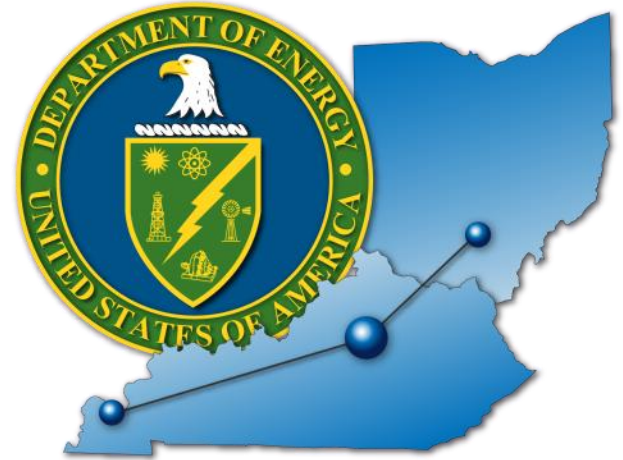


D&D 2015 and Beyond
**Portsmouth and Paducah
Gaseous Diffusion Plant Sites**



William E. Murphie

Manager, Portsmouth/Paducah Project Office, U.S. DOE-EM

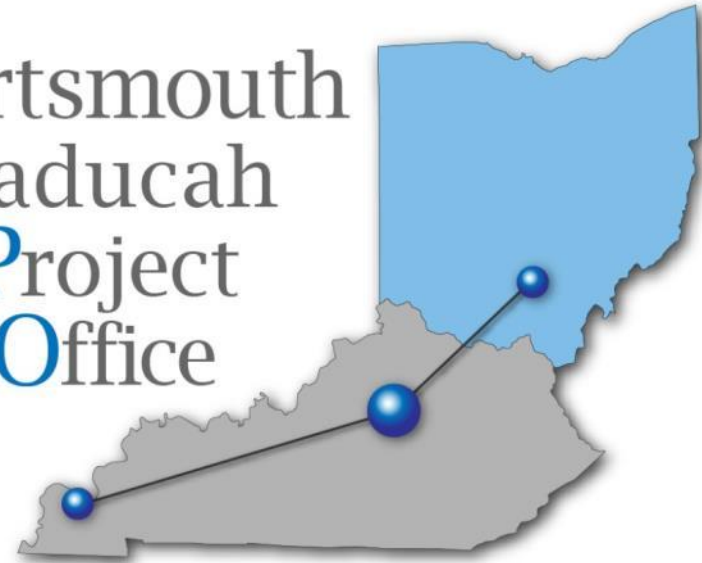
Waste Management Symposia

Thursday, March 19, 2015

PPPO Mission:

