



Paducah Gaseous Diffusion Plant  
Citizens Advisory Board

November 20, 2008

## Proposed Agenda for the November Board Meeting

### Chair

Bobby Lee

### Chair-Elect

Judy Clayton

### Board Members

John Anderson

Allen Burnett

Shirley Lanier

Elton Priddy

Alex Roman

John Russell, Ph.D.

Jim Smart, Ph.D.

Don Swearingen

### Board Liaisons

Reinhard Knerr

*DOE DDFO*

Rob Seifert

*DOE Federal Coordinator*

Ed Winner

*Division of Waste*

*Management*

Turpin Ballard

*Environmental Protection*

*Agency*

Mike Hardin

*Fish and Wildlife Resources*

Stephanie Brock

Rob Gresham

*Radiation Health Branch*

### Support Services

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### 6:00

Call to order, introductions

Review of agenda

### DDFO's Comments

-- 20 minutes

### Federal Coordinator Comments

-- 5 minutes

### Liaison Comments

-- 10 minutes

### Presentations

-- 30 minutes

- Generic EE/CA
- CERCLA Five-Year Review
- Recap – Waste Disposal Options Public Meeting
- Update – Paducah Site Trends/Uncertainties for Scenario Planning

### Public Comments

-- 10 minutes

### Administrative Issues

-- 10 minutes

### Motions

- Recommendations

### Final Comments

### Adjourn



# PADUCAH GASEOUS DIFFUSION PLANT CITIZENS ADVISORY BOARD

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## **Paducah Gaseous Diffusion Plant Citizens Advisory Board Meeting Minutes November 20, 2008**

The Citizens Advisory Board (CAB) met at the Environmental Information Center (EIC) in Paducah, Kentucky, November 20, 2008, at 6 p.m.

**Board members present:** John Anderson, Anna Brewer, Allen Burnett, Judy Clayton, Bobby Ann Lee, Elton Priddy, Alex Roman, John Russell and Jim Smart

**Board members absent:** Matt Duncan, Shirley Lanier and Don Swearingen

**Board Liaisons and related regulatory agency employees:** Ed Winner, Kentucky Division of Waste Management (KDWM); Turpin Ballard, U.S. Environmental Protection Agency (EPA); Stephanie Brock and Rob Gresham, Kentucky Radiation Health Branch (RHB)

**Deputy Designated Federal Official:** Reinhard Knerr

**DOE Federal Coordinator:** Buz Smith

**U.S. Department of Energy (DOE) related employees:** Rich Bonczek, Pam Dawson, Rick Dearholt, Tracey Duncan, Marty Gray, Bob Hamilton, Marc Hill, Kevin Kytola, Jim McVey, Janet Miller, Brad Montgomery, Steve Moore, Harmony Paulsen, Ann Riedesel, Eric Roberts, Greg Simonton and Jim Staehr

**Public:** Maggie Morgan and Gary Vander Boegh

## Agenda

Roberts asked for modifications to the proposed November agenda. **The Board approved the agenda as submitted.**

## Deputy Designated Federal Official Comments

Knerr presented project updates to the Board. All presentations are available on the CAB Website at [www.pgpdcab.org](http://www.pgpdcab.org). Questions and answers (paraphrased) appear below.

Questions/Comments	Answers
<b>Smart:</b> Does DOE plan to drill underneath the C-400 Building? Previously there had been discussion of angle borings.	<b>Knerr:</b> No. The technology is designed for the electrodes to go straight down. When the United States Enrichment Corporation (USEC) shuts down and transitions the building back to DOE, an investigation will be scheduled for underneath the facility.
<b>Burnett:</b> On the Surface Water Operable Unit (OU) actions, some of the outfalls and the North-South Diversion Ditch (NSDD) will be dredged and contaminated dirt disposed. What will keep these areas from being re-contaminated?	<b>Knerr:</b> The outfalls meet Kentucky Pollutant Discharge Elimination System limits. This removal action is focused on interim actions to remove hot spots. There are some levels of contaminants that will remain but are not a health risk to the worker and is not migrating from the current location. Upon approval, the remedial action will address final cleanup of effluent ditches.
<b>Russell:</b> Does DOE perceive no comments received on a document as a success?	<b>Knerr:</b> No. DOE encourages comments from the public.
<b>Russell:</b> DOE might consider altering the current public involvement process to encourage comments.	<b>Knerr:</b> DOE can take a look at ways to improve public involvement. Currently, DOE provides information in the local newspaper. The public meeting explains different ways for the public to become involved and provide input into the decision documents. More public meetings are planned in addition to regulatory requirements.
<b>Lee:</b> How was the additional five soil pile areas identified? Is there a procedure in place for the public to request that DOE investigate a soil pile?	<b>Knerr:</b> The piles were identified in the past but were not properly tracked as identified. Paducah Remediation Services (PRS) has taken corrective actions to ensure all piles are tracked. The piles were re-identified while preparing the area for USEC activities. The public can contact PRS, DOE Site Office, CAB, KDWM or the Kentucky Department of Fish and Wildlife Resources for investigation of an area. During the walkover, surveyors will be identifying and tracking any anomalies for further investigation.

## Federal Coordinator Comments

Smith said he was excited to be involved with the CAB and looking forward to working with the members. On behalf of DOE and PRS, he presented a framed picture of the Paducah Gaseous Diffusion Plant 1950-2008 Timeline indicating the achieved milestones to the CAB for recognition on all their hard work.

Lee said Smith is the new Federal Coordinator for the CAB but Seifert may still participate in the committee meetings.

## Liaison Comments

### Kentucky Division of Waste Management

Winners said KDWM is reviewing the Burial Grounds OU Remedial Investigation and the Surface Water Action Memorandum. KDWM, EPA and DOE are working together on the Generic Engineering Evaluation/Cost Analysis (EE/CA) to streamline the Decontamination and Decommissioning (D&D) process. He said DOE has achieved a “yes” on the environmental indicator for current human exposures to contaminants under control. KDWM had asked for four specific conditions to be met to meet the criteria for a “yes” 1) flow chart of decision for soil piles, 2) continue to characterize existing soil piles, 3) signage, and 4) site wide walkover. DOE has met those conditions.

### Environmental Protection Agency

Ballard said he attended the first DOE public meeting to education the public leading up to the Waste Disposal Alternatives. The presentations were a very fair representation of past activities and future decisions that must be made. Future meeting will go into more detail on the alternatives and what the cell could look like. This was a great way to receive feedback and believed the public meeting was well done. Knerr said similar outreach will be conducted for other projects such as Burial Grounds, Dissolved Phase Plumes and as well as the Waste Disposal Option Alternatives.

## Presentations

### Generic EE/CA

Montgomery, PRS, provided a briefing on the Inactive Facilities D&D Engineering EE/CA. Questions and answers (paraphrased) appear below.

Questions/Comments	Answers
<b>Burnett:</b> What will be the actual impact on the D&D cost and schedule by approving the D&D Generic EE/CA?	<b>Montgomery:</b> This document would streamline the review process eliminating three to four months for each EE/CA but the cost saving has not been calculated. <b>Knerr:</b> The cost for each EE/CA is about \$100,000.
<b>Burnett:</b> If the Generic EE/CA covers all facilities, are preliminary decisions being made whether a building will be torn down that may have to be reversed at the Action Memorandum stage.	<b>Montgomery:</b> The decision is made for the buildings at the Action Memorandum stage. <b>Winner:</b> At any time of the process, if a value is found for a building that is being torn down the decision can change.

<b>Knerr:</b> A flow chart is being developed and suggested that a committee review the chart as the D1 EE/CA is being developed. That document will also be provided to the CAB.	<b>Montgomery:</b> It would be very beneficial for PRS to have CAB input.
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### **CERCLA Five-Year Review**

Duncan, PRS, provided a briefing on the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Five-Year Review. Questions and answers (paraphrased) appear below.

<b>Questions/Comments</b>	<b>Answers</b>
<b>Burnett:</b> What projects were initiated since the last Five-Year Review document?	<b>Duncan:</b> The C-402 Lime House, C-405 Incinerator, Groundwater OU C-400 Electrical Resistance Heating, D&D OU C-410 Infrastructure Removal and the NSDD Sections 1 and 2.
<b>Lee:</b> Will the CAB have the opportunity to comment on D1 Five-Year Review document?	<b>Duncan:</b> The document does not require a formal public comment period under CERCLA but there is request for public participation in the process through the CAB or EIC. <b>Knerr:</b> The CAB should receive the document shortly.

### **Scenario Planning: Future Uses for the Paducah Site**

Lee provided a summary on Scenario Planning: Future Uses for the Paducah Site. The full presentation was posted on the CAB Website in October. A brainstorming session has been scheduled on December 11 at 4 p.m. at the CAB Office. The purpose of the meeting will include the following:

- Identify stakeholder groups with a primary interest in future use of the site
- Develop a contact list of individuals within each group
- Outline a schedule of meeting dates with each group
- Discuss the procedures for those meetings to further the goals of scenario planning

All interested CAB members are invited to attend.

### **Public Comments**

Vander Boegh, Commonwealth Environmental Services, welcomed Buz Smith to the Board. He asked when the soil piles on the East Side of the plant referenced in the earlier presentation were discovered. Knerr said the piles were re-identified approximately two months ago.

Vander Boegh asked if the landfill permit allowed the operator to place non-waste on the landfill as a daily cover. According to information he received at the public meeting, PRS and Energy Solutions are only placing two tons of waste a month in the landfill that is permitted to take 80,000 tons of waste a year. He asked why a CERCLA cell would be necessary if only two tons of waste a month was being disposed in the landfill. Winner said a CERCLA cell is not what is being considered; what is being discussed is what to do with the waste. An on-site facility is a possibility but not a conclusion. A CERCLA cell was only a small part of the public meeting. Winner said he would have to speak with someone in his section that covers the landfill but it is his understanding that the daily cover of the landfill should be clean material. Vander Boegh said unless the permit has changed, waste for daily cover is stored at the landfill and he was surprised when he saw a truck dumping materials from a roll

off box that was probably characterized but is not part of the permit application. Knerr said DOE has ensured that the authorized limits at the landfills have been reviewed by DOE Headquarters and three weeks ago DOE Headquarters performed an assessment that received very high marks. Regarding the roll offs used as a cover at the landfill, DOE has received approval from the Solid Waste Branch to use soils inside the plant fence that have been surveyed and sampled and determined clean as a daily cover.

Vander Boegh said DOE has provided a list of contaminants to the Department of Labor for the Employees Compensation Program. With all of the buildings that are being torn down, he hoped that that list was being used when determining if a building should be torn down or reused. He asked if a DOE health physicist was on-site at Paducah since Mitch Hicks had left. Knerr said DOE does not have an individual who is currently designated as a health physicist, however, PRS and Swift and Staley have a full staff of qualified and certified health physicists. DOE does have a nuclear engineer that has taken over some of Mitch Hicks' responsibilities such as HP functions including review of landfill packages for compliance of the authorized limits. One of DOE's direct support contractors is a certified health physicist and does the daily responsibilities that Mitch Hicks once conducted.

