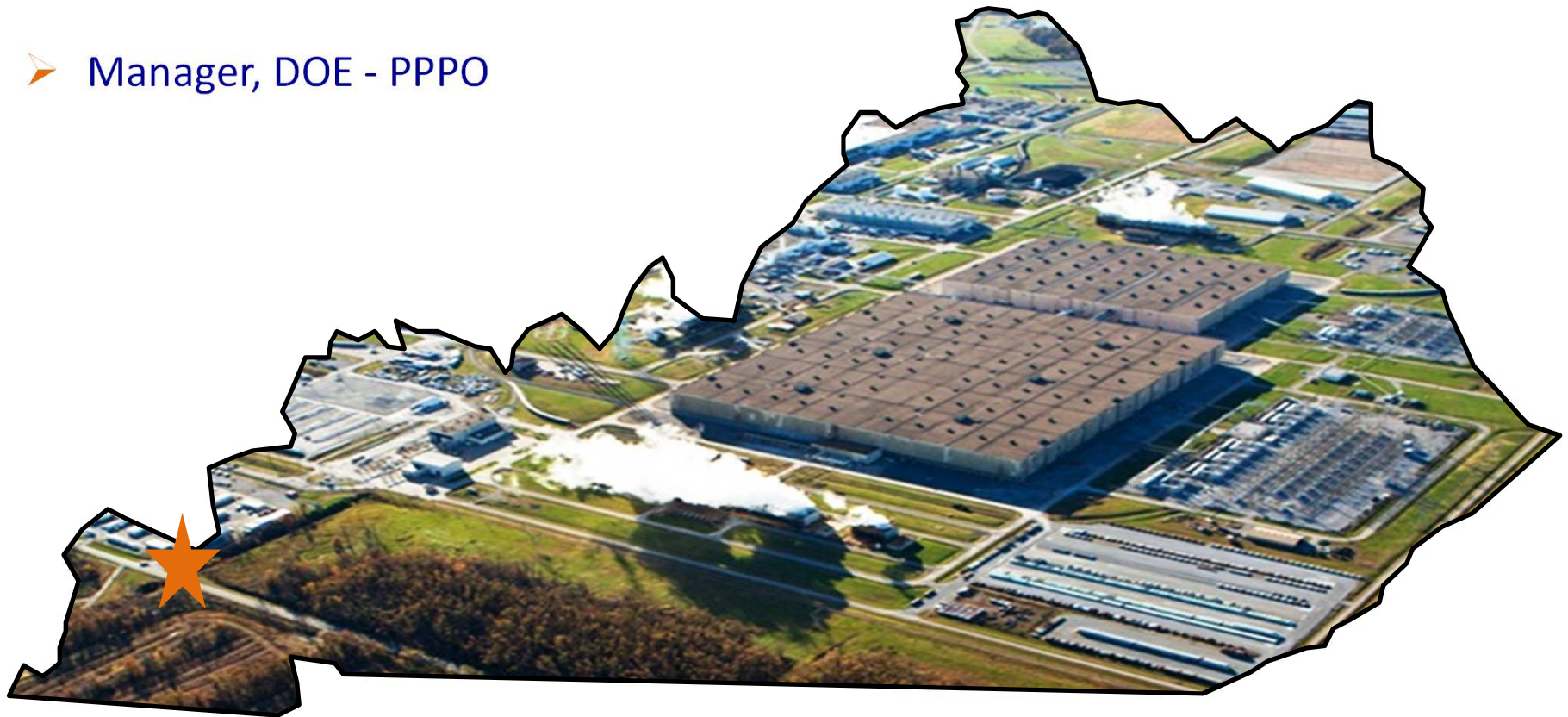
Increasing effectiveness of business processes:

- Updating baseline and aligning contract this year
- Working toward certified procurement system