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

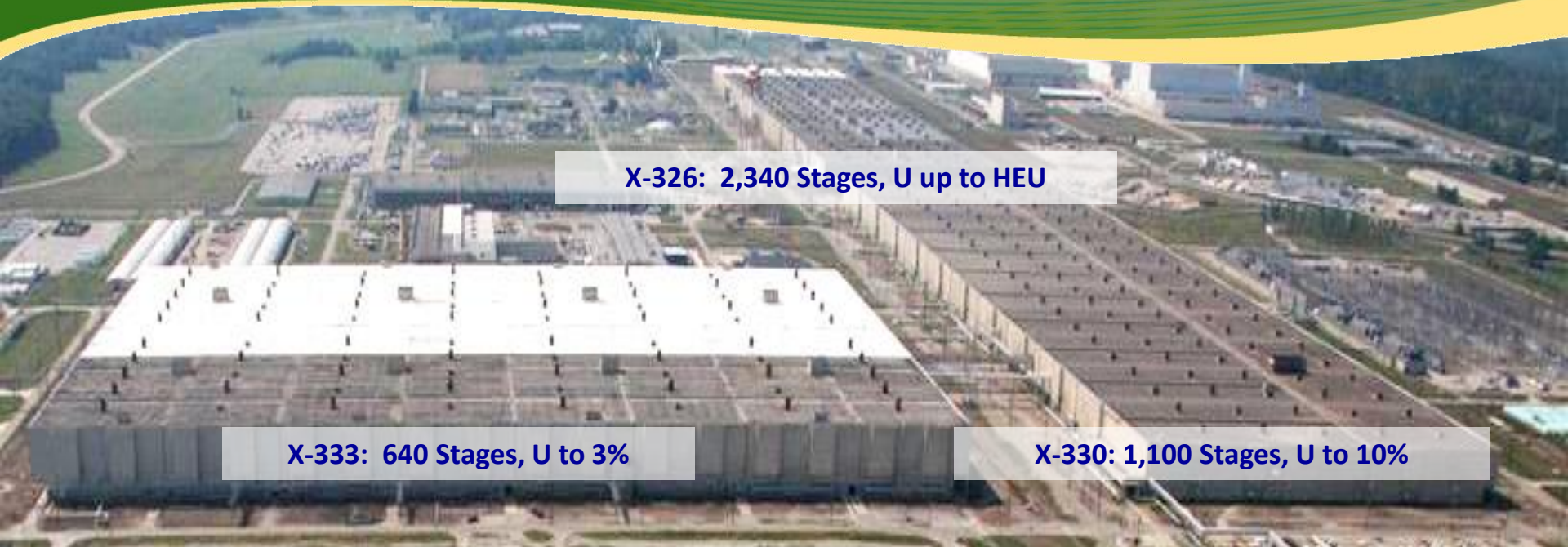
Portsmouth Paducah Project Office



Located in Lexington, Kentucky, PPPO provides consolidated management and technical and business support for the Office of Environmental Management (EM) cleanup efforts at the Portsmouth Gaseous Diffusion Plant site in southern Ohio and the Paducah Gaseous Diffusion Plant site in western Kentucky.

- Plant occupies approximately 1,200 acres of a 3,714-acre federal site.
- DOE Cleanup mission began in 1988.
- Full scale D&D started in 2010.





X-326: 2,340 Stages, U up to HEU

X-333: 640 Stages, U to 3%

X-330: 1,100 Stages, U to 10%

- 415 structures/facilities
- 3 main process buildings
- 22 HazCat 2 Facilities
- 1,000-acre Limited Area

- Implement D&D under the Director’s Final Findings & Orders (DFF&Os)
 - CERCLA approach to D&D allow cleanup consistencies between 3 GDP sites

- Continue environmental cleanup under RCRA Consent Decree

Decision	Final Decision Document	Anticipated Decision Date
D&D of 46 Support Buildings and Structures	Action Memorandum	Completed March 2012
Site-wide Waste Disposition Decision	Record of Decision	Summer 2015
Process Buildings & Complex Facilities D&D Decisions	Record of Decision	Summer 2015
Contaminated Soil Remedy Decision	Soil Remediation Decision Document	2016-2017
Groundwater Remedy Decision	GW Remediation Decision Document	TBD

- 246,000 ft² facilities torn down since 2012
- 7 facilities scheduled for demolition in 2015-2016



X-600 Steam Plant Demolition

Strong regulatory support for maintaining critical path schedule

Building clean-out parallel to D&D decision

Cut & Cap Project:

- Cut & Cap operations began in 2012.*
- 2,100 components removed in 2014; 70 percent removed in total.
- On pace for September 20, 2015 completion.



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

➤ Physical Conditions at PORTS

1. 145 Acres Under Roof (10.1M sq/ft floor space)