### **Administrative Issues**

Lee said the Board has received responses from DOE to all CAB recommendations. The recommendations and responses can be found on the CAB Website at [www.pgpdcab.org](http://www.pgpdcab.org). Lee applauded DOE on the success of the meeting for public awareness.

At the Executive Committee meeting, the group agreed that the following informal process should be applied when introducing a new recommendation to the Board:

- Two CAB members sponsor a recommendation before it is submitted to the Executive Committee. The two sponsors are expected to have reviewed and edited the background information and the wording of the recommendation.
- The Executive Committee review the recommendation before it is submitted to the full CAB. Once edits by the Executive Committee are complete, the recommendation should be emailed to all CAB members prior to discussing at a CAB meeting.

### **Recommendation**

Lee said she is interested in forming a recommendation regarding Paducah being part of Green Remediation technology and research. An email will be sent out for interest.

The meeting adjourned at 7:45 p.m.

Solving Cleanup Challenges Through Risk Reduction

# Progress at the Paducah Gaseous Diffusion Plant



## Presentation for Paducah CAB

Reinhard Knerr, Paducah Site Lead

November 17, 2009



**EM** Environmental Management

safety ♦ performance ♦ cleanup ♦ closure

# Presentation Highlights

**C-400 Interim Remedial Action**



**Inactive Facilities**



**Waste Disposal Options**



**Waste Removal Status**



**Status of Other Projects**

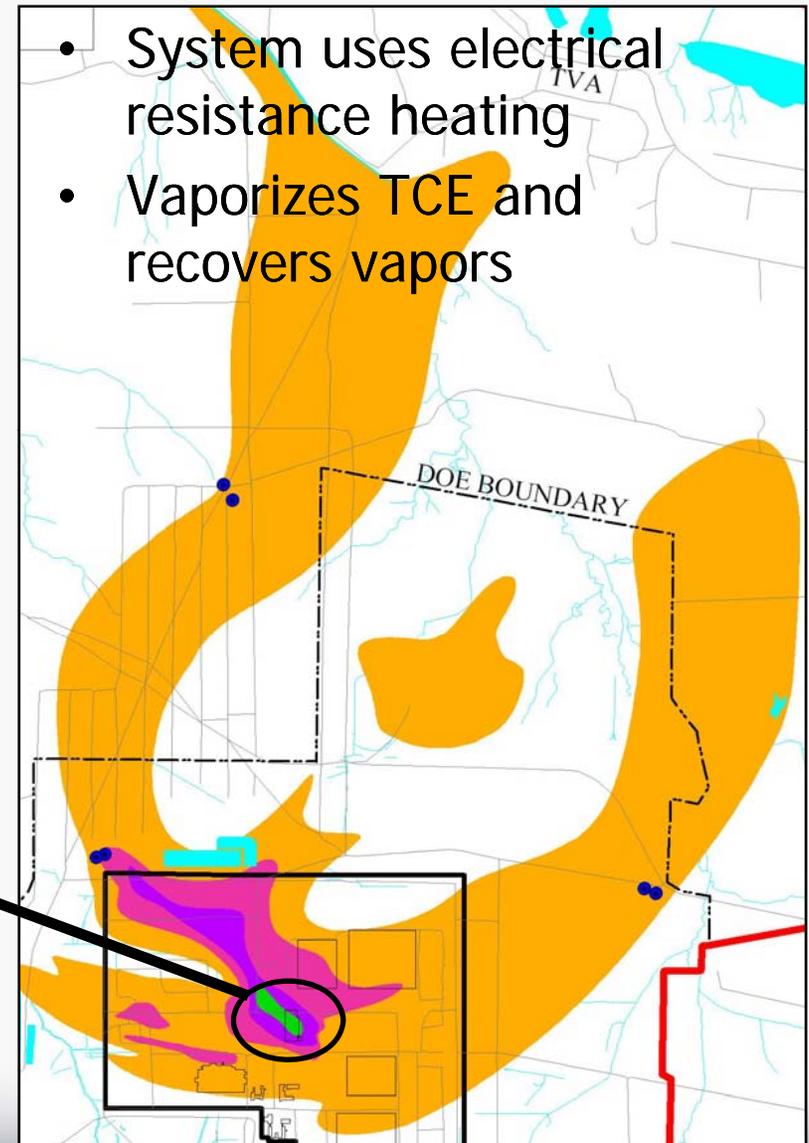


# C-400 TCE Source Reduction - Background

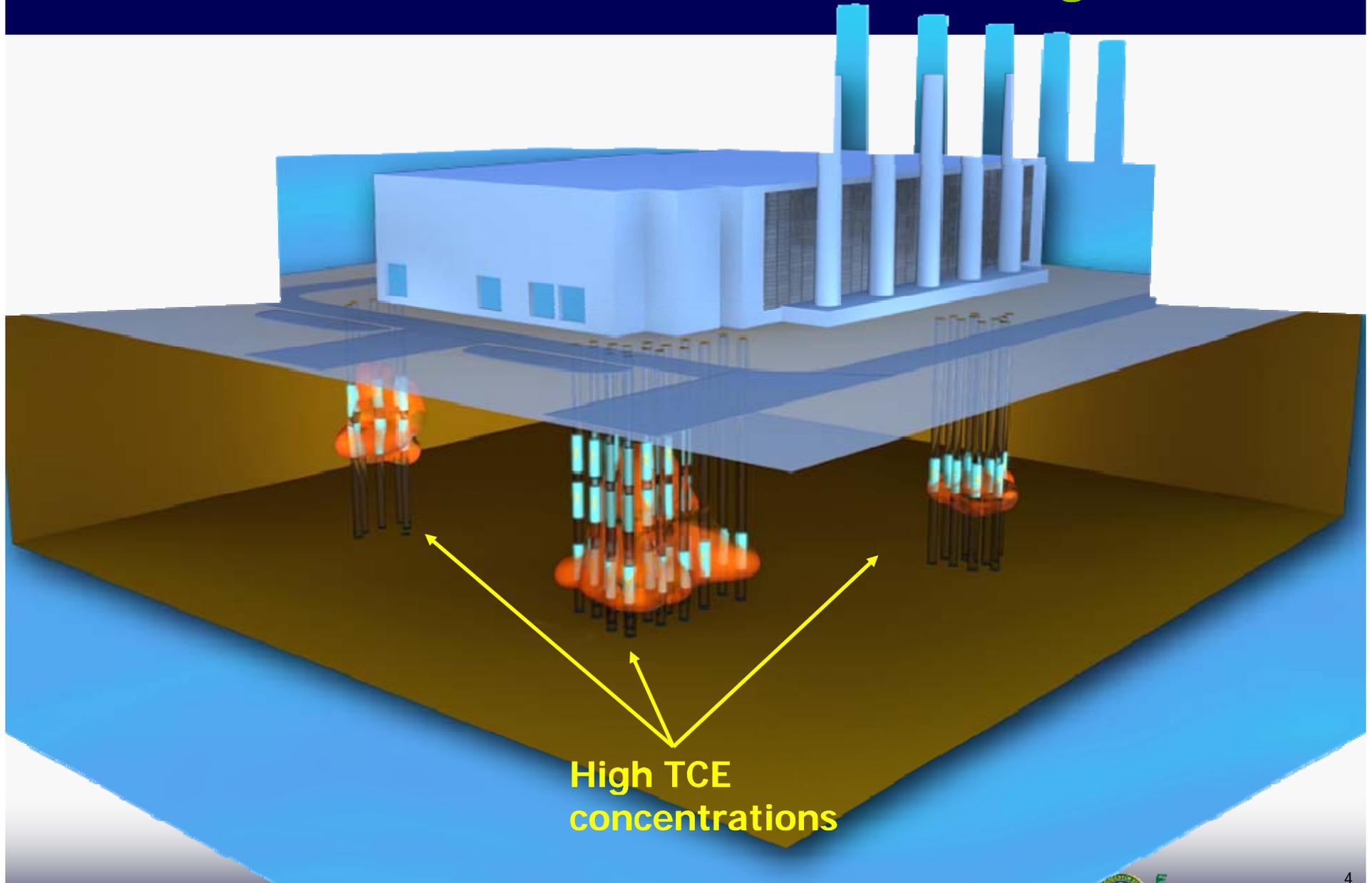
Action targets the largest off-site groundwater contamination plume in DOE complex



- System uses electrical resistance heating
- Vaporizes TCE and recovers vapors



# *C-400 TCE Source Reduction - Background*



**High TCE  
concentrations**

# *C-400 TCE Source Reduction - Status*



System testing began last week

# Accelerated D&D - Background



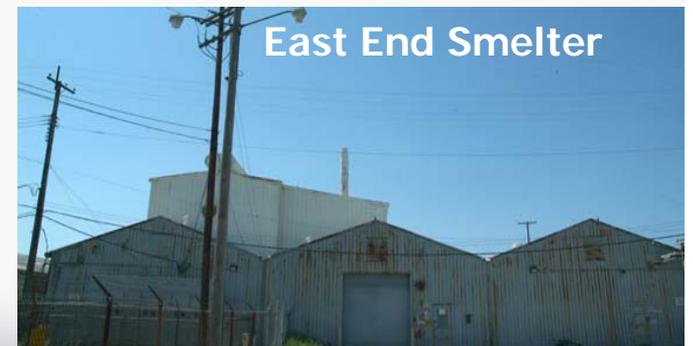
Paducah has received \$78 million in additional funding to accelerate the removal of 3 facilities:

**C-410 Feed Plant**

**C-340 Metals Plant**

**C-746-A East End Smelter**

**Work has begun in two facilities**



## *Accelerated D&D – Background*



- **Rapidly increasing remediation workforce**
  - 475 employees on April 30, 2009
  - 207 hired in past six months
  - Need for additional hires is being evaluated
- **Training and deploying new workers**
- **Accelerating scope of work to reduce D&D time from 2 years to 9 months**

# Accelerated D&D – Feed Plant



**Scope - Accelerate the ongoing dismantlement and disposal of major systems and complete structural demolition of the complex to slab**

- Additional personnel now working in the facility
- Removal of instrument and process lines is ahead of schedule



- Loose material removal completed

# Accelerated D&D – Metals Plant



**Scope -  
Accelerate  
dismantlement  
and disposal of  
major systems  
contained within the  
complex and  
complete structural  
demolition of the  
C-340-D and C-340-E  
Buildings to slab**



Removing debris to clear the way for D&D work

- Elevator refurbishment to support D&D underway
- Waste characterization has begun
- Asbestos abatement scheduled to start week of November 16



# Accelerated D&D – East End Smelter



**Scope -  
Accelerate  
dismantlement  
and disposal of  
systems and smelter  
equipment and  
complete structural  
demolition to slab**

- Field mobilization has begun
- D&D work scheduled to begin in December



# Waste Disposal Options Feasibility Study

## Threshold Criteria

### WASTE DISPOSAL ALTERNATIVES

NO CHANGE	ON-SITE	OFF-SITE
		
Continue existing process to dispose of waste on a project-by-project basis	Dispose of waste on-site in a new facility on DOE land	Ship waste to other states
Protective of human health and the environment? <b>✓ YES</b>	Protective of human health and the environment? <b>✓ YES</b>	Protective of human health and the environment? <b>✓ YES</b>
Meets applicable federal and state laws / regulations? <b>✓ YES</b>	Meets applicable federal and state laws / regulations? <b>✓ YES</b>	Meets applicable federal and state laws / regulations? <b>✓ YES</b>
<b>1</b>	<b>2</b>	<b>3</b>

**ALL MEET THRESHOLD CRITERIA**

- Project will evaluate how to dispose of future wastes generated
  - By CERCLA cleanup
  - By GDP D&D
- Two previous Public Information Exchanges
  - November 2008 at Cherry Civic Center
  - March 2009 at Maiden Alley Cinema

# Waste Disposal Options Feasibility Study

## Welcome!

**Thanks for  
taking time**  
to come to tonight's  
public information  
exchange about  
the future of the  
Paducah site.