William Murphie

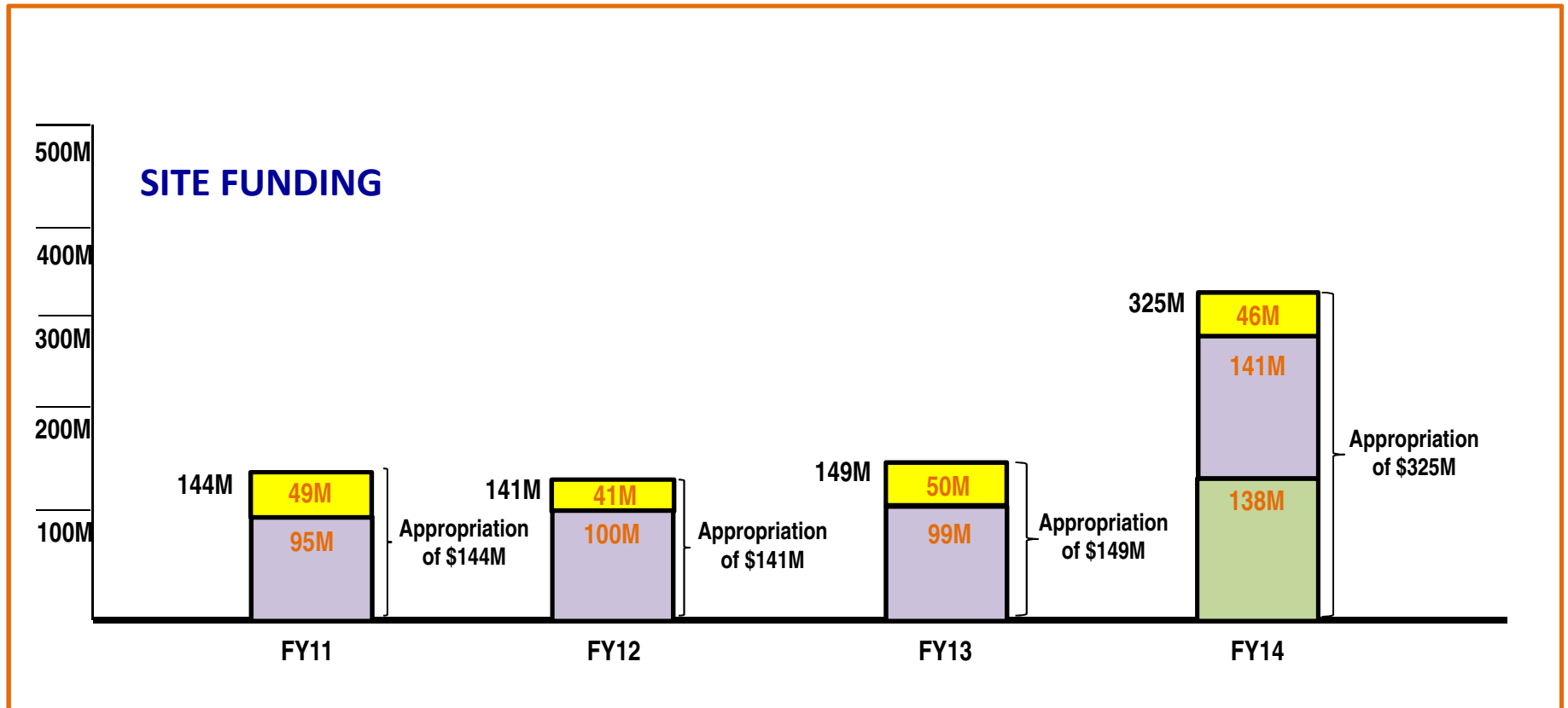
- Manager, DOE - PPPO



Paducah Challenges & Priorities

- **Safety**
- **Environmental remediation**
- **Finalize regulatory decisions**
- **De-lease/Turnover transition**
- **Deactivation contractor procurement**
- **Drive down mortgage/landlord costs**
 - Transition services from USEC
 - Exit high-cost facilities
 - Keep maintenance of old buildings to safe levels
- **Develop Lifecycle Baseline**
- **Recycling**
- **Maintain strong collaboration/partnership with stakeholders**

- DUF₆
- Cleanup
- Transition/Deactivation





LATA Environmental Services
of Kentucky, LLC

- ▶ Environmental remediation, compliance reporting and monitoring, and legacy waste disposition.

- Contract expires July 2015



- ▶ Infrastructure maintenance, training, security and other services.

- Contract expires March 2015

B&W conversion services, llc

- ▶ Operates the DUF₆ conversion plant, which converts depleted uranium hexafluoride into oxide for reuse or disposal and HF for use in commerce.

- Contract expires January 2016



- ▶ Strategic planning, facility transition support, D&D planning, contractor oversight, regulatory/technical support.

- Contract expires January 2016

Mark Duff

Project Manager
LATA Kentucky LLC

Paducah Environmental Remediation

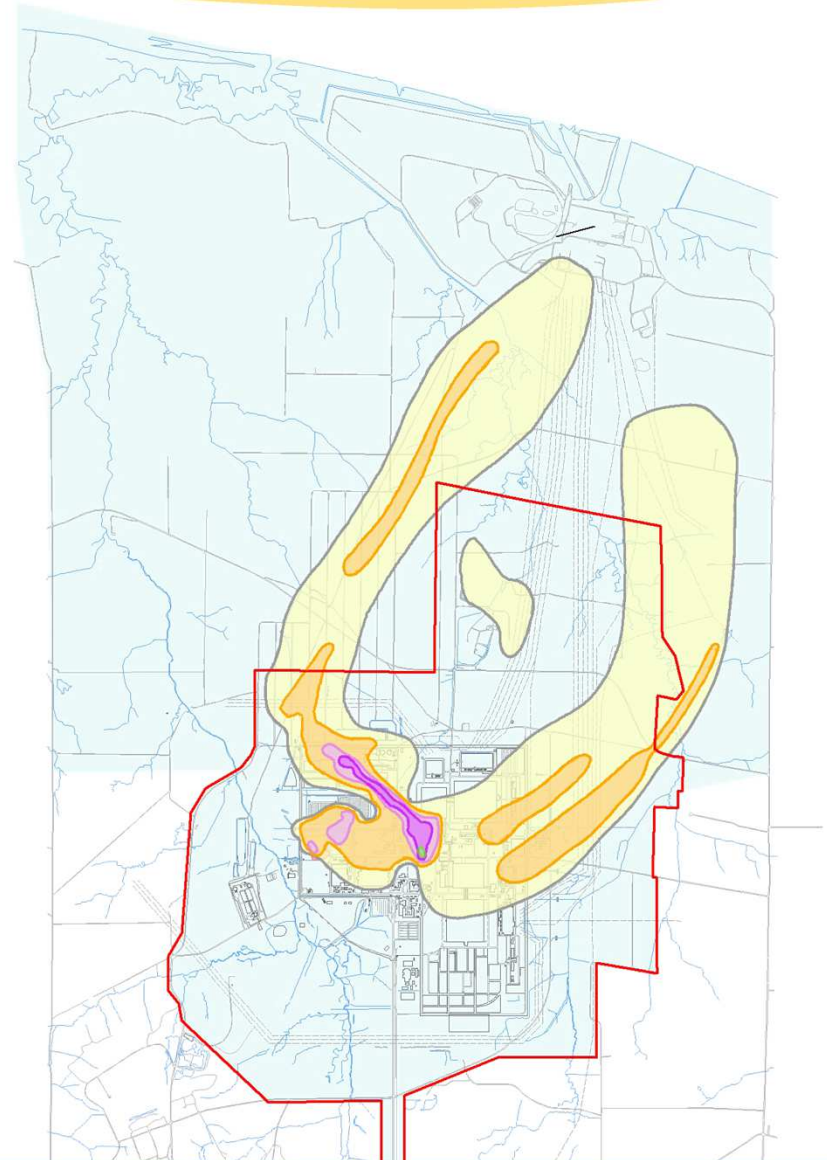
- **Groundwater** – Clean up chief sources; Reduce off-site contamination risk
 - ~6,500 gallons total TCE removed to date
- **Inactive Facilities** – C-410 demolition and disposal
- **Burial Grounds** – 10 areas spanning ~66 acres
- **Soils** – 66 areas totaling ~110 acres
- **Surface Water** – About 6 miles of creeks and ditches

