



March 15, 2012

Chair
Ralph Young

Vice-Chair
Maggie Morgan

Board Members
Glenda Adkisson
Judy Clayton
Robert Coleman
Eddie Edmonds
David M. Franklin
Kyle Henderson
Jonathan Hines
Mike Kemp
Kevin L. Murphy
Dianne O'Brien
Ben Peterson
Elton Priddy
Richard Rushing
Jim Tidwell
Roger Truitt
Ken Wheeler

Student Participant
R. Colby Davis

Board Liaisons
Reinhard Knerr
DOE DDFO

Buz Smith
DOE Federal Coordinator

Todd Mullins
*Division of Waste
Management*

Turpin Ballard
*Environmental Protection
Agency*

Mike Hardin
Fish and Wildlife Resources

Stephanie Brock
Radiation Health Branch

Support Services
EHI Consultants, Inc.
111 Memorial Drive
Paducah, KY 42001
Phone 270.554.3004
Fax 270.554.3248
www.pgdpcab.org
info@pgdpcab.org

Agenda for the March Board Meeting

6:00

Call to order, introductions
Review of agenda

DDFO's Comments

-- 5 minutes

Draft Recommendation on FY14 Budget

-- 25 minutes

Public Comments

-- 15 minutes

Final Comments

-- 5 minutes

Adjourn



PADUCAH GASEOUS DIFFUSION PLANT CITIZENS ADVISORY BOARD

115 Memorial Drive • Paducah, Kentucky 42001 • (270) 554-3004 • info@pgdpcab.org • www.pgdpcab.energy.gov

Paducah Gaseous Diffusion Plant Citizens Advisory Board Meeting Minutes March 15, 2012

The Citizens Advisory Board (CAB) met at the Environmental Information Center (EIC) in Paducah, Kentucky on Thursday, March 15th at 6:00 p.m.

Board members present: Glenda Adkisson; Judy Clayton; Eddie Edmonds; David Franklin; Mike Kemp; Maggie Morgan, Vice-Chair; Kevin L. Murphy; Ben Peterson; Dick Rushing; Jim Tidwell; Ken Wheeler and Ralph Young, Chair.

Board members absent: Robert Coleman; Kyle Henderson; Jonathan Hines; Dianne O'Brien; Elton Priddy; and Roger Truitt.

Student Participant: Colby Davis, absent

Board Liaisons and related regulatory agency employees: Gaye Brewer, Todd Mullins, Kentucky Division of Waste Management (KDWM).

DOE Deputy Designated Federal Official: Reinhard Knerr

DOE Federal Coordinator: Buz Smith

U.S. Department of Energy (DOE) related employees: Eric Roberts, Jim Ethridge, EHI Consultants (EHI); Eddie Spraggs, LATA Kentucky; Don Dihel, DOE.

Public: John Anderson, Tony Graham, Tom Grassham

Introductions

CAB Chair, Young called the meeting to order at 6:00 p.m. **Young** thanked everyone for attendance and called for introductions. **Young** then asked for **Knerr's** comments.

Deputy Designated Federal Official Comments

Knerr thanked everyone for having the meeting to vote on a budget recommendation.

Approved by Ralph Young, Chairman

Ralph Young

Administrative Issues

All presentations are available on <http://www.pgdpcab.energy.gov/2012Meetings.html> .

- **Recommendation 12-03: DOE Funding Priorities for the FY 2014 Budget**

The CAB understands that the DOE budget for the site is composed of three parts. The first part includes projects and/or activities that address Imminent Threats to the site, the environment, and the surrounding community. See the attached Summary Level Scope/Budget Breakdown chart.

The CAB agrees with DOE that there are no imminent threats to human health and the environment requiring budgeted funds for FY2014.

The CAB agrees with the priority of the programs budgeted under Base Operations for \$106.6 million. With the DUF6 Conversion Facility past its start-up phase, the CAB recommends that any new capital or operating funds over and above the FY 2014 Base Operations required for this facility not be part of base operations, but compete for funding against projects listed in the Enforceable Commitments category. DUF6 Conversion Facility investments should also consider return on investment and other criteria similar to a private enterprise.

Given that FY 2014 will be a critical year to ensure that projects continue on track to meet the Enforceable Commitments for FY 2019, the CAB recommends that \$108.8 million be allocated in the FY 2014 request. Meeting the Enforceable Commitments for FY 2019 will be important not only from an environmental standpoint, but also to prepare the site viable for future re-industrialization. Considerable work has already been accomplished related to the burial grounds and soils. That work includes sampling, characterization, and evaluation of engineering alternatives. Remediation of these areas must be accomplished prior to site reuse. Delaying actual remediation will result in higher costs and difficulty in meeting enforceable commitments. Additional funding above the site's target funding level would allow work in these areas to proceed in a consistent manner.

The CAB also recommends that \$9 million in the Remaining Work category be included in the FY 2014 budget request and allocated towards accelerated decontamination and decommissioning as well as environmental restoration. This funding will ensure that DOE continues the momentum built over the last two years and retention of a trained workforce. Accelerating these activities will be important to demonstrate DOE's commitment to the community and for re-industrialization. Additional funding is necessary to allow the site to meet 2019 enforceable commitments with some of the more complex projects. In addition, the site has spent much time and money acquiring a trained, capable workforce. Additional

funding will ensure this workforce is utilized fully and future funding is not wasted retraining a new workforce.

Young thanked everyone for their input on the budget recommendation. **Young** then reviews the proposed budget with Board members, explaining different sections and how much was proposed for each section. **Young** suggests that any new capital above Base Operations for the DUF6 Conversion Facility be put into the Enforceable Commitments category to compete for additional funding if needed.

Morgan: Over and above the fiscal year 2014 base operations for this facility (DUF6), to make it more clear that you're not talking about all the money for all base operations, you're saying no extra money.	Young: OK.
Wheeler: Under the enforceable commitments, the \$36 million, is that the current budget?	Knerr: The \$38 million, you add that to the \$106 million under base operations and that should equal \$145 million, and that was the target we were using.

Young continued to explain the different areas of the proposed budget. **Young** also commented that the recommendation was reviewed by EPA and Kentucky state regulators and they were agreeable with the recommendation.

Morgan: Can you give us specific examples of projects that would be included in remaining work. What projects would that money be used for?	Knerr: Specific examples for that would include tearing down the 746-A and B warehouse, there's another building, 728, which used to be a vehicle maintenance facility. With additional dollars we could accelerate some of the environmental restoration activities, the soils remediation, and the burial grounds.
Morgan: If you use some of it for those activities it is going to help you meet your 2019 target goals?	Knerr: Yes, but also at the end of fiscal year 13, the D&D work that's enforceable will be completed.
Kemp: Is it a true statement that if there is no additional funding applied to the burial grounds and soils in FY 14, that you cannot meet the enforceable milestone in 2019?	Knerr: Yes.

Roberts pointed out that the idea is to get a consensus on the recommendation that minor edits could be made before the recommendation is submitted. **Young** asked for a motion on the recommendation. **Wheeler** made the motion and **Franklin** seconded it. There was no public comment on the recommendation. The recommendation was voted on and unanimously approved.

MOTION APPROVED

Young turned the floor over to **Roberts** for a presentation on the Board's Ipad Initiative.

Public Comments

There were no public comments.

Young asked for any further comments. There being no further business, the meeting adjourned at 6:47 p.m.



Paducah Citizens Advisory Board

"working for the future"

111 Memorial Drive
Paducah, Kentucky 42001
(270) 554-3004

Recommendation 12-03: DOE Funding Priorities for the FY 2014 Budget

Drafted: March 12, 2012

Revision 5: March 15, 2012

Background

The budgeting process for DOE activities at the Paducah Gaseous Diffusion Plant (PGDP) starts two years before the level of funding is actually appropriated and approved by Congress. Given that DOE embargoes access to the budget for most of the intervening time, the window of opportunity for the CAB to make budget recommendations is small. The window of opportunity for the CAB to make recommendations for the FY 2014 budget is open until March 29, 2012.

Because the CAB does not have detailed funding amounts by project and account, recommendations will focus on budget priorities and amounts for the major segments. Total projected funding for FY 2014 is \$145 million.

Recommendation

The CAB understands that the DOE budget for the site is composed of three parts. The first part includes projects and/or activities that address *Imminent Threats* to the site, the environment, and the surrounding community. See the attached Summary Level Scope/Budget Breakdown chart.

The CAB agrees with DOE that there are no imminent threats to human health and the environment requiring budgeted funds for FY2014.

The CAB agrees with the priority of the programs budgeted under *Base Operations* for \$106.6 million. With the DUF6 Conversion Facility past its start-up phase, the CAB recommends that any new capital or operating funds over and above the FY 2014 Base Operations required for this facility not be part of base operations, but compete for funding against projects listed in the Enforceable Commitments category. DUF6 Conversion Facility investments should also consider return on investment and other criteria similar to a private enterprise.

Given that FY 2014 will be a critical year to ensure that projects continue on track to meet the Enforceable Commitments for FY 2019, the CAB recommends that \$108.8 million be allocated in the FY 2014 request. Meeting the Enforceable Commitments for FY 2019 will be important not only from an environmental standpoint, but also to prepare the site viable for future re-industrialization. Considerable work has already been accomplished related to the burial grounds and soils. That work includes sampling, characterization, and evaluation of engineering alternatives. Remediation of these areas must be accomplished prior to site reuse. Delaying actual remediation will result in higher costs and difficulty in meeting enforceable commitments. Additional funding above the site's target funding level would allow work in these areas to proceed in a consistent manner.

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The CAB also recommends that \$9 million in the *Remaining Work* category be included in the FY 2014 budget request and allocated towards accelerated decontamination and decommissioning as well as environmental restoration. This funding will ensure that DOE continues the momentum built over the last two years and retention of a trained workforce. Accelerating these activities will be important to demonstrate DOE's commitment to the community and for re-industrialization. Additional funding is necessary to allow the site to meet 2019 enforceable commitments with some of the more complex projects. In addition, the site has spent much time and money acquiring a trained, capable workforce. Additional funding will ensure this workforce is utilized fully and future funding is not wasted retraining a new workforce.

Summary Level Scope/Budget Breakdown

PADUCAH INTEGRATED PRIORITY LIST

1. IMMINENT THREATS		
FY 12 - \$0	FY 13 - \$0	FY 14 - \$0
No activities at Paducah currently are identified in this category	No activities at Paducah currently are identified in this category	No activities at Paducah currently are identified in this category
2. BASE OPERATIONS		
FY 12 - \$122,000K	FY 13 - \$120,076K (Actual - \$101,866)	FY 14 - \$106,648K
Security	Security	Security
UF ₆ Cylinder Maintenance	UF ₆ Cylinder Maintenance	UF ₆ Cylinder Maintenance
DUF ₆ Conversion Facility	DUF ₆ Conversion Facility	DUF ₆ Conversion Facility
Waste Operation	Waste Operation	Waste Operation
Surveillance and Maintenance	Surveillance and Maintenance	Surveillance and Maintenance
DOE Directs	DOE Directs	DOE Directs
Grants	Grants	Grants
3. ENFORCEABLE COMMITMENTS		
FY 12 - \$21,769K	FY 13 - \$24,924K (Actual - \$40,613)	FY 14 - \$38,352K -\$108,852
3.1 Federal Facilities Agreement	3.1 Federal Facilities Agreement	3.1 Federal Facilities Agreement
C-400 Action	C-400 Action	C-400 Action
Southwest Plume Sources	C-340 D&D	Southwest Plume Sources
CERCLA Waste Disposal	C-410 D&D	CERCLA Waste Disposal Options
Burial Grounds	C-410 D&D	CERCLA Waste Disposal Options
Groundwater Northeast Plume Optimization	CERCLA Waste Disposal	Burial Grounds
Dissolved Phase Plumes	Southwest Plume Sources	Soils Remedial
Soils Remedial	Groundwater Northeast Plume Optimization	Groundwater Dissolved-Phase Plumes
Surface Water Remedial	Burial Grounds	Surface Water Remedial
C-410 D&D	Dissolved-Phase Plumes	
C-340 D&D	Surface Water Remedial	
	Soils Remedial	
3.2 Site Treatment Plan	3.2 Site Treatment Plan	3.2 Site Treatment Plan
3.3 TSCA FFCA Wastes	3.3 TSCA FFCA Wastes	3.3 TSCA FFCA Wastes
4 Remaining Work		
FY 12 - \$0	FY 13 - \$0	FY 14 - \$0 - \$9,000 -\$9,000
	Accelerated Decontamination and Decommissioning	Accelerated Decontamination and Decommissioning
	Accelerated Environmental Restoration	Accelerated Environmental Restoration

Note: FY 13 Integrated Priority Lists aligns with the FY 13 President's request

**Resolution Agreement of the Formal Dispute
for the D2 Feasibility Study for the Burial Grounds Operable Unit at the Paducah
Gaseous Diffusion Plant, Paducah, Kentucky
(DOE/LX/07-0130&D2)**

BACKGROUND

In accordance with Section XX.I. of the Federal Facility Agreement (FFA) for the Paducah Gaseous Diffusion Plant (PGDP), the U.S. Environmental Protection Agency, Region 4 and the Kentucky Division of Waste Management (KDWM) disapproved the D2 Feasibility Study (FS) for the Burial Grounds Operable Unit (BGOU) [DOE/LX/07-0130&D2] and invoked informal dispute as well as jointly provided 116 comments that served as conditions that must be addressed before they could approve a revised FS. The Parties conducted a period of informal dispute under Section XXV.A. of the FFA between January 14, 2011, and September 26, 2011. During this informal dispute resolution period, the Parties reached mutually acceptable resolution on the majority of concerns raised by EPA and KDWM in their comments. However, the Parties were unable to resolve informally the EPA and KDWM comments related to documentation in the FS of the presence of principal threat waste (PTW) at solid waste management units (SWMUs) 2, 4, and 7.