Please visit the exhibits and let us know your suggestions and comments before you leave.

If you want more information on any DOE project, please ask a staff member for assistance.

**Please let us know what  
you think before you leave!**



- Work on Feasibility Study continues
- Plans for next public meeting are being finalized
- CAB subcommittee has provided input for planned exhibits; comments being incorporated

# Waste Removal

Disposition of 615,000 ft<sup>3</sup> of waste from storage areas



Completed characterization of DMSA material ahead of milestone



Key regulatory milestone met

# Waste Removal



Final shipment of  
legacy waste  
scheduled for  
December 2009

## *Other Projects*

### **Burial Grounds Operable Unit Feasibility Study**

- D1 submittal to EPA/KY scheduled for December 29

### **Surface Water Removal Action (Hot Spots)**

- Mobilization underway; removal work starts next month

### **Soils Removal Action**

- Mobilization underway; removal work starts next month

### **Southwest Plume Focused Feasibility Study**

- Document revisions are in process
- Proposed Plan will follow approval

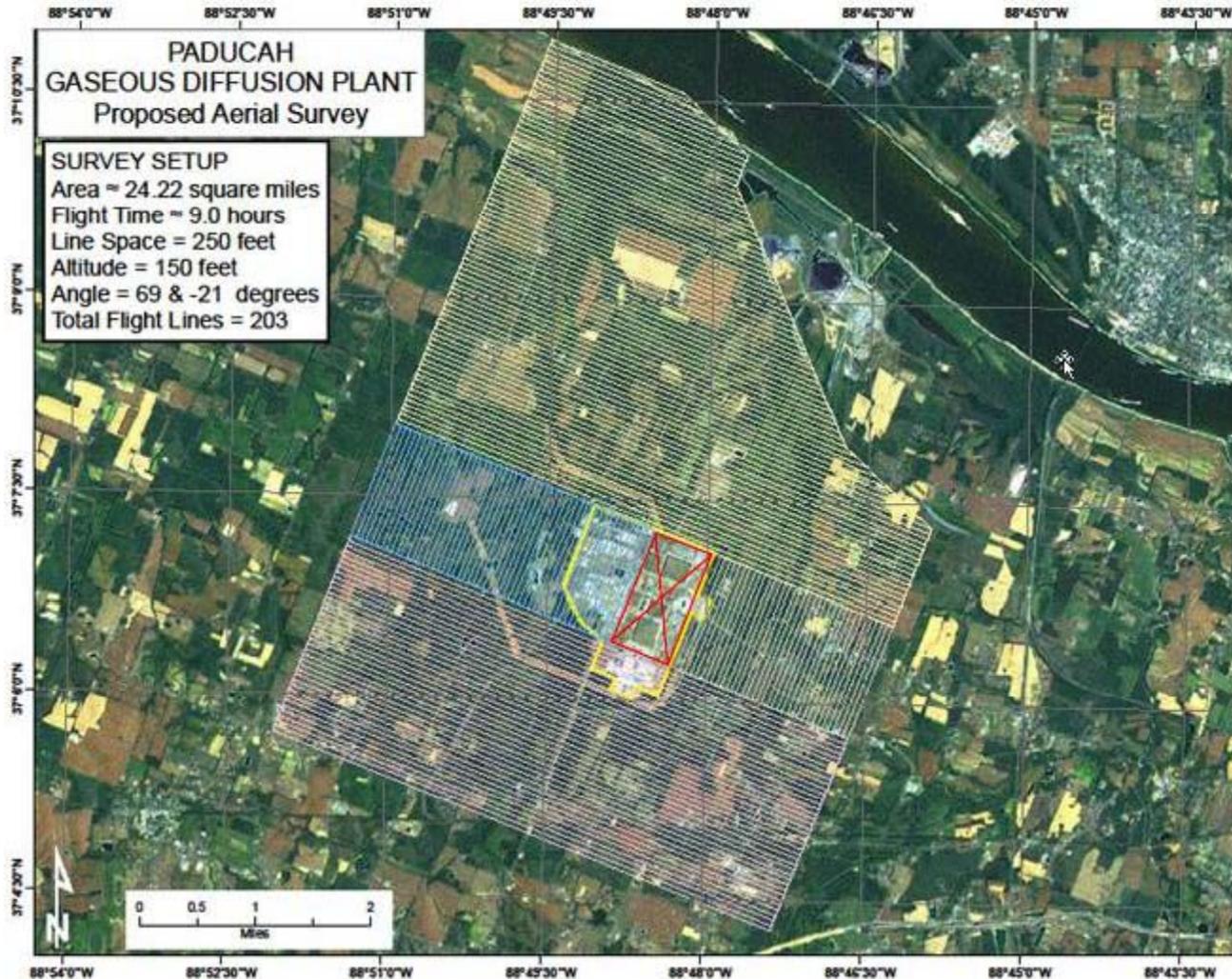
# *New Groundwater Monitoring Wells*



- 36 new groundwater monitoring wells in 25 days
- 33 more wells to be installed



# Site Radiological Flyover



- Flyover completed November 9
- Preliminary data shows no unexpected radiation readings
- Final data expected in December



**DOE Portsmouth/Paducah Project Office**



# Site Management Plan Overview Briefing

PGDP Citizens Advisory Board  
December 9, 2008







# SMP Status

- **Series of cooperative working sessions held between EPA, Kentucky, and DOE between December 2007 – November 2008:**
  - Reached agreement on finalization of FY2008 SMP – approved by EPA (7/30) and KY (7/29)
  - Initiated early scoping for development of FY2009 SMP
- **Scoping of FY2009 SMP focused on reaching consensus on the Operable Unit scope and DOE’s planning assumptions in the baseline**
  - Serve as the basis for establishing schedules/milestones under the FFA

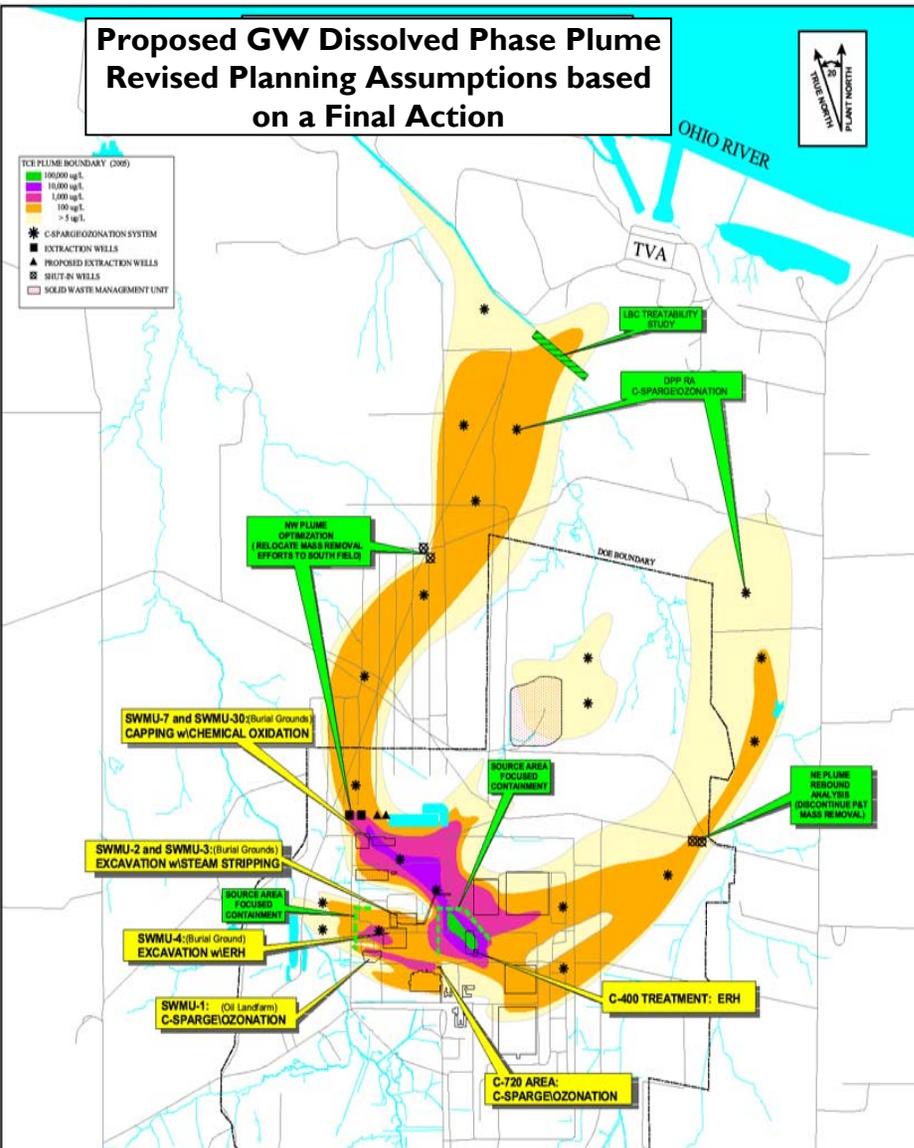




- **FY2009 Scoping process required expanded discussions on regulator expectations for the groundwater strategy**
  - Implementing a final action for the groundwater dissolved phase plume prior to plant-shut down and D&D of the GDP
  - Achieving MCLs throughout the plume rather than at the DOE property boundary
- **Regulator expectations for the groundwater dissolved phase plume requires revision to DOE baseline**



## Proposed GW Dissolved Phase Plume Revised Planning Assumptions based on a Final Action



- **Proposed Baseline Changes**
  - Optimize/focus existing NW Plume Pump-and-Treat system
  - Conduct Treatability Study for surface water seeps
  - Supplement source treatment with containment technologies
  - Expand treatment of Dissolved Phase Plume
- **Projected Baseline Impacts**



