PADUCAH GASEOUS DIFFUSION PLANT
SITE SPECIFIC ADVISORY BOARD

padssab@apex.net *www.oro.doe.gov/pgdpssab/*

2000 McCracken Boulevard • Paducah, Kentucky 42001 • (270) 744-9010

Chair

Craig Rhodes

Board Members

Kit Atkinson
Nola Courtney
Mark Donham
Edward Duff
Angela Farmer
David Fuller
Judy Ingram
Vicki Jones
Merryman Kemp
Ronald Lamb
Linda Long
Douglas Raper
Craig Rhodes
Rosa Scott
Jim Smart, Ph.D.
Pat Stephenson
Bill Tanner
Rev. Gregory Waldrop

***Ex Officio* Members**

Carl Froede, Jr.
Environmental Protection Agency

Wayne L. Davis
Fish and Wildlife Resources
(Kentucky)

Tuss Taylor
Division of Waste Management
(Kentucky)

John A. Volpe, Ph.D.
Radiation Control Branch
(Kentucky)

Dale Jackson
Department of Energy

DOE Federal Coordinator
John D. Sheppard

Additional information about contacting board members directly can be obtained from the SSAB web site or by contacting Shirley Speer at (270) 744-9010.

Minutes of SSAB Meeting with DOE EH Team
March 2, 2000

Board members present were; Nola Courtney, Mark Donham, Vicki Jones, Merryman Kemp, Linda Long, Doug Raper, and Jim Smart.

Pat Worthington of the DOE Investigation Team said Secretary of Energy Bill Richardson requested the investigation and wanted input on working conditions at the Paducah Gaseous Diffusion Plant. She explained that during the Phase I and Phase II investigations hundreds of former and current workers had been interviewed and that thousands of documents had been reviewed.

She said one of the key findings was that communication of hazards to workers had been ineffective. She said the investigation report was in chronological order and was intended to inform workers and give the public insight into work at the plant. She briefly went over different areas of the report, noting that DOE wanted to address operation and maintenance at the site and to speak about hazards and hazard control.

Worthington said chemical hazards are noted in the report. She said that when the plant opened, training was intensive and rigorous but then developed more into "On the Job Training." She said that safety at the plant has improved through the years as environmental, safety and health regulations increased.

Acting Paducah Site Manager Dale Jackson complemented the board members who were able to be present and commented on the report and the actions undertaken as a result of the investigation. He said insufficient oversight was one of the root causes of problems at the plant. He said that is being addressed. He also noted inadequate prioritization of funds and lack of integration on path forward as root causes. He said that with the President's proposed budget increase funds would be prioritized and that public and worker communication would be an integral part of the program. He also explained how the whole program was participating in the Integrated Safety Management System.

Rod Sleeman of Oak Ridge Operations then briefly discussed the 2000-2001 Environmental Management Budget.

Jackson opened the floor for questions regarding the issues of weapons and the Work for Others Program. He also talked about classification of documentation. Kemp asked if Pantex kept duplicate records. Jackson said DOE is working with DOJ for documentation.

Smart asked about tritium measurements. He also asked why there are people who have come to SSAB meetings saying they wanted to talk to the team, but have never been contacted by DOE. Worthington explained that if they are part of litigation the team could not talk to them. She also added that none of the workers who have spoken to the team brought up the subject of tritium.

Courtney asked what DOJ was doing. Jackson said DOE and DOJ were working together. Jim Owendoff of DOE said that Department of Justice had instructed the team not to speak for the DOJ. He gave the board two contacts: Assistant U.S. Attorney Hancy Jones of the Louisville office, 502-582-5911, and Charles Miller at DOJ headquarters, 202-514-2000.

He also asked why the Freedom of Information Act (FOIA) office is so far behind. He said he had requested shipping manifest records and Vortec documents from Morgantown over three years ago. Donham also asked again about a different location for the Environmental Information Center to make it easier for the public to view documents. Worthington said these things were being considered.

Raper asked about funding for Drum Mountain. Donham also commented on ecological studies in general and asked where funding for this fit into the budget. Sleeman responded to both questions by saying specific funding depended on how DOE prioritized the budget.

Worthington said the team has not stopped the investigation and that they may come back for further evaluation.

The meeting was adjourned.

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Agenda for the March 16, 2000, meeting:

5:30
Informal discussion

6:00
Call to order, introductions
Review of agenda
Approval of minutes from November, January and February meetings
Review of minutes from informal meeting with EH Team

Site Manager's Comments — **60 minutes**
ES&H issues
Other
Board discussion
Public comments and questions

SSAB recommendations status — **5 minutes**

Project status updates — **20 minutes**
EM&EF Projects
Scrap Metal/Drum Mountain
ITRD
Board discussion
Public comments and questions

Presentation/Discussion — **30 minutes**
CERCLA disposal cell
Board discussion
Public comments and questions

Administrative issues — **15 minutes**
Review of SSAB Draft Workplan
Financial update

SSAB Subcommittee Reports — **15 minutes**
Community Relations
Consultant
Membership
Other

Executive Session on membership

Adjourn

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DRAFT
Site Specific Advisory Board
Meeting Minutes
March 16, 2000

The March 16, 2000, Site Specific Advisory Board (SSAB) meeting took place at the Information Age Park Resource Center in Paducah at 5:30 p.m.

The following board members were present: Nola Courtney, Mark Donham, Judy Ingram, Vicki Jones, Merryman Kemp, Ronnie Lamb, Linda Long, Doug Raper, Craig Rhodes, Rosa Scott, Jim Smart, Bill Tanner, and Gregory Waldrop. The facilitator present was Steve Kay. *Ex Officio* members present were: Carl Froede, Environmental Protection Agency (EPA), John Volpe, Kentucky Radiation Control Branch, and Dale Jackson, Department of Energy (DOE). The DOE federal coordinator present was John Sheppard. Todd Adams of the Kentucky Radiation Control Branch and Brian Baker, Gaye Brewer, and Jon Maybriar of the Kentucky Division of Waste Management (KDWM), were present. Also present were the following members of the public and employees, contractors, and subcontractors of the DOE: Greg Cook, Bruce Gardner, Norm Jetta, Walter Perry, Shirley Speer, M'Balia Tagoe, David Tidwell, Corrine and Ernest Whitehead.

Agenda

Craig Rhodes called the meeting to order and asked if there were any modifications to the agenda. Steve Kay said he had an item for Administrative Issues. The amended agenda was approved.

Minutes

The November and February meeting minutes were approved by consensus. The January meeting minutes were approved with one revision by Kemp regarding her 'Typhoid Mary' statement.

Site Manager's Comments

Dale Jackson said that new site manager Don Seaborg would be on site Monday, March 20, 2000.

He said Paducah's work on nuclear weapons and any hazards that workers or the environment may have been exposed to in the past are still being investigated. He said that increased funding continues to look good and that DOE will, as much as possible, hire workers that may be laid off from USEC when it does environmental work. He also announced that Leah Dever had signed the Vortec FONSI.

Donham asked for response to comments on the Vortec EA as soon as possible. Donham said he wanted to go on record as being very disappointed about the FONSI. Tanner said he would like the trial run to show if Vortec is effective and wants to make sure that the demonstration project is closely monitored. Waldrop asked if the contract for the project was completed. Norm Jetta of Vortec Corporation said that the contract was on hold awaiting funding. David Tidwell of DOE said DOE is waiting on EM 50 funding to proceed. Waldrop asked if the contract was performance based. Tidwell said permits granted, and EPA's ongoing monitoring of the project, would ensure it meets its performance goals. Lamb said he did not want other wastes coming to this site. Donham said that he thought these were premature concerns and that he was wondering why he had no response to his 3-year-old FOIA request to Morgantown. Jackson said he would check into that. Tidwell said that Argonne was in the process of creating the response to comments and said the final EA would be sent to them as soon as it was received. There were questions about why the board was being told about the FONSI being signed before the EA was available for the public to see. Donham asked if DOE could understand the board's frustration and if would be a decision document about the decision to move forward. Tidwell said the FONSI is a decision document.

Corrine Whitehead asked for more information about the demonstration and also asked about nuclear materials from France and other countries that were recycled in Paducah. Jackson said he would have to get more information about that.

Jackson said Vortec is a unique process and is not being used in other places. Tidwell explained the process and said that Energy Assistant Secretary Carolyn Huntoon had decided to try the demonstration test. Jackson said DOE will provide a presentation if the board desires.

Donham said that NEPA regulations should be looked at in regard to demonstration projects. Tidwell said that DOE lawyers had looked into the Vortec demonstration project and that it met all legal requirements. Donham asked for Leah Dever to come to the next meeting. Tidwell agreed to get copies of the EA and comments to members at least a week before the next meeting. Jackson said NEPA staff people could be at the next meeting. Donham said he questioned the FONSI because it did not list alternatives to Vortec and that he does not think there are absolutely no other alternatives. Volpe agreed.

SSAB recommendation status

Sheppard said that DOE owes the board a written response to its recommendation on Vortec.

Project Status Updates

Ingram asked about waste being removed from Drum Mountain. Jackson said the decision was made to ship the waste away from the site. Sheppard said packaging should be done by September 30, 2000, and the containers will be shipped by the end of 2000. Jones asked about the displaced animals from Drum Mountain. M'Balia Tagoe of Bechtel Jacobs Company said wildlife samples are being collected in Drum Mountain and there would be a more detailed Drum Mountain workplan available. Jones asked for a copy of the plan. Donham asked for cases referenced on page three of the EE/CA.

Donham asked if the FFA was going to be modified. Froede said after prioritization had been decided, the FFA would be modified. He added that they would be working on schedule for the next three years. Jackson said DOE needs to stay focused on its deadline of 2010. Raper asked if 2010 was still the target for cleanup. Froede said 2010 was an enforceable target. Volpe said that not all cleanup is included in this target. Depleted uranium and site decommissioning is not included. Kemp said that the average community member does not understand what it means when the word cleanup is used.

Kemp stressed the importance of elected officials being involved in funding issues. Jackson said it is important for the board to consistently write to officials to remind them of the Paducah site's needs. Donham said that it is ironic that the board is being asked to help obtain money for DOE when the board's recommendations were not considered. Tanner asked about the status of the DUF_6 conversion facility. Jackson said questions about the cost of the project and other issues have delayed its movement. Tanner said the problem is not money, but the need to resolve worker health and safety issues. John Morgan of Bechtel Jacobs Company said that the 2002 budget is being considered and the board needs to consider providing input to the budget. He said the timing is right for the board to influence the budget. Sheppard said that the money appropriated for Paducah cannot be used for operations in Portsmouth or Oak Ridge. Waldrop asked how the board should go about getting more money, or ensuring future money is not tapped by Oak Ridge. Froede said to write letters stating that the board is interested in DOE getting

work done in Paducah. Donham said, in response to Froede, that he thinks the board needs to know how the money is spent. The environment and ecology need to be protected, as the site is cleaned up, he said. Waldrop asked if the board should write a letter. Ingram asked if Patton is accessible. Kemp said he was.

On-site disposal cell presentation

John Morgan of Bechtel Jacobs made a presentation on the advantages and challenges of an on-site disposal facility. Sheppard said that DOE wanted to make a decision about proceeding with a more detailed examination in the next two to three months. The board discussed briefly the idea and asked several technical questions about disposal facilities being constructed or designed in Weldon Spring, Fernald and Oak Ridge. Several members said the idea sounded good at this stage, but that they did not want to see a facility accept out-of-state wastes or anything but low-level waste. Donham said he felt the community should be told that this is being discussed. Sheppard said we could do a media release. Donham, Lamb, Long, and Raper volunteered to serve on a subcommittee to keep up with the information on disposal facilities and to talk about how to best obtain community reaction. They set a subcommittee meeting for Tuesday, March 28, 2000, at the DOE site office.

ATSDR

Courtney asked why the ATSDR did not submit the fact sheet as requested last meeting. Sheppard said that they had not sent the fact sheet as requested.

Financial Update

Craig Rhodes said the financial update was inadequate. Several members expressed interest in wanting to know exactly how money is spent. Greg Cook of Bechtel Jacobs Company said that some of the information is business sensitive and cannot be disclosed. Members asked why the information was not as detailed as previously, and several requested that more complete information be provided. DOE and Bechtel Jacobs representatives said they would look at providing more detail and try to improve the financial update before the next meeting.

Membership

The board went into executive session to discuss membership. After ending the executive session, the board took the following actions: accepted Pat Stephenson's resignation, accepted Angela Farmer's resignation, and voted to submit Leon Owens and John Tillson to DOE for membership.

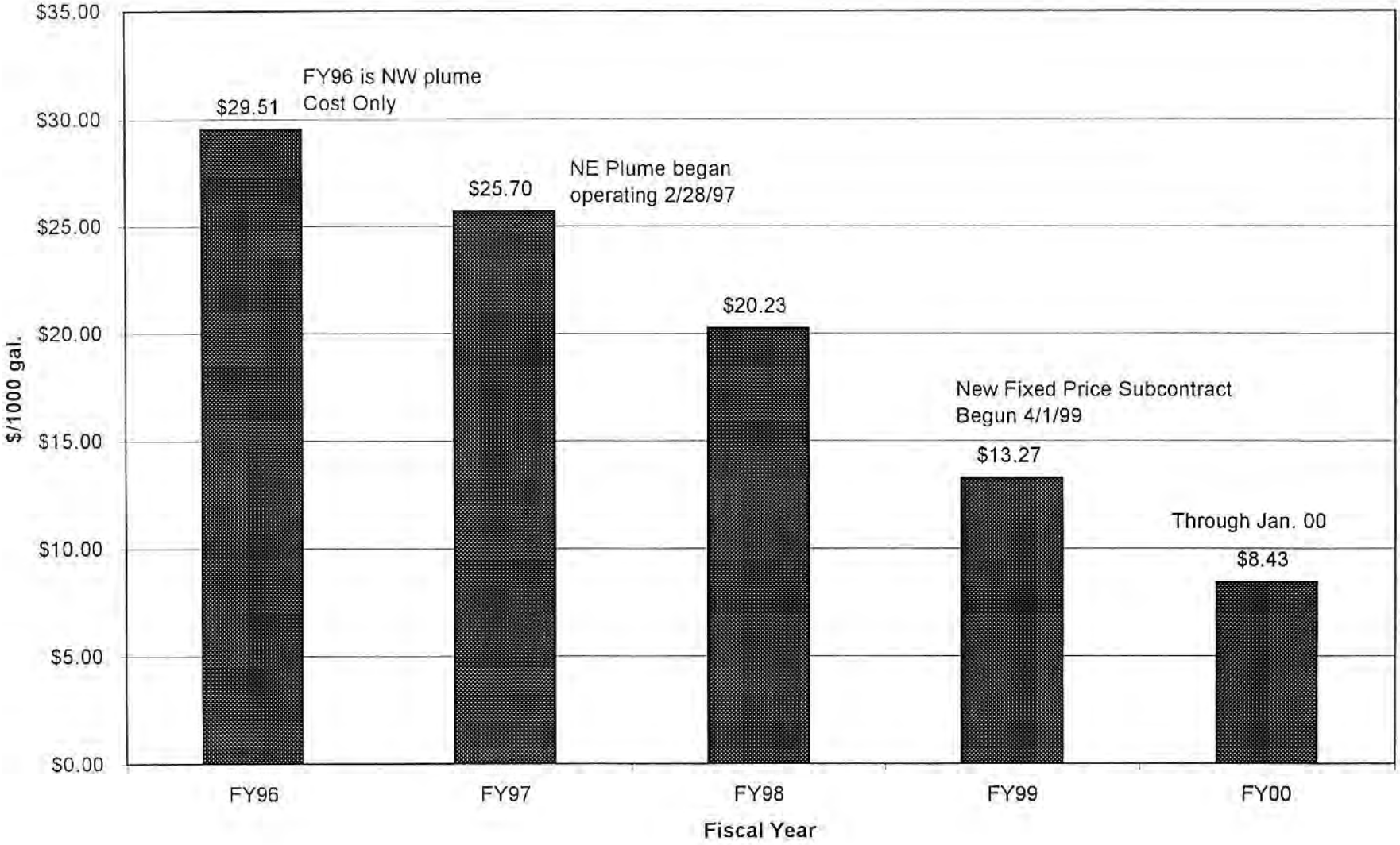
Administrative Issues

A new workplan format was discussed and approved. It will be provided to the board.