■ Utilities in process of being “right-sized” from operations to D&D

- Electric – 345kV/13.8V (BES member)
- Water
- Steam
- Air
- Sanitary Sewer

2. Essentially providing the functions/ services of a medium-sized town

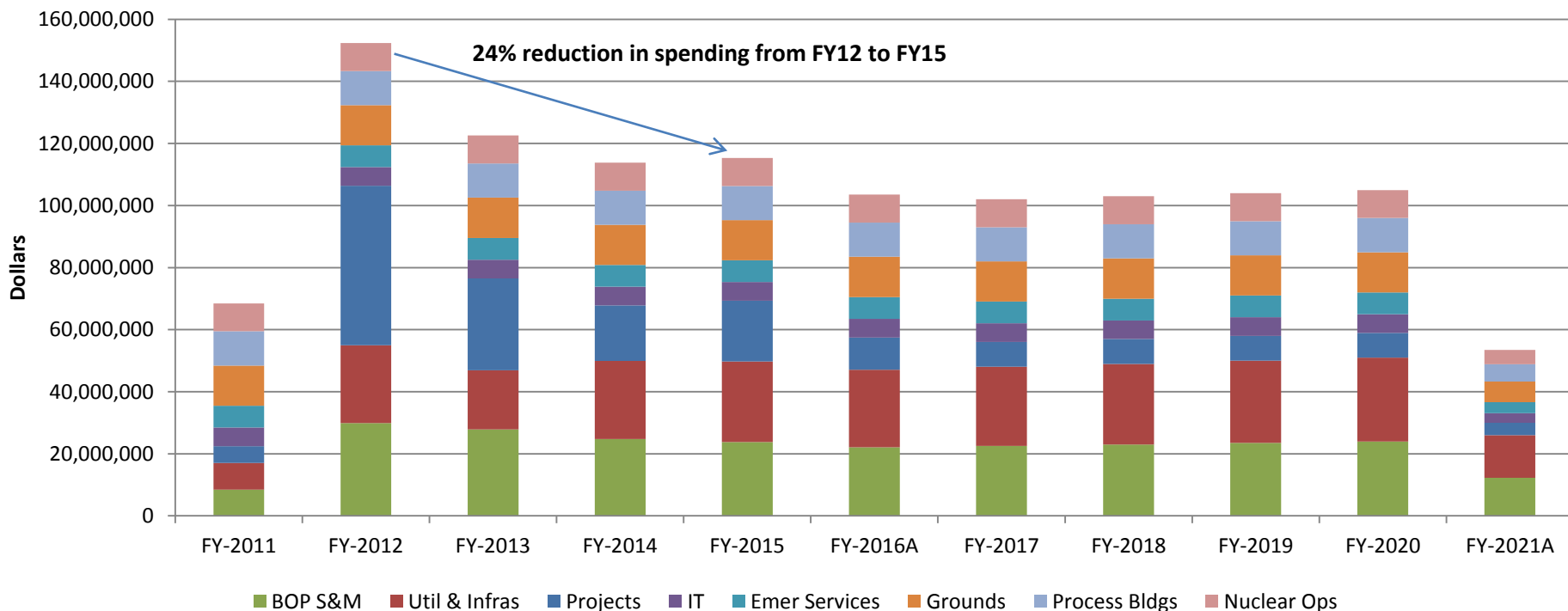
■ Services provided to other site tenants and the surrounding community

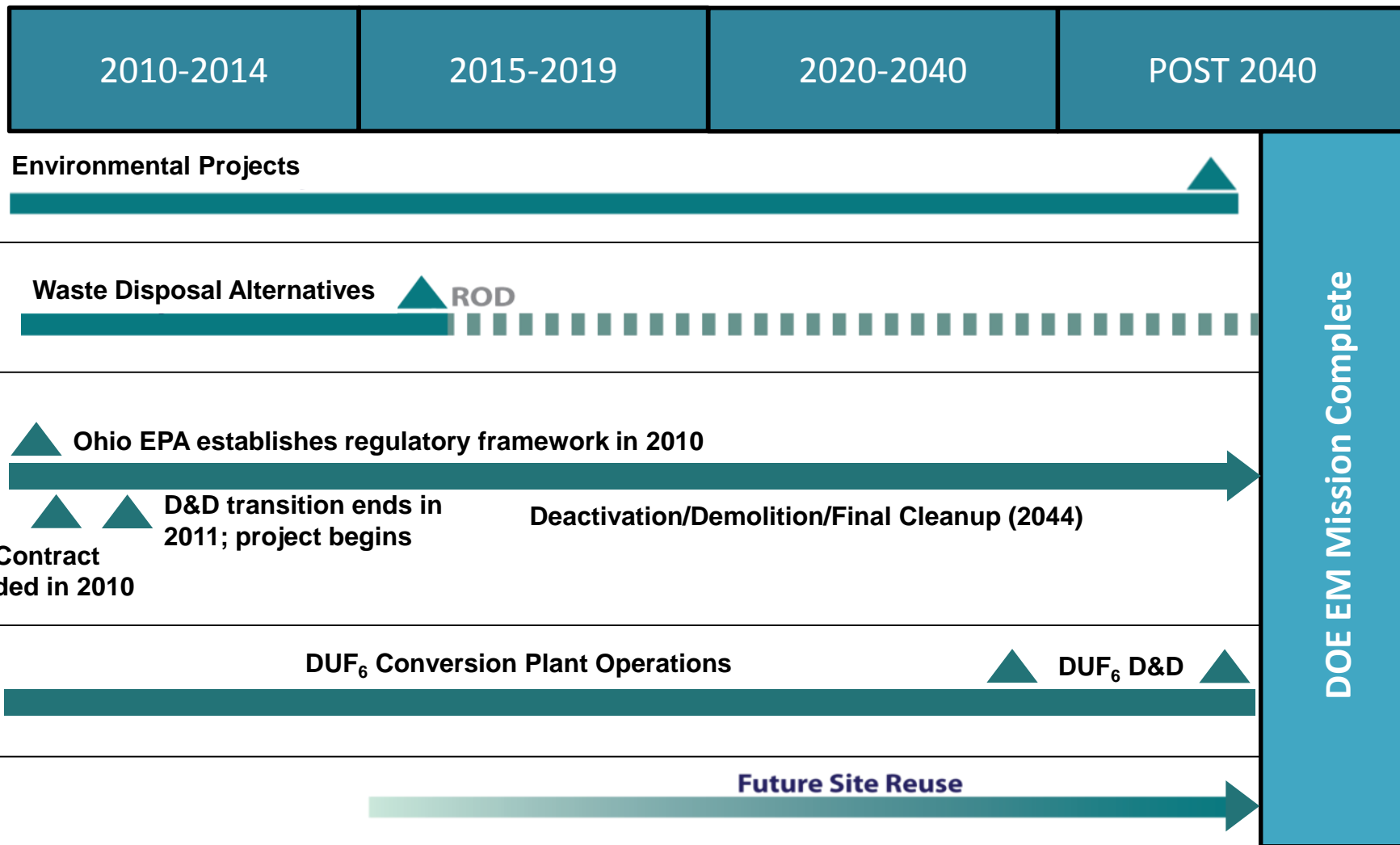
- Fire Department
- Security
- Utilities & Maintenance
- Environmental & Waste Management
- Engineering
- Roads & Grounds
- Planning & Redevelopment