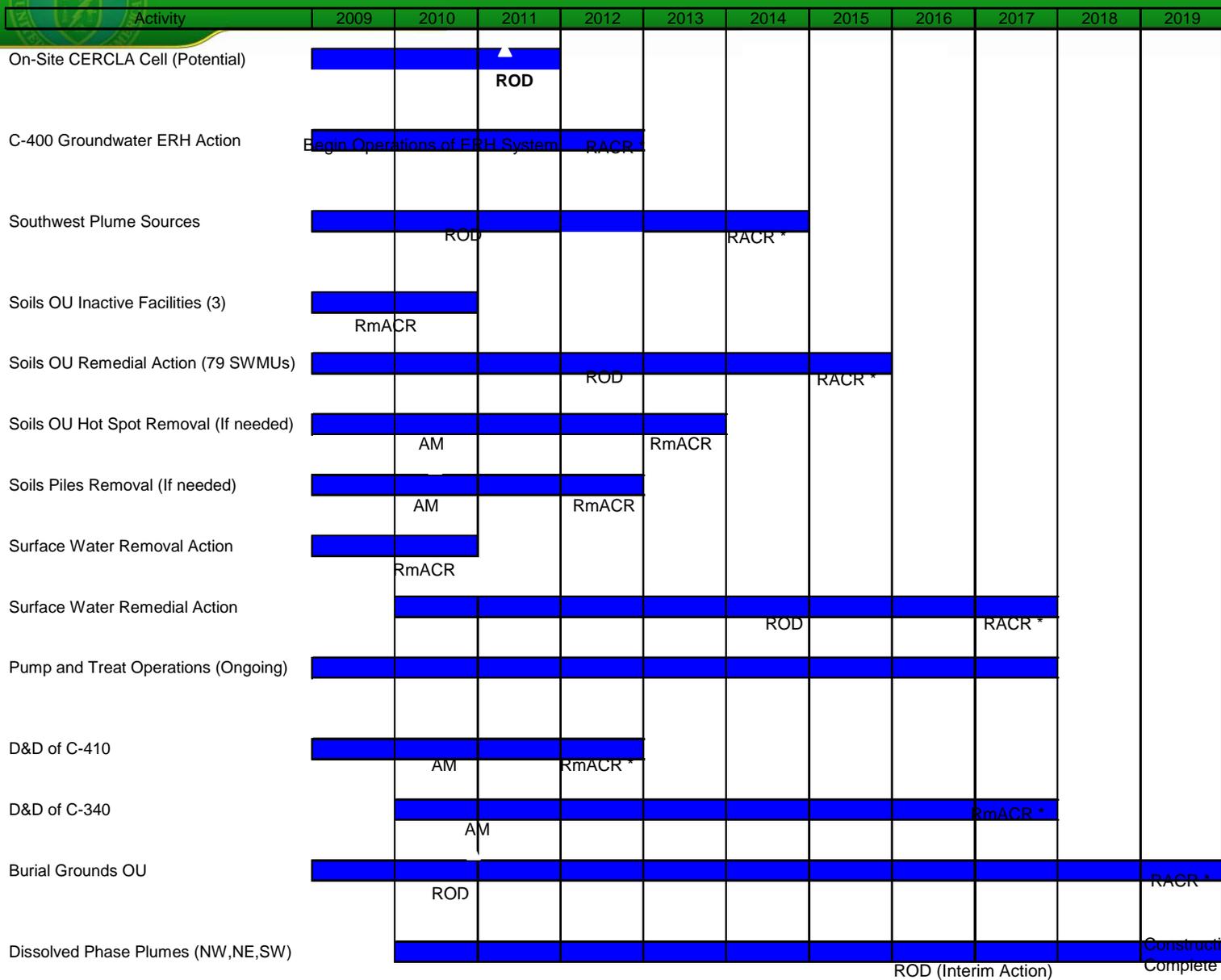


# Changes to SMP from '08 to '09

- **Project scoping assumptions in Appendix 3 revised based on discussion between DOE, EPA, and KY at previous Senior Managers Meetings**
- **3 milestones changed to TBD because of budget direction from DOE HQ**
  - Burial Grounds Remedial Action Completion Report
  - Dissolved Phase Plume Remedial Investigation/Feasibility Study Work Plan
  - Dissolved Phase Plume Record of Decision
- **New milestones added to FY11**
  - SW Plume Remedial Design Work Plan
  - Disposition of Inactive Facilities Removal Notification
  - Disposition of Inactive Facilities Removal Action Work Plan
  - Soils Remedial Action Feasibility Study
  - Soil and Rubble Areas Addendum 2 Site Evaluation Report
  - Soil and Rubble Areas Addendum 1B Site Evaluation Report



Life Cycle Baseline Remediation Projects  
assumes Planned Funding



Total Life Cycle Baseline  
\$1,762M  
LCB 2009 – 2019  
\$1,515M



\* Outyear Enforceable Milestone  
Lifecycle Baseline



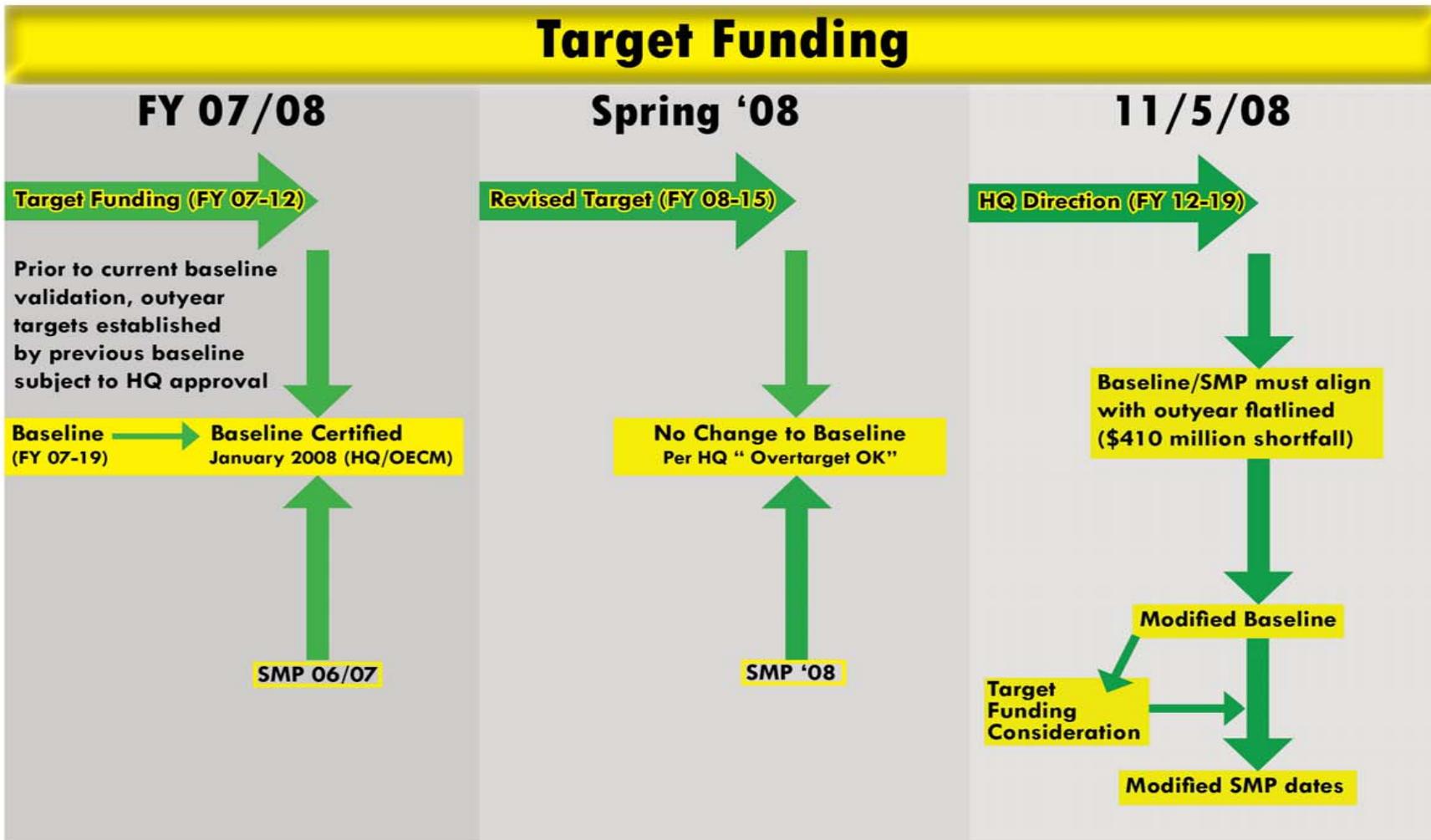
Activity	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
On-Site CERCLA Cell (Potential)			ROD			Start of Construction									
Begin Operations of ERH System				RACR *											
C-400 Groundwater ERH Action															
Southwest Plume Sources			ROD			RACR *									
Soils OU Inactive Facilities (3)															
Soils OU Remedial Action (79 SWMUs)				ROD			RACR *								
Soils OU Hot Spot Removal (If needed)			AM		RmACR										
Soils Piles Removal (If needed)			AM		RmACR										
Surface Water Removal Action			RmACR												
Surface Water Remedial Action						ROD			RACR *						
Pump and Treat Operations (Ongoing)															
D&D of C-410			AM		RmACR *										
D&D of C-340			AM						RmACR *						
Burial Grounds OU			ROD								RACR *				
Dissolved Phase Plumes (NW,NE,SW)								ROD (Interim Action)			Constr. Complete	ROD (Final Action)			Constr. Complete

\* Outyear Enforceable Milestone  
 Lifecycle Baseline  
 Lifecycle Baseline Modified with CERCLA Cell & GW Final Action