On September 27, 2011, EPA elevated this remaining disputed matter for resolution by the Dispute Resolution Committee (DRC) through the FFA's formal dispute process and issued a written statement of dispute (SOD) in accordance with FFA Section XXV.B. The SOD set forth EPA's position with respect to identification in the FS of PTW in SWMUs 2, 4, and 7 in consideration of the CERCLA Section 121(b)(1) provisions, the National Contingency Plan (NCP) requirements, and Agency's expectation to treat principal threat wastes, wherever practicable. The SOD included EPA's basis for identifying the source materials at SWMUs 2, 4, and 7 as PTW in consideration of EPA guidance such as the Superfund Publication 9380.3-06FS, *A Guide to Principal Threat and Low-Level Threat Wastes* as well as historical information provided in the administrative record file documents on the types of disposed wastes and nature and extent of contamination.

On October 17, 2011, the DRC representatives held a teleconference to discuss the disputed matter. The DRC was not able to unanimously resolve the dispute, and EPA and KDWM issued a joint decision (DRC Decision) on October 25, 2011. Although SWMU 3 was not included in EPA's January 14, 2011 non-concurrence letter invoking dispute, the DRC Decision provided additional rationale for classifying the uranium waste as PTW and required the BGOU FS to document it as such. On November 4, 2011, DOE issued a letter of disagreement with the DRC Decision and requested elevation of the dispute to the Senior Executive Committee (SEC) in accordance with Section XXV.B.3 of the FFA. The SEC discussed the dispute in the course of several telephone calls and subsequently met on January 30, 2012. The SEC successfully resolved the formal dispute and reached unanimous decision regarding PTW determinations in SWMUs 2, 3, 4, and 7 that will be included in BGOU FS and related CERCLA documents. The terms of the dispute resolution agreement (DRA) are set forth below.

BGOU PTW DETERMINATIONS

SWMU 4

- The FS for SWMU 4 will identify the TCE dense, non-aqueous phase liquids (DNAPL) and high concentration TCE in soils as PTW.
- The FS for SWMU 4 will document that SWMU 4 is a primary source of TCE contamination to the Southwest Plume.
- Prior to the dispute, the FFA parties agreed to conduct additional remedial investigation (RI) to better delineate the extent of TCE. *Addendum to the Work Plan for the Burial Grounds Operable Unit Remedial Investigation and Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, SWMU 4 Sampling and Analysis Plan (DOE/OR/07-2179&D2/A2)* has been submitted by DOE to EPA and KDWM for review and approval. Results of the investigation will be documented in an addendum to the BGOU RI Report and a revised FS for SWMU 4.
- The Parties recognize the potential for high concentration uranium waste to be present at SWMU 4 (possibly in the form of sludge) that was intended for disposal at SWMU 3 based upon site history and process knowledge.
- The record is inconclusive as to whether the uranium present in SWMU 4 constitutes PTW. As noted above, additional investigation has been agreed to, the scope of which includes determining the nature and extent of uranium contamination. The PTW determination will be made after evaluation of the results of the investigation and documented in the addendum to the RI Report. As stated below, DOE will initiate the investigation field work no later than September 30, 2012.

SWMU 3

- The FS for SWMU 3 will identify the estimated 3,200 tons of bulk uranium disposed in the former surface impoundment at SWMU 3 to be PTW.
- There are contradictory statements in the historical records regarding the potential presence of pyrophoric uranium in SWMU 3. The FS for SWMU 3 will acknowledge it is inconclusive as to whether pyrophoric uranium is present in SWMU 3.

SWMU 2

- The FS for SWMU 2 will identify the following as PTW:
 - the estimated 270 tons of uranium (e.g., shavings and sawdust packed in oil) disposed in burial pits in SWMU 2,
 - buried drums of uranium-contaminated TCE and any high soil concentrations of TCE present under and adjacent to the drums,

- buried drums (thirty-five 30-gallon drums documented) of uranyl fluoride solution and high soil concentrations of uranyl fluoride solution present under and adjacent to the drums, and
 - high concentrations of TCE and cis-1,2 dichloroethene (a toxic degradation product of TCE) in soil on the eastern side of SWMU 2.
- The FS for SWMU 2 will state that there is the potential that the 59,000 gallons of oil with which the uranium was packaged in drums contains PCBs at concentrations greater than 500 ppm considering sample results of 7900 ppm PCB from a drum excavated from SWMU 2. The drum came from Area 9 and contained TCE sludge as well as uranium contamination which suggests that it is likely not from the same waste stream as the pyrophoric uranium. The FS for SWMU 2 will state that under EPA guidance, PCBs greater than 500 ppm are generally considered PTW. Parties acknowledge that absent additional characterization (sampling and analysis) of the buried waste, it is uncertain whether PCBs are widely present in SWMU 2 at levels greater than 500 ppm. Notwithstanding the uncertainty, the FS will state that the 59,000 gallons of oil could contain PCBs in excess of 500 ppm and thus be considered PTW.

SWMU 7

- The FS for SWMU 7 will document that TCE (including degradation products) is present in Upper Continental Recharge System as DNAPL and/or high-concentration TCE residual soil contamination and constitute PTW.
- The FS for SWMU7 will document analytical results of waste in drums removed from TP-5 area of SWMU 7 during the 1992 site investigation and if results support, declare the waste PTW.

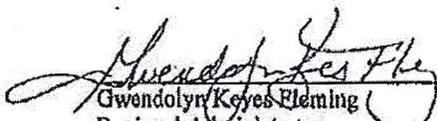
RELATED DECISIONS

- The resolution of 109 comments/conditions (as documented in DOE's February 2, 2012, letter to KDWM and EPA) that was achieved by the FFA parties during the informal dispute period is incorporated by reference into the DRA and will be addressed in the respective BGOU FSs as applicable. For those responses for which specific replacement language was not agreed to by the FFA parties, DOE will make its best effort to incorporate the path forward as agreed. If during FS development, DOE believes that changes or deviations to comment resolution are warranted, DOE will gain agreement from KDWM and EPA prior to effecting changes.
- The Parties agree to the schedule below for submittal of the following BGOU documents.
 - 04/29/12 – Revised BGOU FS for SWMUs 2, 3, 7 and 30 (90 days for EPA and KDWM review and comment as a D1 document in accordance with the FFA)
 - 02/29/12 – Revised (D2/R1) FS for SWMUs 5 & 6 (review and comment as a D2 document in accordance with the FFA)

- o 05/31/12 – D1 Proposed Plan for SWMUs 5 & 6
 - o 10/30/12 – D1 Record of Decision for SWMUs 5 & 6
 - o 09/30/12 – Field start for additional investigation of SWMU 4 (mobilization documented by letter to EPA and KDWM)
- Additional milestones and target dates for the BGOU project documents (e.g., RI Addendum and revised FS for SWMU 4, etc.) will be included in the revised FY 12 Site Management Plan in accordance with PGDP FFA Section XVIII, to be submitted by DOE for review and approval by EPA and KDWM.

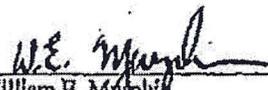
Nothing in this DRA shall prevent any of the Parties from disputing under the FFA, any other matters related to the aforementioned projects. Nor does the DRA modify the terms and conditions of the FFA (e.g., related to review and comment on Primary Documents, Extension Requests and Dispute Resolution) except as specifically stated above. Failure to abide by the terms of the DRA may result in one or more of the Parties taking any action authorized under the FFA.

The undersigned agree that the formal dispute invoked on September 26, 2011, is hereby resolved by this Decision.



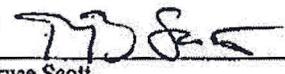
 Gwendolyn Keyes Fleming
 Regional Administrator
 U.S. Environmental Protection Agency, Region 4

2/10/12
 Date



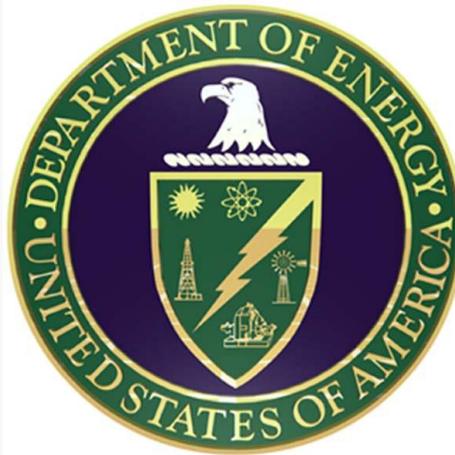
 William E. Macphail
 Manager
 DOE Portsmouth/Paducah Project Office

2/10/12
 Date



 Bruce Scott
 Commissioner
 Kentucky Department for Environmental Protection

2/10/12
 Date



Authorized Limits: Current Status

Prepared by:

Rich Bonczek and Don Dihel (DOE)

Orville Cypret (PRC)

What are Authorized Limits?

- Authorized limits is a level of residual radioactive material that shall not be exceeded if the remedial action is to be considered completed and the property is to be released without restrictions on use due to residual radioactive material.
- The basic public dose limits for exposure to residual radioactive material from all sources, in addition to natural occurring “background” exposures, are 100 mrem per year. (10 CFR 835)

Why are Authorized Limits being Discussed?

- Discuss the reason for changing the Authorized Limits and the approval of the new limits for C-746-U Landfill.
- Discuss development and implementation of new Authorized Limits.

Authorized Limits

- General Information:
 - Regulatory authority for Authorized Limits is promulgated in DOE O 5400.5 IV.4 (and DOE Order 458.1).
 - Authorized Limits apply to radioactive material on or within material, equipment, and property which is approved for release by PPPO for disposal at C-746-U Landfill.
 - Since the Authorized Limits were <1 mrem per year, limits approved by a PPPO Manager in consultation with the Chief Health, Safety and Security Officer.
 - New Authorized Limits became effective on November, 1, 2011.

Guidance and Reference Documents

- Guidance Documents for developing Authorized Limits:
 - DOE Order 5400.5, *Radiation Protection of the Public and the Environment* (currently in LATA's contract)
 - DOE Order 458.1, *Radiation Protection of the Public and the Environment* (Replaces O 5400.5)
 - DOE Standard 5506-99, *Guide to Good Practice for Establishing Authorized Limits for the Release of Waste Containing Residual Radioactivity*

Landfill Characteristics

- Total landfill permitted area \approx 59 acres
- 22 of the 59 acres are currently designated to be developed for waste disposal
- Potential disposal capacity \approx 1,200,000 M³
- Construction of the facility and emplacement of wastes is proceeding from the southern end toward the northern end of the landfill

Waste Streams Allowed

- Soil and debris generated from construction, maintenance, environmental restoration, and decontamination and D&D activities
- Scrap metal and other surface contaminated materials

Same as previous AL basis.