3. Maintain operating nuclear processes (Barter)



Maintenance, Infrastructure, Deactivation & Demolition - FY11 thru FY21A





DOE EM Mission Complete

- The Paducah Gaseous Diffusion Plant site is located in Western Kentucky.
- The plant is located on a 3,556-acre federal site.
- Placed on the National Priorities List (NPL) in 1994.
- Deactivation activities began in 2013 to prepare for D&D.





- **3,556 acres total**
- **> 500 structures / facilities**
- **4 main process buildings**
- **1,760 process components**
- Groundwater source contamination
- Soils remediation
- Future D&D
- Pump and Treat optimization



- USEC ceased uranium enrichment operations in May 2013.
- USEC provided formal notification of return to DOE in August 2013; 2-year turnover requirement.
- Facilities transferred back to DOE October 21, 2014.

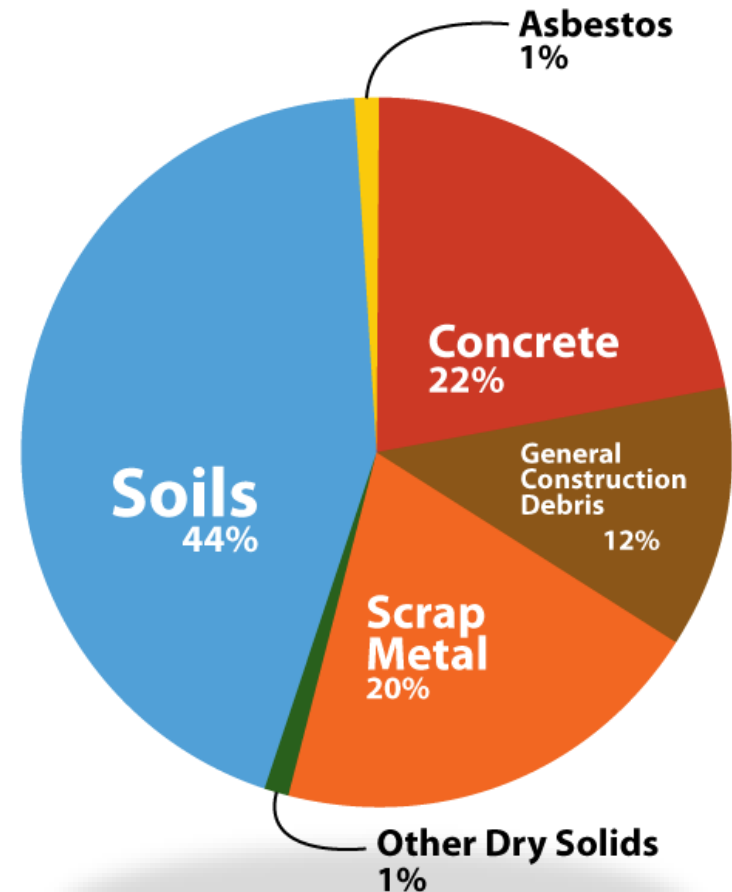
- Finalize Waste Disposal Alternatives
- Complete Optimization Studies
- Initiate Deposit Removal