Steve Kay made a request for the August meeting to be changed to the fourth Thursday. The board approved the change.

Meeting adjourned at 11:17 p.m.

Average Cost Per 1000 Gallons Pumped Northwest and Northeast Plume Systems Combined



Northwest Plume Groundwater System
Northeast Plume Containment System
Total Costs as of 1/00

	NW Plume 9/95 - 5/99	NE Plume 3/97 - 5/99	Combined 6/99 - 1/00	Total	Comments
Construction	$14,748,251	$5,364,454		$20,112,705	
O&M*	$9,780,236	$1,057,908	$1,212,696	$12,050,840	NW Plume O&M Costs are from 9/95 through 5/99. NE Plume O&M Costs are from 3/97 through 5/99. Beginning 6/99, NE and NW Plume O&M Costs were combined.
Total	$24,528,487	$6,422,362	$1,212,696	$32,163,545	

* Operation and Maintenance includes all costs for the managing contractor and all subcontractors with the exception of costs of regulatory document preparation. O&M includes routine monitoring; data collection; sampling; sample analysis; reporting; maintenance of procedures, plans, and other command media; preventive maintenance; and corrective maintenance.

Status: Waste Treatment, Storage and Disposal

- In July, a Request for Proposals was issued by Bechtel Jacobs Company LLC to for a multi-year Waste Operations subcontract. The contract includes waste storage operations, waste characterization, compliance, data tracking and related tasks.
- The Kentucky Division of Waste Management conducted its annual inspection of the C-404 Hazardous Waste Landfill on July 21. The three representatives did not note any findings, but commented the landfill activities were performed well and within compliance of the permit and procedures. A final report will be submitted to DOE within the next few months.
- On October 29, a test demonstration of the photocatalytic chemical reactor system for wastewater treatment was conducted in Paducah. The system destroys organic contaminants and may potentially remove some Tc-99 by adsorption. Test results will be evaluated for future use.
- A D1 Engineering Evaluation/Cost Analysis for the removal of Drum Mountain in the year 2000 was delivered to regulators November 9, 1999.
- **The contract for waste operations was conditionally awarded in September to Weskem LLC. Weskem passed a readiness review, was given notice to proceed, mobilized, and started operations on Feb. 28, 2000.**
- **Leah Dever, manager of DOE's Oak Ridge Operations office, has signed a Finding of No Significant Impact for the Vortec Vitrification Demonstration project. Before work can begin, state air and Research, Development and Demonstration (RD&D) permits must be granted.**
- **USEC was awarded a subcontract to characterize and remove Drum Mountain by December 2000. The subcontract is worth about $2.5 million and will provide work for some of the USEC employees facing layoffs later this year. Road and infrastructure improvements needed to proceed with the removal also have been subcontracted.**
- **During the week of Feb. 11, 2000, the annual Hazardous Waste Assessment and Annual Hazardous Waste Reports were submitted to DOE for transmittal to the Kentucky Division of Waste Management.**

Status: Groundwater Operable Unit/WAG 6

- **The D1 draft of the Paducah Deep Reactive Zone for Groundwater Treatability Study was completed and distributed on March 8, 2000. Sixty percent designs for the testing are being developed and are expected to be released to the state of Kentucky and EPA on March 31, 2000. Also, bench-scale testing using Regional Gravel Aquifer material and water is currently under way to determine the best reactive media to be used in the field treatability study. The reactive media undergoing testing include iron filings, Humasorb, Menafee humate, and surfactant modified zeolite. The treatability study will install a 100-foot long test section of a deep reactive treatment zone to determine its effectiveness at removing migrating contaminants in the Regional Gravel Aquifer. Construction is planned for Summer 2000.**
- **The D0 Feasibility Study for the Groundwater Operable Unit was developed and released for internal comment on Feb. 18, 2000. Currently comments are being received and work is continuing on incorporating comments and developing the D1 version, which is expected to be issued on June 18, 2000.**
- Comments were received Jan. 12, 2000 from the state on the D1 Five-Year Review of the Groundwater Operable Uni. A comment response summary has been developed and submitted to the state. Due to the limited nature of the comments, a D2 version is not planned.

March 2000

Status: Northwest/Northeast Plume Groundwater Systems

- **8.8 million gallons of groundwater were treated at the Northwest System during February, with the facility operational 97.6 percent of the time. This brings the total treated to 456.1 million gallons.**
- **4.2 million gallons of groundwater were treated at the Northeast System during February, with the facility operational 72.1 percent of the time. This brings the total to 240.3 million gallons of water treated since the facility opened.**

March 2000

Paducah Site-Specific Advisory Board
FY 2000 Costs

Item	Budget	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	YTD	Remaining
General Support to SSAB															
Office Rental	5,000.00	776.00			776.00	776.00								2,328.00	2,672.00
Member Travel	33,000.00													0	33,000.00
Admin. Support	72,331.00	3,438.00	4,988.00	3,330.00	4532.00	4,706.00								20,994.00	51,337.00
Information & Communication	45,090.00	480.00	480.00	480.00	720.00	3,450.00								5,610.00	39,480.00
Support to Subcommittees															
Community Outreach															
Travelling Exhibit	9,000.00													0	9,000.00
Exhibit Revisions	900.00													0	900.00
Media Announcements	3,630.00		484.00											484.00	3,146.00
Newsletter	6,658.00													0	6,658.00
Fact Sheets	1,440.00					960.00								960	480.00
Mailing List Maintenance	1,824.00	152.00	152.00	152.00	152.00	152.00								760.00	1,064.00
Web Page Maintenance	1,500.00													0	1,500.00
Policy & Personnel															
Technical Advisor	25,000.00													0	25,000.00
Total	205,373.00	4,846.00	6,104.00	3,962.00	6,180.00	10,044.00	0	0	0	0	0	0	0	31,136.00	174,237.00

Notes: With 42% of the year elapsed, total expenditure of budget is 11.4%

United States Government **Department of Energy**

Oak Ridge Operations Office

memorandum

DATE: March 2, 2000

EPLY TO
TTN OF: UE-55:Castaneda

UBJECT: **RESPONSE TO SIGNIFICANT COMMENTS RECEIVED ON ENGINEERING EVALUATION/COST ANALYSIS FOR DRUM MOUNTAIN AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY (DOE/OR/07-1848&D2)**

TO: Administrative Record for Drum Mountain Disposition Project

The public comment period for *Engineering Evaluation/Cost Analysis for Drum Mountain at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-1848&D2)* started on December 21, 1999, and ended on February 1, 2000. The United States Department of Energy (DOE), the Kentucky Division of Waste Management (KDWM) and United States Environmental Protection Agency (EPA) have reviewed the comments received, and this document has been prepared in accordance with 40 CFR 300.415(n)(4)(iv) and 40 CFR 300.820(a), which require that a written response to significant comments submitted during the public comment period be prepared for inclusion in the administrative record. Additionally, all the public comments received are also maintained in the administrative record.

Need for the Removal Action

- The comments received expressed a concern that the proposed removal of the Drum Mountain materials was not appropriate at the time.

These materials have been identified as a high priority for expedited removal by DOE and the regulators. The basis for this determination is that these materials may serve as a potential continuing source of contribution to off-site surface water contamination and as a source of potential risk to on-site workers. Additionally, several burial grounds, which have been identified as potential sources of contribution to groundwater contamination, underlie Drum Mountain. The removal of Drum Mountain is an essential first step to allow assessment of these burial grounds to proceed.

On-Site Containment/Disposal

- The comments received raised an issue as to whether the Drum Mountain removal should be delayed pending construction of a potential on-site disposal facility.

DOE agrees that on-site disposal options should be considered in the long-term strategy for the remediation of the PGDP site as a whole. However, Drum Mountain has been identified as a high priority for expedited removal since it may serve as a potential continuing source of contribution to off-site surface water contamination and a source of potential risk to on-site workers. DOE has determined that it is in the best interest of the public and the environment to proceed with this expedited removal rather than delay removal of Drum Mountain any longer. In this regard, the KDWM has noted that delay in the Drum Mountain removal action pending potential construction of an on-site disposal facility is not acceptable to the state. A number of off-site disposal facilities currently exist that are capable of accepting the Drum Mountain materials.

With respect to concerns regarding worker safety and risks associated with off-site disposal, packaging and transportation of the Drum Mountain materials will be conducted in accordance with applicable state and federal regulations that establish requirements for safe handling and transportation of such materials.

Adequate Characterization Data

- Several comments expressed concern that adequate characterization data was not available to guide the removal action.

DOE recognizes that there is variability in the composition of the Drum Mountain materials. However, DOE has determined, with agreement from EPA and KDWM, that there is sufficient data to begin the removal action work. Once the removal action is underway, sampling, packaging, characterization, and shipping of the waste will be conducted in the following fashion:

1) A load of material will be removed from Drum Mountain.
2) Radiological assessment will be conducted to detect any criticality issues and to ensure that radiological protection measures for workers are adequate. Samples of the material will be obtained and sent to a laboratory for analysis.
3) After the assessment, the materials will be placed in an appropriate shipping container, which will be staged until the analytical data is returned from the laboratory. The detailed characterization data is required to ensure that transportation is handled properly and that disposal facility acceptance requirements are fully met. The data will also be used to modify worker protection requirements if necessary.
4) Waste will then be transported to an appropriate disposal facility.

This will be a continuing process, so that there will be varying amounts of material at each step of the process at any given time.

To summarize; DOE, along with EPA and KDWM, feels that there is adequate data to appropriately set requirements for initiation of the removal work. As additional data is acquired during the performance of the work, the work plan, including worker protection requirements, will be modified as required.

Adequate Evaluation of Impacts of the Action

- Several comments were made expressing the belief that the consideration of impacts associated with the removal of the Drum Mountain materials was insufficient to satisfy the requirements of the National Environmental Policy Act (NEPA).

The removal of the Drum Mountain materials is an action that is being conducted under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Courts have held the evaluation requirements leading to a decision under CERCLA are functionally equivalent to the impact evaluation required under NEPA and that an independent NEPA review of a CERCLA action is not required. Although it is not required by law to do so, DOE has implemented a policy of incorporating additional values into its CERCLA process to ensure that the full range of NEPA considerations is addressed to the extent practicable during the CERCLA process. This policy has been followed for the Drum Mountain EE/CA. In accordance with the policy, DOE has incorporated such additional values during the CERCLA process, including consideration of socioeconomic impacts; conducting a transportation risk analysis; consideration of surveys to evaluate impacts to animal populations associated with Drum Mountain; and consideration of cumulative impacts. Additionally, although DOE has determined (with agreement from the regulators) that potential impacts to any animal populations that might results from performance of the selected removal action would not be sufficient to warrant delay of the removal action, DOE will perform a study during implementation of the removal action to evaluate potential impacts to animal populations that might be associated with future CERCLA response actions at PGDP.

If you have any questions or require additional information, please call J. Raúl Castañeda at (270) 441-6809.

J. Dale Jackson, Acting Site Manager
Paducah Site Office

G. W. Benedict, UE-50
R. H. Blumenfeld, CC-10
G. Dover, Bechtel Jacobs Company/Kevil
C. R. Froede, EPA/Atlanta
D. Massey/G. Shaia, Bechtel Jacobs Company/Kevil
R. R. Nelson, EM-90
J. A. Volpe, RCB/Frankfort
M. Welch, KDEP/Frankfort

DOE F 1325.8
(2-92)

United States Government **Department of Energy**

Oak Ridge Operations Office

memorandum

DATE: March 8, 2000

REPLY TO ATTN OF: UE-55:Tidwell

SUBJECT: **ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED DEMONSTRATION OF THE VORTEC VITRIFICATION SYSTEM FOR THE TREATMENT OF MIXED WASTES AT THE PADUCAH GASEOUS DIFFUSION PLANT**

TO: Rodney R. Nelson, Assistant Manager for Environmental Management, EM-90, 55 JEFF

The subject Environmental Assessment (EA) dated December 1999 has been reviewed in accordance with our responsibilities under Department of Energy (DOE) Order 451.1A, paragraph 5a(9). Based upon this review, recommendations made by your staff, and after consultation with the Office of Chief Counsel and the National Environmental Policy Act (NEPA) Compliance Officer, I have determined that within the meaning of NEPA, the proposed action is not a major Federal action significantly affecting the quality of the human environment. Therefore, the preparation of an Environmental Impact Statement is not required. The basis for this determination is explained in the attached Finding of No Significant Impact (FONSI) and the supporting final EA.

Please note that your office is responsible for providing public notice of the availability of the EA and FONSI in accordance with 40 CFR 1506.6(b), 10 CFR 1021.322, and DOE Order 451.1A, paragraph 5e(5).

If you have any questions or require additional information, please call W. David Tidwell at (270) 441-6807.

G. Leah Dever
Manager

Attachments

cc w/attachments:
D. R. Allen, SE-32
C. M. Borgstrom, EH-42, (5cys., 1 electronic cy.)
J. L. Elmore, SE-32
R. T. Moore, SE-32
DOE EIC/Kevil

U. S. Department of Energy

Finding of No Significant Impact

Demonstration of the Vortec Vitrification System for Treatment of Mixed Wastes at the Paducah Gaseous Diffusion Plant

AGENCY: U. S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The Department of Energy (DOE) has prepared an Environmental Assessment (EA) DOE/EA-1230, evaluating the proposed construction and operation of a demonstration facility at the Paducah Site in McCracken County, Kentucky. The objective of the demonstration is to evaluate the Vortec Cyclone Melting System (CMS™), a glass-making vitrification process, for treating various wastes from previous operations at the Paducah Site. Wastes to be treated include low-level, low-level mixed, Toxic Substances Control Act (TSCA)-regulated, TSCA-regulated mixed, and Resource Conservation and Recovery Act (RCRA)/TSCA-regulated mixed wastes.

DOE needs to evaluate the Vortec CMS™ to determine the appropriate options for treatment of legacy wastes in order to comply with regulatory agreements with the Environmental Protection Agency and the Commonwealth of Kentucky. The demonstration would determine if the Vortec CMS™ would successfully treat a wide variety of legacy wastes.

Based on the analysis in the EA, DOE has determined that the demonstration does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an environmental impact statement is not required.

DESCRIPTION OF THE PROPOSED ACTION:

The proposed demonstration will include construction and operation of the Vortec CMS™ glass-making vitrification process on a previously disturbed site west of the Paducah Gaseous Diffusion Plant (PGDP). In addition to the CMS™, the facility will include high-efficiency air pollution control equipment. Wastewater will be recycled to the extent possible; however, small amounts will occasionally be discharged to an existing outfall at PGDP. Wastes will be delivered to the Vortec Site from PGDP, where they will be prepared by shredding so that the wastes can be continuously fed into the CMS™ where heat and mixing will result in the formation of glass. The molten glass will exit the CMS™ to a quench bath. The rapid cooling in the quench bath will fracture the glass into small pieces (frit). The frit will be analyzed, pursuant to waste regulations and waste acceptance criteria, to determine if it can be placed in the Paducah Site landfill, or if it must be stored for later disposition.

ALTERNATIVES:

Under the no action alternative, the Vortec CMS™ would not be demonstrated, and the subject wastes would continue to be stored at the Paducah Site. Such storage would be contrary to the applicable regulations and to DOE's commitments to the regulators as set forth in various regulatory agreements.

DOE considered demonstrating the Vortec CMS™ at other locations on the Paducah Site. Alternate Paducah site locations were evaluated during the site selection process, and it was concluded that the proposed location was the only site that met the selection criteria.

ENVIRONMENTAL IMPACTS:

Impacts of construction and operation of the Vortec CMS™ demonstration facility were analyzed in the Environmental Assessment (EA). The Finding of No Significant Impact for the proposed action is based on the following factors which are supported by information and analysis in the EA.

Air Quality Impacts: Emissions of criteria air pollutants would not result in any exceedances of standards or increment levels. Emissions of hazardous air pollutants (HAP's) would be at a level less than that required to classify the

facility as a major source of HAP's. Emission levels would be very low and not pose risks of adverse effects to workers or the public.