Site-wide Waste Disposition evaluation

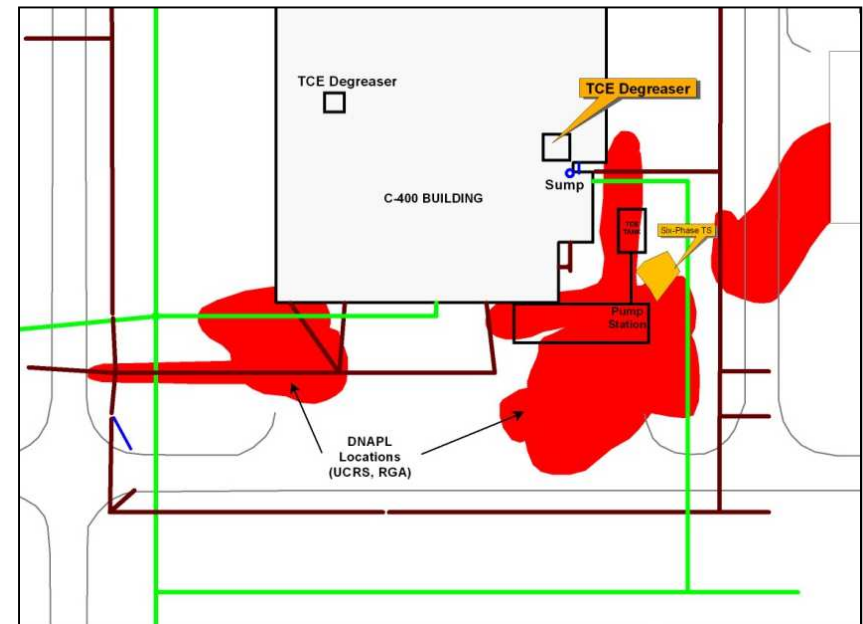
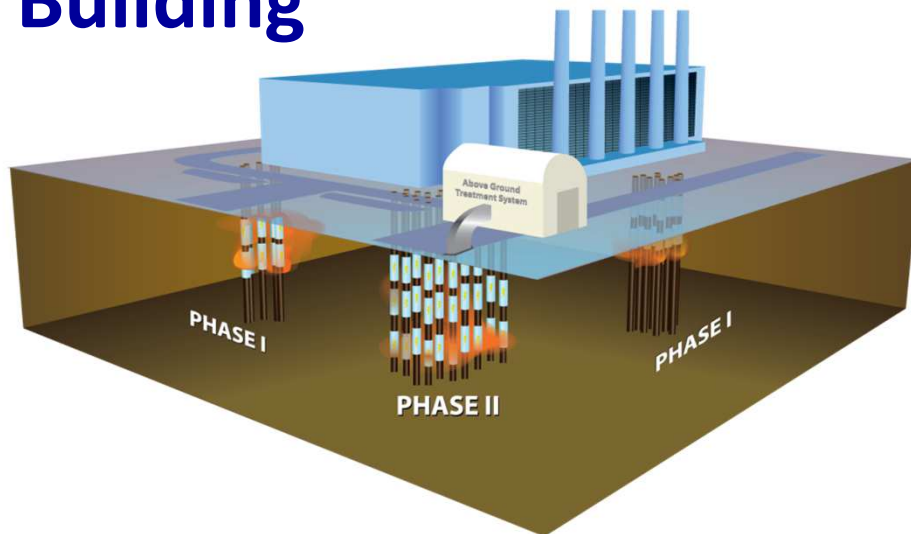
- Evaluating options for disposition of future cleanup and D&D waste



- Groundwater remediation of TCE
 - C-400 Source Remediation
 - SW Plume Sources Remediation
 - NE Plume Optimization
 - NW Plume Optimization
- Complete C-410 Feed Plant building demolition
- Complete CERCLA project documents
- Complete decision documents for CERCLA Waste Disposal Alternatives (on-site vs. off-site disposal)