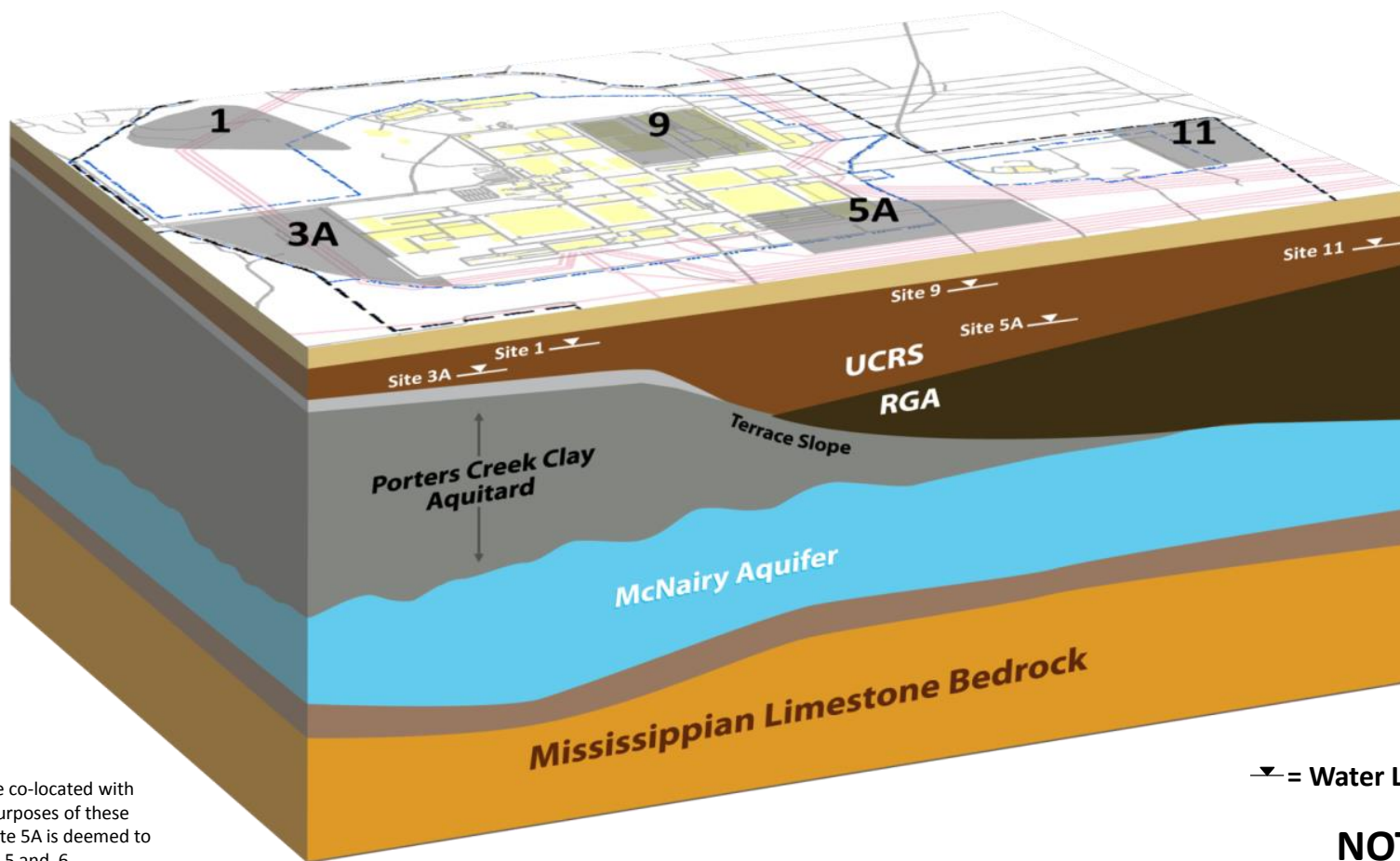
Waste Disposal Alternatives (WDA)

- Complete the CERCLA decision process for a waste disposal alternative to support long-term site cleanup with multiple stakeholder questions

- ❖ Community Acceptance
- ❖ Seismic
- ❖ Siting



- Community support for on-site disposal; cell siting of high interest
- Potential sites identified for an on-site disposal cell have unique challenges.