Noise: Noise levels experienced by the nearest resident, 1,470 meters (4,823 feet) away, would not be distinguished from background-level noise.

Liquid Effluents: Runoff would be controlled by good engineering practices. Little runoff is expected because most of the runoff is collected and treated. Release of small quantities of wastewater to the PGDP outfall would have negligible impacts on surface water, even under accident conditions.

Land Use: The dedicated use of the site would remain industrial. Off-site recreational activity at the nearby West Kentucky Wildlife Management Area would not be disturbed by construction and operation of the facility.

Biotic Resources: Construction of the Vortec CMS™ would result in minor impacts to biota both on and off the site. A fire resulting from failure of the propane storage tank might affect areas immediately adjacent to the site. Construction and operation of the Vortec CMS™ would be very unlikely to adversely affect individuals or the habitat of the Indiana bat, an endangered species. Indiana bats were specifically looked for but never found at the Vortec Site or the Paducah Gaseous Diffusion Plant property. Other endangered or threatened species would not be affected by construction or operation of the Vortec CMS™ facility. Very few polychlorinated biphenyls (PCBs) would be released during normal operations or accidents; levels would be too low to affect biotic resources, or to measurably increase the bioaccumulation already present in the Ohio River from upstream sources.

Human Health and Safety: Radiological doses to involved workers, non-involved workers, and members of the public from Vortec CMS™ operations and from accidents would be very low and well below applicable limits and guidelines. Risks of a cancer fatality due to normal releases is estimated at 1 in 200,000 for the maximally exposed vitrification worker and less than 1 in 10 billion for a non involved worker or maximally exposed member of the public. The risk of developing a fatal cancer from a highly unlikely accidental release of

radionuclides is estimated at 1 in 100 for a non-involved worker at the Northwest Plume Groundwater System facility approximately 260 m (850 feet) north and 1 in 5,000 for a maximally exposed individual.

If a fire and propane tank explosion were to occur, heat and overpressure effects may partially destroy buildings and could seriously injure workers, but would not harm the nearest member of the public. A highly unlikely accidental release of waste drum contents might have a lethal effect on a worker but would not be life threatening to the public.

Standard accident rates for construction and manufacturing indicate that the chance of a worker fatality during construction and operation is not greater than 1 in 100. In a workforce of up to 50 individuals, the number of injuries involving lost work days is expected to be 1 or 2.

Waste Management: The landfill at the Paducah Site has adequate storage capacity, should the Vortec CMS™ frit meet the applicable waste acceptance criteria. Waste not meeting the landfill requirements will be stored in PGDP facilities until the appropriate disposal can be arranged offsite.

Environmental Justice: The construction and operation of the Vortec CMS™ would not result in any high and adverse impact to minority or low-income communities.

Cumulative Impacts: The cumulative impacts of criteria air emissions from the Vortec CMS™ facility, nearby facilities, and the ambient background would not exceed standards or increment levels. A PCB emission rate of 0.016 lb/yr would result in a maximum ground level concentration that would be 700 times less than the concentration believed to define a risk of one in 1 million of developing cancer. PCB emissions would not lead to further contamination of soils or increased bioaccumulation in biota. When potential radiological doses from Vortec CMS™ emissions are added to other regional emissions, the calculated probability of a cancer fatality from all sources for the MEI exposed to all sources would be one in 1 million.

DETERMINATION:
Based on the analysis in the EA, the DOE has determined that the proposed construction and demonstration of the Vortec CMS™ at the Paducah Site would not constitute a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an environmental impact statement is not required.

PUBLIC AVAILABILITY: Copies of the EA (DOE/EA-1230) are available from:

W. David Tidwell
U. S. Department of Energy
Paducah Site
PO Box 1410
Paducah, Kentucky 42002-1410
(270) 441-6807

For further information regarding the Department of Energy's National Environmental Policy Act process contact:

David Allen
NEPA Compliance Officer
Oak Ridge Operations Office
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(423) 576-0411

Issued in Oak Ridge, Tennessee this Day of March 8, 2000

G. Leah Dever, Manager
Oak Ridge Operations Office

PROPOSED PRESENTATION OUTLINE
CERCLA DISPOSAL CELL

OBJECTIVE:

- The purpose of this presentation is to summarize information gathered to date to support a preliminary evaluation of on-site disposal as a viable option for future disposition of Paducah Gaseous Diffusion Plant remediation wastes.

BACKGROUND:

- The current assumptions in DOE's lifecycle baseline indicate several future projects have the potential to generate large quantities of remediation wastes. These future projects include, among others, the following activities:

  - Scrap Metal Removal
  - Burial Grounds Excavations
  - D&D of C-340 and C-410 Facilities
  - Removal of contaminated soils

- The current lifecycle baseline assumes all remediation wastes will be shipped off-site for disposal.

- Preliminary dialogue from past SSAB meetings, recent public comments on the Drum Mountain EE/CA and recent State of Kentucky correspondence suggest DOE should evaluate the benefits of on-site disposal options.

ADVANTAGES OF ON-SITE DISPOSAL:

- On-site disposal options would provide greater flexibility to pursue more aggressive removal actions at source areas, with the potential to accelerate the cleanup schedule by several years.

- Engineered disposal cells provide a more stable long-term solution when compared to the option of capping uncontrolled sources in-place. This is because these uncontrolled sources, by definition, typically have no engineering controls (e.g., liners, leachate collection, etc.).

- On-site disposal could create additional revenues and job opportunities for the local economy as opposed to out of state disposal.

- Reduces out-of-state transportation and associated risks connected with off-site disposal.

CHALLENGES PRESENTED BY ON-SITE DISPOSAL:

- Requires a long-term stewardship commitment.
- Increases operation and maintenance costs for long-term monitoring.
- Community acceptance.
- Acceptable siting criteria:
  - geological conditions
  - floodplains and wetlands
  - seismic zones
  - etc.
- Establishment of appropriate waste acceptance criteria

STATUS:

- A preliminary information exchange meeting was held in Frankfort with EPA and Kentucky on February 10, 2000 to review case studies for three approved/operating on-site disposal facilities in the DOE complex. The three sites reviewed were:
  - Weldon Spring Facility
  - Fernald Facility
  - Oak Ridge Facility
- Six case studies (including case studies for the three sites listed above) are available electronically at www.em.doe.gov/profiles.
- EPA and Kentucky have requested that DOE prepare a Strategic Disposal Plan evaluating the benefits of on-site disposal to help determine whether a detailed feasibility study should be conducted.
- Visits to various DOE CERCLA disposal cells may be scheduled in the near future to gather additional information to support the decision-making process.

COMMUNITY PARTICIPATION:

- SSAB input is essential to the decision on whether to proceed with a detailed feasibility study.
- Arrangements can be made for SSAB members to participate in:
  - Site Visits
  - Scoping Meetings
  - Document Reviews, etc.

NOTE TO SSAB MEMBERS: If this outline does not include specific issues you would like discussed at next week's meeting, please call Bruce Gardner at 441-5105 or e-mail him at bgardner@vci.net.

In hopes of having meaningful and peaceful public dialog, the DOE established a network of citizen advisory boards at its nuclear activity and cleanup sites. To achieve success, members of these boards must maintain open minds, work together, and keep the lines of communication open and flowing.

Bored Board?

Membership and Motivation in Site-Specific Advisory Boards

By Richard G. Telfer

Four Fernald CAB members listen to a discussion of transportation issues. (Photo courtesy Fluor Daniel Fernald.)

Each year, the U.S. Department of Energy pours hundreds of thousands of dollars into a program that seeks community input in those areas where nuclear activities were carried on because of the Cold War threat. Twelve such sites exist today—some in closure mode, others in weapons production slowdown, while still others are in a receiving situation, accepting radioactive materials classified as waste.

The site-specific advisory boards (SSAB5), also known as community advisory boards (CABs), were established by a charter of the DOE Office for Environmental Management (EM). Following is the mission of these bodies of volunteer citizens:

1. Advise the DOE on the process, content, public participation, and other policy aspects of the EM environmental restoration, waste management, and technology development activities.
2. Issue reports and recommendations.
3. Recommend opinions to resolve difficult issues faced in the EM program, including site-specific cleanup criteria, risk assessment, land use, priority setting, management effectiveness, cost/benefit analysis, and technological strategies for waste management and disposal facilities.

The Challenges

The challenge offered by the charter is seen somewhat differently by each of the existing boards because of the differences in geography of the areas, type of facility, mission, and residuals remaining onsite as the result of the years of production. No two groups will have the same concerns, although there are overlapping commonalities throughout the complex. These sites, scattered from east to west and north to south, dictate many of the issues for which solutions must be found.

While the DOE facilities were in full swing and hundreds or thousands of people were employed, little thought was ever given to what problems might exist once things came to a halt. Once the word was out that shutdown had been ordered, citizens in these and neighboring communities became concerned over the thought of radioactive materials being left onsite or moved to other locations, as well as the potential for groundwater contamination, transportation issues, and matters of health and human safety. Protest groups sprang up in many areas. It was in hopes of having meaningful and peaceful dialogue that the DOE

established this network of citizen groups. To facilitate the working of the SSABs, funds have been made available for providing secretarial assistance, printing materials and mailings, necessary equipment, office space, and travel as well as meeting space rental. In some cases, specialists have been hired to handle some of the management, facilitation, and technical duties deemed necessary to support the work of the volunteer board members.

Included in the May 1999 Site-Specific Advisory Board Workshop on Transportation were opportunities to view trucks used to haul LLW, various types of waste shipping containers, and a demonstration of global positioning system (GPS) tracking. (Photo courtesy Fluor Daniel Fernald.)

At the onset board members were faced with factors that would influence much of their action. Even today, after several years of functioning, some of the same factors still exist:

- Size and mission of the site.
- Proximity to populated areas.
- Nature of the work done while operational.
- Amount of radioactive materials to be handled.
- Potential for reuse as an industrial site or park.
- Available water supply.
- Availability of safe transportation routes.
- Quality and amount of labor supply.
- Community attitude toward the DOE.

A Diverse, Representative Membership

The type of board membership that should be sought continues to be a challenge, as members constantly face both old and new problems. Over the years, sites have found that their board makeup may have lacked balance or was not representative of the whole area and that some members had hidden agendas that hampered smooth operation. It is vital to the operation of all boards that there be a balance or cross section of the community or area represented.

Where should the membership committee be turning for sources of potential members? Consider the following as potential sources:

- Labor unions.
- Environmental groups.
- Health and safety organizations.
- Long-time area residents.
- Civic clubs and organizations.
- The educational environment (both students and teachers at all levels).
- The religious community.
- Individuals with an interest.
- Minority groups.
- Business and political leaders.
- Professional groups or organizations.

Regardless of how well the selection process is followed, every effort should be made to objectively select candidates for consideration based on how well they match the guidelines set forth for a diverse membership. A balanced outlook is essential for an effective board, one that is able to meet the challenge before it.

A common concern among boards is the membership dropout rate, a condition that greatly reduces the ability of the board to accomplish its goals. Potential members must be advised regarding the work of the board and the demand placed on their time (not only the monthly meetings, but committee assignments, travel, and local demands for presentations). Many have found the demand on their time to be too onerous and dropped off the board. Some have said, "If I had only known what was involved, I would have withdrawn my name from consideration." The obligation to honestly present the true picture of service as a CAB member falls on the shoulders of the selection committee. They may, in fact, be the most important committee on the board.

Committees and subcommittees seem to present a problem for many boards in that too many exist without a mission, and the demand on member time for committee participation becomes a major burden. There is nothing wrong with a committee/subcommittee structure. At different times, some will be active while others may be inactive, depending on the issues being pursued by the board. However, members do have lives beyond the CAB, and this must be recognized by the leadership. Attempting to have members serve on too many committees dilutes the effectiveness of both the member and the committees. From time to time, a DOE representative may come to the SSAB requesting input on a draft Record of Decision or environmental impact statement awaiting submission to headquarters. At such times, temporary committees can be formed to review the documents, make comments, and move back to the scheduled work in progress. Flexibility is important to the smooth running of the organization.

Setting the Agenda

What issues to tackle often becomes a real stumbling block for a given SSAB. DOE site managers set forth

areas in which they feel the SSAB can lend support, but their list may be unrealistic or may not address some of the issues that SSAB members think are important. At times, the list of issues may not fall within the scope of a volunteer group. A public perception seems to exist in some areas that the board is nothing but a rubber stamp of DOE wishes. Although the DOE funds the SSAB5, it does not dictate the actions or policies of individual boards.

Too often the boards find themselves going in too many directions with no real objectives or goals established for the year. To avoid the frustration created by the lack of well-defined goals and objectives, membership must establish a list of goals they wish to accomplish over a given period of time. These should be prioritized, objectives should be clearly stated in measurable terms, and a plan of work should be adopted. It is important to have target dates set for the completions of the many different phases of the plan. Boards that work with a schedule seem to enjoy greater success than those that do not. Think of the work plan as identifying the problem: how it will be approached, who will be heading up the effort and who will serve, and when the work will be presented to the entire membership for discussion, modification, and approval. Careful planning as well as determining what areas of study are to be tackled will do much to keep members stimulated and encouraged about reaching realistic goals. Doing fewer activities well reaps greater satisfaction than attempting many tasks and doing them poorly.

Increasing Public Participation

Of concern to the majority of boards is the lack of public interest or participation at the regularly scheduled board meetings. Several factors could be contributing to poor attendance, including these:

- Time and location of meetings.
- Too much domination by DOE staffers.
- Not enough publicity about the meetings.
- A public belief that their views are not welcome or that the board does not truly represent the community.
- Meetings that last too long.

Other items might play a role in the lack of public interest and participation. Individual members should reach out to friends and neighbors to gain insight as to why there seems to be little interest shown in the work of these boards. Extending a personal invitation and even offering people a ride to meetings might do much to stimulate a new interest.

Too often the boards find themselves going in too many directions with no real objectives or goals established for the year.

SSAB members from across the country participated in small group discussions at the Transportation Workshop hosted by the Fernald CAB. (Photo courtesy Fluor Daniel Fernald.)

Each site will discover different reasons for lack of public concern, although there are common reasons across the entire complex. Steps taken to stimulate increased public participation at an area such as Oak Ridge, which encompasses both the nuclear facility and community, might well be different than those attempted by the Nevada Test Site (NTS) board, which has membership from counties and communities across the entire state. It thus becomes the challenge of each board to come up with ideas that could lead to greater public involvement. Once discovered, these ideas should be shared with other boards. Such sharing will build strength among the boards and their communities. Success does not grow in a vacuum, but rather in contact with others.

Each SSAB is faced with a wide range of concerns as expressed by those who believe that they have suffered because of the years of nuclear activity. Reaching out to the outlying communities is important because these people feel that their voices need to be heard. Some areas have hosted potluck suppers for the community, the guest presenters, and the CAB members. These kinds of activities help to break the ice and allow for a free flow of ideas between the residents and the visitors. Once a community recognizes that the CAB members are interested in listening to their concerns, any attitude of suspicion tends to fade.

One effective way to increase participation is to change the locations of meetings within a community. For example, one month it may be held in the performing arts center, while the next month it might move to a high school, a library, or a college campus. Such scheduling brings the meetings to the people and helps to make them feel a part of the entire effort, as well as helping the board members become more aware

DRAFT

Paducah Gaseous Diffusion Plant (PGDP)
Site Specific Advisory board (SSAB)
2000 Workplan

ISSUE	KEY DOCUMENTS	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
Ongoing Discussion Items													
ES&H Issues													
EM&EF													
Scrap Metal/Drum Mountain													
ITRD													
Administrative issues and committee reports													
Regular Review Items													
Ground Water Operable Unit		X		X		X		X		X		X	
Surface Water Operable Unit			X		X		X		X		X		X
Documents/plans for discussion and recommendations													

PRESENTATION OUTLINE AND CELL PROFILES ON-SITE CERCLA DISPOSAL CELL

OBJECTIVE:

- The purpose of this presentation is to summarize information gathered to date to support a preliminary evaluation of on-site disposal as a viable option for future disposition of certain Paducah Gaseous Diffusion Plant remediation wastes.