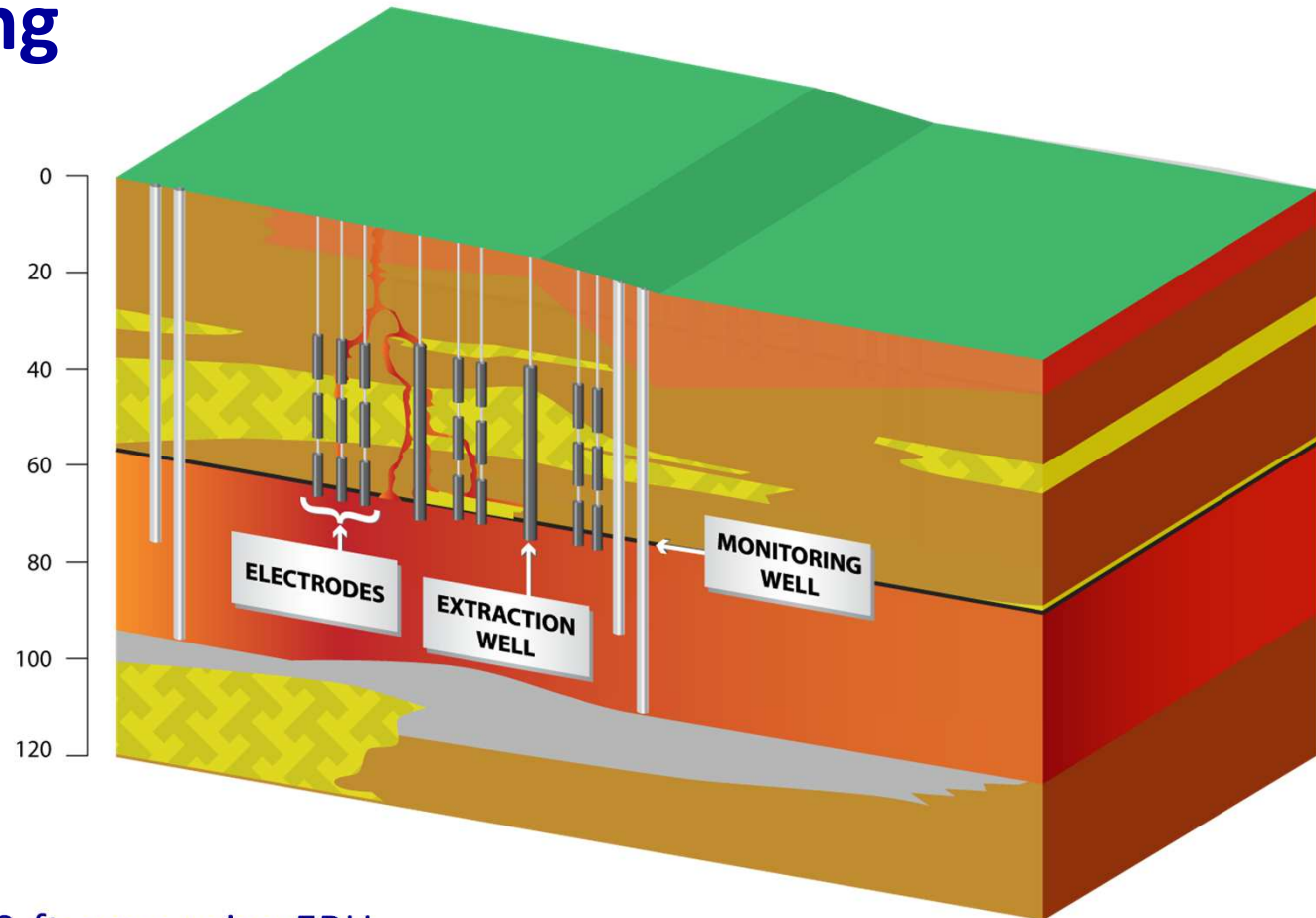


C-400 Cleaning Building



- TCE in the subsurface near C-400 Cleaning Building is thought to be the primary source of TCE contamination in the off-site groundwater plume
- Electrical Resistance Heating (ERH) is used to address TCE in the soil and groundwater east, southeast and southwest of C-400 Building
 - Phase I - completed in 2011 using ERH
 - Based on lessons learned from Phase I, subdivided Phase II into Phases IIa and IIb
 - Phase IIa ERH remediation is ongoing to remove TCE from shallow groundwater
 - Phase IIb Treatability Study is underway to evaluate effectiveness of steam treatment in lower reaches of regional gravel aquifer

C-400 Cleaning Building



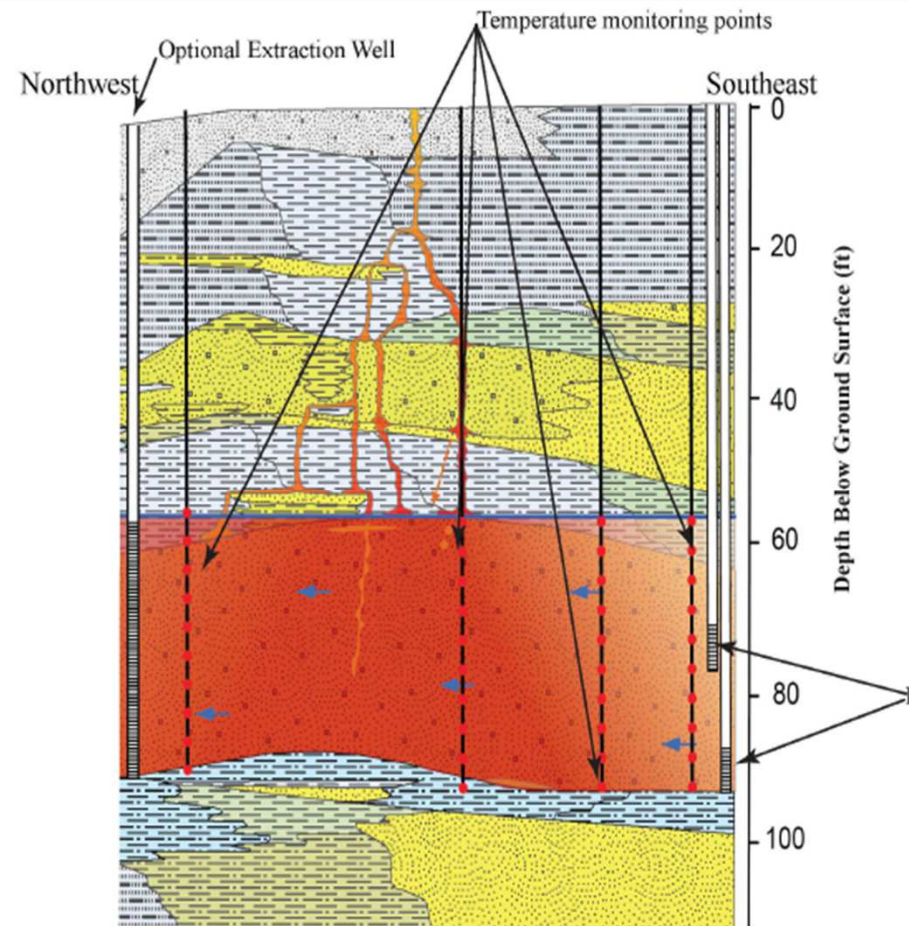
Phase IIa

- Addresses upper 60-ft. area using ERH
- Completed ERH system construction in FY2013
- Operations underway, projected to be completed in FY2014