Guidance Used To Evaluate Waste Streams

- Release decision-making process is guided by:
 - Multi-Agency Radiation Surveys and Site Investigation Manual (MARSSIM)
 - Multi-Agency Survey and Assessment of Materials and Equipment Manual (MARSAME)

Note: Jointly prepared and endorsed by DOE, EPA, & NRC. These documents provide guidance on how to demonstrate that activities at a site are in compliance with applicable release criteria.

Previous Authorized Limits

- Landfill Authorized Limits were approved by DOE ORO on February 6, 2003
 - Applied to disposal of soil and debris wastes generated from construction, maintenance, environmental restoration, and D&D activities in PGDP C-746-U landfill
 - Authorized Limits projected disposal volume estimates for 7 years' operation
 - Disposal Volume Estimates:
 - 11,795 M³ first year
 - 5000 M³ annually for years 2-7

Allowed Total Activity* in the Landfill under Previous AL

Isotope	Activity (Ci)
Total U	8.777
Tc-99	29.256
Thorium	0.877
Np-237	0.175
Pu-238	0.175
Pu-239/240	0.175
Am-241	0.175
Cs-138	0.175

- Limits did not include entire landfill.
- New limits will be discuss later and are on slide 21.

Outside Review of Authorized Limits

- The DOE-HQ evaluated the current Authorized Limits and tracking system in October, 2008.
- Conclusion of Authorized Limits evaluation
 - PPPO checks the activity by radionuclide being disposed and compares it against annual caps and the overall AL limits.
 - PPPO receives and analyzes weekly and monthly waste stream disposal reports from LATA.
 - On-going authorized limits disposal waste streams are well tracked.

Why New ALs for C-746-U

- Existing Authorized Limits need to be closed and new Authorized Limits need to be developed, approved, and implemented.
 - Current Authorized Limits based on projected PGDP work activities in 2002.
 - ARRA has expedited D&D Work at PGDP.
 - the baseline has been accelerated throughout the site.
 - Landfill area needs to be expanded due to the expedited work.

Dose Assessment – Basis for New AL

- DOE evaluated public and occupational dose by 2 computer models: RESRAD & RESRAD-OFFSITE.

Note : RESRAD and RESRAD-OFFSITE are recognized and used nationally (by EPA and NRC and other government agencies) and internationally.

New Authorized Limit Evaluation

- ORISE has been awarded the contract to perform new Authorized Limits evaluation.
- ORISE is a nationally recognized expert in radiation protection.
- ORISE will use the latest versions of RESRAD and RESRAD OFFSITE to model exposure pathways.
- ORISE will be developing Authorized Limits for PGDP wildlife areas and the C-746-U landfill.

Major Exposure Pathway per RESRAD

- Drinking water ingestion is the limiting exposure pathway per RESRAD (subsistence farmer)
 - This condition is estimated to occur ~9 years post-closure (based on no leachate treatment).
 - This scenario is considered implausible due to deed restrictions.

Projected Waste Volumes

Table 1. Projected Waste For Next 10 Years⁽¹⁾

Year	Volume of Non-Hazardous Waste (ft³)	Volume of Residual Radioactive Waste below Current AL (ft³)	Additional Volume of Residual Radioactive Waste (ft³)
FY 2011	85,980	174,568	102,374
FY 2012	107,668	218,599	57,795
FY 2013	227,052	460,986	135,028
FY 2014	1,016,752	2,064,315	1,062,128
FY 2015	426,712	866,356	832,017
FY 2016	554,028	1,124,846	835,641
FY 2017	302,828	614,833	731,359
FY 2018	3,869	7,854	13,245
FY 2019	4,314	8,759	13,245
FY 2020	3,869	7,854	13,245
Total	2,733,072	5,548,970	3,796,077

Results of Dose Assessment

- Occupational dose projected by RESRAD
 - Total annual maximum projected TED was 4.04 mrem/year
 - Workers are monitored
 - Workers are legally allowed 5000 mrem/yr
 - No detectable exposure to workers has been observed from PGDP activities

- Dose **projected** by RESRAD-OFFSITE
 - Occupational (Maximum) – 0.02 mrem/year
 - Resident (Maximum) – 0.06 mrem/year
 - Subsistence Farmer (Maximum and ultra conservative) – 88.7 mrem/year

Agencies Reviewing AL

- Agencies that reviewed the new Authorized Limits:
 - US Environmental Protection Agency (EPA)
 - Commonwealth of Kentucky (KYEPA)
 - DOE Office of Health, Safety, and Security (HSS)
 - DOE Office of Environmental Monitoring (EM)

Maximum Projected Dose

- Worst case projected dose, ultra-conservative, is to a farmer residing on top of the landfill, growing crops and raising livestock for consumption.
- In this case, the maximum projected annual dose is 88.7 mrem if all controls fail. This is less than the annual public dose limit of 100 mrem/year accepted by the EPA.

Previous and New Limits

Radionuclide	Current AL Concentration (pCi/g)	ORISE Proposed Single Radionuclide Soil Guideline (pCi/g)*	PPPO Volumetric Concentration Limits (pCi/g)
²⁴¹ Am	3	3500	35
¹³⁷ Cs	3	190	19
²³⁷ Np	3	550	5.5
²³⁸ Pu	3	3900	39
²³⁹ Pu	3	3600	36
²⁴⁰ Pu	3	3600	36
⁹⁹ Tc	500	100	52
²²⁸ Th	15	73	8
²³⁰ Th		1600	200
²³² Th		40	8
²³⁴ U	150	18000	160
²³⁵ U		820	6.5
²³⁸ U		3200	160

*ORISE uses Sum of the fractions

Benefits of New Authorized Limits

- Cleanup costs and occupational radiation exposure will be less.
- Less material will be shipped to Nevada for burial saving disposal cost and transportation cost.
- Will not significantly increase exposure to general public around landfill.
- Will increase remediation and cleanup of site.

Review and Approval

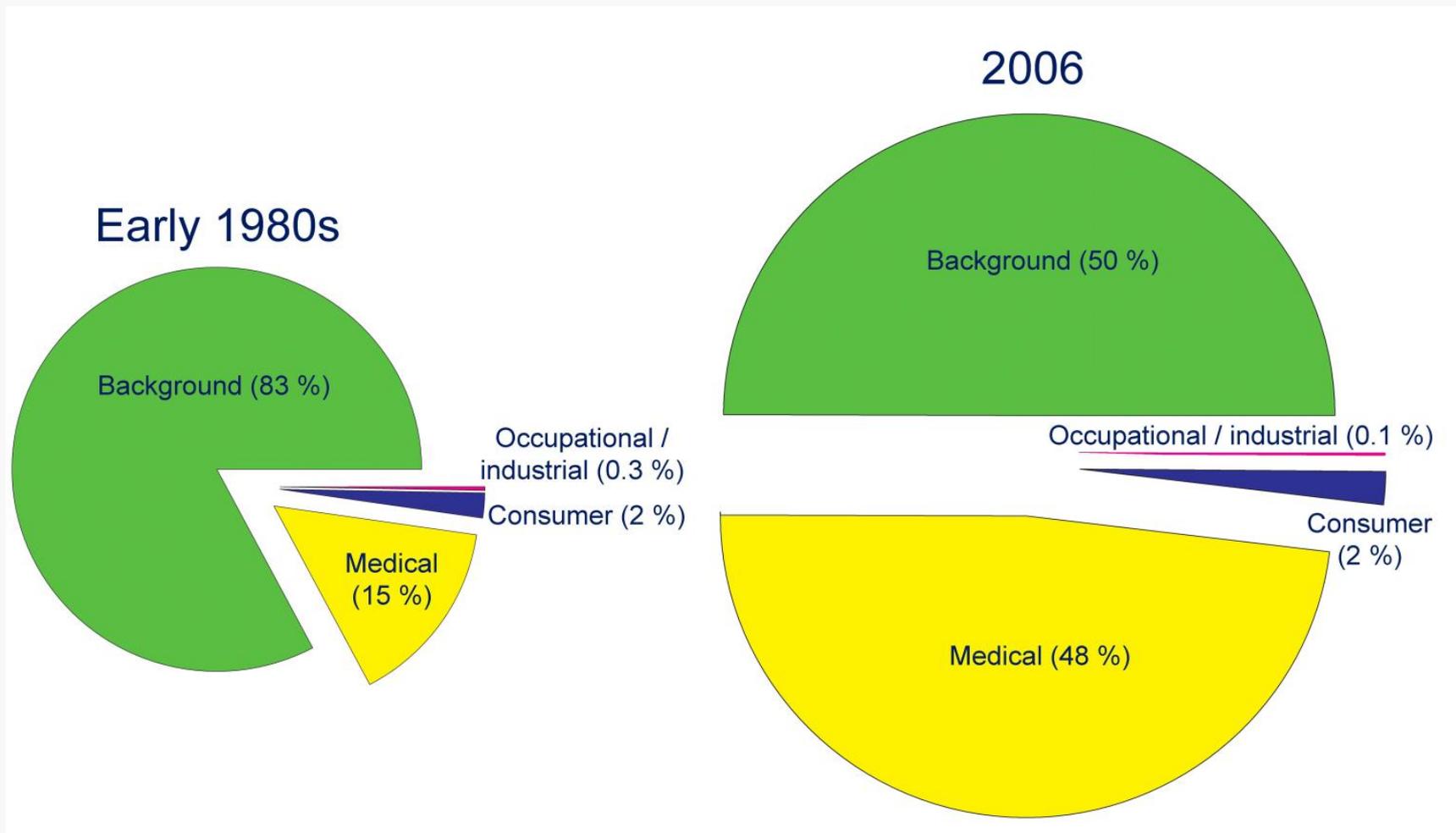
- As with the current Authorized Limits, the USEPA and the Commonwealth of Kentucky will have the opportunity to review the new Authorized Limits.
- Since exposure limit will be set at < 1 mrem per year, the new Authorized Limits will be approved by the PPPO Manager in consultation with the Chief Health, Safety and Security Officer .

Reference Slides

Natural Background Radiation

Radiation Category	Annual Radiation Dose (NCRP 160)
Background	311 mrem
Medical	300 mrem
Consumer Products	1.3 mrem
Industrial Products, Security, Educational and research	0.3 mrem
Occupational	0.5 mrem
Total Annual dose from natural background radiation (rounded)	620 mrem