BACKGROUND:

- The current assumptions in DOE's lifecycle baseline indicate several future projects have the potential to generate large quantities of remediation wastes. These future projects include, among others, the following activities:

  - Scrap Metal Removal
  - Burial Grounds Excavations
  - D&D of C-340 and C-410 Facilities
  - Removal of contaminated soils

- The current lifecycle baseline assumes all remediation wastes will be shipped off-site for disposal.

- Preliminary dialogue from past SSAB meetings, recent public comments on the Drum Mountain EE/CA and recent State of Kentucky correspondence suggest DOE should evaluate the benefits of on-site disposal options.

ADVANTAGES OF ON-SITE DISPOSAL:

- On-site disposal options would provide greater flexibility to pursue more aggressive removal actions at source areas, with the potential to accelerate the cleanup .

- Engineered disposal cells provide a more stable long-term solution when compared to the option of capping uncontrolled sources in-place. This is because these uncontrolled sources, by definition, typically have no engineering controls (e.g., liners, leachate collection, etc.).

- On-site disposal could create additional revenues and job opportunities for the local economy as opposed to out of state disposal.

- Reduces out-of-state transportation and associated risks connected with off-site disposal.

CHALLENGES PRESENTED BY ON-SITE DISPOSAL:

- Requires a long-term stewardship commitment.
- Increases operation and maintenance costs for long-term monitoring.
- Community acceptance.
- Acceptable siting criteria:
  - geological conditions
  - floodplains and wetlands
  - seismic zones
  - etc.
- Establishment of appropriate waste acceptance criteria

STATUS:

- A preliminary information exchange meeting was held in Frankfort with EPA Region IV and Kentucky Division of Waste Management on February 10, 2000 to review case studies for three approved/operating on-site disposal facilities in the DOE complex. The three sites reviewed were:
  - Weldon Spring Facility
  - Fernald Facility
  - Oak Ridge Facility
- Six case studies (including case studies for the three sites listed above) are available electronically at www.em.doe.gov/profiles.
- EPA and Kentucky have requested that DOE prepare a Strategic Disposal Plan evaluating the benefits of on-site disposal to help determine whether a detailed feasibility study should be conducted.
- Visits to various DOE CERCLA disposal cells may be scheduled in the near future to gather additional information to support the decision-making process.

COMMUNITY PARTICIPATION:

- SSAB input is essential to the decision on whether to proceed with a detailed feasibility study.

- Arrangements can be made for SSAB members to participate in:

  - Site Visits
  - Scoping Meetings
  - Document Reviews, etc.

EM U.S. Department of Energy
Office Of Environmental Management

DOE/EM-0387

Profiles of Environmental Restoration CERCLA Disposal Facilities

U.S. Department of Energy
Office of Environmental Restoration

July 1999

This document was prepared by the Environmental Restoration Waste Issues Crosscutting Team. For more information about general environmental restoration waste issues, please contact either of the Team Co-Leaders listed below.

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Site-specific contacts for each of the disposal facilities that are in the planning stages or currently operating under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) are provided on the individual profile summaries contained in this document.

A preliminary version of this document was published in February 1999. A new format has been used in this July 1999 publication but the technical information remains the same. Additional copies may be obtained from the Center for Environmental Management Information at 1-800-736-3282. This document is also available on the Internet at http://www.em.doe.gov.

Department of Energy
Washington, DC 20585
July 1999

The Environmental Restoration Program has worked over the past decade with the United States Environmental Protection Agency, State regulatory agencies, and local stakeholders to make decisions on how to safely manage the contaminated media and debris resulting from past research and weapons production. As of 1998, approximately 49 million cubic meters of media and structural debris contaminated with radionuclides and/or hazardous chemicals remain to be addressed by cleanup actions that will be conducted under the management of the Environmental Restoration program.

Of the 49 million cubic meters of contaminated media and debris, planning assumptions indicate that 10 million cubic meters will be disposed of at facilities built under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Department of Energy has made a joint decision with our regulatory agencies to construct and operate a CERCLA disposal facility at the following four sites: Fernald, Hanford, Monticello, and Weldon Spring. In addition, the Department is considering constructing similarly dedicated disposal facilities at the Idaho National Engineering and Environmental Laboratory and the Oak Ridge Reservation.

The Environmental Restoration Waste Issues Crosscutting Team has prepared the *Profiles of Environmental Restoration CERCLA Disposal Facilities (Profiles)* to give a concise description of the six disposal facilities. The *Profiles* provide information on the following aspects of each facility:

location and size;

decision-making and operating time line;
capital and operating unit costs;
amount and types of waste expected to be disposed of in the facility; and
design of the cell, including cap composition and liner materials.

The Environmental Restoration Program fully considers factors such as the quantity of waste needing disposal, or site-specific features such as proximity to the public, before making a decision on whether to construct and operate a CERCLA disposal facility. These *Profiles* are intended to document and communicate the experiences of those sites with an operating or planned CERCLA disposal facility. I hope you find this information useful. The Environmental Restoration Waste Issues Crosscutting Team is conducting more indepth analyses which will be published in companion documents as they are completed.

--/signature/--
James J. Fiore
Acting Deputy Assistant Secretary
for Environmental Restoration

Table of Contents

Introduction

Fernald On-Site Disposal Facility

Hanford Environmental Restoration Disposal Facility

INEEL CERCLA Disposal Facility

Monticello Disposal Facility

Oak Ridge Environmental Management Waste Management Facility

Weldon Spring Site Remedial Action Disposal Facility

Acknowledgements

EM U.S. Department of Energy
Office Of Environmental Management

Introduction

The Environmental Restoration (ER) Waste Issues Crosscutting Team prepared the *Profiles of Environmental Restoration CERCLA Disposal Facilities (Profiles)* to provide a concise description of the six operating or planned facilities designed exclusively for the disposal of waste generated by cleanup activities conducted pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Planning estimates contained in the Department of Energy's 1998 *Accelerating Cleanup: Paths to Closure* document indicated that approximately 49 million cubic meters of environmental media and debris contaminated with radionuclides and/or hazardous chemicals remain to be addressed by the ER Program. The planning estimates also included information on the anticipated disposition of the contaminated media and debris.

As of 1998, the various sites in the ER program projected that approximately 10 million of the 49 million cubic meters of contaminated environmental media and debris would be addressed with *ex situ* response strategies. The vast majority of the waste generated from the *ex situ* response strategies is expected to be disposed of in the six operating or planned disposal facilities described in the *Profiles*. The Department has made joint decisions with the regulatory agencies to construct and operate CERCLA disposal facilities at Fernald, Hanford, Monticello, and Weldon Spring. The Department is evaluating the feasibility of operating similarly dedicated disposal facilities at the Idaho National Engineering and Environmental Laboratory and the Oak Ridge Reservation.

The *Profiles* provide information on the following aspects of each of the six facilities:

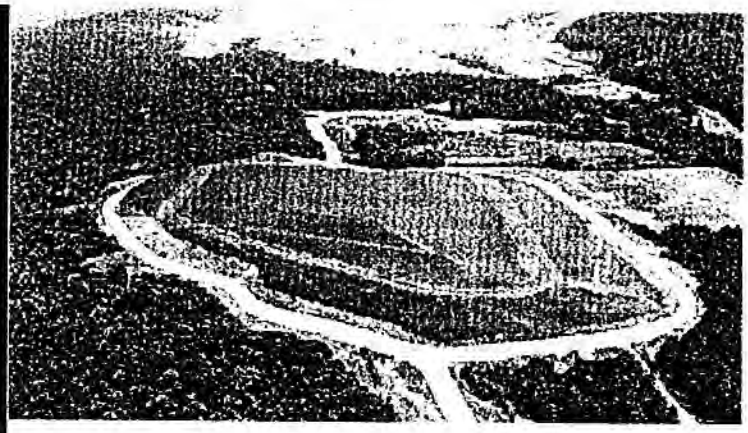
- location and size,
- decision-making and operating time line,
- capital and operating unit costs,
- amount and types of waste expected to be disposed of in the facility, and
- design of the cell, including cap composition and liner materials.

The following table summarizes specific parameters for each of the facilities. As more current data are developed, individual facility descriptions will be updated as necessary.

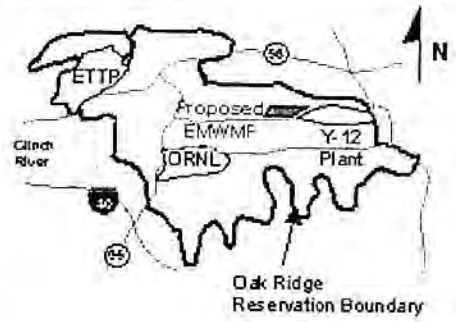
Additional in-depth analyses are currently underway to evaluate specific aspects of these facilities, such as life cycle costs, waste acceptance criteria, and types of contracts used for the various phases of each disposal facility. The results of these in-depth analyses will be published as companion documents to these *Profiles*.

EM U.S. Department of Energy Office Of Environmental Management

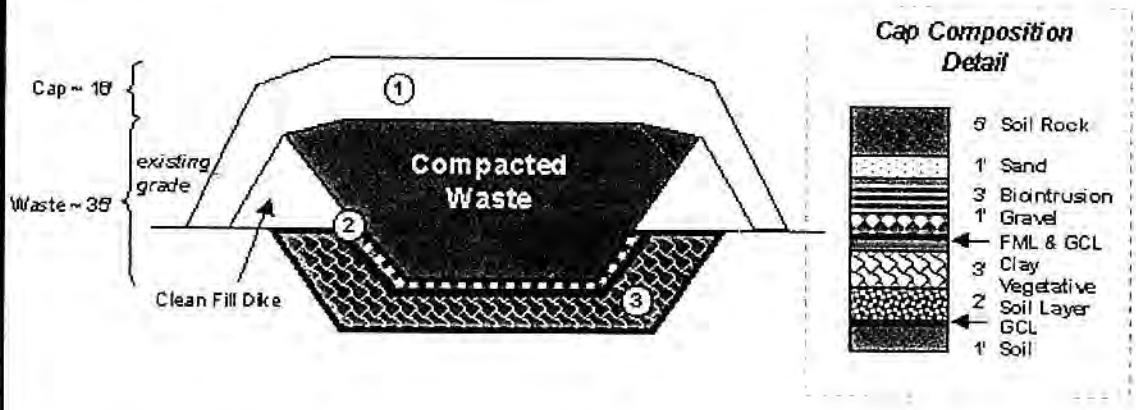
Oak Ridge Environmental Management Waste Management Facility



Site Layout



Design



The cell would be an above ground level design with some waste residing below ground level, but never below the water table. This is a conceptual design, and subject to change during development.

① The cap would be 16 feet with a biointrusion layer to prevent inadvertent future intrusion into the waste (see cap composition inset above).

② The disposal facility would be double lined with a geosynthetic clay liner (GCL), and a flexible membrane liner (FML), to allow collection of leachate and stormwater run-off and to protect local groundwater from leachate contamination.

③ There would be a 5 to 10-foot geological buffer between the base of the cell and the water table.

Support facilities would include a leachate collection and transfer facility, a decontamination facility for waste containers and transport vehicles, access roads, stormwater retention basins, and monitoring systems. To support construction of the disposal facility, an existing on-site borrow area would need to be expanded, requiring the clearing of 12 to 18 additional acres.

Location and Size

- The Oak Ridge Reservation (ORR) is located approximately 15 miles northwest of Knoxville, Tennessee.
- The proposed Oak Ridge Environmental Management Waste Management Facility (EMWMF) would be located in Bear Creek Valley near the center of the 58-square mile (or 37,000-acre) Reservation.
- The facility footprint used for waste disposal would be between 22 and 44 acres, depending on the final size actually needed. The total area including support facilities and buffer zone, would be between 64 and 98 acres.

Waste Type	Total Estimated Volume to be Disposed = 840,000 m^3

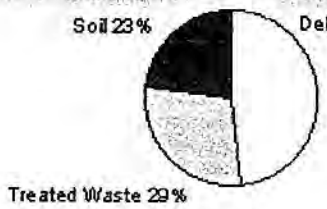
- The proposed EMWMF would accept waste from CERCLA remedial actions conducted on the ORR only. Sources of debris are expected to be building decontamination and decommissioning (D&D) at ETTP, and building and reactor D&D at ORNL.

- The primary radiological contaminants are uranium and technetium.

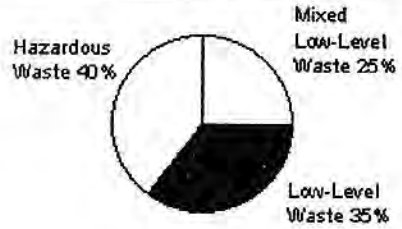
- Approximately 30 percent of the wastes at the ORR are expected to require treatment to immobilize hazardous contaminants (as defined by RCRA) in soil and debris waste streams and to remove liquids from sludge waste streams to meet land disposal restrictions.

- Waste may be delivered unpackaged in lined dump trucks, in roll-off boxes, or in sacrificial containers (drums or B-25 boxes).

Waste Form

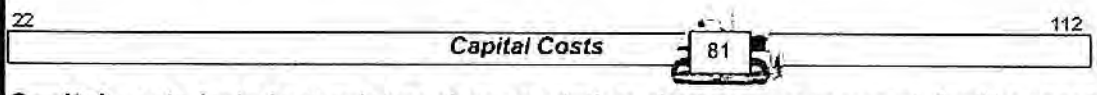


Waste Category

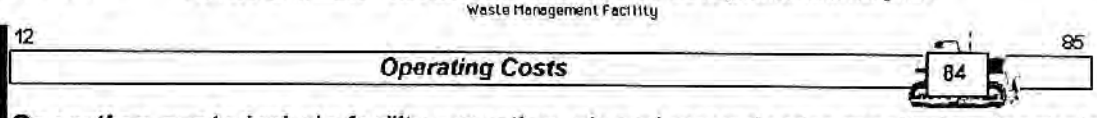


Sources: DOE, 1999, Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act of 1980 Waste (DOE/OR/01-1761&D3). DOE, 1998, Addendum to Remedial Investigation/Feasibility Study for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act of 1980 Waste (DOE/OR/02-1637&D2/A1).

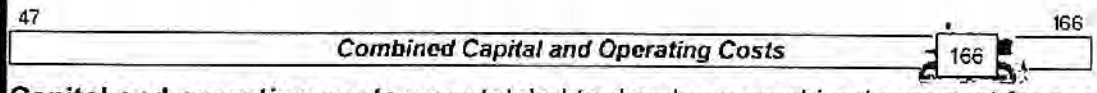
Oak Ridge EMWMF vs. Range of ER CERCLA On-Site Disposal Facility Unit Costs ($/m3)



Capital costs include regulatory documentation, design, procurement, facility construction, engineering, QA/QC, and oversight.



Operating costs include facility operation, air and groundwater monitoring, leachate management, and contractor management oversight.



Capital and operating costs were totaled to develop a combined sum cost for each of the six facilities; this bar chart portrays the range of these six facility-specific combined-sums.

The disposal costs shown here are estimates from Phase I of an analysis performed by the Environmental Restoration Waste Issues Crosscutting Team. More detailed estimates are being analyzed in a Phase II effort currently underway and include long-term stewardship. These profile sheets will be updated to include any changes in unit cost estimates resulting from the Phase II effort.

– Estimated Cost at Oak Ridge (in '98 dollars

Feasibility Study Completed	Record of Decision Scheduled	Proposed Start of Construction	Proposed Start of Disposal	Projected Closure	Facility Performance Review
Oct 1998	Sep 1999	Apr 2000	2001	2011-2033*	Every 5 Years

*Depending on completion of ORR CERCLA program.