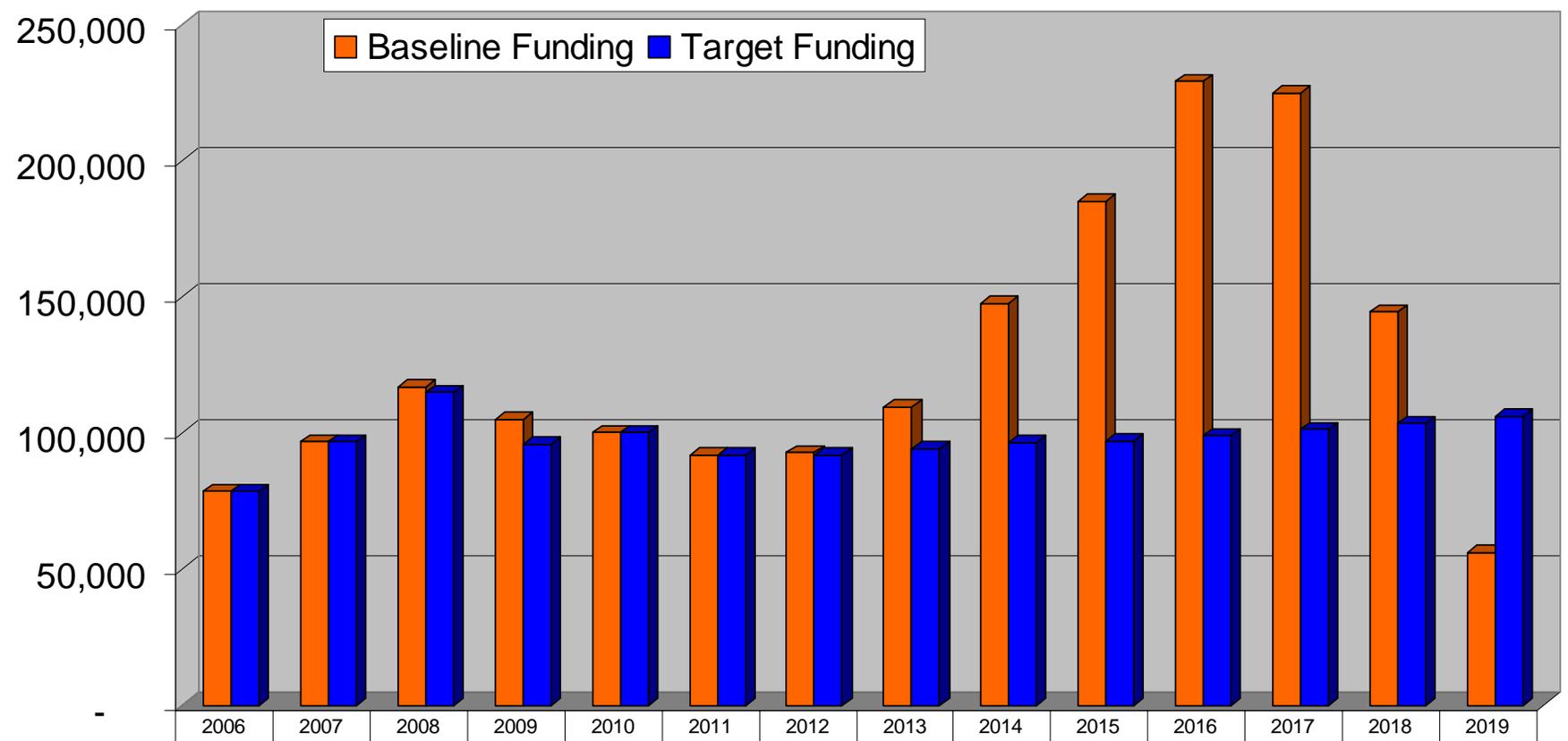
# Budget Information





# Budget Information

## Paducah Funding Comparison D&D Fund Projects only



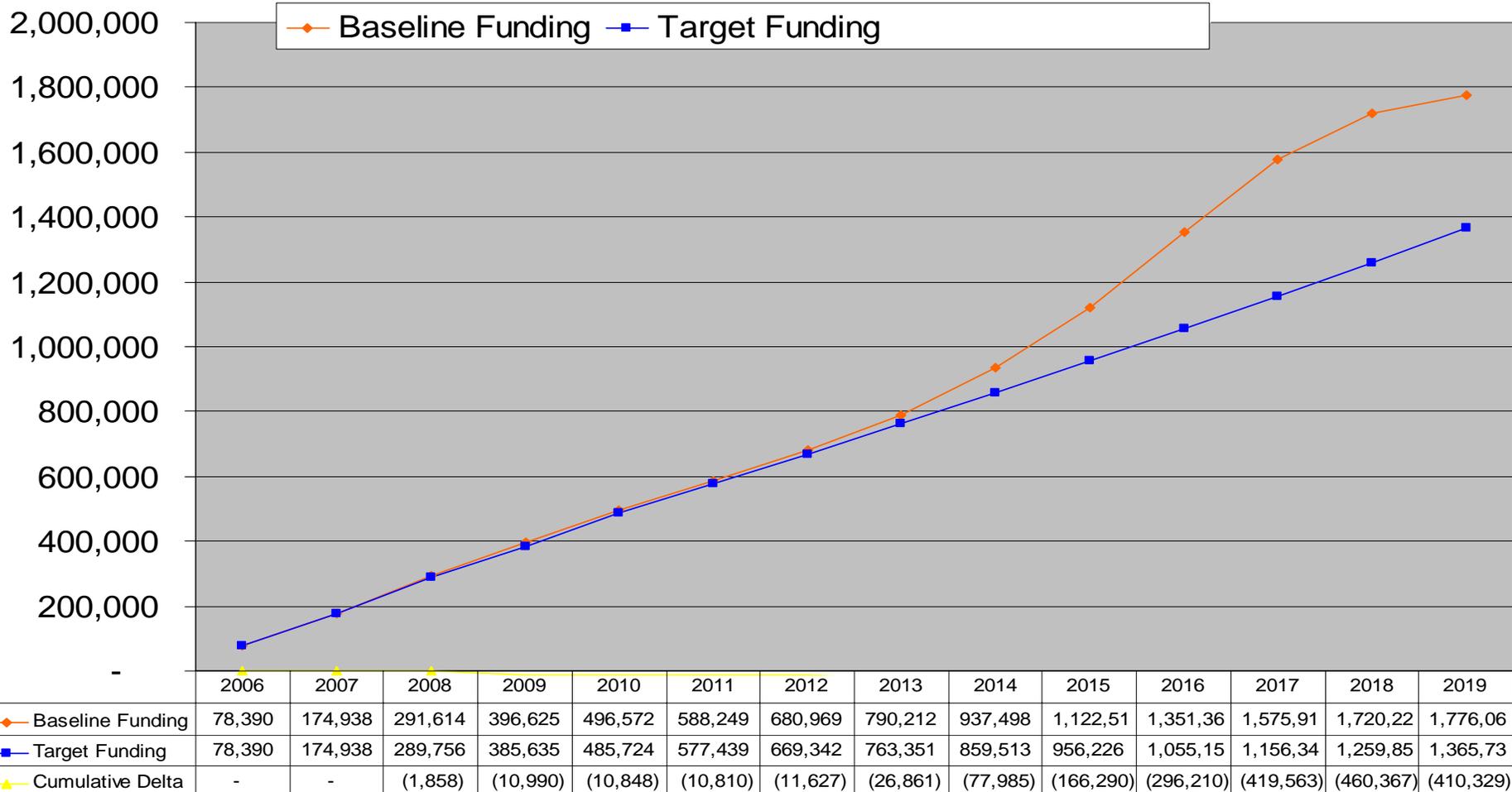
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Baseline Funding	78,390	96,548	116,676	105,011	99,947	91,677	92,720	109,243	147,286	185,018	228,848	224,546	144,314	55,843
Target Funding	78,390	96,548	114,818	95,879	100,089	91,715	91,903	94,009	96,162	96,713	98,928	101,193	103,510	105,881





# Budget Information

## Paducah Cumulative Funding

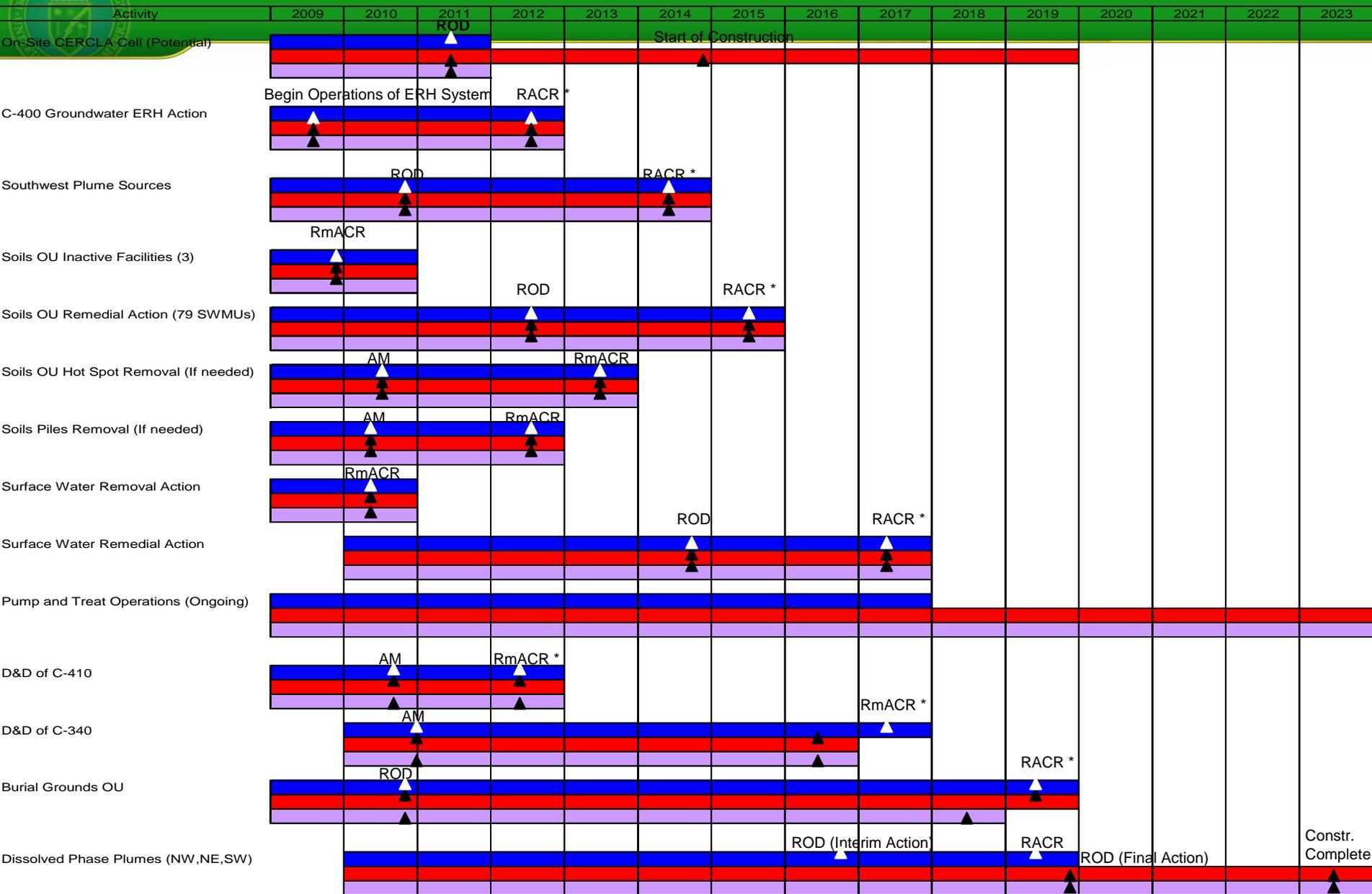




## Target Funding Scenario Assumptions

- Several scenarios were developed based on the flat lined funding targets.
  1. Capping of Burial Grounds to achieve same end date
  2. Revised baseline without the construction of the CERCLA Cell
  3. Revised baseline with the construction of CERCLA cell