C-400 Cleaning Building

Phase IIb

- Addresses area 60 to 100 ft deep
- Treatability Study Work Plan submitted for approval; design underway

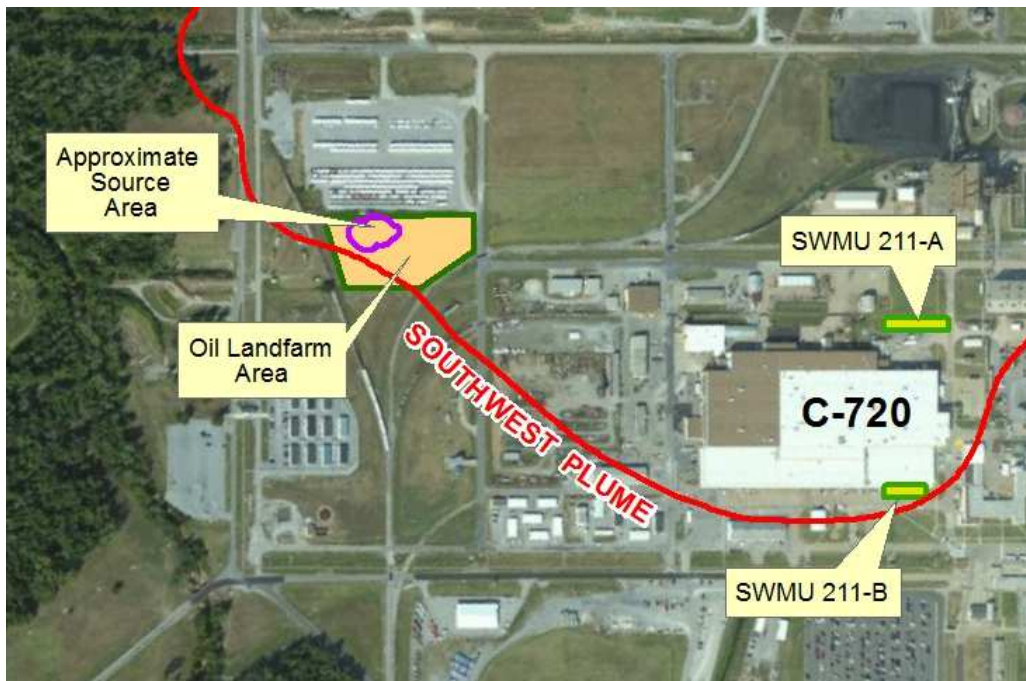


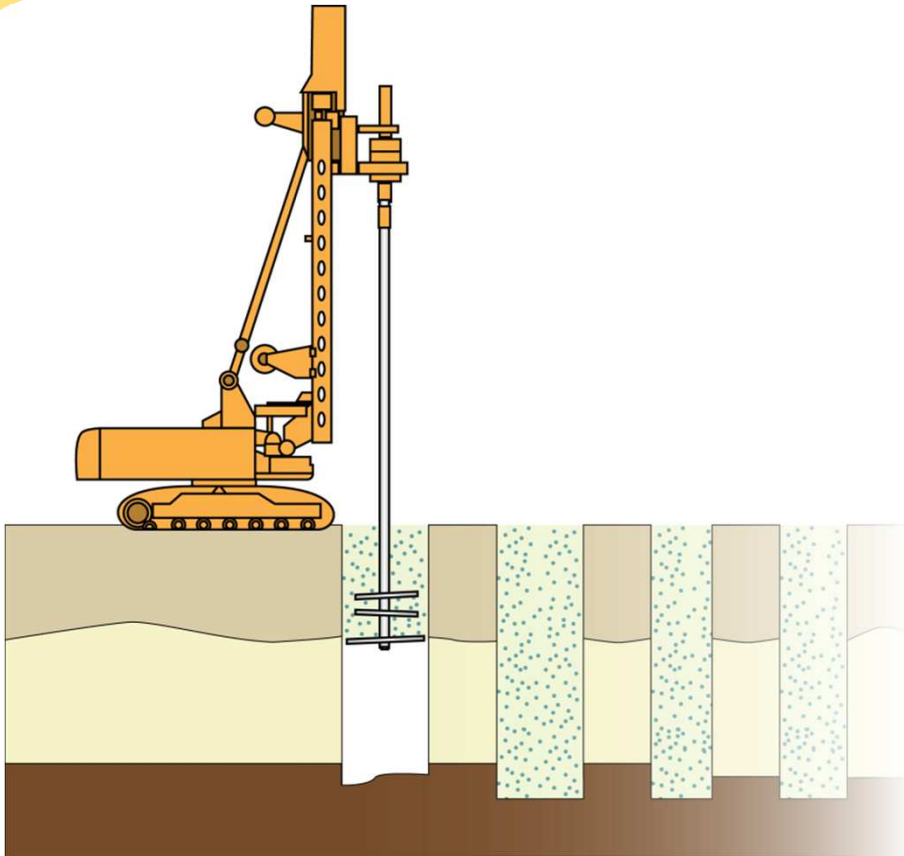
Conceptual Schematic Cross-Section

Southwest Plume

Southwest Groundwater Plume

- Waste oils containing TCE were biodegraded at oil landfarm (SWMU 1) from 1973-1979
- TCE also in ground at two sites near C-720 Maintenance Building