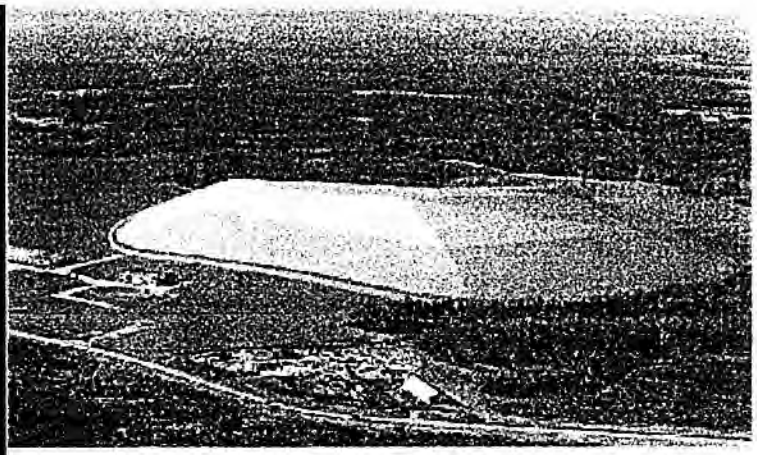
For specific information on the Oak Ridge EMWMF, please contact Bill Cahill in the Oak Ridge Operations Office at (423) 241-4830 or cahillwj@oro.doe.gov.

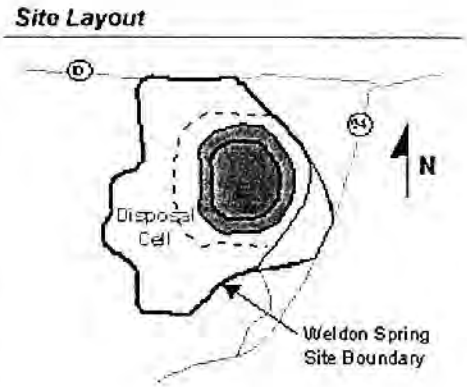
Profiles Table of Contents

About This Document
Last Updated 09/23/1999 (mhp)

EM U.S. Department of Energy Office Of Environmental Management

Weldon Spring Site Remedial Action Disposal Facility





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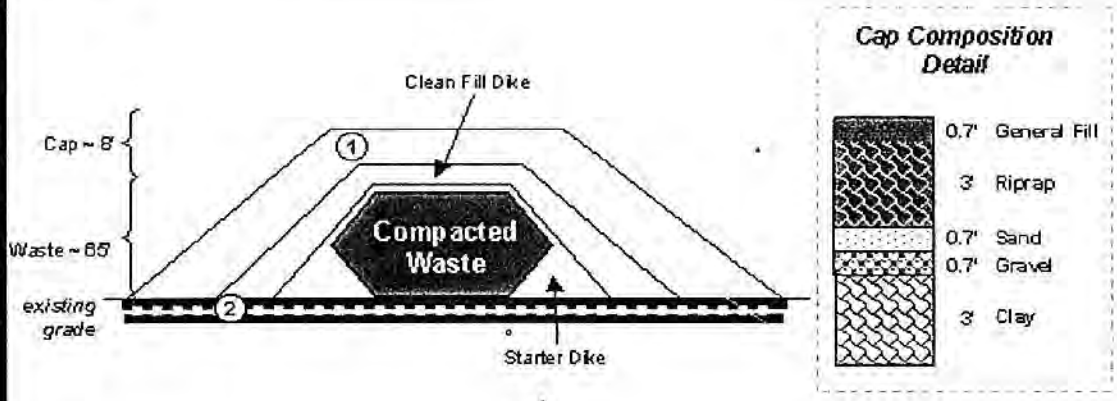


The cell averages 73 feet above ground including the 8-foot cover. It meets RCRA design criteria and radiological protection criteria set forth in 40 CFR 192 (Uranium Mill Tailings Remedial Action regulations for closure standards).

① The multilayer cover includes an infiltration/radon attenuation barrier, a biointrusion layer, a frost protection layer and an erosion protection layer (see above inset for cap composition details).

② The facility is double lined and includes a leachate collection system. Primary and secondary liners are a composite consisting of flexible membrane and clay liners. The lower leachate collection system also serves as a leachate detection system and will facilitate monitoring cell performance.

Support facilities in addition to the Chemical Stabilization/Solidification Plant include a construction material staging area, sediment retention basins, a

200-acre borrow area, and a dedicated borrow haul road. Also, the adjacent Highway 94 was realigned.

Location and Size

- The Weldon Spring Site is located approximately 10 miles west of the St. Louis, Missouri area.
- The Weldon Spring Site Remedial Action Disposal Facility is located in the northeastern portion of the 226-acre Chemical Plant Site.
- The footprint to be used for waste disposal is approximately 40 acres, with a total facility area of 70 acres including the buffer zone.
- The key factors in reaching the decision to construct this disposal facility were ease of implementation, short-term effectiveness, and cost.

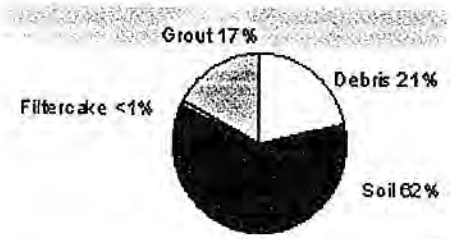
Waste Type	Total Estimated Volume to be Disposed = 1,100,000 m^3

- The contaminated materials are in the form of soils, bulk wastes from the associated Quarry site, sludges, debris, and components of disassembled chemical plant structures. The sludges, produced during uranium refinement, are being treated to remove chemical contaminants. Further treatment in the Chemical Stabilization/Solidification Plant will prepare them for placement in the permanent disposal facility.

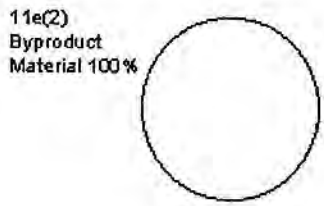
- The primary contaminants are thorium-230 and uranium.

- Note: The term 11e(2) by-product material comes from Section 11e(2) of the Atomic Energy Act of 1954 as amended, and in 40 CFR 192 where the definition of uranium mill tailings and other by-product materials is given as "tailings or waste produced by the extraction or concentration of uranium from any ore processed primarily for its source material content."

Waste Form

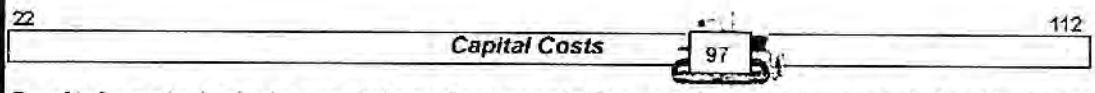


Waste Category

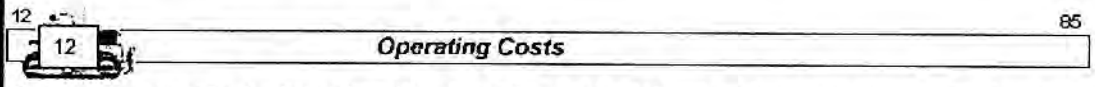


Source: DOE, 1999, Final Design Package for the Weldon Spring Site Disposal Facility.

Weldon Spring Site vs. Range of ER CERCLA On-Site Disposal Facility Unit Costs ($/m3)



Capital costs include regulatory documentation, design, procurement, facility construction, engineering, QA/QC, and oversight.



Operating costs include facility operation, air and groundwater monitoring, leachate management, and contractor management oversight.

47 166

Combined Capital and Operating Costs

109

Capital and operating costs were totaled to develop a combined sum cost for each of the six facilities; this bar chart portrays the range of these six facility-specific combined-sums.

The disposal costs shown here are estimates from Phase I of an analysis performed by the Environmental Restoration Waste Issues Crosscutting Team. More detailed estimates are being analyzed in a Phase II effort currently underway and include long-term stewardship. These profile sheets will be updated to include any changes in unit cost estimates resulting from the Phase II effort.

– Estimated Cost at Weldon Spring Site (in '98 dollars)

RI/FS-EIS Completed	Record of Decision Issued	Started Construction	Initial Waste Received	Projected Closure	Facility Performance Review
Jun 1993	Sep 1993	Mar 1997	Spring 1998	2001	Every 5 Years

RI/FS-EIS - Remedial Investigation/Feasibility Study-Environmental Impact Statement

For specific information on the Weldon Spring Site Disposal Facility, please contact Steve McCracken, DOE Project Manager, at (314) 441-8978 or steve_mccracken@wssrap-host.wssrap-com.

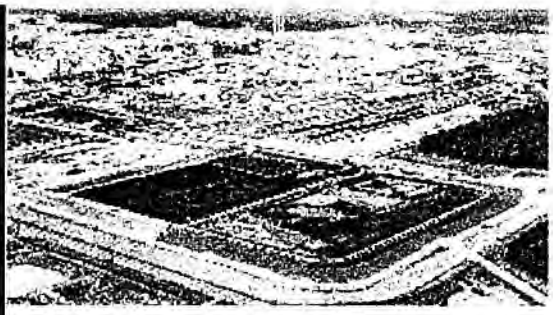
Profiles Table of Contents

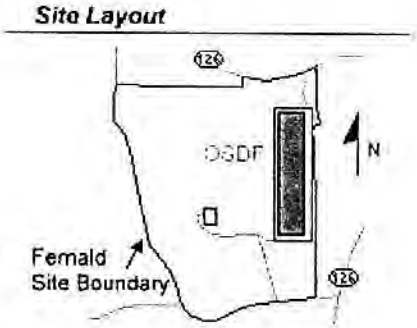
EM HOME | DOE HOME | SEARCH | WEBSITE OUTLINE
FEEDBACK | INTERACTIVE MAP | WHAT'S NEW
PRIVACY AND SECURITY NOTICE

About This Document
Last Updated 09/24/1999 (mhp)

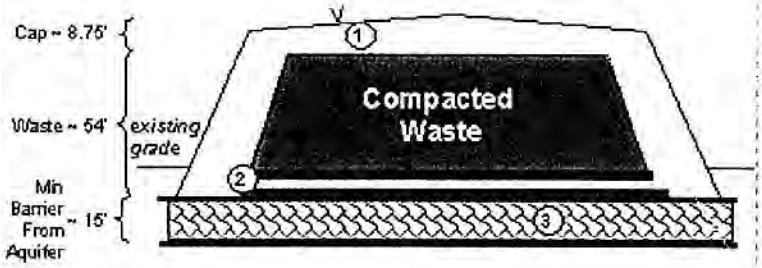
EM U.S. Department of Energy
Office Of Environmental Management

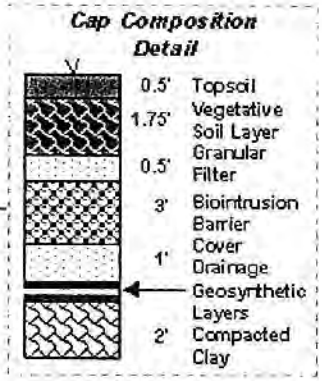
Fernald On-Site Disposal Facility





Design





The disposal facility is designed for eight cells, with a contingent ninth cell. The disposal cell is designed to limit migration of contaminants and remain stable for 1,000 years to the extent reasonable, and in any case no less than 200 years.

① The cap is a multicomponent cover, approximately 8.75 feet thick, with components to limit water infiltration (geomembrane) and biointrusion (cobblestones).

② A liner system, including a leachate collection system, is constructed beneath the waste and is approximately 5 feet thick. It is composed of multiple layers of clay, gravel, and a geosynthetic liner, and is designed to protect the Great Miami Aquifer.

③ A minimum 15-foot thick barrier of glacial till (sandy lean clay) is maintained between the cell and the Great Miami Aquifer.

Support facilities include a pad for staging and transferring materials, a leachate conveyance system, site access/control points, haul roads, and an on-site borrow pit area that is estimated to be 50 to 80 acres in size.

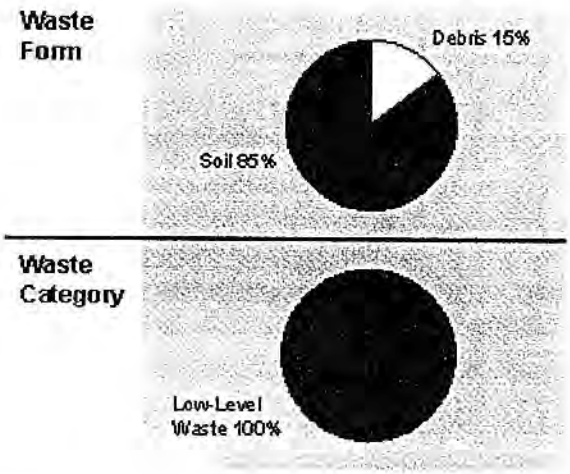
Location and Size

- The Fernald Environmental Management Project (FEMP) is located approximately 18 miles northwest of Cincinnati, Ohio.
- The Fernald On-Site Disposal Facility (OSDF) is located on the east side of the former production area at the 1,050-acre Fernald site.
- The footprint to be used for waste disposal is approximately 70 acres, with a total facility area of 140 acres including the buffer zone.

Waste Type

- The primary radioactive contaminant is uranium. Thorium and radium are also present as radioactive decay products. Technetium-99 is in some waste streams from the former process area, a small fraction of which is projected to be disposed of in the OSDF.
- The facility will receive waste from FEMP only. The waste acceptance criteria were developed to protect the underlying Great Miami Aquifer. The waste acceptance criteria include maximum concentration limits on specific radionuclides and chemicals, size criteria, and a list of prohibited items.

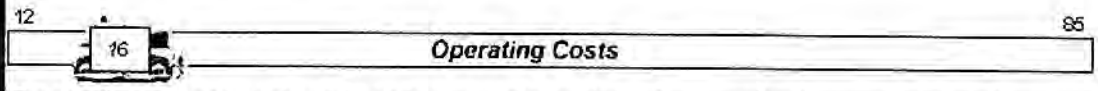
Total Estimated Volume to be Disposed = 1,900,000 m^3



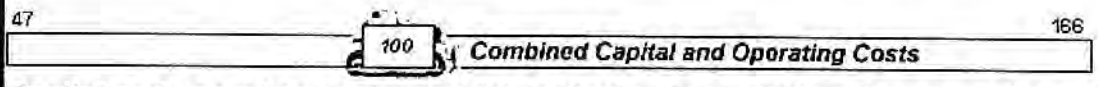
Source: DOE, 1999, Final Design Package for the Fernald On-Site Disposal Facility.

Fernald OSDF vs. Range of ER CERCLA On-Site Disposal Facility Unit Costs ($/m3)

Capital costs include regulatory documentation, design, procurement, facility construction, engineering, QA/QC, and oversight.



Operating costs include facility operation, air and groundwater monitoring, leachate management, and contractor management oversight.



Capital and operating costs were totaled to develop a combined sum cost for each of the six facilities; this bar chart portrays the range of these six facility-specific combined-sums.

The disposal costs shown here are estimates from Phase I of an analysis performed by the Environmental Restoration Waste Issues Crosscutting Team. More detailed estimates are being analyzed in a Phase II effort currently underway and include long-term stewardship. These profile sheets will be updated to include any changes in unit cost estimates resulting from the Phase II effort.

– Estimated Cost at Fernald (in '98 dollars)

Remedial Investigation Completed	Feasibility Study Completed	Record of Decision Issued	Started Construction	Initial Waste Received	Projected Closure	Facility Performance Review
Jan 1995	Mar 1995	June 1995	July 1997	Dec 1997	2006	Every 5 Years

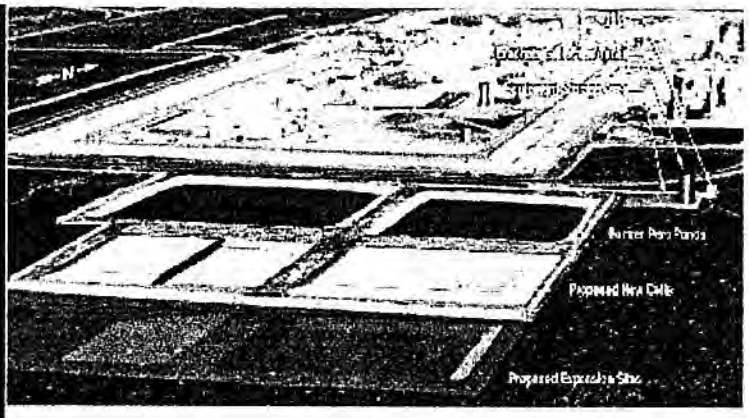
For specific information on the Fernald OSDF, please contact Jay Jalovec in the Fernald Area Office at (513) 648-3122 or jay.jalovec@fernald.gov.