NCRP 160 Dose Distribution



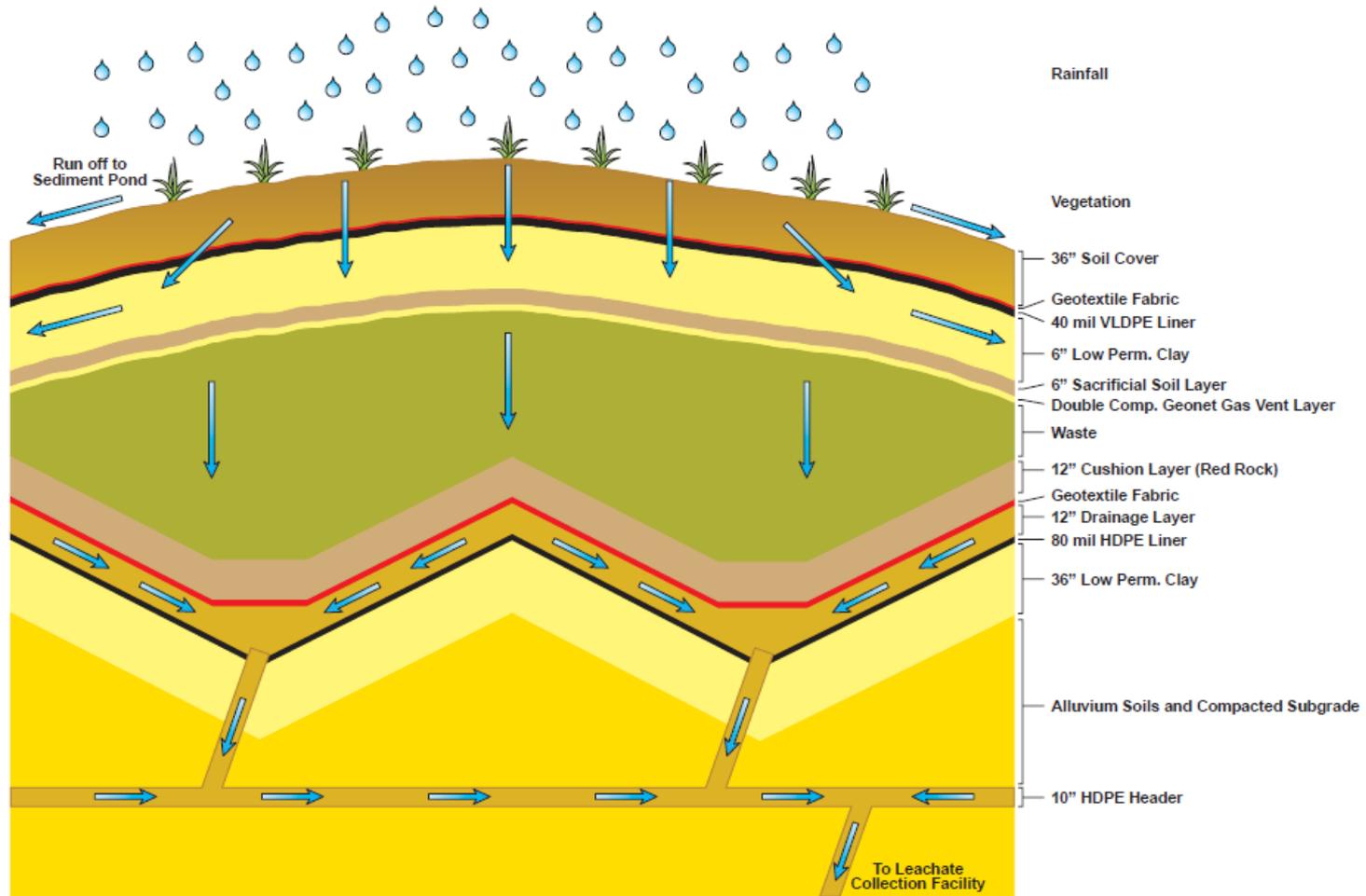
Plausible Scenario Dose Summary

Scenario	Time Period	Peak Dose (mrem/yr)	Time of Peak Dose (year)	Dose Limit
DOE Landfill Worker	Operational Period	32	70	100
DOE Landfill Worker	Institutional Control Period	0.0026	70	100
DOE Excavation Worker	Institutional Control Period	10	70	100
Outdoor Worker	Post-Institutional Control Period	.0026	1050	1
Recreational User	Post-Institutional Control Period	.0012	1050	1
Off-Site Residential Farmer	All Periods	.98	1050	1

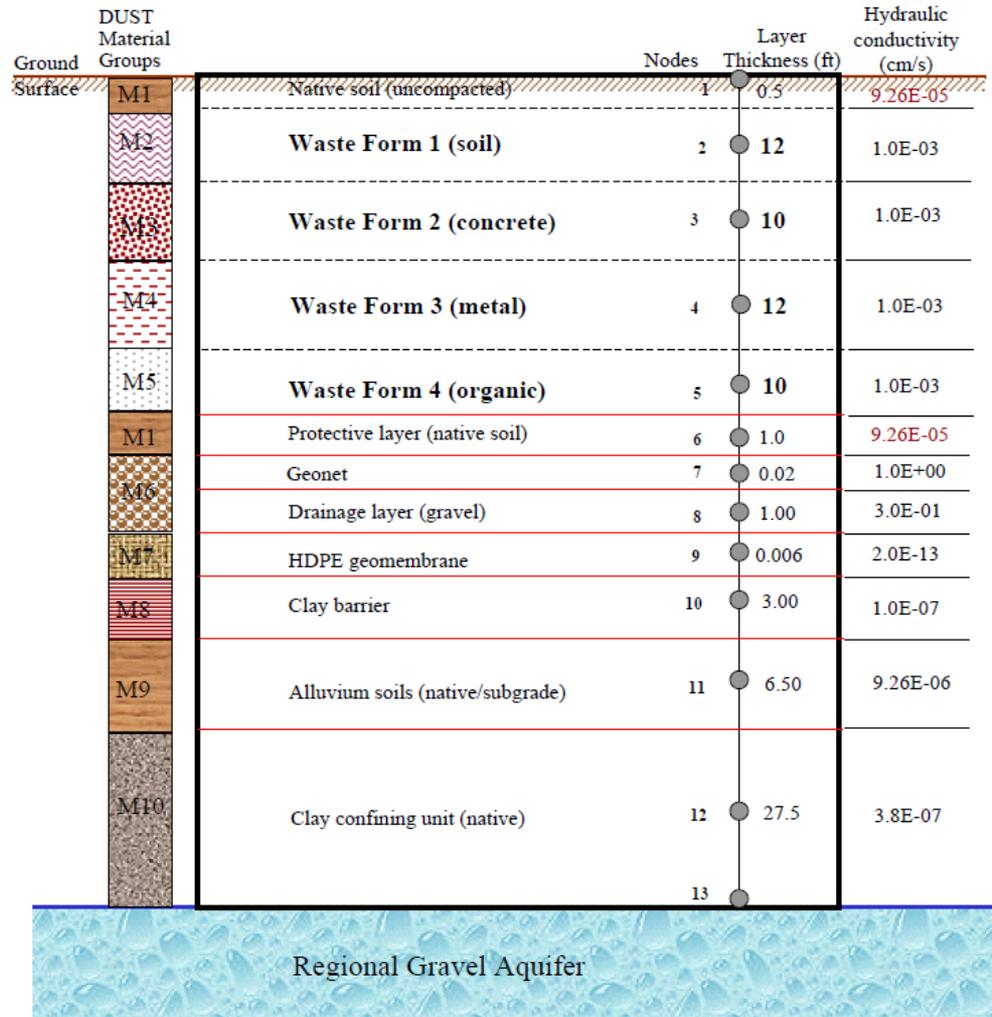
Implausible Scenario Dose Summary

Scenario	Time Period	Peak Dose (mrem/yr)	Time of Peak Dose (year)	Dose Limit
DOE Landfill Worker	Operational Period	64 ⁽¹⁾	70	100
Trespasser	Operational Period	2.1	70	100
Trespasser	Operational Period	4.2 ⁽¹⁾	70	100
DOE Excavation Worker	Institutional Control Period	21 ⁽¹⁾	70	100
Trespasser	Institutional Control Period	10	70	100
Trespasser	Institutional Control Period	21 ⁽¹⁾	70	100
Excavation Worker	Post-Institutional Control Period	10	70	100
Excavation Worker	Post-Institutional Control Period	21 ⁽¹⁾	70	100
On-Site Residential Gardener	Post-Institutional Control Period	6.8	1050	100
On-Site Residential Farmer	Post-Institutional Control Period	21	425	100

C-746-U Landfill Cross-Section

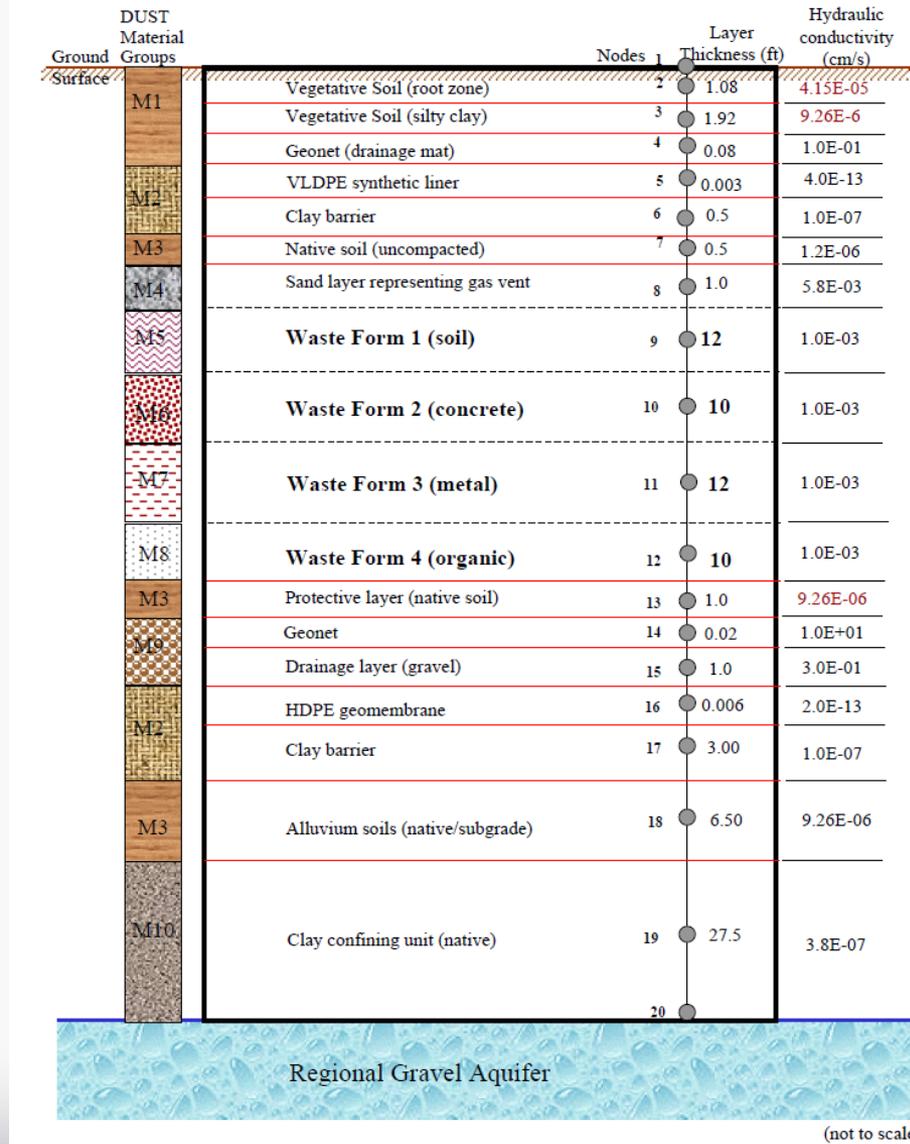


Operational Model of C-746-U Landfill



(not to scale)

Closure Model of C-746-U Landfill



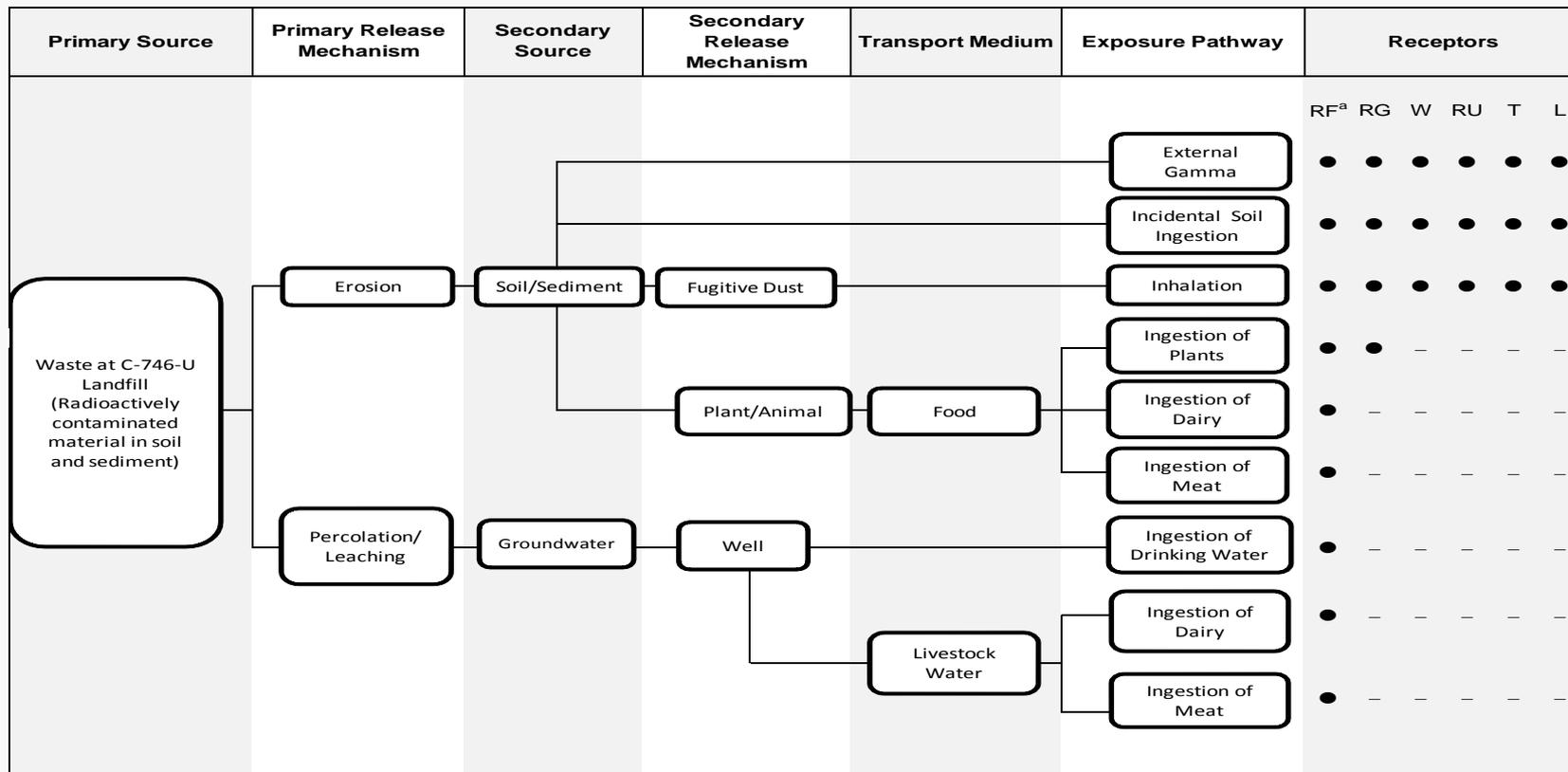
Status under old ALs

Isotope	% of AL
Am-241	3.59%
Cs-137	5.53%
Np-237	6.81%
Pu-238	0.75%
Pu-239/240	7.67%
Tc-99	3.46%
Total Thorium	37.25%
Total Uranium	6.41%