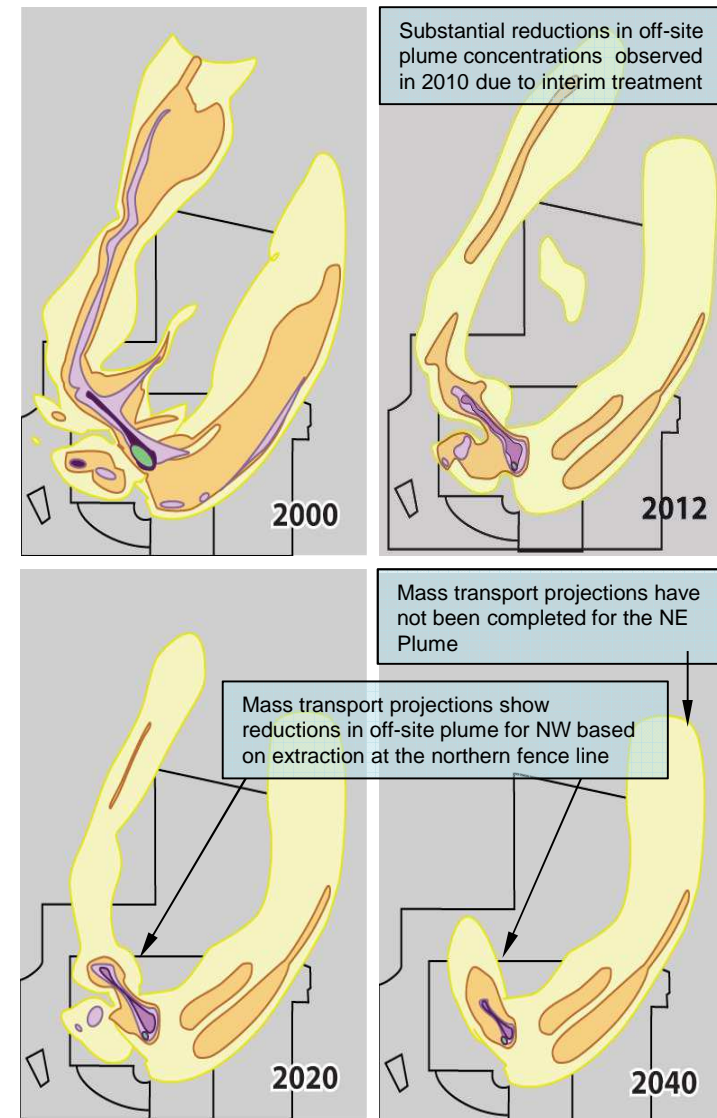


Southwest Plume – Oil Landfarm

- Deep Soil Mixing – Field work scheduled to begin in Summer 2014
- Augers will inject reactive iron to mix with soils to depth of approximately 60 ft.

Plume Optimization

- Two new wells installed in 2010 greatly increased the capture rate of TCE in the Northwest plume to nearly 100 percent, thereby reducing off-site migration.
- Similar pump-and-treat optimization is planned for 2014 to improve TCE removal in the Northeast plume.
- Optimization includes strategically positioning 2 extraction wells and up to 18 monitoring wells.
- Design underway; fieldwork projected to start in 2014.



C-410 Feed Plant

- 160,000+ sq. ft., 7-story structure
- Removed >9,000 linear feet of UF6 piping/equipment
- Demo-ready status attained December 21, 2013



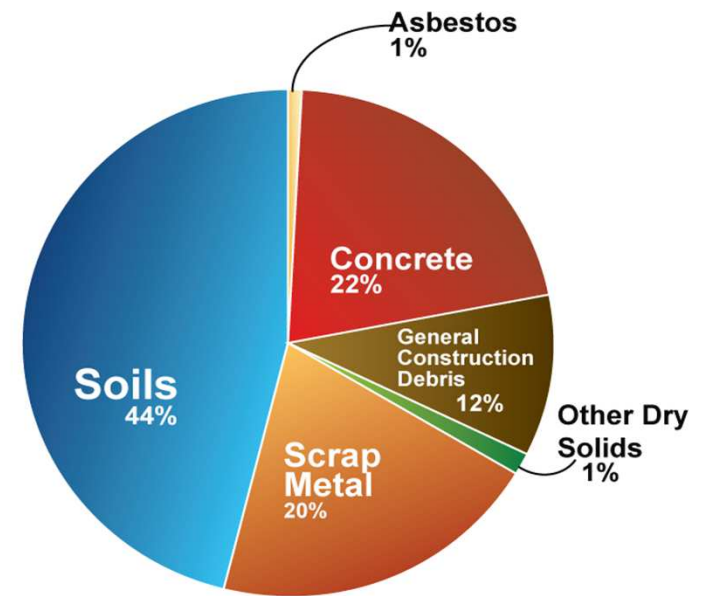
Waste Disposal Alternatives Evaluation

- Continued cleanup and D&D at Paducah is expected to generate over 3M cubic yards of waste material
- The anticipated waste from ER & D&D activities is being evaluated in a Remedial Investigation/Feasibility Study Report (D2 issued to regulators in July 2013) that examines three scenarios:

- Waste disposal decisions project-by-project
- Ship waste to licensed facilities off-site
- Build an on-site engineered waste-disposal facility