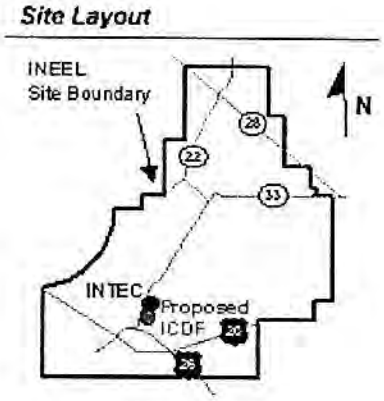
Profiles Table of Contents

About This Document
Last Updated 09/24/1999 (mhp)

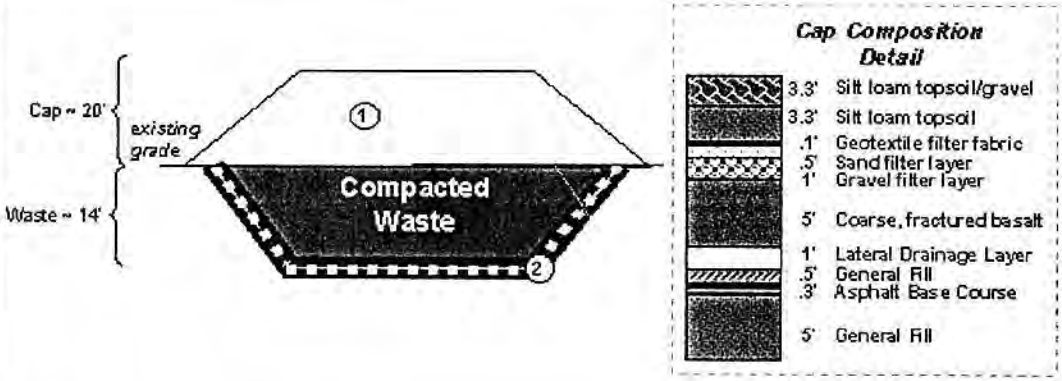
EM U.S. Department of Energy
Office Of Environmental Management

INEEL CERCLA Disposal Facility





Design



The design presented is conceptual and may change as the development of the Record of Decision proceeds.

① The cap will be designed to provide a water storage component, a capillary break component, and a barrier component as shown in the cap composition inset above.

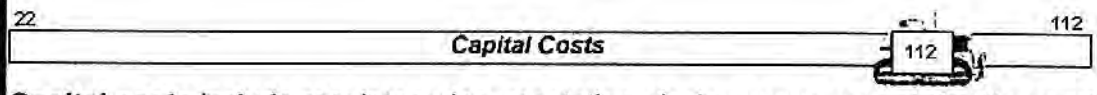
② The conceptual design of the liner system includes 1.5 feet of protective soil between the waste and a double geosynthetic liner with sand barriers followed by 3 feet of clay or asphaltic concrete. Minimal leachate is expected due to the arid climate and soil properties. Any leachate collected during open cell operations would be pumped to holding tanks and recycled for fill dust suppression/compaction control.

Location and Size

chromium).

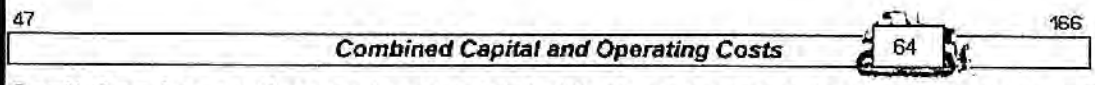
- Waste acceptance criteria (WAC) will be established for the ICDF. The WAC will be based upon modeling to ensure that the contaminant inventory does not adversely impact achieving the remedial action objectives for groundwater (the Snake River Plain Aquifer). The WAC would be developed as part of the project's remedial design phase.

INEEL Facility vs. Range of ER CERCLA On-Site Disposal Facility Unit Costs ($/m3)



Capital costs include regulatory documentation, design, procurement, facility construction, engineering, QA/QC, and oversight.

Operating costs include facility operation, air and groundwater monitoring, leachate management, and contractor management oversight.



Capital and operating costs were totaled to develop a combined sum cost for each of the six facilities; this bar chart portrays the range of these six facility-specific combined-sums.

The disposal costs shown here are estimates from Phase I of an analysis performed by the Environmental Restoration Waste Issues Crosscutting Team. More detailed estimates are being analyzed in a Phase II effort currently underway and include long-term stewardship. These profile sheets will be updated to include any changes in unit cost estimates resulting from the Phase II effort.

– Estimated Cost at INEEL (in '98 dollars)

RI/FS Completed	Record of Decision Scheduled	Proposed Start of Construction	Proposed Start of Disposal	Scheduled to Begin Closure	Existing Institutional Controls Remain Effective	Facility Performance Review
Oct 1998	Sep 1999	July 2000	2001	2012	2045	Every 5 Years to 2095

RI/FS - Remedial Investigation/Feasibility Study

For specific information on the INEEL CERCLA Disposal Facility, please contact Talley Jenkins in the Idaho Operations Office at (208) 526-4978 or jenkintw@id.doe.gov.

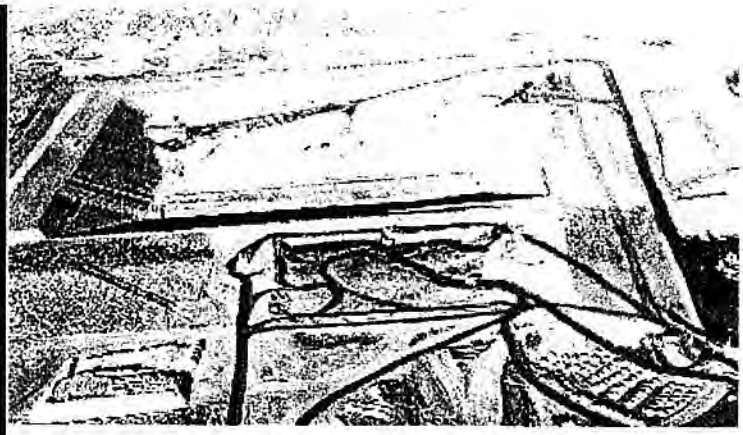
Profiles Table of Contents

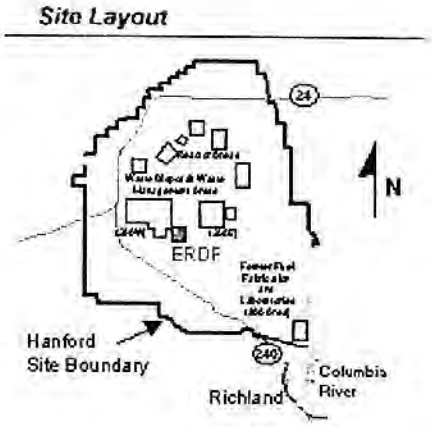
EM HOME | DOE HOME | SEARCH | WEBSITE OUTLINE
FEEDBACK | INTERACTIVE MAP | WHAT'S NEW
PRIVACY AND SECURITY NOTICE

About This Document
Last Updated 09/24/1999 (mhp)

EM U.S. Department of Energy Office Of Environmental Management

Hanford Environmental Restoration Disposal Facility





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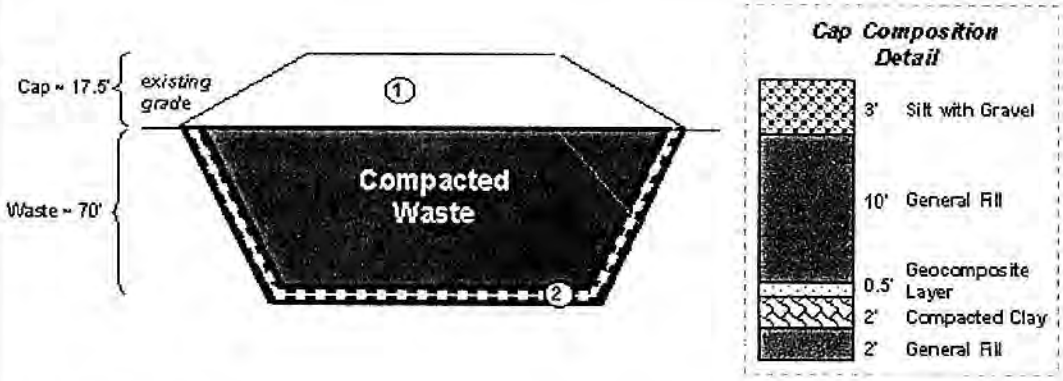


The facility is constructed in 2-cell increments. Each cell is 500 feet per side with 3-to-1 side slopes. Additional cells can be added as needed within the ERDF fenced area. The critical receptor driving ERDF's design is protection from a hypothetical inadvertent intruder and compliance with DOE Order 5820.2A performance objectives.

① As portions of the facility are filled, a cap will be installed (see cap composition inset above for details).

② The facility is engineered to prevent rainwater and snowmelt from entering the zone containing radioactive waste. A double liner that complies with requirements of RCRA is installed beneath the contaminated material. A leachate collection system is placed between the liners to collect any liquids (little liquid is expected because of the arid climate).

Support facilities include scales, loading/unloading area, leachate collection and storage facility, and site access/control points. Borrow materials (e.g., gravel used in the leachate collection system) are obtained from on-site locations near ERDF.

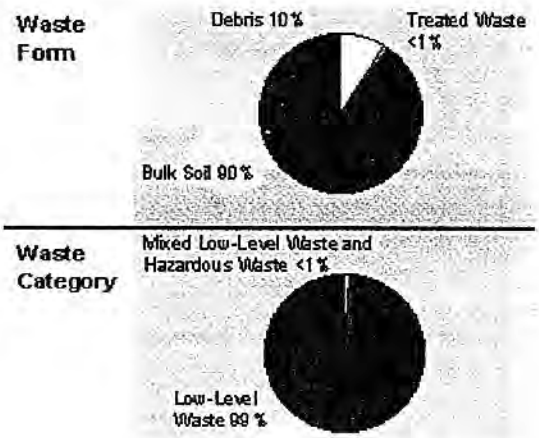
Location and Size

- The Hanford Site occupies 562 square miles (or about 360,000 acres) and is located north of and adjacent to Richland, Washington.
- The Hanford Environmental Restoration Disposal Facility (ERDF) is more than 8 miles from the Columbia River on the central plateau, between the 200 East and 200 West Areas of the Hanford Site.
- The total footprint of the four ERDF cells being used or constructed as of 1999 is 47 acres. Under the current CERCLA Record of Decision (ROD) four additional cells could be added making the total area used for waste disposal 94 acres. The final fenced boundary of ERDF is projected to be 1 square mile (or 640 acres).

Waste Type

- Principal waste contaminants are fission products and heavy metals.
- The Hanford ERDF accepts on-site waste from cleanup activities only.
- The majority of the waste is bulk soil placed in roll-off containers lined with plastic. In addition, packaged waste (e.g., in sealed containers or drums) is also allowed.

Total Estimated Volume to be Disposed = 3,800,000 m^3



Source: DOE, 1998, Accelerating Cleanup: Paths to Closure database.

Hanford ERDF vs. Range of ER CERCLA On-Site Disposal Facility Unit Costs ($/m3)

Capital costs include regulatory documentation, design, procurement, facility construction, engineering, QA/QC, and oversight.

Operating costs include facility operation, air and groundwater monitoring, leachate management, and contractor management oversight.

Capital and operating costs were totaled to develop a combined sum cost for each of the six facilities; this bar chart portrays the range of these six facility-specific combined-sums.

The disposal costs shown here are estimates from Phase I of an analysis performed by the Environmental Restoration Waste Issues Crosscutting Team. More detailed estimates are being analyzed in a Phase II effort currently underway and include long-term stewardship. These profile sheets will be updated to include any changes in unit cost estimates resulting from the Phase II effort.

– Estimated Cost at Hanford (in '98 dollars)

RI/FS Completed	Record of Decision Issued and Construction Started	Initial Waste Received	Projected Closure	Facility Performance Review
June 1994	Jan 1995	July 1996	2035	Every 5 Years

RI/FS - Remedial Investigation/Feasibility Study

For specific information on the Hanford ERDF, please contact Owen Robertson in the Richland Operations Office at (509) 373-6295 or Owen_Jr_Robertson@rl.gov.

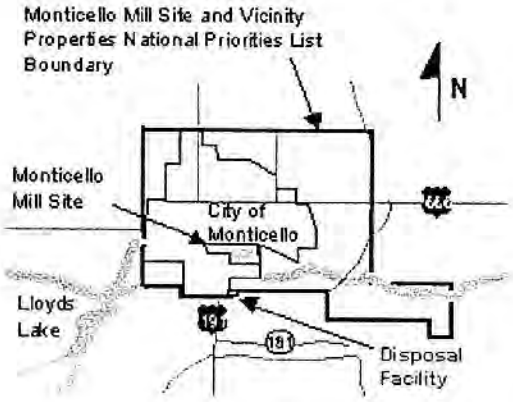
Profiles Table of Contents

About This Document
Last Updated 09/24/1999 (mhp)

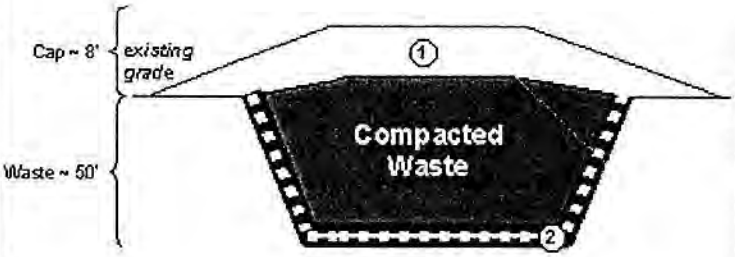
EM U.S. Department of Energy
Office Of Environmental Management

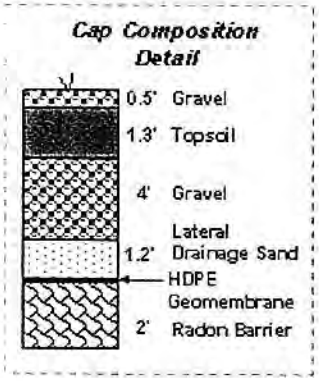
Monticello Disposal Facility

Site Layout



Design





The facility is designed to meet the radiological protection criteria set forth in 40 CFR 192 (Uranium Mill Tailings Remedial Action regulations for closure standards).

① The cap is covered by a vegetative cover and includes a high-density polyethylene (HDPE) liner. The cap is designed to maximize evaporation of rainwater so that little or no moisture passes down to tailings (see inset above for cap composition details).

② The base of the cell includes a double liner system beneath the tailings. The two liners are designed to ensure protection of the groundwater. A leachate collection and removal system exists and includes a leak detection system.

Support facilities include a wastewater treatment plant, four lined retention ponds,

and construction offices. The vast majority (>90%) of the material used in the construction of the facility is from onsite material obtained from excavation.

Location and Size

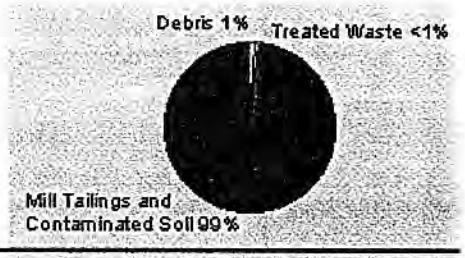
- The Monticello Mill Site is located in San Juan County, Utah, near the city of Monticello, in the southeastern corner of Utah.
- The Monticello Disposal Facility is located 1 mile due south of the Monticello Mill Site.
- The footprint used for waste disposal is 80 acres, with a total facility area of approximately 108 acres including the buffer zone.