*Sites 5 and 6 are co-located with Site 5A. For the purposes of these considerations, Site 5A is deemed to be similar to Sites 5 and 6.

↘ = Water Level

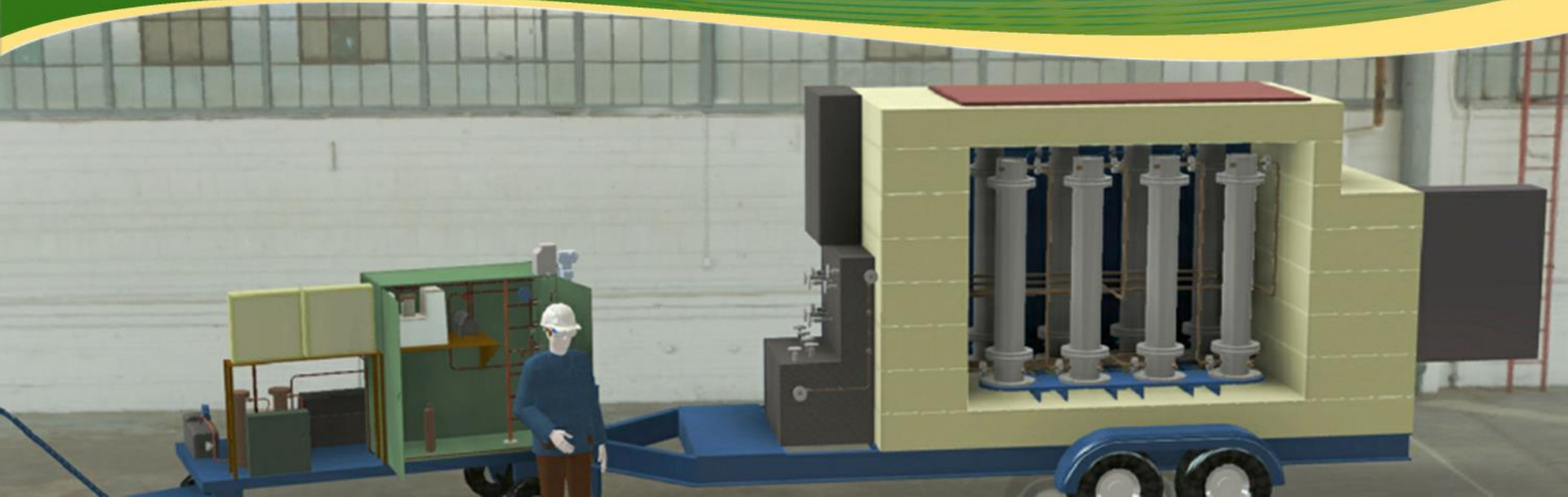
NOT TO SCALE



- **Steam, Air, Nitrogen and Chilled Water Optimization Study**
 - Evaluate Steam, Air, Nitrogen, and Chilled Water needs to scale back systems to save money and reduce footprint
- **Water Treatment Facility Optimization Study**
 - The water treatment system is oversized for the current and future missions
 - Ensure that the water treatment infrastructure is right-sized to reduce utility and S&M costs