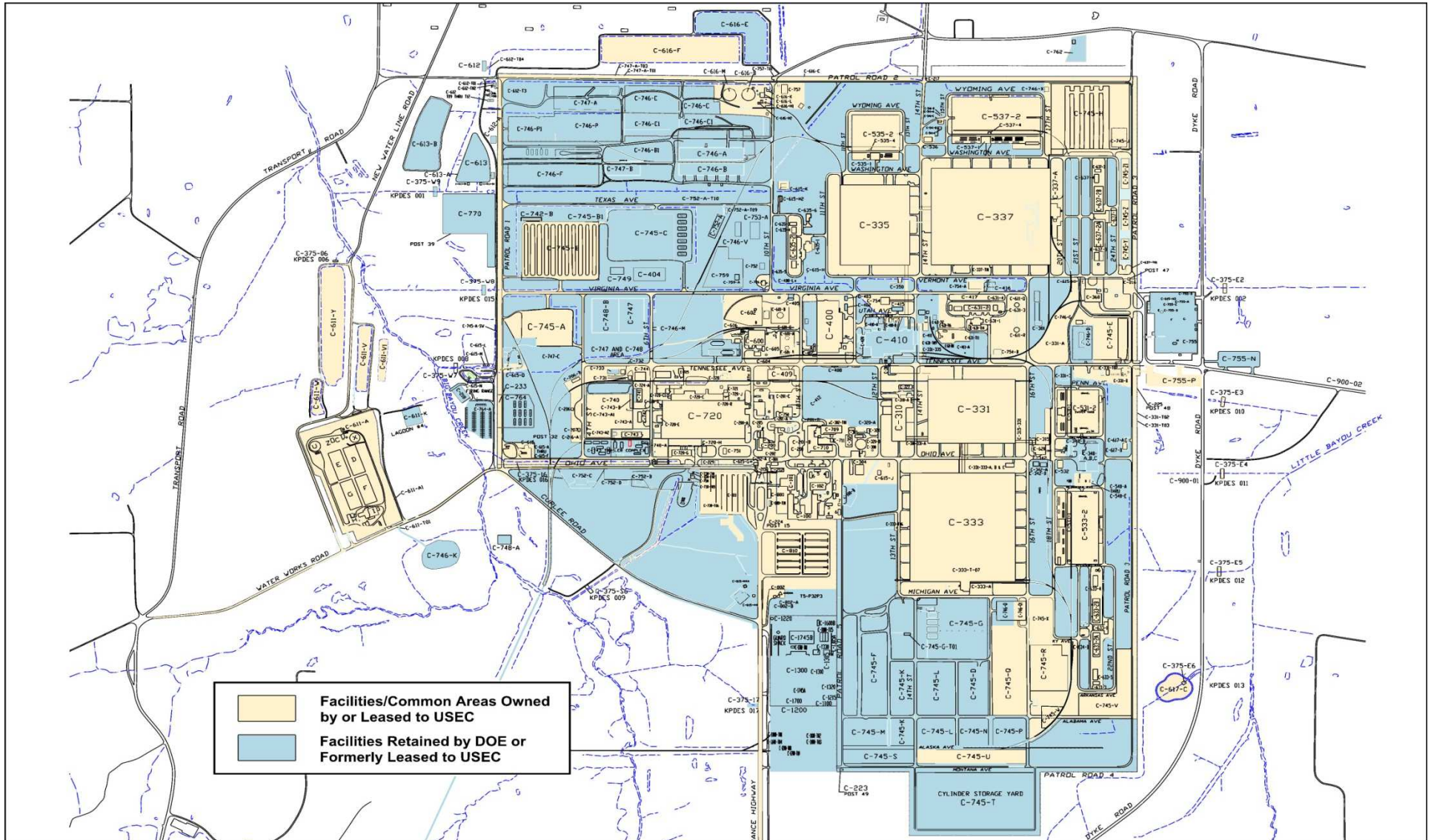
All three scenarios assume recycling of eligible materials.

- Proposed Plan target: Spring 2014





Paducah Facility Transition



Paducah Remediation Integration with USEC

- USEC currently provides various services to DOE/DOE contractors
- Key areas potentially impacted by USEC transition include:
 - Logistics & mutual site support services
 - Emergency response service
 - Site security – physical
 - Laundry
 - Analytical lab services
 - Criticality Accident Alarm System (CAAS) & Nuclear Criticality Safety (NCS) management
- Backup plans are underway to evaluate options/procure necessary services from different sources



Actions Leading to GDP Return



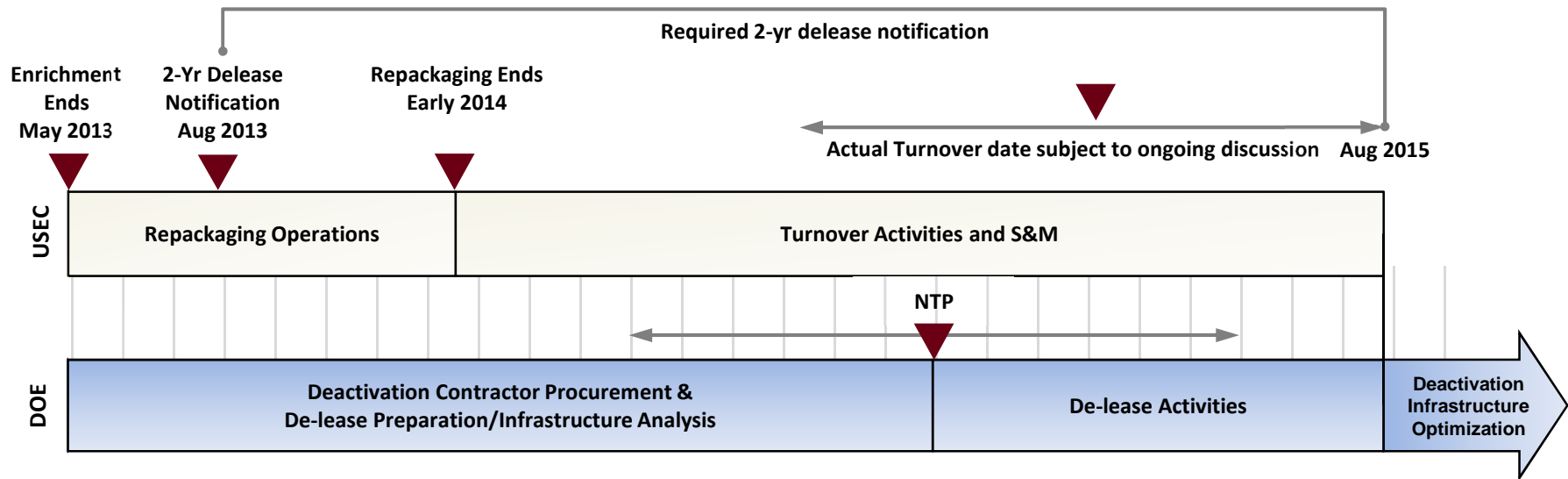
Paducah GDP Turnover from USEC to DOE Requires a Broad Range of Actions