Waste Type

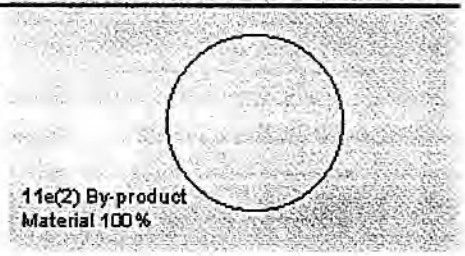
- Waste is accepted from the former mill site and 425 vicinity properties.
- The principal contaminants of the mill tailings include uranium, radium-226, arsenic, copper, vanadium, lead, and other metals.
- Wastes are unpackaged, bulk soils minimizing the need for waste handling.
- Note: The term 11e(2) by-product material comes from Section 11e(2) of the Atomic Energy Act of 1954 as amended, and in 40 CFR 192 where the definition of uranium mill tailings and other by-product materials is given as "tailings or waste produced by the extraction or concentration of uranium from any ore processed primarily for its source material content."

Total Estimated Volume to be Disposed = 1,800,000 m^3

Waste Form



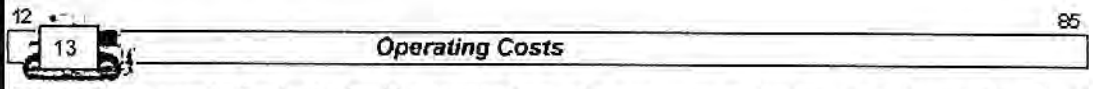
Waste Category



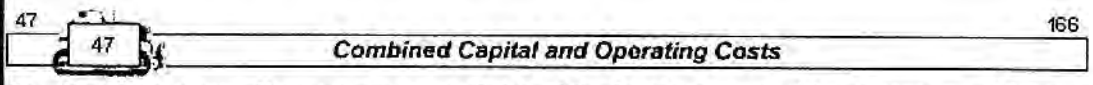
Source: DOE, 1990, Monticello Mill Tailings Site Declaration and Summary for the Record of Decision, with volumes updated in a December 1998 survey.

Monticello Facility vs. Range of ER CERCLA On-Site Disposal Facility Unit Costs ($/m3)

Capital costs include regulatory documentation, design, procurement, facility construction, engineering, QA/QC, and oversight.



Operating costs include facility operation, air and groundwater monitoring, leachate management, and contractor management oversight.



Capital and operating costs were totaled to develop a combined sum cost for each of the six facilities; this bar chart portrays the range of these six facility-specific combined-sums.

The disposal costs shown here are estimates from Phase I of an analysis performed by the Environmental Restoration Waste Issues Crosscutting Team. More detailed estimates are being analyzed in a Phase II effort currently underway and include long-term stewardship. These profile sheets will be updated to include any changes in unit cost estimates resulting from the Phase II effort.

– Estimated Cost at Monticello (in '98 dollars)

RI/FS-EA Completed	Record of Decision Issued	Construction Completed	Initial Waste Received	Projected Closure	Facility Performance Review
Oct 1989	Sep 1990	Nov 1996	Spring 1997	2000	Every 5 Years

RI/FS-EA - Remedial Investigation/Feasibility Study-Environmental Assessment

For specific information on the Monticello Disposal Facility, please contact Joel Berwick in the the Grand Junction Project Office at (970) 248-6020 or Joel.Berwick @DOEGJPO.com.

Profiles Table of Contents

EM HOME | DOE HOME | SEARCH | WEBSITE OUTLINE
FEEDBACK | INTERACTIVE MAP | WHAT'S NEW
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HELP WANTED

The Paducah Sun
03/14/00 - P. 4A

Agency can ease impact of layoffs

The federal Department of Energy needs to make a firm commitment to employ most of the workers the U.S. Enrichment Corp. plans to lay off at its gaseous diffusion plants in Paducah and Portsmouth, Ohio.

Last week DOE officials told an Ohio congressman that they hope to find jobs for at least 600 of the 850 USEC employees who will lose their jobs in a round of layoffs scheduled to begin in July. The company eliminated 474 jobs at the two plants in a voluntary workforce reduction that ended last year.

When the latest job cuts — both voluntary and involuntary — are completed, employment at the Paducah plant will fall to 1,275. Three years ago the plant employed almost 2,000 workers.

federal government can ease the impact of the massive layoffs by expanding and speeding up the cleanup of the two facilities. A serious environmental cleanup program could create hundreds of jobs for displaced USEC workers in Paducah alone.

We don't believe DOE officials are exaggerating when they say the cleanup operations can provide jobs for 600 to 650 former USEC workers. We're also convinced the removal of radioactive wastes and the decontamination of the plant sites will take more than a decade, which means the jobs associated with the cleanup offer something better than short-term, transitional work.

Consider the sheer size of the task in Paducah: the removal of 65,000 tons of contaminated scrap, including "drum mountain," which contains crushed drums that once were filled with uranium tetrafluoride; the cleanup of tainted groundwater that is moving from t[illegible]te; and the conversion of about 3[illegible] cylinders of uranium hexafluoride to safer materials.

There's little doubt that effectively cleaning up the plant sites will require substantial manpower and a considerable amount of time. Still, no one in the Paducah area who has tracked DOE's past promises can feel at all confident that the agency will deliver the jobs it "hopes" to create.

Congressman Ted Strickland, who represents the district where the Portsmouth plant is located, doesn't consider DOE's job estimates realistic. He rightly notes the jobs depend on Congress approving funding for the cleanup program.

For Paducah plant workers and residents, the main concern is whether DOE truly is serious about cleaning up the mess the government made here during the Cold War era. Agency officials have repeatedly promised to right past wrongs committed here, but their rhetoric is far more impressive than their actual record.

Recent developments offer cause for hope, however. President Clinton is asking Congress to double the funds allocated last year for environmental cleanup and worker health programs at the Paducah plant. This isn't nearly enough money to get the job done, but it does indicate the administration is beginning to acknowledge the seriousness of the environmental problems the federal government caused in Paducah.

It's also encouraging that DOE officials have hired USEC to remove the "drum mountain." This cleanup operation will create 20 to 45 jobs for USEC workers who lose their jobs.

Even so, the agency needs to make a far larger commitment to cleaning up the plant environment and providing jobs for displaced workers.

For instance, DOE officials could create hundreds of jobs in Paducah and Portsmouth if they stopped dragging their feet on a congressional mandate to build facilities to recycle depleted uranium. In effect, the agency is delaying the plant cleanup and making the future even more uncertain for USEC workers who lose their jobs.

As this newspaper has repeatedly emphasized, the federal government owes a major debt to Paducah for subjecting unknowing workers to health risks and for despoiling the environment around the gaseous diffusion plant.

We realize the government cannot provide permanent jobs for all the USEC employees who will receive pink slips in the coming year. But simply by fulfilling its obligations, the federal government can help hundreds of families in Paducah and Portsmouth.

The Paducah Sun

March 5, 2000
Paducah, Ky., 42002

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Since 1896
Vol. 104 • No. 65

HOLD THE THOUGHT: *The future of the uranium enrichment plant looks brighter — Editorial, 4A*

100 samples reveal beryllium at DOE site

■ **The Paducah** *findings could provide a starting point in deciding whom to test for a link between beryllium and illness of workers.*

By Joe Walker
Sun Business Editor

During the past decade, traces of the highly toxic metal beryllium have been found in more than 100 groundwater samples at and near the Paducah Gaseous Diffusion Plant, mainly around scrap yards and a building where precious-metal recovery reportedly took place.

The findings — starting in routine sampling and later concentrating on known areas of contamination — could be integral as the Department of Energy continues its probe of nuclear weapons work at the plant during the Cold War.

Later this year, Congress is expected to pass legislation to compensate government and contract workers who got sick from beryllium, but until recently DOE said there was no evidence it was used at Paducah. The department now says some past Paducah workers could qualify if there is a link between illness and beryllium. Highly toxic if inhaled or ingested, beryllium poses the greatest threat to workers who breathe it in dust from milling work.

Scientists doing a DOE-sponsored health study of Paducah plant workers say they can easily test for beryllium in the blood if they can pinpoint whom to test. That requires having "sufficient evidence" that beryllium was used at Paducah, said Dr. Steven Markowitz, an epidemiologist heading the study, which has primarily dealt with radiation exposure.

"We need departments, buildings, job titles, things like that," he said. "Once we have that information, then we'll request DOE to add beryllium testing to our program."

The sampling data reviewed by the Sun came from monitoring wells not used for drinking. However, all the results exceeded .004 parts per million, the level at which public water supplies must treat to remove beryllium.

Some findings barely above the level came in 1993 and 1994 from

Please see **100** 5A

Sunday, March 5, 2000 The Paducah Sun

100 groundwater samples reveal beryllium at DOE site

Continued from 1A

monitoring wells in the state wildlife management area near Ogden Landing Road and on Tennessee Valley Authority land north of the plant. Since then, DOE has provided scores of homes near the plant with municipal water because traces of two other plant-related contaminants — trichloroethylene, a degreaser, and technetium-99, a contaminant in spent nuclear fuel — were found in wells at a few of the homes.

Mark York, spokesman for the Kentucky Natural Resources Cabinet, said the state has reviewed all the beryllium findings. "In essence, even though there is a risk present, the risk to human health has been addressed because there is now a safe water source," he said.

Conducted by DOE contractors, the sampling showed many results barely above the drinking water standard, but some on the west side of the plant's fenced area were above .09 parts per million — nearly 25 times higher than the standard. Those readings were near old uranium and metal scrap yards at the extreme northwest corner of the plant in the vicinity of the so-called "drum mountain" scrap pile and two classified burial yards that may contain old bomb parts.

Although DOE has not established a link between the groundwater contamination and the scrap piles, it says beryllium could have been used many years ago in the building and dismantling of nuclear bomb components.

"We're trying to find out the extent of beryllium use at the site," said DOE spokesman Walter Perry. "We hope to find out what the big picture is, and we're having to go back and reconstruct history."

Beryllium is linked to chronic lung disease among 500 to 1,000 workers at other DOE plants and firms that processed it. In July, DOE announced a program to compensate workers who contracted beryllium disease, saying there was no evidence beryllium was used at Paducah.

But the department recently reversed that stance, noting that beryllium may have been used during the Cold War in the plant machine shop to coat nuclear weaponry for defense facilities. A silvery-gray metal, it is useful in weapons production because of its strength, light weight, relatively high melting point and machinability.

Last month, DOE issued an employee memo noting that Paducah plant machine shop workers could have used beryllium to coat weapons parts for defense facilities. It also published an investigative report saying beryllium-copper components may have been machined or cleaned for customers in the 1960s.

The report cited a 1968 memo indicating that a beryllium-contaminated furnace from another defense plant was cleaned "without personnel exposure" in what is now the plant laboratory. "In general, there was no evidence of airborne beryllium or overexposures," the report said.

Perry said beryllium was not prominently mentioned in the report because the investigation did not deal with classified work done during the Cold War. DOE now is looking at weapons-related work and including beryllium in the probe, he said, noting that records are sketchy or nonexistent.

"Many former workers have been extremely helpful in telling us what went on in certain buildings and what sort of waste was disposed of in burial grounds and landfills," Perry said. "That helps us regain the corporate memory that has not been readily available in documents and records from the past."

One of the few beryllium-related documents is an old memo to DOE headquarters from its Oak Ridge, Tenn., operations staff that oversees work at Paducah. Mark Griffon, lead health physicist for the worker health study, said he saw the memo and guessed it to have been written in the early 1980s. He said it was vague but reported that beryllium was present at the Paducah plant in unknown amounts.

Plant sampling records show that in 1996, beryllium was found 43 times in groundwater in the northwestern corner of the fenced plant area near uranium and scrap metal burial yards. Covering about 26 acres, the area has roughly 65,000 tons of scrap metal in seven fenced sections.

Other findings exceeding the drinking water standard in 1996 were around a uranium scrap burial yard in the northwestern corner of the plant. The metal is pyrophoric, which means it may spontaneously ignite on contact with the air.

Beryllium also was detected above the drinking water standard 42 times in 1997 near a cleaning building in the middle of the plant. Most samples were slightly above the standard, and some others were seven to 12 times higher. Used for decades to clean and decontaminate parts and equipment, the building is a leading source of groundwater contamination containing the degreaser trichloroethylene.

In 1998, beryllium exceeded the standard in 22 samples on the west side of the plant in the vicinity of the burial grounds. The highe reading was about seven tim above the standard.

Beryllium has been found le frequently in plant soil, and mo of the nearly 8,000 samples ha read near 69 parts per million, t amount believed to be naturally the ground, said Craig Jones, en ronmental engineer for Bechtel Jacobs, DOE's lead cleanup co tractor.

Jones said fewer than 10 sa ples have been "well above bac ground" near the burial grounds the northwest corner of the pla and a maintenance building. T building may have been an ar where nuclear bomb parts we milled or scrap parts dismantl to recover precious metals.

Although the state does not co sider beryllium in plant soil da gerous to workers, there will be risk assessment of the metal ar many other soil contaminant York said. "If there is a proble it will be addressed.

Sources say another DOE contractor sued

■ **The false-claims** *lawsuit says Lockheed Martin, former contractor at the Paducah site, defrauded the government, according to sources.*

By Joe Walker
Sun Business Editor

Another false-claims suit alleging that a former Paducah Gaseous Diffusion Plant contractor defrauded the government reportedly has been filed, this time in Louisville.

Various informed sources said they understand the suit was filed last month in U.S. District Court by Louisville attorney Steve Pence, a former assistant U.S. attorney now in private practice. So-called "whistle-blower" suits are sealed from public view pending a Justice Department determination if the government should intervene as a plaintiff.

Contacted Friday, Pence would not confirm or deny filing the action. "I'm really not at liberty to discuss it," he said.

Several sources said they had been briefed on the contents of the suit against former plant contractor Lockheed Martin (formerly Martin Marietta), which ran the plant for the Department of Energy for several years until 1999. The suit reportedly alleges that Lockheed Martin fraudulently obtained fees to characterize asbestos contamination in radioactive nickel components at the plant, when in fact little or no asbestos was present.

Hancy Jones, an assistant United States attorney in Louisville, said he could neither confirm nor deny the existence of the lawsuit.

DOE spokesman Steve Wyatt said, "We have not had any kind of formal or informal word about such a lawsuit. It would be up to the Department of Justice to decide when we would be informed."

Lockheed Martin has denied allegations in two other federal lawsuits filed in Paducah, alleging that environmental practices at the plant contaminated workers and the public. The Justice Department is investigating a whistle-blowers' suit alleging the firm defrauded the government. A second suit seeks to be a class action on behalf of as many as 10,000 workers, former workers and their families.

Last year, DOE backed out of a plan to sell thousands of tons of nickel ingots because they are difficult to decontaminate and pose safety problems once entering the marketplace. Tests have shown the metal to contain traces of plutonium and technetium, radioactive contaminants from spent nuclear fuel.

DOE site's cleanup may take until 2021

■ **Sen. Jim Bunning** *told Congress that a GAO report will say the work will not be done as planned, by 2010.*

By Nancy Zuckerbrod
Associated Press

WASHINGTON

A soon-to-be-released report will show that the federal government has underestimated how long it will take to complete environmental cleanup work at the Paducah Gaseous Diffusion Plant, U.S. Sen. Jim Bunning said at a congressional hearing Thursday.

The Kentucky Republican

Please see **CLEANUP** / 10A

Cleanup to take longer at DOE site: Bunning

Continued from 1A

called on the U.S. General Accounting Office in October to conduct an inquiry into the Department of Energy's cleanup of the federal uranium enrichment plant.

The GAO report is due to be released in a month and is expected to show that it will take until 2021 to complete the effort at Paducah, Bunning said.

Energy Secretary Bill Richardson testified Thursday that the department's "baseline" or target date for finishing the job is 2010, and he said he was not told that meeting it would be a problem.

Bunning said it was important for Richardson to present a long-term plan and a realistic view of the cleanup effort. The senator said it entailed getting rid of 65,000 tons of contaminated scrap metal, 50,000 barrels of contaminated waste, 47,000 canisters filled with spent uranium and other waste, 1 million cubic feet of contaminated earth and 10 billion gallons of contaminated groundwater around the plant.

"The question is, when is it going to go away?" Bunning asked Richardson.

"I'm trying to clean it up," Richardson said.

The Clinton administration has proposed spending $109.2 million at Paducah in fiscal 2001 for environmental cleanup, a program to convert uranium compounds to a safer material, medical surveillance and worker transition programs.

Of that money, DOE says $78 million would be used exclusively for cleanup. The current cleanup budget at Paducah is $54.2 million.