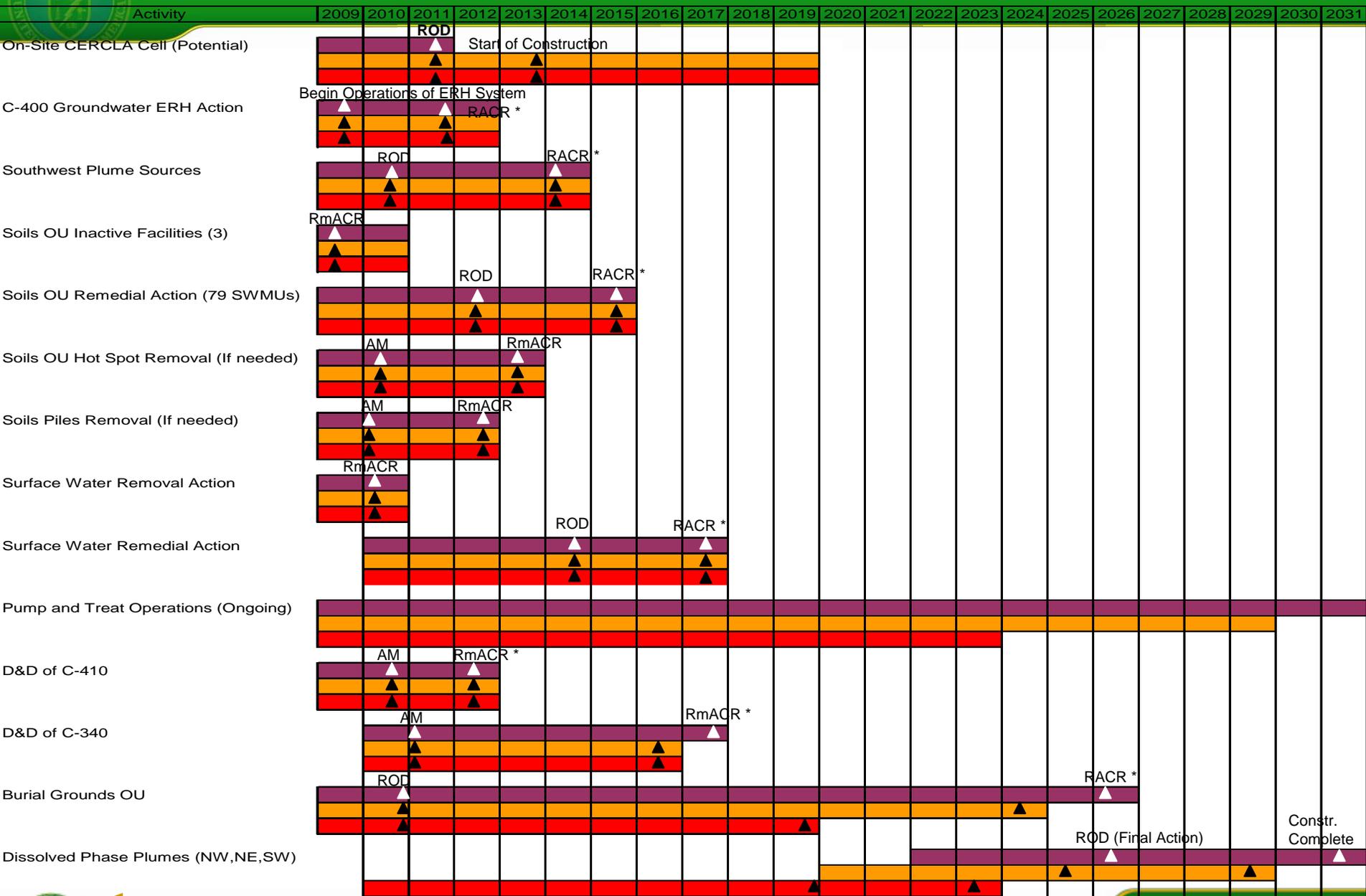




\* Outyear Enforceable Milestone

█ Lifecycle Baseline (assumed Planned Funding)  
█ Lifecycle Baseline Modified with CERCLA Cell (assumed Planned Funding)  
█ Target Funding with Capping of Burial Grounds





\* Outyear Enforceable Milestone

Target Funding without CERCLA Cell and with GW Final Action

Target Funding with CERCLA Cell and GW Final Action

Life Cycle Baseline Modified with CERCLA Cell and GW Final Action (assumes Planned Funding)





# Path Forward

## Conclusion

- Burial Grounds OU is the only enforceable milestone impacted by the different funding scenarios

## Proposed Actions

- FFA Parties work together to reach consensus on priorities
- Sequence prioritized projects considering funding targets
- Revise SMP/Baseline

## DOE recommendation

- DOE recommends approval of the 2009 SMP while working together to definitize the 2010 SMP/Baseline



## Now Live!

To visit the virtual public meeting site ...

[www.pgdpcleanup.com](http://www.pgdpcleanup.com)

## PADUCAH CLEANUP

### UNDERSTANDING THE CLEANUP PROCESS



**Downloads**

Throughout the site, files (PDF) will be available for download. Look for them in this sidebar, and **let us know** if you need more information.

Thanks for visiting [pgdpcleanup.com](http://pgdpcleanup.com). Your opinion is important.

We recently held the first of several public meetings in Paducah regarding the plans, strategies, and goals for the cleanup process. **To learn about the event held November 18, and 20, 2008, click here.**

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Solving Cleanup Challenges Through Risk Reduction

# Inactive Facilities D&D Engineering Evaluation/ Cost Analysis

Briefing for the  
Paducah Citizens  
Advisory Board  
November 20, 2008



*E* *M* *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

# *Inactive Facilities D&D EE/CA Background*

- PGDP has more than 500 facilities, ranging from the size of a small RV to more than 20 acres
- Current CERCLA documentation process could generate dozens of decision documents
  - Engineering Evaluation/Cost Analysis
  - Action Memorandum
  - Removal Action Work Plan, etc.
- Because most D&D decisions are similar and involve few “surprises,” DOE, KY, and EPA are working toward developing an Engineering Evaluation/Cost Analysis and Action Memorandum that will be used to screen newly identified inactive facilities
- Common base documentation would streamline the process
  - Get to the field faster
  - Cut costs
- Document will use lessons learned from similar approaches approved at other sites (Savannah River, Oak Ridge, etc.)



# *Streamlined Documentation Approach*



**Current process =**  
1 Engineering Evaluation/Cost  
Analysis per facility



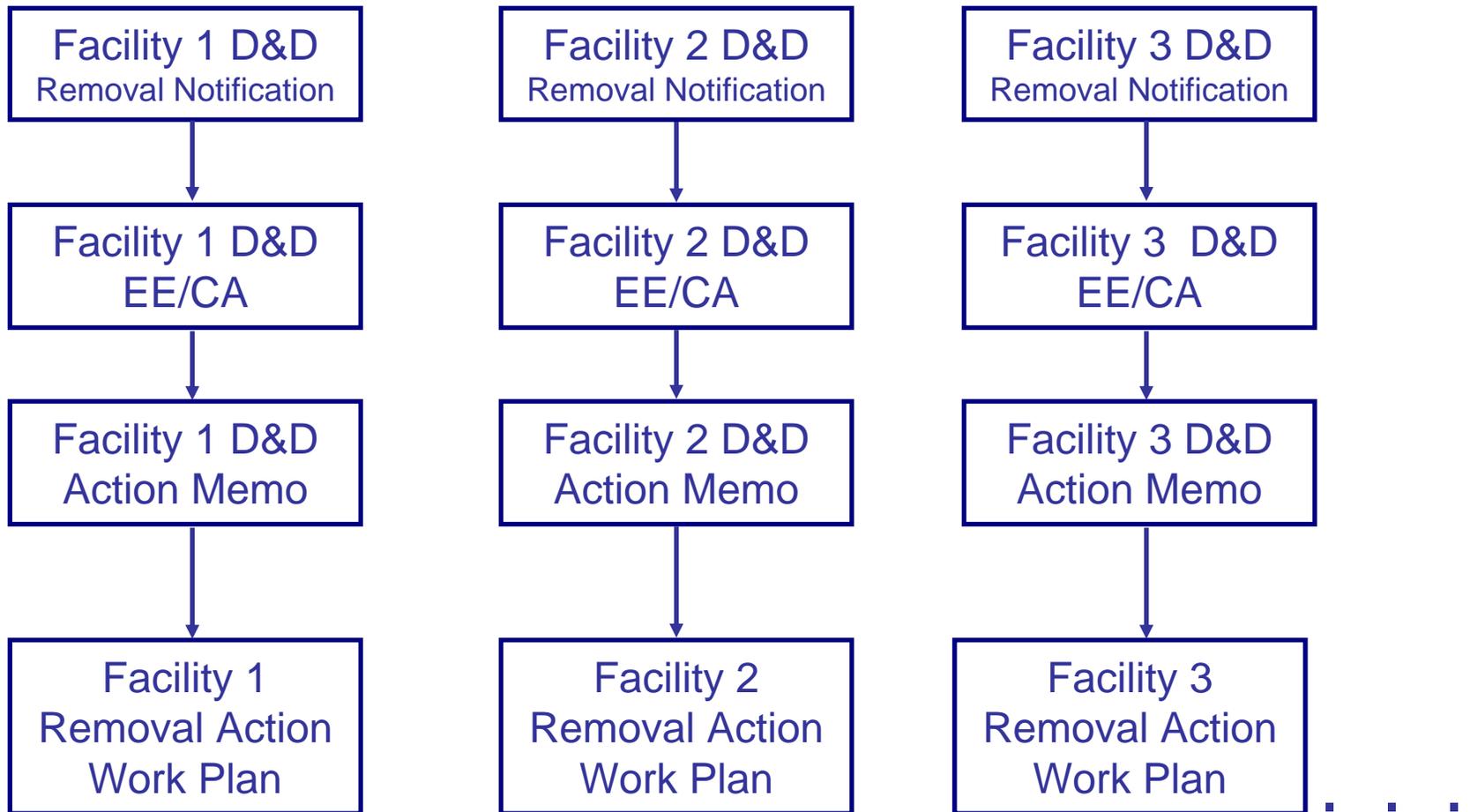
**Inactive Facilities Engineering  
Evaluation/Cost Analysis and  
Action Memorandum =**