Comparison of Chosen Levels

Isotope	PPPO Authorized Limits (pCi/g)	ANSI/HPS 13.12N Cleanup Guidelines (pCi/g)	DOE Site Cleanup Levels (pCi/g)
Am-241	35	3	
Cs-137	19	30	31-120
Np-237	5.5	3	20
Pu-238	39	3	30-1100
Pu-239	36	3	34
Pu-240	36	3	34
Tc-99	52	3000	15
Th-228	8	3	15-50
Th-230	200	3	15
Th-232	8	3	15
U-234	160	30	30-5400
U-235	6.5	30	13-1100
U-238	160	30	35-5400

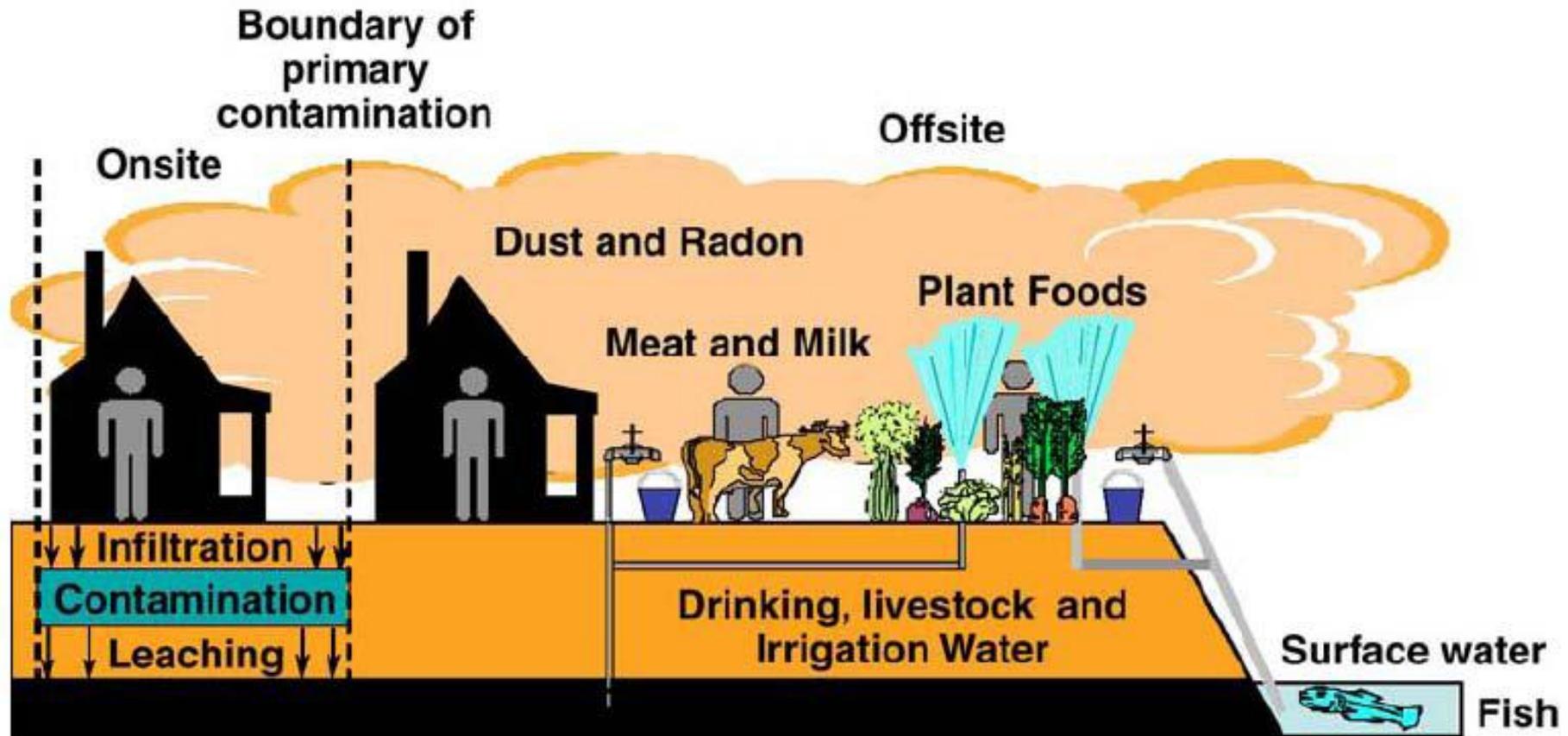
Conceptual Site Model for the PGDP C-746-U Landfill



^a For the offsite scenario, only the Resident Farmer is considered.

- RF= Resident Farmer
- RG= Resident Gardener
- L= Landfill Worker
- T= Trespasser
- W= Outdoor Worker
- RU= Teen Recreational User
- Complete Exposure Pathway
- Incomplete Pathway

Graphical Representation of Conceptual Site Model for the PGDP C-746-U Landfill



Disposal Cost without Using ALs

Year	Volume of Waste that is disposed offsite due to being above DOE O 5400.5 limits (ft ³)	Cost of disposal to Clive, UT using low side gondola (\$22.73/ ft ³)	Cost of disposal to Clive, UT using trucks (\$30.79 / ft ³)
FY2011	276,942	\$6,294,891.66	\$8,527,044.18
FY2012	276,394	\$6,282,435.62	\$8,510,171.26
FY2013	596,014	\$13,547,398.22	\$18,351,271.06
FY2014	3,126,443	\$71,064,049.39	\$96,263,179.97
FY2015	1,698,373	\$38,604,018.29	\$52,292,904.67
FY2016	1,960,487	\$44,561,869.51	\$60,363,394.73
FY2017	1,346,192	\$30,598,944.16	\$41,449,251.68
FY2018	21,099	\$479,580.27	\$649,638.21
FY2019	22,004	\$500,150.92	\$677,503.16
FY2020	21,099	\$479,580.27	\$649,638.21
Total	9,345,047	\$212,412,918.31	\$287,733,997.13

Disposal Costs Using Current ALs

Year	Volume of Waste that cannot be disposed in C-746-U that is above current ALs	Cost of disposal to Clive, UT using low side gondola (\$22.73/ ft ³)	Cost of disposal to Clive, UT using trucks (\$30.79 / ft ³)
FY2011	102,374	\$2,326,961.02	\$3,152,095.46
FY2012	57,795	\$1,313,680.35	\$1,779,508.05
FY2013	135,028	\$3,069,186.44	\$4,157,512.12
FY2014	1,062,128	\$24,142,169.44	\$32,702,921.12
FY2015	832,017	\$18,911,746.41	\$25,617,803.43
FY2016	835,641	\$18,994,119.93	\$25,729,386.39
FY2017	731,359	\$16,623,790.07	\$22,518,543.61
FY2018	13,245	\$301,058.85	\$407,813.55
FY2019	13,245	\$301,058.85	\$407,813.55
FY2020	13,245	\$301,058.85	\$407,813.55
Total	3,796,077	\$86,284,830.21	\$116,881,210.83

Disposal Costs Using New ALs

Year	Volume of Waste that cannot be disposed in C-746-U above proposed ALs (ft ³)	Cost of disposal to Clive, UT using low side gondola (\$22.73/ ft ³)	Cost of disposal to Clive, UT using trucks (\$30.79 / ft ³)
FY2011	20,475	\$465,392.20	\$630,419.09
FY2012	11,559	\$262,736.07	\$355,901.61
FY2013	27,006	\$613,837.29	\$831,502.42
FY2014	212,426	\$4,828,433.89	\$6,540,584.22
FY2015	83,202	\$1,891,174.64	\$2,561,780.34
FY2016	167,128	\$3,798,823.99	\$5,145,877.28
FY2017	146,272	\$3,324,758.01	\$4,503,708.72
FY2018	2,649	\$60,211.77	\$81,562.71
FY2019	2,649	\$60,211.77	\$81,562.71
FY2020	2,649	\$60,211.77	\$81,562.71
Total	676,014	\$15,365,791.40	\$20,814,461.82

ALARA Analysis

Factor	Disposal Cost of Alternative		
	Alternative 1	Alternative 2	Alternative 3
Quantitative			
Shipping cost (average per year)	\$25.00	\$10.20	\$2.04
Dose - worker (a)	\$0.03	\$0.01	\$0.01
Dose - general public (a)	\$.001	\$.001	\$0.00
Totals	\$25.04	\$10.22	\$2.05
Qualitative (b)			
Worker Safety and Transportation	-	+	+
Regulatory	~	~	~
Ecological	~	~	~
Public	-	-	-

(a) Dose evaluated at \$10,000 per person-rem, rounded to one significant figure.

(b) Qualitative results are designated as positive (+), negative (-), or neutral (~).

Alternative 1 - In this Alternative, all waste above the 5400.5 limits is sent offsite.

Alternative 2 - In this Alternative, waste with residual radioactive above the old ALs is sent offsite to a LLW repository.

Alternative 3 - In this Alternative, waste with residual radioactive above the new ALs is sent offsite to a LLW repository.

Annual Dose For ALARA Review

Exposure Source	Isotope of Concern	Alternative		
		1	2	3
		Ship waste offsite	Use current ALs	Use Proposed ALs
Waste packaging	All isotopes	<100 mrem per radiation worker	<100 mrem per radiation worker	<100 mrem per radiation worker
Transportation	Gamma emitting isotopes	No measurable dose above background	No measurable dose above background	No measurable dose above background
Disposal into LLW repository	Gamma emitting isotopes	3.0 person-rem/yr	1.2 person-rem/yr	0.60 person-rem/yr
Disposal into C-746-U Landfill	Gamma emitting isotopes	NA	0.16 person-rem/yr (see Table 6)	0.46 person-rem/yr (See Table 5)
Dose to MEI near LLW repository	⁹⁹ Tc	1.5 mrem/yr ⁽⁰⁾	0.61 mrem/yr ⁽⁰⁾	0.12 mrem/yr ⁽²⁾
Dose to MEI near C-746-U Landfill	⁹⁹ Tc	NA	9.3 mrem/yr	0.98 mrem/yr
Cumulative dose to general public near LLW repository	⁹⁹ Tc	0.51 person-rem/yr ⁽⁰⁾	0.21 person-rem/yr ⁽²⁾	0.041 person-rem/yr ⁽²⁾
Cumulative dose to general public near C-746-U Landfill	⁹⁹ Tc	NA	0.90 person-rem/yr (see Table 8)	0.49 person-rem/yr (see Table 7)