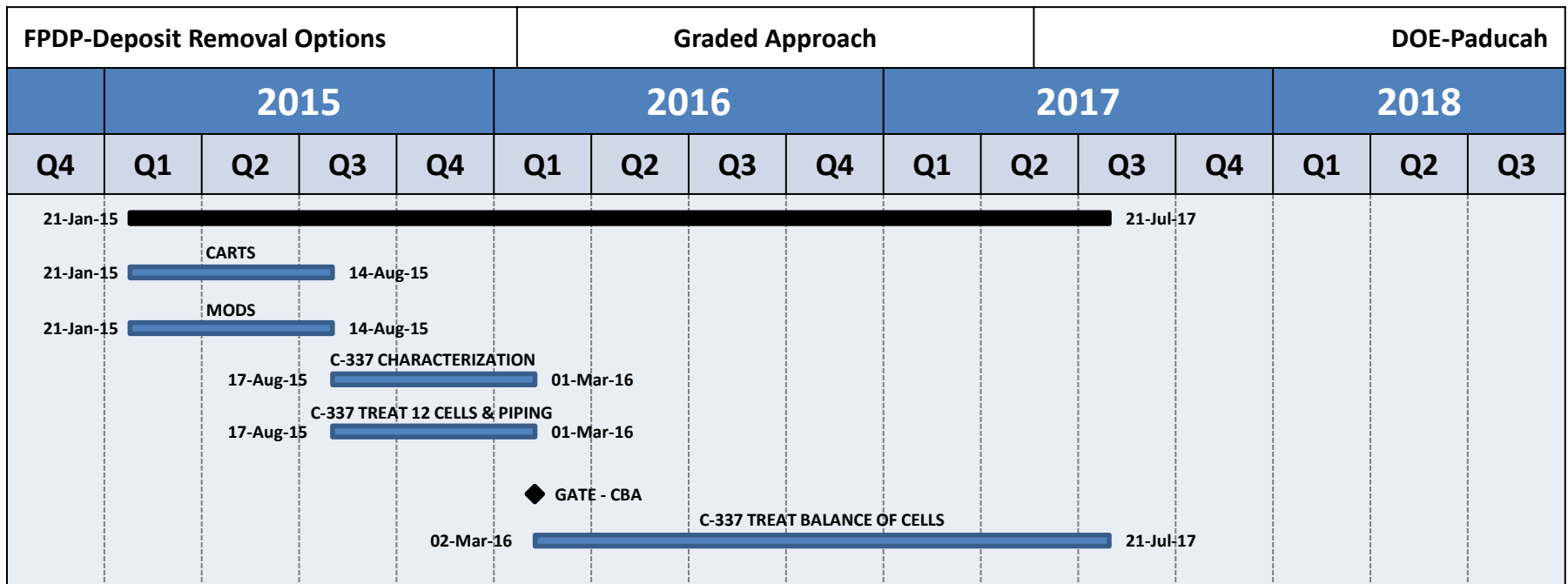
- **Sewer Evaluation Study**
 - Assesses the capabilities of the on-site sewage collection and treatment systems and facilities
 - Ensure no migration of contamination off-site through rainfall events
- **C-100 Optimization Study**
 - Evaluate taking the C-100 building out of the fence to reduce security footprint and make access more efficient for employees