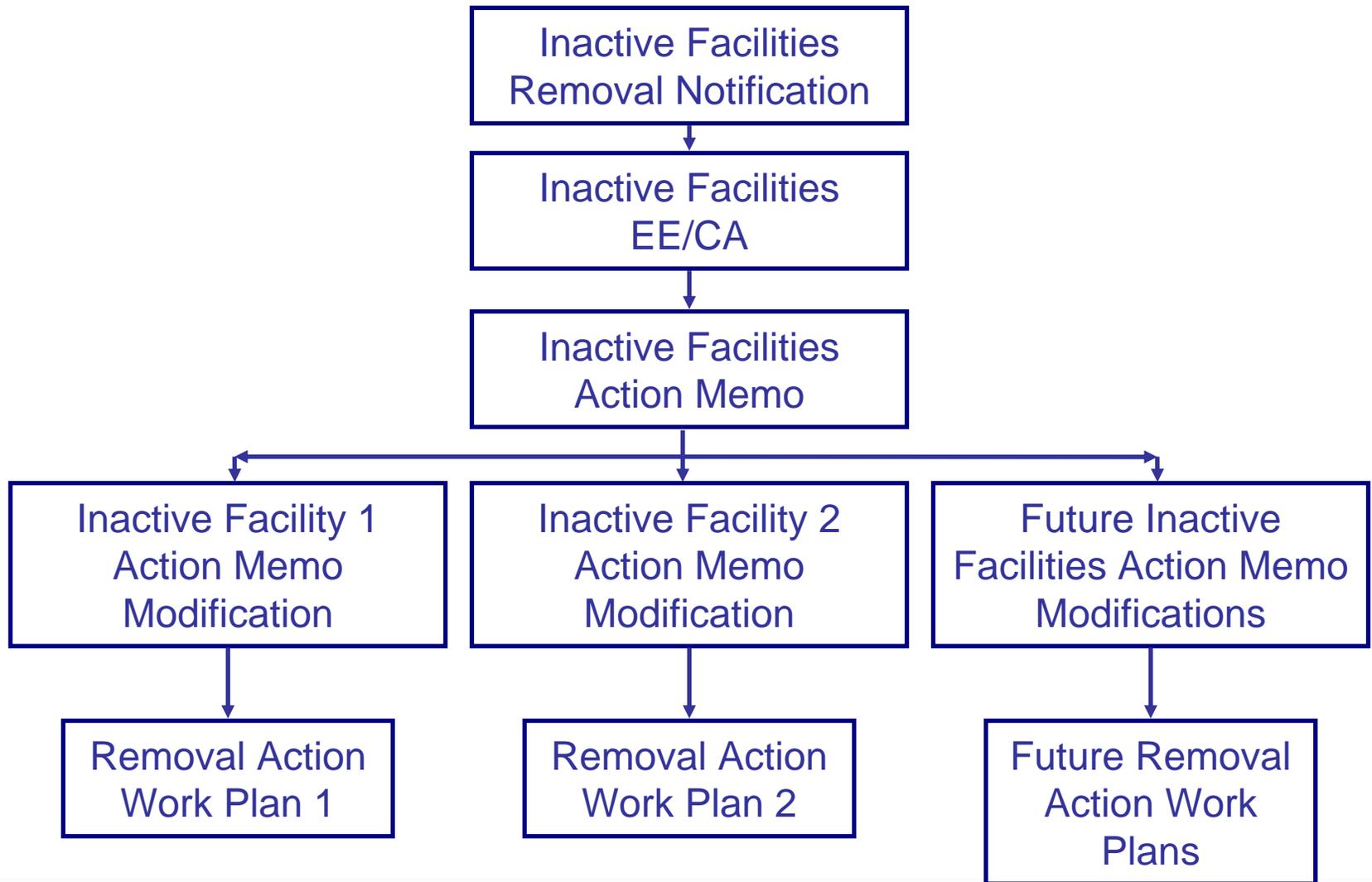
**1 Engineering Evaluation/Cost Analysis  
and Action Memorandum covers multiple  
facilities**



# Current Documentation Approach



# *Streamlined Documentation Approach*



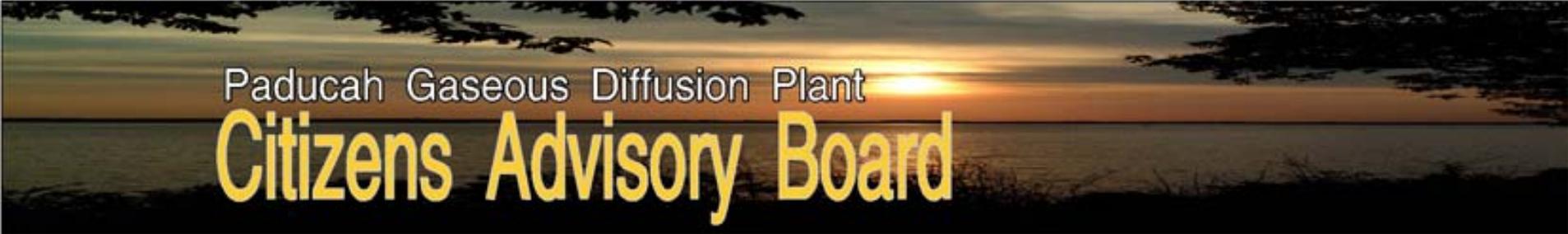
Process would be applied to all facilities entering the D&D program



# *Inactive Facilities D&D EE/CA*

- Formed D&D Working Group with EPA, KY, and DOE Representatives
  - Collaborative effort
  - Agreement on concept
- Inactive Facilities Engineering Evaluation/Cost Analysis Approach is fully compliant with CERCLA
- Inactive Facilities Engineering Evaluation/Cost Analysis would streamline process for dispositioning Inactive Facilities (e.g one Engineering Evaluation/Cost Analysis and Action Memorandum for multiple facilities)
- Goal is to complete the Inactive Facilities Engineering Evaluation/Cost Analysis in 2009





Paducah Gaseous Diffusion Plant

# Citizens Advisory Board

## Fall Chair's Report Activities of the Citizens Advisory Board

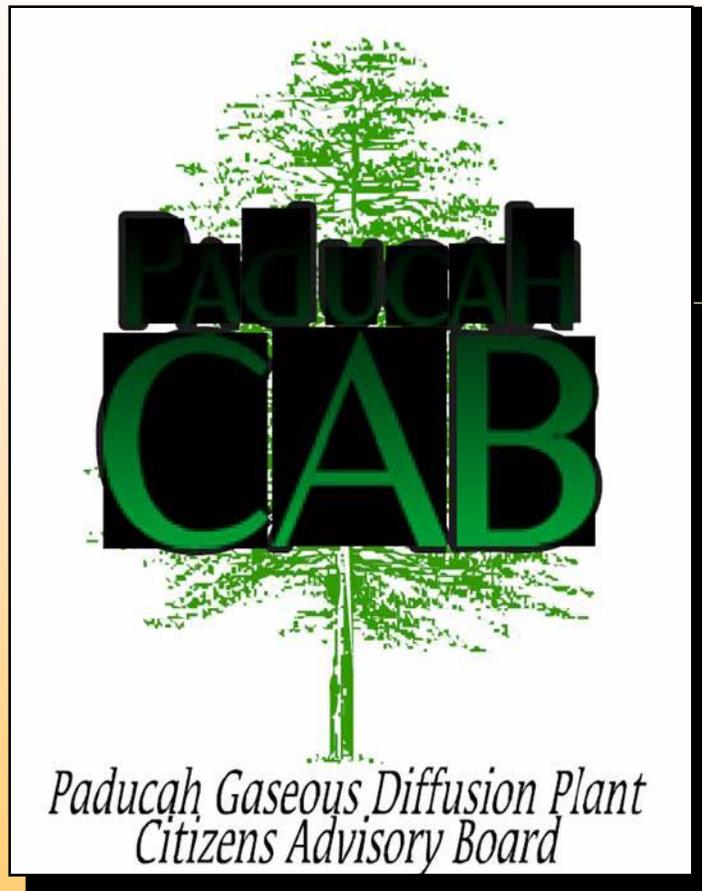
Judy Clayton, Chair  
Paducah Citizens Advisory Board  
November 19, 2009

# Paducah Gaseous Diffusion Plant Citizens Advisory Board



***The Paducah Citizens Advisory Board (CAB) is a stakeholder group that provides advice and recommendations to the DOE on environmental cleanup issues at the Paducah Gaseous Diffusion Plant (PGDP) site***

Paducah Gaseous Diffusion Plant  
**Citizens Advisory Board**



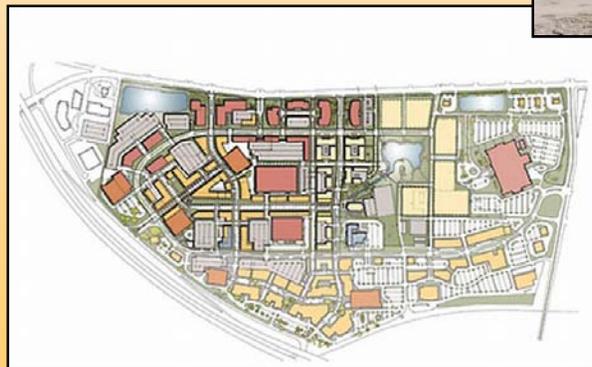
**2009-2010  
ANNUAL WORK PLAN  
September 2009**

*The primary purpose  
of the CAB annual  
retreat is to develop  
the coming year work  
plan*

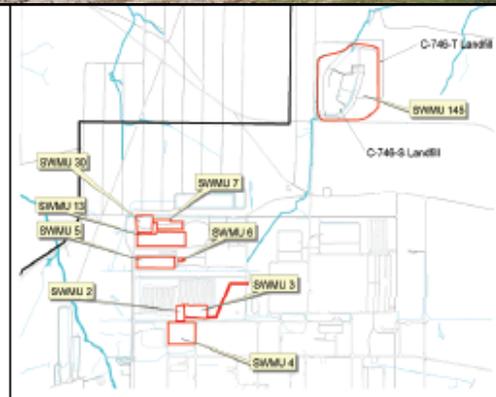
# Paducah Gaseous Diffusion Plant Citizens Advisory Board



Waste Disposal Options



Future Land Use



Names & Locations of Burial Grounds

***Major decisions this year are related to future waste disposal, burial grounds, and future land use at the site***

Paducah Gaseous Diffusion Plant  
**Citizens Advisory Board**



**EM** Environmental Management

safety ❖ performance ❖ cleanup ❖ closure



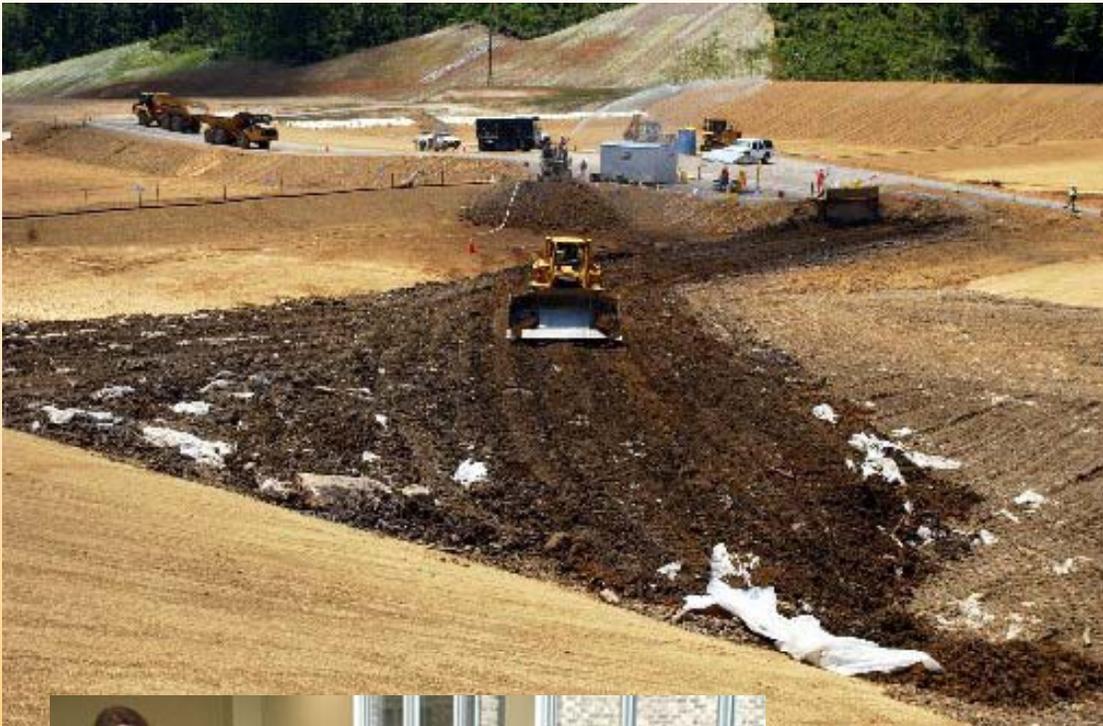
***DOE's National SSAB  
Chairs Meeting was  
held in September to  
provide education and  
information to SSAB  
members from the  
DOE complex and to  
seek input in complex  
wide decisions***