Last Annual Report for Old ALs



9th Year Authorized Limits Summary

From worksheets

Inventory Control 5/22/11 to 10/31/12

Total Disposed 5/21/03 to 5/21/12

Isotope	Activity (Ci)	Isotope	Activity (Ci)	Inventory		Activity (Ci)	Inventory	
				Allowed	% Inventory Used		Allowed	% Inventory Used
Am-241	2.13079E-05	Am-241	2.13079E-05	0.021	0.10%	0.00585	0.155	3.77%
Cs-137	1.06248E-05	Cs-137	1.06248E-05	0.021	0.05%	0.00984	0.155	6.35%
Np-237	1.05405E-05	Np-237	1.05405E-05	0.021	0.05%	0.01110	0.155	7.16%
Pu-238	1.33294E-06	Pu-238	1.33294E-06	0.021	0.01%	0.00159	0.155	1.03%
Pu-239/240	6.8469E-06	Pu-239/240	6.8469E-06	0.021	0.03%	0.01344	0.155	8.67%
Tc-99	0.000778912	Tc-99	0.000778912	3.5	0.02%	1.00152	25.8	3.88%
Th-228	3.03753E-05	Total Thorium	0.000156831	0.105	0.15%	0.33622	0.825	40.75%
Th-230	9.49653E-05	Total Uranium	0.000718682	1.05	0.07%	0.57975	7.75	7.48%
Th-232	3.14901E-05							
Total Uranium	0.000718682							

Note: Total inventory allowed not increased beyond 7th year

Yearly Waste Streams 7

Total Waste Streams 226

Yearly Waste Streams Open 0

Total Waste Streams Open 0

Total residually contaminated weight: 1.73E+08 grams

Total weight disposed: 5.25E+10 grams

3.81E+05 pounds

1.16E+08 pounds

1.90E+02 tons

5.79E+04 tons



Annual Report for 2011 with New ALs



2011 Authorized Limits Summary

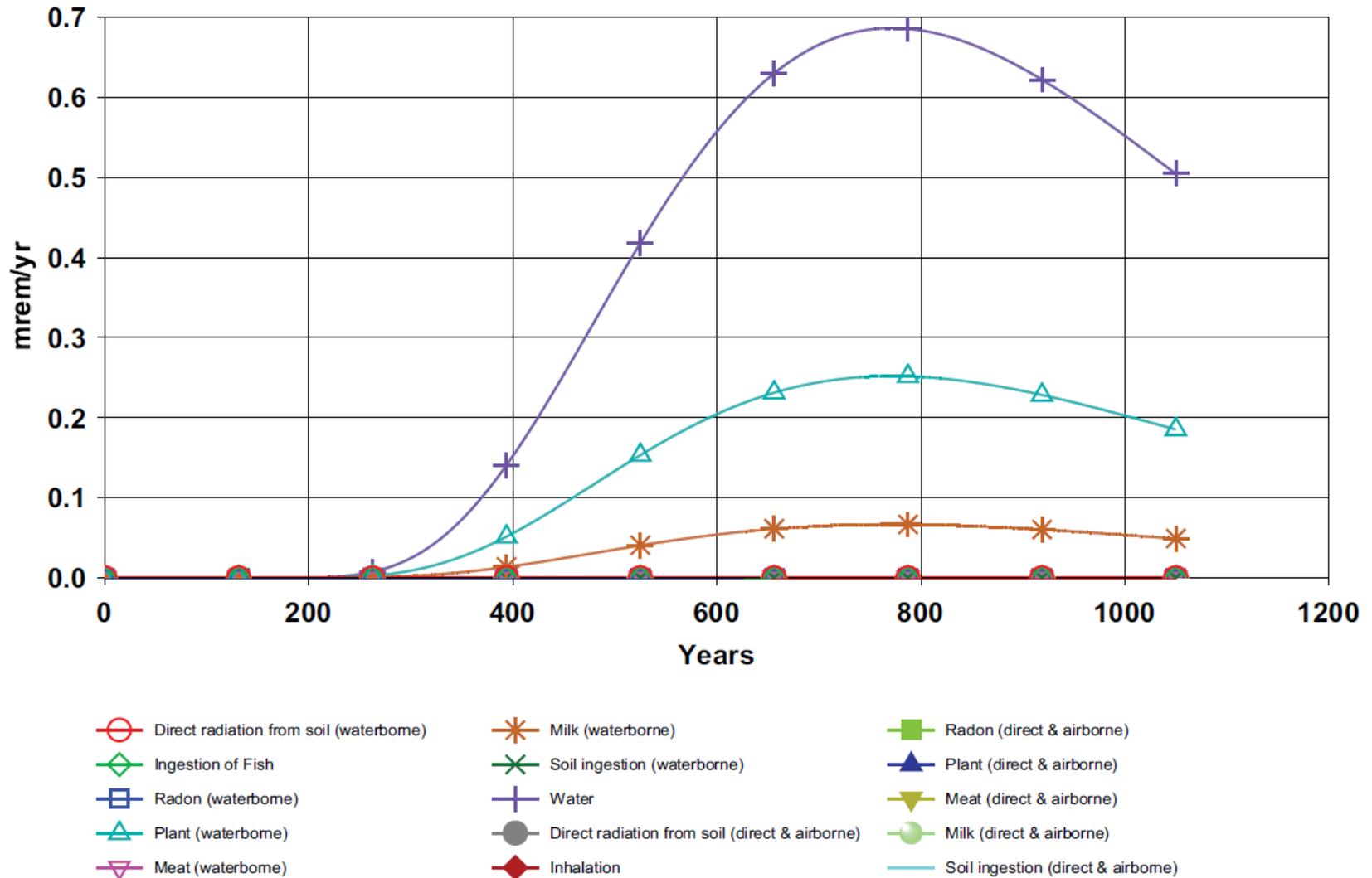
Previous Activity		Inventory Control 11/1/11 to 12/31/11		Total Disposed 5/21/03 to 12/31/11				Unity Factor	
Isotope	Activity (Ci)	Isotope	Activity (Ci)	Isotope	Activity (Ci)	Source Term Limit	% Inventory Used		
Am-241	0.005864508	Am-241	0.000500384	Am-241	0.00636	79	0.01%	0.0003	
Cs-137	0.009859183	Cs-137	0.001817637	Cs-137	0.01168	43	0.03%	0.0011	
Np-237	0.011123995	Np-237	0.000579386	Np-237	0.01170	12	0.10%	0.0038	
Pu-238	0.001609444	Pu-238	0.000451099	Pu-238	0.00206	88	0.00%	0.0001	
Pu-239/240	0.013459954	Pu-239/240	0.000293057	Pu-239/240	0.01375	162	0.01%	0.0003	
Tc-99	1.006107732	Tc-99	0.145889134	Tc-99	1.15200	117	0.98%	0.0385	
Th-228	0.067247458	Th-228	0.00073783	Th-228	0.06799	9	0.76%	0.0296	
Th-230	0.201742374	Th-230	0.002214066	Th-230	0.20396	230	0.09%	0.0035	
Th-232	0.067247458	Th-232	0.000737838	Th-232	0.06799	9	0.76%	0.0296	
U-234	0.284185889	U-234	0.026185395	U-234	0.31037	360	0.09%	0.0034	
U-235	0.011599424	U-235	0.001068792	U-235	0.01267	15	0.08%	0.0033	
U-238	0.284185889	U-238	0.026185395	U-238	0.31037	360	0.09%	0.0034	
		Yearly Waste Streams	12	Total Waste Streams		238	Number of cells		5
		Yearly Waste Streams Open	12	Total Waste Streams Open		12	Volume of cells (yd ³)		386169
				Tons Disposed this year		0.00	Remaining		79480
				Tons Disposed to date		57,890.08	Headspace (yd3)		
				% Landfill used		26%			

Note: If the Unity Factor is over 1, the PPPO Manager and Paducah Site Lead must be notified.

Old inventory of residual radioactive materials has rolled into new AL inventory.



Off-Site Resident Tc-99 Dose per Pathway





ENERGY AND ENVIRONMENT CABINET

Steven L. Beshear
Governor

Department for Environmental Protection
Division of Waste Management
200 Fair Oaks, 2nd Floor
Frankfort, Kentucky 40601-1190
www.kentucky.gov

Leonard K. Peters
Secretary

March 14, 2012

Mr. Reinhard Knerr
US Department of Energy
Portsmouth/Paducah Project Site Office
PO Box 1410
Paducah, Kentucky 42002

RE: Paducah Federal Facility Agreement Integrated Priority List and Assessment of Budget Targets on Site Priorities
Paducah Gaseous Diffusion Plant
Paducah, McCracken County, Kentucky
KY8-890-008-982

Mr. Knerr:

The Division of Waste Management (Division) is in receipt of the Paducah Portsmouth Project Office (PPPO) draft Integrated Priority List and assessment of budget targets letter dated February 15, 2012. This letter serves to document DOE's Fiscal Year (FY) 2014 budget projections and priorities.

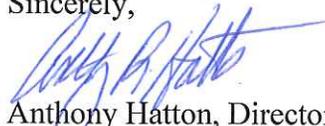
The Division is concerned that, given current site budget projections, DOE anticipates being unable to complete FY +2 work currently milestone (enforceable) in the FY 2012 Site Management Plan for the burial grounds, soils, dissolved phase plumes, and surface water operable units, as well as for a portion of the CERCLA Waste Dispositions Options project. Considerable effort has already been expended by all three Federal Facility Agreement (FFA) parties to develop the agreements and CERCLA project-related documentation supporting remedial actions that will eventually be selected for each of these operable units. Project delays resulting from decreased funding will only serve to slow completion of agreed-upon project scope, thereby increasing future project costs. In addition, any delays that occur in FY 2014 will likely result in DOE being unable to meet out-year enforceable milestones tied to operable unit project completion. It is understood that the PPPO intends, as required per Section XVIII.D of the FFA, to seek over-target funding that, if allocated, would permit on-time completion of the aforementioned enforceable project milestone dates.

Mr. Reinhard Knerr
Page 2 of 2
March 14, 2012

The Division concurs with DOE's project related priorities as listed in the February 15, 2012 letter. Specifically, DOE should continue to complete field work already initiated for the C-400 Interim Remedial Action and should also continue to focus on remediating known sources to the Southwest Plume. Work pertaining to the CERCLA Waste Disposition Options project is also critical due to the implications that this project holds for subsequent burial grounds and soils related work.

If you have any questions or require additional information, please contact Todd Mullins at (502) 564-6716, ext. 4690 or e-mail at todd.mullins@ky.gov.

Sincerely,



Anthony Hatton, Director
Division of Waste Management

AJW:lww:tm

ec: Turpin Ballard, US EPA - Region 4, Ballard.turpin@epamail.epa.gov
William E. Murphie, DOE – Paducah; William.murphie@lex.doe.gov
Reinhard Knerr, DOE – Paducah; Reinhard.Knerr@lex.doe.gov
Alicia Scott, LATAKY – Kevil; Alicia.scott@lataky.com
Myrna Redfield, LATAKY – Kevil, Myrna.Redfield@lataky.com
Kim Crenshaw, PRC – Paducah, kim.crenshaw@lex.doe.gov
Stephanie Brock, CHFS – Frankfort, StephanieC.Brock@ky.gov
Tony Hatton, KDEP – Frankfort, Tony.Hatton@ky.gov
April Webb, KDEP – Frankfort, April.Webb@ky.gov
Todd Mullins, KDWM – Frankfort; Todd.Mullins@ky.gov
Gaye Brewer, KDWM – Paducah, gaye.brewer@ky.gov
Jeff Gibson, KDWM – Frankfort, Jeffrey.Gibson@ky.gov
Leo Williamson, KDWM – Frankfort leo.williamson@ky.gov