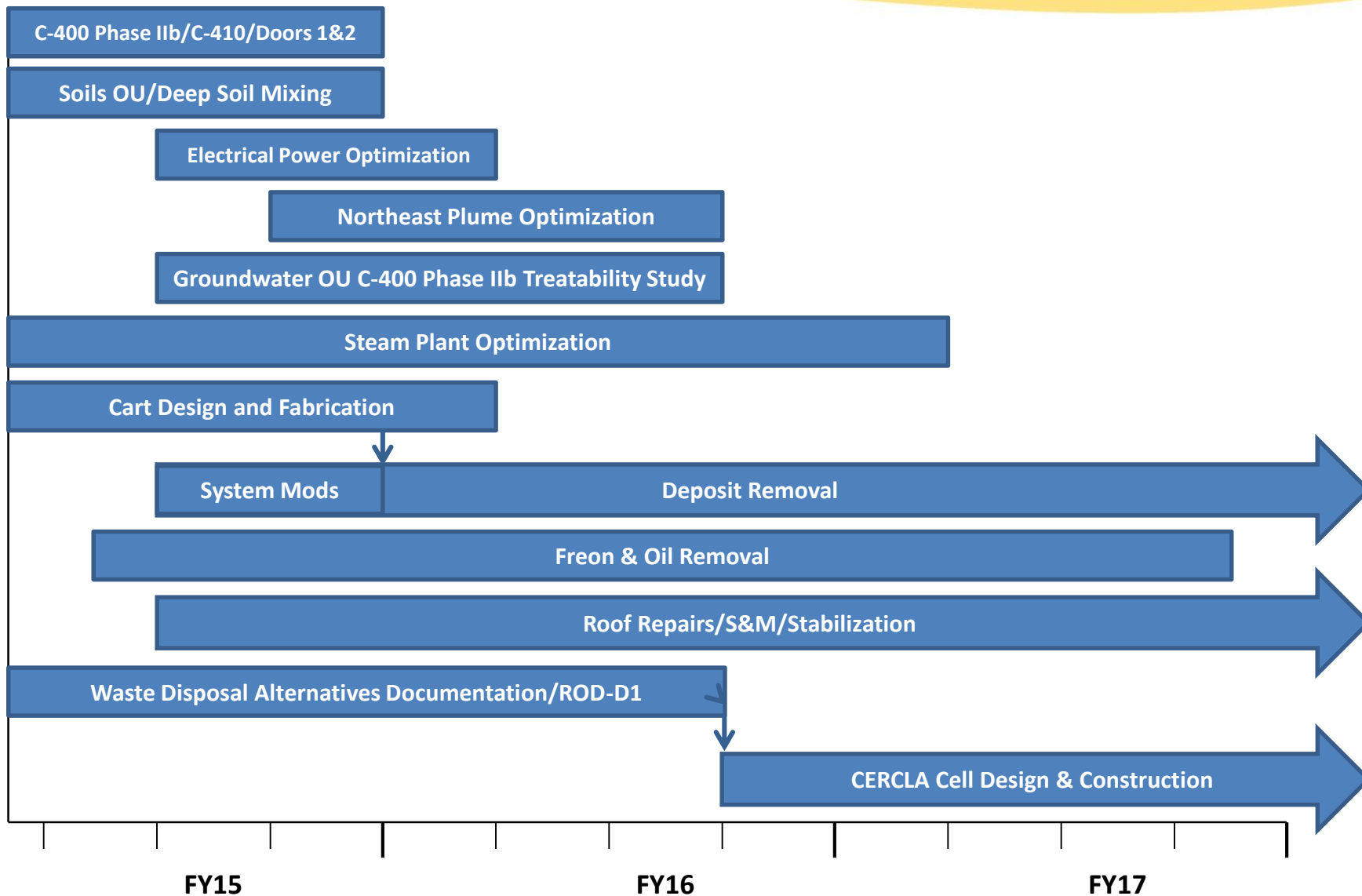


- Perform in-situ chemical deposit removal on all process gas equipment to reduce uranium hold up in the systems.
- Removes uranium holdup and deposits so that buildings can be downgraded to non-nuclear; cost savings allow funding to be used on cleanup activities.
- Reduces the risk of D&D waste that may require off-site shipment and provides potential cost avoidance.
- Reduces Background Radiation Levels – Improves Non-Destructive Analysis (NDA) measurements during D&D, reducing shipping and handling cost

➤ **Graded approach is necessary to evaluate the technology and due to budget constraints**

- FY15 Fabricate 10 cell treatment carts (buggy and traps)
- FY15 Install facility modifications to support cell treatments
- FY15-16 Perform treatment on 12 cells/piping “Proof of Principle”
- FY16 Performance data collection (NDA, Samples, Inspections)
- FY16-17 Continue treatment in C-337 based on available funding





PPPO Procurements

Office/Site	Contract	Contract #	Contract Type	Exp. Date
PPPO Paducah Site	Deactivation Project	DE-DT0007774	Large Business	July 2017
PPPO Portsmouth Site	D&D Project	DE-AC30-010CC40017	Large Business	March 2016 w/ 5-year option
PPPO Portsmouth Site	Infrastructure	DE-CI-0000004	Small Business	July 2015
PPPO Paducah Site	Remediation	DE-AC30-10CC40020	Small Business	July 2015 – transfers into deactivation contract
PPPO Paducah Site	Infrastructure	DE-AC30-10CC40021	Small Business	September 2015
PPPO Both Sites	DUF ₆ Conversion	DE-AC30-11C40015	Large Business	January 2016
PPPO Paducah Site	Technical Services	DE-DT0005139	Small Business	January 2018
PPPO	Advisory Board Support	DE-EM0002158	Small Business-8(a)(SDB)	September 2017
PPPO/Lexington	Technical Services	DE-DT0005643	Small Business	July 2016 w/ 2-year option
PPPO Portsmouth Site	Engineering & Technical	DE-EM0002639	Small Business (Woman-owned)	October 2016