Paducah Gaseous Diffusion Plant  
**Citizens Advisory Board**



**DOE's  
Intergovernmental  
Affairs Meeting brings  
together various forms  
of local, state and  
national governments  
to discuss impacts  
DOE's environmental  
cleanup**

Paducah Gaseous Diffusion Plant  
**Citizens Advisory Board**



*The Waste Subcommittee toured the Oak Ridge Waste Cell and met with representatives from the decision making organizations regarding the construction and operations of an on site waste cell*

Paducah Gaseous Diffusion Plant  
**Citizens Advisory Board**



***The Portsmouth Site Specific Advisory Board is home to a sister site that faces some of the same cleanup challenges as Paducah***

Paducah Gaseous Diffusion Plant

# Citizens Advisory Board



# Solving Cleanup Challenges Through Risk Reduction

## CERCLA 5-Year Review

Briefing for the  
Paducah Citizens  
Advisory Board  
November 20, 2008



*E* *M* *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

# *Review Objectives*

The Five-Year Review is used to accomplish the following:

1. Evaluate whether the remedy is operational and functional;
2. Evaluate those assumptions critical to the effectiveness of remedial measures or the protection of human health and the environment (e.g., land use, site conditions, applicable standards) made at the time of the remedial decision to determine, given current information, whether these assumptions are still valid;
3. Determine what corrective measures are required to address any identified deficiencies; and
4. Evaluate whether there are opportunities to optimize the long-term performance of the remedy or reduce life-cycle costs.

*The evaluations of the completed response actions were conducted during January through March 2008*



# *Review Requirements*

- The U.S. Environmental Protection Agency (EPA) has defined two types of Five-Year Reviews:
  - Statutory
  - Policy
- This PGDP Five-Year-Review is a combination of statutory and policy reviews because the site implemented removal and remedial actions
- The triggering action is the five-year anniversary of the first and second five-year reviews conducted at this site
- Reviews are conducted using a standard format as described by EPA guidance, which includes
  - Site summary
  - Identified issues
  - Recommendations
  - Protectiveness statements



# *Process for Review*

## **ADMINISTRATIVE COMPONENTS**

- Document review
- Data review
- Site inspection
- Interviews of personnel responsible for specific aspects of some of the response actions
- Five-Year Review Report development and review

## **COMMUNITY NOTIFICATION AND INVOLVEMENT**

- Community involvement handled primarily in conjunction with the CAB
- Site inspections referenced throughout this document are Administrative Record documents; therefore, copies are available to the public
- All Administrative Record documents, along with copies of other decision documents, are available at the Environmental Information Center



# *Process for Review*

## **DOCUMENT REVIEW**

- Relevant documents to the remedial action of each of the units
- Previous Five-Year-Reviews
- Conducted January – March 2008

## **DATA REVIEW**

- Groundwater, surface water, and sediment sample results stored in the OREIS database

## **SITE INSPECTIONS**

- Inspections conducted at each response action sites, except for those currently underway, in March 2008
- Results discussed in each of the technical assessment subsections

## **INTERVIEWS**

- Interviews conducted during March 2008 with personnel connected to response actions, e.g.:
  - Operating Engineer of the Northwest and Northeast Plumes treatment systems
  - DOE Portsmouth/Paducah Project Office health physicist



# Process for Review

## Five-Year Review Summary Form

<b>SITE IDENTIFICATION</b>		
Site name (from WasteLAN): Paducah Gaseous Diffusion Plant		
EPA ID (from WasteLAN): KY8890008982		
Region: 4	State: KY	City/County: Paducah/McCracken
<b>SITE STATUS</b>		
NPL status: Final		
Remediation status (choose all that apply): Under Construction Operating		
Multiple OUs?* YES	Construction completion date: ___ / ___ / _____	
Has site been put into reuse? NO		
<b>REVIEW STATUS</b>		
Lead agency: U.S. Department of Energy		
Author name: Kelly Layne		
Author title: Senior Engineer Scientist	Author affiliation: Paducah Remediation Services, LLC	
Review period: 01/17/2008 to 03/21/2008		
Date(s) of site inspection: 03/05/2008 through 03/11/2008		
Type of review: Post-SARA		
Options: Post-SARA; Pre-SARA; NPL-Removal only; Non-NPL Remedial Action Site; NPL State/Tribe-lead; Regional Discretion		
Review number: 3 (third)		
Triggering action: Previous Five-Year Review Report		
Options: Actual RA On-site Construction at OU # ____; Actual RA Start at OU# ____; Construction Completion Other (specify)		
Triggering action date (from WasteLAN): 12/20/2003		
Due date (five years after triggering action date): 12/20/2008		

\* "OU" refers to operable unit.

\*\* Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.

NPL = National Priorities List



# *Project Review Outline*

## **I REMEDY SELECTION**

## **II REMEDY IMPLEMENTATION**

## **III SYSTEMS OPERATIONS/OPERATIONS AND MAINTENANCE**

## **IV TECHNICAL ASSESSMENT**

**Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

**Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and RAOs Used at the Time of the Remedy Selection Still Valid?**

**Question C: Has Any Other Information Come to Light That Could Call into Question the Protectiveness of the Remedy?**

## **V ISSUES**



# *Projects Included in the Review*

- Northwest Plume
- Northeast Plume
- Cylinder Drop Test Area (LasagnaTM)
- Water Policy
- North-South Diversion Ditch Source Control
- North-South Diversion Ditch Sections 1 and 2
- C-746-K Landfill
- Fire Training Area
- Surface Water Interim Corrective Measures
- C-749 Uranium Burial Ground
- C-402 Lime House
- C-405 Incinerator
- GWOU C-400 Electrical Resistance Heating
- D&D OU C-410 Infrastructure Removal



# *Project Details - Northwest Plume*

- Since operations began, the Northwest Plume treatment system had processed 1.3 billion gal of water
- Removed approximately 25,895 pounds (2,216 gal) of TCE at an operation cost of \$251 million
- The operational data and the site inspection indicate that the mechanical components of the remedy are functioning as intended by the ROD.
- Persistent contaminant levels of approximately 100–800  $\mu\text{g/L}$  TCE and 100–400 pCi/L 99Tc in water samples from downgradient Monitoring Wells indicate some dissolved contamination may be bypassing the South Extraction Well Field



# Project Details - Northeast Plume



- Implementation consisted of utilizing process water cooling towers to volatilize TCE
- Since operations began, the Northeast Plume treatment system has processed ~905 million gal of water
- The system has removed ~2,801 pounds (230 gal) of TCE
- TCE concentrations throughout the Northeast Plume have declined so that they are below 1,000 ug/L at Extraction Wells and Monitoring Wells; therefore, the goal of the Northeast Plume System has been achieved.

# *Project Details - Cylinder Drop Test Area (Lasagna™)*

- Remedy consisted of treatment of contaminated soil by the Lasagna™ electro-osmosis technology
- Primary objective was to reduce the concentration of TCE in soil to 5.6 mg/kg or lower
- Remediation completed in 2002 at a cost of \$4M
- Remedy designed to be protective of future groundwater use at the fence line of the facility by meeting the TCE MCL value of 5 ug/L.



*Conclusion: The average residual soil level of TCE around the site is less than one-tenth of the original level calculated to be protective of groundwater in the ROD; therefore, the remedy employed is as protective of drinking water as it was when the ROD was implemented.*

# *Project Details - North-South Diversion Ditch Sections 1 and 2*

- The ditch has been well-maintained; grass was established in the channel, but was not impeding flow. There was no excessive debris over the gabion screens.
- The aboveground piping was in good condition and functioning properly
- NSDD inspections are ongoing as part of the current remediation contractor's scope
- This action is protective of human health and the environment because contaminated soils and sediments were excavated, eliminating the threat of exposure



# Project Details - Surface Water Interim Corrective Measures

- The objectives were :
  - To restrict access by the general public and site personnel to contaminated areas, thus reducing direct exposure;
  - To restrict access by the general public to contaminated areas for recreational uses;
  - To identify contamination areas to the public and site personnel; and
  - To monitor water and sediments as part of the KPDES program.
- The locations of the signs and the wording on them, as well as the fencing remain appropriate.
- Potential users of creeks, ponds, or streams outside the PGDP security fence are warned that contact with contaminated water and sediment may pose potential dangers.
- The monitoring program through the KPDES program still is successful in meeting informational objectives.



# *Issues Considered - 2008 Review*

## Groundwater Operable Unit

**Northwest Plume**—The remedy remains protective, however, the action could be optimized by ascertaining whether the high-concentration core of TCE of the Northwest Plume at the North Extraction Well Field has migrated eastward of the capture zone of the well field.

## Surface Water Operable Unit

**Interim Corrective Measures**—Additional signs were posted as part of another project near the Surface Water ICM signs. Although the content between the two types of signs does not conflict, DOE is considering uniform language for the sign postings.



# *Recommendations and Follow-Up - 2008 Review*

## Groundwater Operable Unit

**Northwest Plume**—Evaluate preferential pumping of high-concentration wells. Assess contaminant trends at the current locations of the core of the downgradient plume.

## Surface Water Operable Unit

**NSDD Section 1 and 2**—Perform a residual risk calculation to determine if the remedy can be optimized (e.g., risks are at a level that would support modification of institutional controls and/or cessation of five-year reviews).

**Interim Corrective Measures**—Evaluate whether ICM signs should be removed or replaced with new signs with language approved for the Environmental Indicator signs.



# *Summary*

**The assessments of this Five-Year Review find that DOE has implemented and operated the remedies in accordance with the requirements of the RODs.**

**All actions remain protective of human health and the environment.**





**DOE Portsmouth/Paducah Project Office**