DWM File: #570; Graybar: ARM20050016

FY 2014

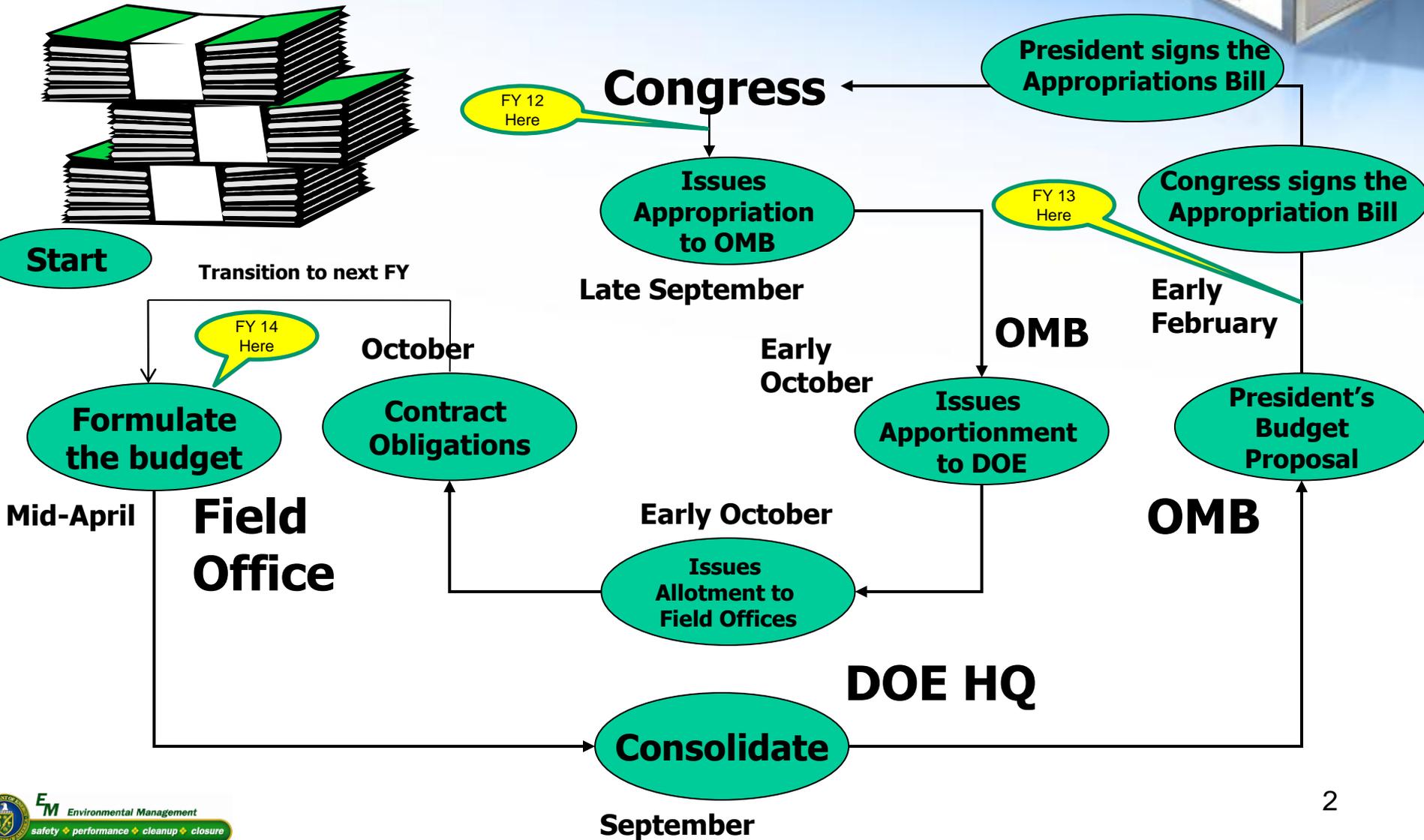
DOE EM Budget Development

Paducah Gaseous Diffusion Plant

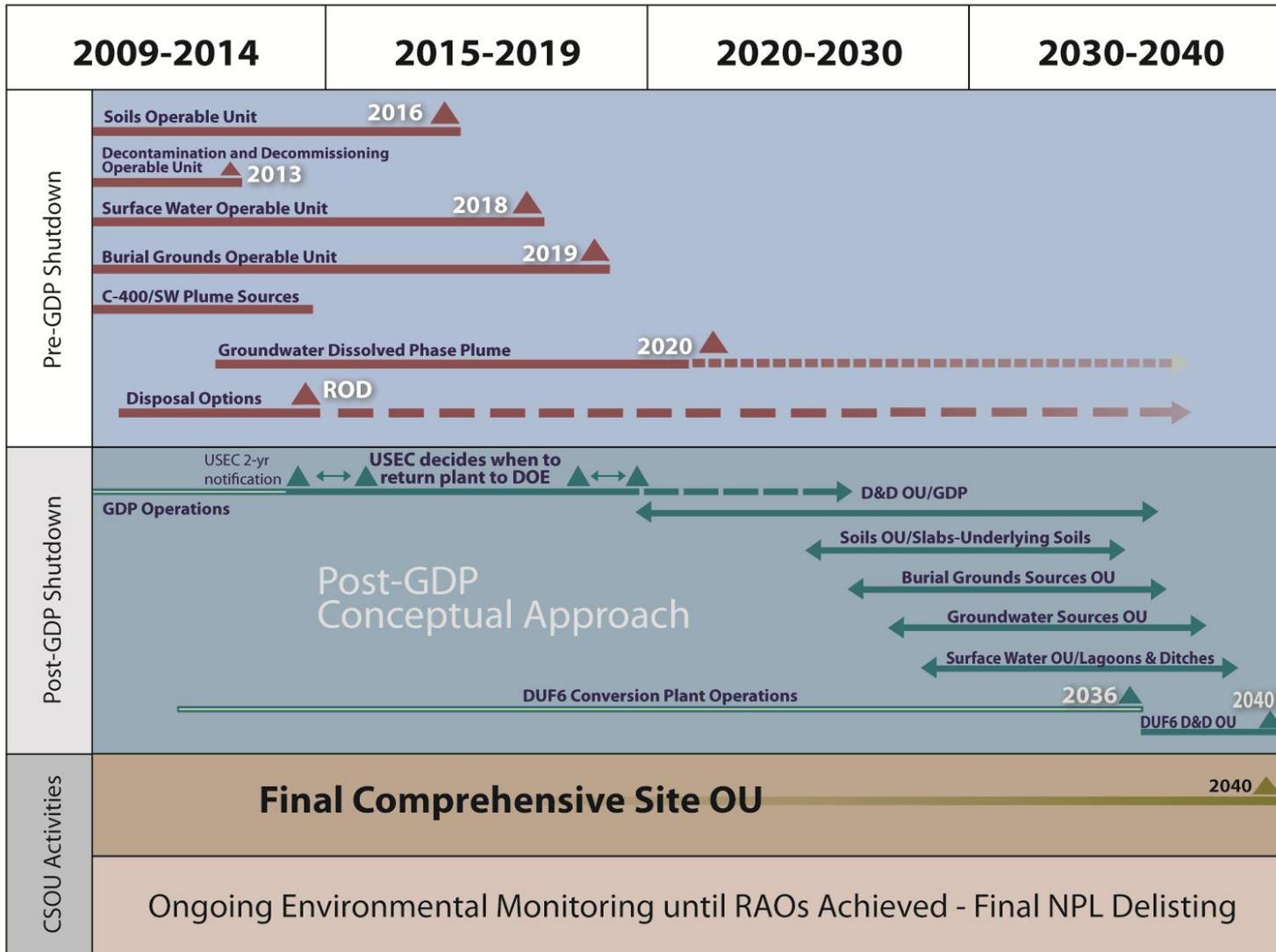
Reinhard Knerr



Fiscal Year Budget Process



Paducah Cleanup Schedule



Target Funding Levels¹



PBS	FY 10	FY 11	FY 12	FY 13 ²	FY 14 ³	FY 15 ³	FY 16 ³	FY 17 ³
PA-0013 - Waste Management	13,218	7,746	7,115	NA ⁴				
PA-0040 - Cleanup and S&M	99,045	72,156	70,665	90,142	82,520	81,537	80,041	78,466
EM Cleanup - Project Level Subtotal	112,263	79,902	77,780	90,142	82,520	81,537	80,041	78,466
PA-0011 - Uranium Enrichment (PCBs)	248	2,476	1,369	1,369	2,683	2,678	2,715	2,795
PA-0020 - Safeguards and Security	8,190	8,496	9,435	8,909	9,123	9,342	9,566	9,796
PA-0102 - DOE Directs	1,536	1,531	1,534	0	901	476	486	497
PA-0103 - Grants	2,647	2,580	2,580	2,580	2,000	2,000	2,000	2,000
Activity								
EM Cleanup Operations LOE Subtotal	12,621	15,083	14,918	12,858	14,707	14,496	14,767	15,088
PA-0011X - DUF6	47,243	50,015	51,071	39,479	47,773	48,967	50,192	51,446
Total Projected Funding	172,127	145,000	143,769	142,479	145,000	145,000	145,000	145,000

¹ Consistent with the FY 2013 – 2017 Budget Formulation Guidance; however, the IPL and assessment of the targets do not reflect impacts associated with the return of the PGDP.

² President's request

³ Consistent with flat line funding based upon President's request

⁴ Combined with PA-0040 beginning in FY 2013

Summary Level Scope/Budget Breakdown



PADUCAH INTEGRATED PRIORITY LIST

1. IMMINENT THREATS		
FY 12 - \$0	FY 13 - \$0	FY 14 - \$0
No activities at Paducah currently are identified in this category	No activities at Paducah currently are identified in this category	No activities at Paducah currently are identified in this category
2. BASE OPERATIONS		
FY 12 - \$122,000K	FY 13 - \$120,076K (Actual - \$101,866)	FY 14 - \$106,648K
Security	Security	Security
UF ₆ Cylinder Maintenance	UF ₆ Cylinder Maintenance	UF ₆ Cylinder Maintenance
DUF ₆ Conversion Facility	DUF ₆ Conversion Facility	DUF ₆ Conversion Facility
Waste Operation	Waste Operation	Waste Operation
Surveillance and Maintenance	Surveillance and Maintenance	Surveillance and Maintenance
DOE Directs	DOE Directs	DOE Directs
Grants	Grants	Grants
3. ENFORCEABLE COMMITMENTS		
FY 12 - \$21,769K	FY 13 - \$24,924K (Actual - \$40,613)	FY 14 - \$38,352K - \$108,852
3.1 Federal Facilities Agreement	3.1 Federal Facilities Agreement	3.1 Federal Facilities Agreement
C-400 Action	C-400 Action	C-400 Action
Southwest Plume Sources	C-340 D&D	Southwest Plume Sources
CERCLA Waste Disposal	C-410 D&D	CERCLA Waste Disposal Options
Burial Grounds	C-410 D&D	CERCLA Waste Disposal Options
Groundwater Northeast Plume Optimization	CERCLA Waste Disposal	Burial Grounds
Dissolved Phase Plumes	Southwest Plume Sources	Soils Remedial
Soils Remedial	Groundwater Northeast Plume Optimization	Groundwater Dissolved-Phase Plumes
Surface Water Remedial	Burial Grounds	Surface Water Remedial
C-410 D&D	Dissolved-Phase Plumes	
C-340 D&D	Surface Water Remedial	
	Soils Remedial	
3.2 Site Treatment Plan	3.2 Site Treatment Plan	3.2 Site Treatment Plan
3.3 TSCA FFCA Wastes	3.3 TSCA FFCA Wastes	3.3 TSCA FFCA Wastes
4 Remaining Work		
FY 12 - \$0	FY 13 - \$0	FY 14 - \$0 - \$9,000
	Accelerated Decontamination and Decommissioning	Accelerated Decontamination and Decommissioning
	Accelerated Environmental Restoration	Accelerated Environmental Restoration