- GDP & Asset Re-Use
- Transfer Environmental Permits and Certifications
- Authorization Basis Development
- Budget Planning
- Infrastructure Optimization and Facility Modifications
- Planning
- Lease Compliance and Termination
- Deactivation Contractor Procurement
- Facility Release

Short Term

- Transition GDP from NRC to DOE regulation.
- Complete required facility modification and utility optimization activities to align the site's infrastructure with planned mission needs.
- Complete natural uranium cylinder transfers.
- Prepare to safely maintain the facilities under DOE oversight while balancing deactivation, site cleanup and reutilization activities within funding constraints.

ID/IQ Deactivation Procurement

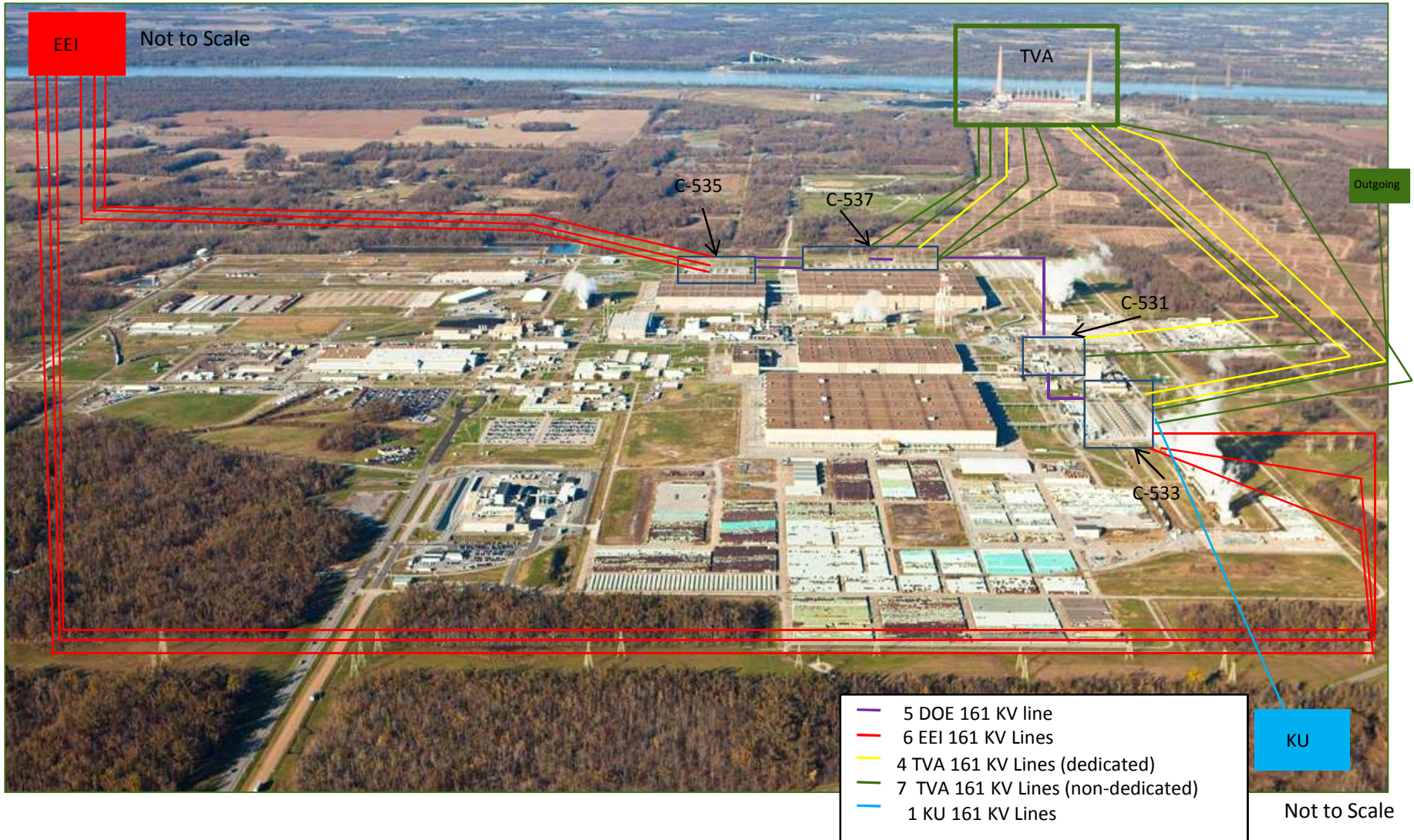


- DOE issued a Request for Task Proposal (RTP) for deactivation activities at the Paducah Gaseous Diffusion Plant (GDP) to address the return of the Paducah GDP facilities that are currently leased by the United States Enrichment Corporation (USEC)

Planning Activities Currently Underway to Assess a Wide Array of Issues, Problems, and Challenges

- Stakeholder Interaction
- Cost/Benefit Studies
- Integrated Planning, Accountability and Budgeting System (IPABS) Modifications
- Development of Federal Baseline
- NERC/FERC Analysis
- Thin-Walled Cylinder Transfers
- C-310 Purge Cascade Operational Restart
- Tc-99 Thermal Treatment
- Seals and Critical Components
- Uranium Deposit Removal
- PCB Oils Removal Disposition
- Facility and System Return Configuration
- Utility and Infrastructure Operations and Optimization Analysis

Current Electrical Configuration



Proposed Electrical Configuration



Not to Scale



Questions/Discussion