Note: FY 13 Integrated Priority Lists aligns with the FY 13 President's request

Paducah Citizens Advisory Board

Burial Grounds Subcommittee

- Fraser Johnstone, LATA Kentucky
- March 15, 2012



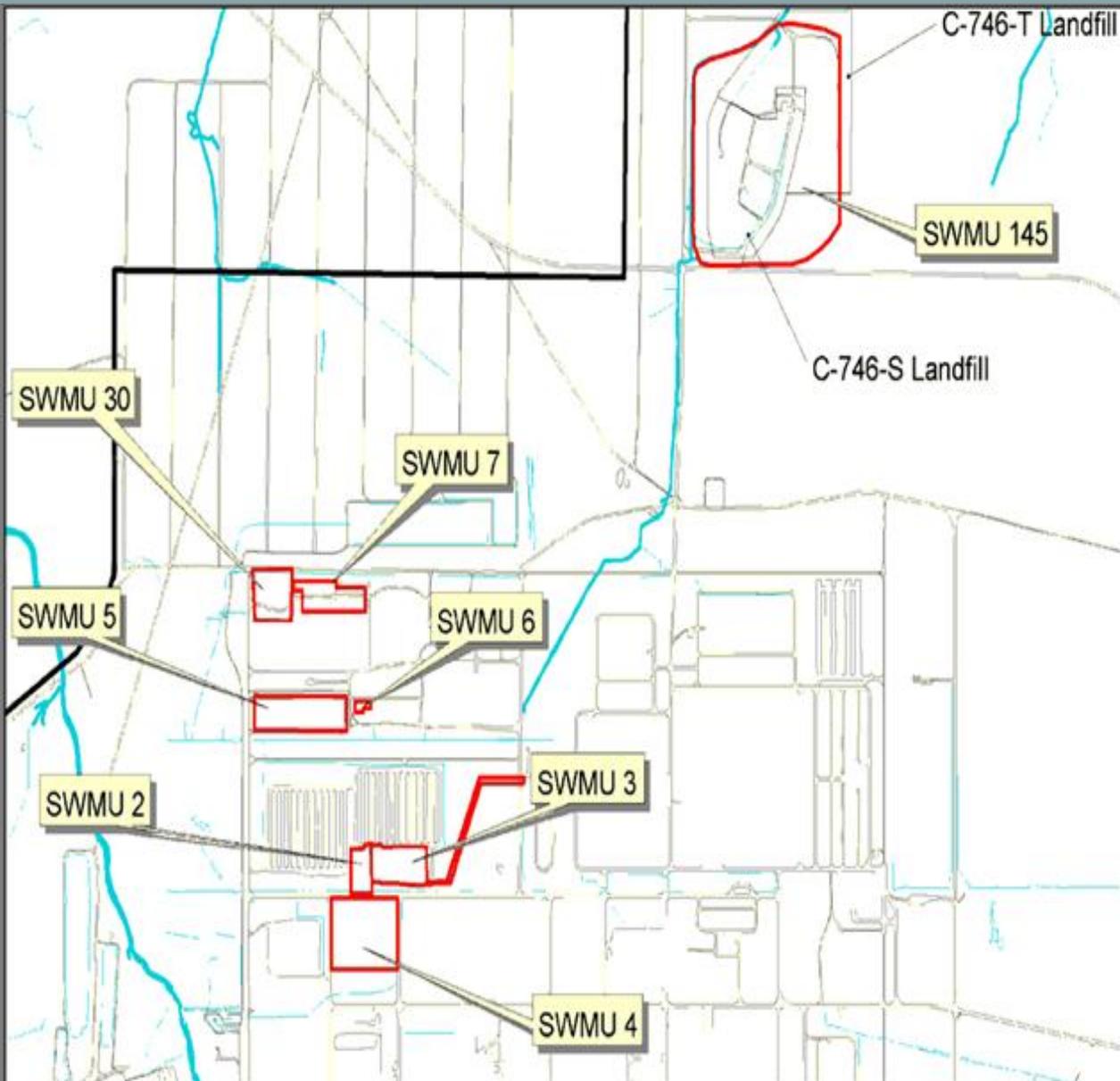
CITIZENS
ADVISORY BOARD



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

Burial Grounds



The Burial Grounds Operable Unit consists of areas of contamination associated with burial areas and landfills concentrated in the northwest quadrant of the plant. Contents may include hazardous, PCB, and low-level radioactive waste.

- There are 10 burial areas within the Burial Grounds Operable Unit (BGOU)
- These areas typically have items buried less than 20 feet from the surface.

Burial Grounds

- Currently developing revised FSs for the BGOU
- Revisions required after regulatory non-concurrence on the initial Feasibility Study (FS) in Jan 2011.
- Non-concurrence coincided with initiation of an informal dispute process resolution under the FFA.

Burial Grounds

- Resolutions and impacts associated with the informal dispute process
 - 109 comments/issues were resolved on the FS in the informal dispute process
 - FS must include a broader range of remedial alternatives
 - The 10 BGOU SWMUs will be grouped into smaller, more manageable sub-units to facilitate the CERCLA process

Burial Grounds

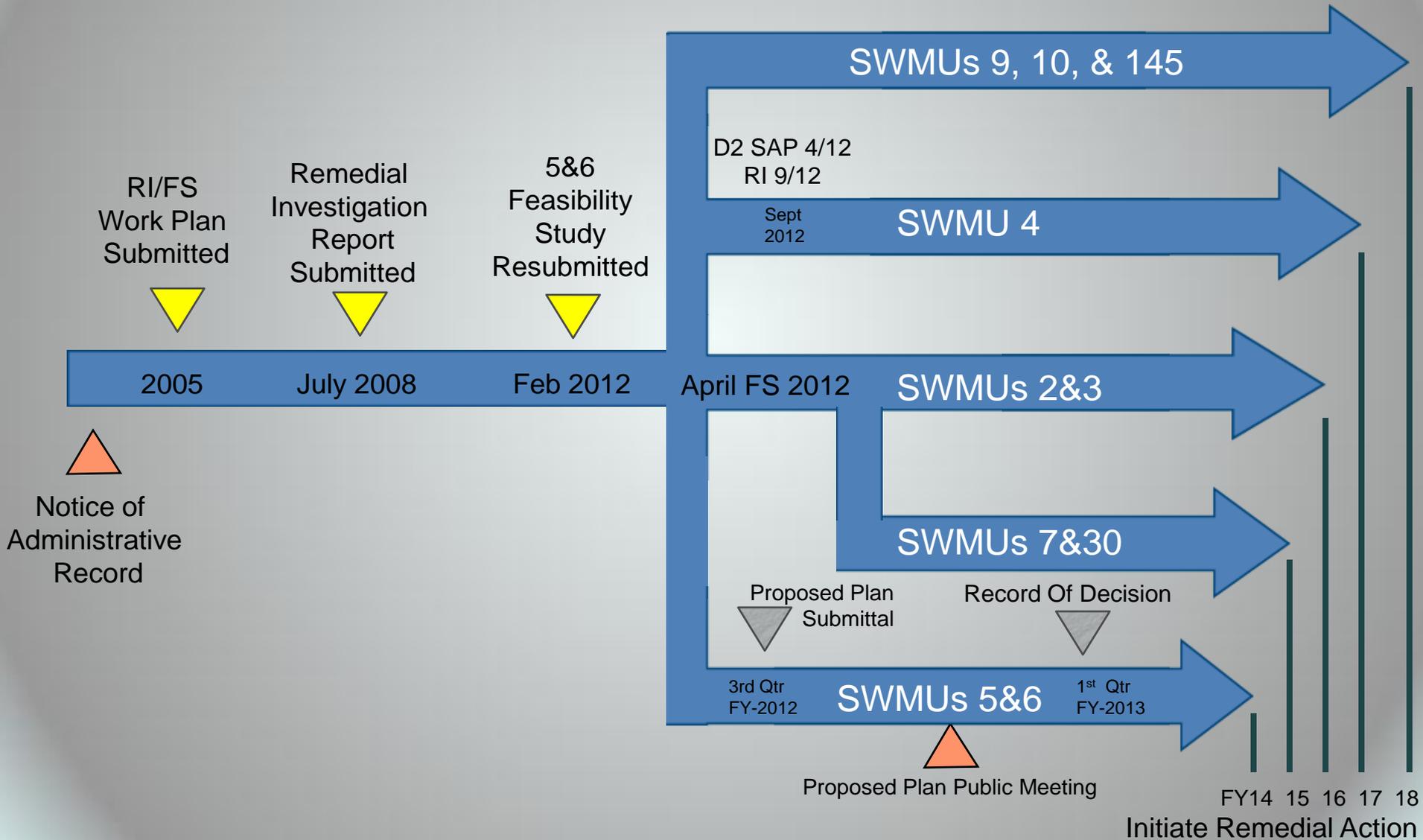
- The FFA parties were unable to resolve seven comments related to Principal Treat Waste (PTW) through the informal dispute process. The FFA contains provisions for a formal dispute process in the event issues can not be resolved under an informal process.
- On Sept. 27, 2011 EPA initiated the formal dispute process to resolve the PTW-related issues that could not be resolved during informal dispute process.
- Formal dispute resolved Jan. 30, 2012.

Burial Grounds

Resolutions and impacts associated with the formal dispute:

- Revise text to make affirmative statements about PTW
 - SWMU 2: TCE (and degradation product), PCBs, Uranium, Uranyl fluoride
 - SWMU 3: Uranium
 - SWMU 4: TCE
 - SWMU 7: TCE (and degradation products) in SWMU
- Perform additional RI at SWMU 4
- Established near-term (2012) Milestones
 - 4/29 – D1 FS for SWMU 2, 3, 7, and 30
 - 2/29 – D2/R1 FS for SWMU 5 an 6
 - 5/31 – D1 PP for SWMU 5 an 6
 - 10/30 – D1 ROD for SWMU 5 an 6
 - 9/30 – field start for SWMU 4 investigation

Burial Grounds



Burial Grounds

Preliminary Ranking of Alternatives for SWMU 5							
Evaluation Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 6A
	No Action	Limited Action	Soil Cover, LUCs, and Monitoring	18/6 Soil Cover, LUCs, and Monitoring	Subtitle D Cap, LUCs, and Monitoring	Excavation and Removal of All Waste Materials	Excavation and Removal of All Waste Materials (at Proposed On-site Disposal Unit)
Overall Protection of Human Health and the Environment	Does not meet the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion
Compliance with ARARs	No ARARs identified	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion
Long-term Effectiveness and Permanence	Low (1)	Moderate (5)	Moderate (5)	Moderate (5)	Moderate to High (7)	High (9)	High (9)
Reduction of Toxicity, Mobility, or Volume through Treatment	Low (1)	Low (1)	Low (1)	Low (1)	Low (1)	Low (1)	Low (1)
Short-term Effectiveness	High (9)	High (9)	Moderate to High (7)	Moderate to High (7)	Moderate to High (7)	Moderate (5)	Moderate (5)
Implementability	High (9)	High (9)	High (9)	High (9)	Moderate to High (7)	Moderate to High (7)	Moderate to High (7)
Cost (Present Worth)*	High (9) \$0	Moderate to High (7) \$1,856,000	Moderate to High (7) \$4,330,000	Moderate to High (7) \$5,098,000	Moderate (5) \$7,854,000	Low (1) \$232,181,000	Low (1) \$68,722,000
Average Balancing Criteria Rating	5.8	6.2	5.8	5.8	5.4	4.6	4.6

* A high rating corresponds to a low project cost relative to the site evaluated.

Alternative Rating Guide:

Balancing criteria are scored from 1 (worst) to 9 (best) for each alternative. The qualitative and numerical ratings correspond as follows:

- 9 – High
- 7 – Moderate to High
- 5 – Moderate
- 3 – Low to Moderate
- 1 – Low

Burial Grounds

Preliminary Ranking of Alternatives for SWMU 6							
Evaluation Criteria	Alternative 1 No Action	Alternative 2 Limited Action	Alternative 3 Soil Cover, LUCs, and Monitoring	Alternative 4 18/6 Soil Cover, LUCs, and Monitoring	Alternative 5 Subtitle D Cap, LUCs, and Monitoring	Alternative 6 Excavation and Removal of All Waste Materials, and Monitoring	Alternative 6A Excavation and Removal of All Waste Materials, and Monitoring (at Proposed On-site Disposal)
Overall Protection of Human Health and the Environment	Does not meet the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	N/A	N/A	N/A
Compliance with ARARs	No ARARs identified	Meets the threshold criterion	Meets the threshold criterion	Meets the threshold criterion	N/A	N/A	N/A
Long-term Effectiveness and Permanence	Low (1)	Moderate (5)	Moderate (5)	Moderate (5)	N/A	N/A	N/A
Reduction of Toxicity, Mobility, or Volume through Treatment	Low (1)	Low (1)	Low (1)	Low (1)	N/A	N/A	N/A
Short-term effectiveness	High (9)	High (9)	Moderate to High (7)	Moderate to High (7)	N/A	N/A	N/A
Implementability	High (9)	High (9)	High (9)	High (9)	N/A	N/A	N/A
Cost (Present Worth)*	High (9) \$0	Moderate to High (7) \$1,699,000	Moderate (5) \$3,195,000	Moderate (5) \$3,275,000	N/A	N/A	N/A
Average Balancing Criteria Rating	5.8	6.2	5.4	5.4	N/A	N/A	N/A

* A high rating corresponds to a low project cost relative to the site evaluated.

N/A – Not Applicable. Alternative not retained for further analysis at the associated site due to reasons described in Section 3.

Alternative Rating Guide:

Balancing criteria are scored from 1 (worst) to 9 (best) for each alternative. The qualitative and numerical ratings correspond as follows:

- 9 – High
- 7 – Moderate to High
- 5 – Moderate
- 3 – Low to Moderate
- 1 – Low