Bunning also criticized Richardson for failing to live up to commitments he has made.

For instance, Bunning said DOE is moving too slowly in setting up the program to convert uranium compounds into a safer substance and is spending too little money on that effort.

And he said DOE has not taken steps toward selling low-level, surplus enriched uranium that could yield cash to fund the conversion program.

Also Thursday, the Senate Governmental Affairs Committee announced it would hold a hearing March 22 to focus on the Energy Department's management of health and safety issues at the Paducah facility and plants in Piketon, Ohio, and Oak Ridge, Tenn.

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Piketon nuclear plant Senate to investigate past safety practices

Friday, March 3, 2000

BY Jonathan Riskind
Dispatch Washington Bureau

Whether the federal government put Cold War-era workers at southern Ohio's uranium-enrichment plant in harm's way will be front and center before a U.S. Senate committee this month.

The Senate Governmental Affairs Committee will hold a hearing March 22 to investigate whether workers at the Portsmouth Gaseous Diffusion Plant were exposed unwittingly for decades to plutonium-tainted uranium and other dangerous materials that could cause serious illnesses.

"The federal government owes both current and former workers the truth about what materials they were exposed to on the job," said Sen. George V. Voinovich, R-Ohio, chairman of the committee's Oversight of Government Management Subcommittee. Voinovich and Sen. Fred Thompson, R-Tenn., the full committee chairman, jointly announced the hearing yesterday.

"If the federal government put workers in harm's way without their knowledge, we need to know about it and we need to know what we can do to make it right," Thompson said.

The hearing comes as the Department of Energy is finishing its own investigation into Cold War-era practices at the Piketon, Ohio, plant and whether working conditions resulted in cancers and other illnesses.

Energy officials have interviewed hundreds of current and former workers at the Piketon plant, but have declined to release any preliminary findings.

Findings from the investigation, sparked partly by articles in The Dispatch, are to be issued by May.

The Clinton administration already has proposed giving workers who developed cancers and other illnesses at a sister facility in Paducah, Ky., up to $100,000 each if they were exposed to certain materials or held certain jobs.

The two plants produced nuclear weapons-grade uranium and were operated by

the Energy Department until 1993. Currently, they are run by a privatized federal corporation, USEC, and produce only low-grade, commercial uranium for use as nuclear power-plant fuel.

In addition, Thompson noted that the Energy Department plans to investigate a third enrichment plant in Oak Ridge, Tenn., which is no longer in operation.

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The Courier-Journal
LOCAL NEWS
Thursday, March 2, 2000

Are you ready to retire?

Plant's reaction risk to be studied

By JAMES MALONE, The Courier-Journal

PADUCAH, Ky. -- The Energy Department has agreed to pay U.S. Enrichment Corp. $4.8 million to study and inventory material that has the potential to create a nuclear reaction in 10 government piles of junk and spare parts at the uranium enrichment plant.

Last week, the company informed the Nuclear Regulatory Commission that it has been hired to examine the piles for "nuclear criticality" -- an uncontrolled nuclear reaction they say is possible but unlikely.

Completing a review of the storage piles after months of haggling and blame may have important implications for the future of the Paducah Gaseous Diffusion Plant.

The presence of the debris has hindered U.S. Enrichment's $50 million program to beef up buildings against earthquakes -- an upgrade that must be complete before the plant could double its level of uranium enrichment to 5 percent, said U.S. Enrichment spokeswoman Elizabeth Stuckle.

Paducah currently performs the initial phase of separating uranium for nuclear reactor fuel. It ships its product to a sister plant in Portsmouth, Ohio, for a second separation to raise the concentration of fissile uranium to 5 percent.

Potential dangers in the storage piles also were highlighted in an Energy Department oversight investigation report late last fall that said that the components could contain uranium with up to a 93 percent enrichment.

Rather than seek bids, the Energy Department hired U.S. Enrichment under an existing agreement that pays the company to cut the grass, provide security and perform other tasks at the government-owned plant, said department spokesman Walter Perry in Oak Ridge, Tenn.

The no-bid arrangement allows study of the storage piles to proceed "faster and cheaper" because it won't require hiring and training an outside work force, Perry said.

Perry said the criticality study is to be completed by July. The NRC, Energy Department and U.S. Enrichment then will decide about future storage or removal.

The government is spending almost $5 million to study its own material, some of it classified uranium-enrichment equipment, "because records are not readily available" to show its potential criticality, Perry said. Equipment and spare parts in the storage areas came from uranium plants in Oak Ridge and Portsmouth.

U.S. Enrichment and the Energy Department have been haggling over the storage

areas for several months. Last year, U.S. Enrichment wrote a letter to the NRC complaining that Energy Department delays in correcting the problem had lengthened the earthquake-upgrade project.

Stuckle said the company plans to apply to the NRC by June to raise its enrichment level and anticipates approval by year's end. The company does not yet have a target date when Paducah could start operations at the higher levels, she said.

BACK TO NEWS DIGEST TO NEWS ARCHIVE

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The Paducah Sun
02/28/00 - P. 4A

DOE site danger article contained error regarding disclosure statement

EDITOR:

Bill Bartleman's Feb. 15 article, "Colleagues doubt DOE site danger," asserts that I said "some reporters" had my Feb. 3 disclosure statement "before it was officially filed." That assertion is incorrect.

I said a reporter apparently had the statement before I knew it had been officially filed. I prepared the statement myself, and made several minor changes at the suggestion of my attorney. I signed the final statement on Feb. 3 and gave it to my attorney with instructions to disclose it to appropriate federal authorities. He filed it at multiple agencies on Feb. 10.

I stand behind the statement and its importance to the health and safety of all Paducah workers. Not knowing of such matters is perhaps the greatest danger faced by all of us.

RAYMOND G. CARROLL
Paducah

The Paducah Sun

February 24, 2000

DOE seeks worker input on weapons

By Bill Bartleman
The Paducah Sun

U.S. Department of Energy officials want to talk to current or former Paducah Gaseous Diffusion Plant employees who worked in the weapons recovery operations that ended in the mid-1980s.

Acting Paducah Site Manager Dale Jackson said at a DOE-sponsored meeting Wednesday night at the Information Age Park that documenting all of the nuclear weapons activity has been difficult because it was done for the Department of Defense.

"A lot of the work we did on weapons was classified and still is classified," Jackson said. "Documents regarding that work are not here because ... (they left the plant) with the weapons work. We are having a difficult time following the paper trail ... but we are getting those records so we can fully understand the story of what went on here."

DOE disclosed in recent weeks that beryllium and tritium contamination at the plant may have come from some of the secret weapons work. Those two elements are part of triggers used in nuclear weapons that were dismantled at the plant.

Officials have acknowledged that some weapons parts were dismantled and melted down to recover gold and other valuable elements. There also have been recent reports that thousands of tons of weapons parts may be buried in a classified DOE landfill.

Jackson said the records are being gathered as part of an investigation to determine the extent of contamination from the classified weapons work.

"We need your help," he said. "We very much desire to talk to anyone who did weapons work at the plant." He said the interviews are in addition to the effort to recover records about the work.

Anyone with information should contact Jackson by calling the DOE site office at 441-6800.

The weapons study is separate from two other investigations done recently by special DOE investigators from Washington. Those investigations focused on whether plant procedures protected adequately the health and safety of the workers and community.

Wednesday's public meeting was held so DOE officials could answer questions about the Phase II study of contamination. It covers work done from the time the plant opened in 1952 until 1990. The report was released earlier this month and said that workers and nearby residents were exposed to radioactive gas releases and contamination.

A previous report covered contamination from 1990 to present.

Approximately 120 people attended the meeting, and about 10 asked questions, most involving whether former workers or their families, or weather nearby residents, would be compensated for possible health problems caused by contamination from the plant.

DOE officials said they are studying that issue.

Jackson also acknowledged that DOE has a credibility problem that it is attempting to overcome.

He said the problem was caused by the fact that until the end of the Cold War, most of the plant's operations were classified. He said officials weren't allowed to make public disclosures about some of the activities and some of the contamination.

"Building public trust in DOE is our biggest objective," Jackson said, "and we have yet to accomplish that objective."

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contract expired, said beryllium was among a group of suspected contaminants he listed in a 1994 draft report about the history of the C-400 decontamination building, where some of the precious-metal recovery took place. But, for reasons never explained to Tillson, beryllium did not appear by name in a final report in 1995 prepared for former plant operator Lockheed Martin.

Some of the plant's extensive underground contamination can be traced to a broken sewer pipe in the huge decontamination building that apparently went undetected for 30 years, until 1986, according to the environmental records examined by The Courier-Journal.

If beryllium is in the soil and water, then it would seem likely that beryllium dust or fumes were in the air inside the buildings where it was used, Tillson said. But reviews of the limited numbers of plant health-safety records that have been made public do not show that tests for beryllium exposure were conducted.

The reports on the soil and water tests said that skin contact with beryllium-tainted soil could contribute to an increased lifetime cancer risk.

BERYLLIUM IS surfacing as an issue at Paducah while workers are still reeling from the government's disclosures last year that it did not tell them they may have been exposed to highly radioactive plutonium and neptunium in the workplace.

Local union officials grew concerned about beryllium before the Energy Department's plan to seek compensation was announced last summer, said Jim Key, the environmental and safety representative with Local 3-550 of the Paper, Allied Industrial, Chemical and Energy Workers Union.

Key said he filed a federal Freedom of Information Act request for any Energy Department records of beryllium use at Paducah and was told that "no records can be found."

Now, union officials are watching the Energy Department's about-face with skepticism and plan independently to seek out veteran workers for information. Key said that exposure may have been confined to a relatively small group of skilled workers, but "with the DOE and Defense Department not being upfront," it's impossible to make even an educated guess, he added.

"First and foremost, we want to find all applications and any and all amounts that were used here," Key said.

THE ENERGY Department said it is investigating the use of beryllium at Paducah but cannot give a timetable for completing its review.

Government records show beryllium was used in both the metallurgy and circuitry of atomic weapons. The government issued a 1951 patent for a process assigned to the Atomic Energy Commission for a gold-beryllium alloy containing about 9 percent beryllium.

In a still unfolding saga of past operations at the nearly 50-year-old plant, investigators are learning that, aside from enriching uranium for nuclear bombs, the plant's once state-of the-art machine tools were used to mill close-tolerance bomb components.

Its chemical equipment was used to recover gold and other metals by dissolving

circuitry in cauldrons of strong acid. And the plant's giant 500-ton presses were used to crush scrapped weaponry to unrecognizable shapes before it was smelted and buried.

AT LEAST 1,600 tons of surplus weaponry was hauled to Paducah and scrapped, the government admitted to plant employees earlier this month. Much of it was trucked from Pantex, the nation's primary weapons dismantlement facility near Amarillo, Texas. And the Energy Department said it's still investigating the "potential" that beryllium was used in weapons machining at Paducah.

The Energy Department also acknowledged last week that low levels of radioactive tritium, a component of nuclear-bomb triggers, had been detected in 1991 in five drainage ditches leaving the plant, but state radiological and environmental officials say they were not informed. The state will now add tritium to the list of contaminants for which it tests water.

BACK TO NEWS DIGEST TO NEWS ARCHIVE

[redacted]

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DOE report of tritium prompts state testing

The Paducah Sun
02/22/00 - P. A1

■ **Traces of** *the radioactive substance were found in water drainage nine years ago at the Paducah Gaseous Diffusion Plant, the DOE admitted.*

By Joe Walker
Sun Business Editor

The state hopes to resume sampling for tritium at the Paducah Gaseous Diffusion Plant as early as this week after the Department of Energy admitted that traces of the radioactive substance were found in water drainage nine years ago

"We really didn't know about the fact that (plant officials) had done studies in 1991, at least on the surface water runoff," said Dr. John Volpe, director of the state Radiation Control Branch.

Volpe said state testers sampled for tritium in two groundwater monitoring wells at the plant in fall 1988 and found nothing. "That was the only time we had specifically looked for tritium," he said.

The 1988 tests were part of a screening after another radioactive substance, technetium-99, and the degreaser trichloroethylene were discovered in residential wells north of the plant starting in August 1988. Those findings touched off a massive investigation that led to scores of homes being given city water, and groundwater pump-and-treat systems being installed.

Technetium was a contaminant in spent reactor fuel reprocessed by the plant starting in the early 1950s. Tritium reservoirs were part of nuclear bomb components that were made and dismantled to recover valuable metals during the Cold War, the Energy Department said recently.

A Feb. 12 DOE memo to plant employees said tritium was found in May 1991 in five outfalls where treated wastewater is discharged into ditches and creeks. One outfall is near a classified landfill inside the plant fence where nuclear weapons components are buried.

The amounts of tritium, which DOE said ranged from 23 to 3,800 picocuries per liter — a measurement of radioactivity in liquid — were far below safe drinking water standards, even though outfalls are not used for drinking. Tritium, a radioactive form of hydrogen, is harmful only if ingested, DOE says.

DOE spokesman Walter Perry said the findings were made by former plant contractor Martin Marietta Energy Systems and were not provided to the state. The results also did not appear in annual public environmental monitoring reports compiled by the company for DOE and reviewed by the state.

Volpe said he holds DOE accountable for not informing the state about tritium even though Martin Marietta did the sampling.

"DOE should have provided it to us," he said. "You can blame the contractor, but (DOE officials) are ultimately responsible for the information that is generated."

But had the state seen the data in 1991, the amounts of tritium were so low that "we would not have been overly concerned," Volpe said.

The outfalls are regulated under state permits that list contaminants to be analyzed. Volpe said the state reviews plant sampling data and does its own sampling quarterly. Depending on overall workload, routine sampling for tritium will start this week, he said.

Among other things, the DOE fact sheet said some nuclear weapons parts were built in the plant's machine shop and shipped to customers; some whole weapons, "minus the nuclear package," were buried at the plant; and "tritium reservoirs could have been smelted and/or buried."

Asked about the revelations, Volpe said the state has never overseen buried nuclear weapons components inside the plant fence.

"I can't even begin to speak to that," he said. "We don't regulate inside the fence and we didn't regulate then (during the Cold War), so we would have no knowledge of what went on back then."

Natural Resources Cabinet spokesman Mark York said last week that prior to DOE's recent disclosures, the state had not been told about tritium and knew only that nuclear weapons components were in the classified burial yard.

The Paducah Sun

February 19, 2000

Ruling cited as proof that laws need to protect DOE workers

By Joe Walker
Sun Business Editor

The need for laws to compensate injured nuclear employees at the Paducah Gaseous Diffusion Plant and elsewhere is underscored by a federal court ruling in Tennessee that limits the federal government's liability for exposing workers to beryllium, an atomic workers' union lawyer says.

"It limits people's ability to sue the government, and what beryllium compensation legislation does is to provide a remedy where people may not have one legally in certain cases," said Richard Miller, Washington-based policy analyst for the Paper, Allied-Industrial, Chemical and Energy Workers International Union (PACE). The union represents more than 800 workers at Paducah and thousands of employees at other plants.

Miller's comments followed a decision Wednesday by U.S. District Judge James Jarvis affecting a dozen lawsuits filed against the United States by 15 former Oak Ridge weapons plant workers who claim they now suffer from chronic breathing problems. The workers alleged they became ill from exposure to beryllium at the Department of Energy's Y-12 weapons plant and the now-closed K-25 uranium enrichment plant in Oak Ridge.

Jarvis dismissed seven lawsuits entirely and dismissed the United States as a defendant in five others, although those lawsuits remain intact against at least 12 companies.

Whether the ruling will have further-reaching effect is unclear because in November the Clinton administration announced plans to compensate all beryllium workers in medical costs, lost wages and rehabilitation.

The lawsuits, filed between 1994 and '99, contended that DOE and its contractors knew that exposure to beryllium was dangerous but failed to adequately protect workers. Exposure to beryllium, a metal used in the production of nuclear weapons, can cause chronic and debilitating breathing problems that can be fatal if not treated.

Jarvis ruled the government was shielded from such injury claims because of a "discretionary function exception." That protection applies to "policy decisions" where the government has to make a judgment call.

Although the Oak Ridge case was a setback for workers, the judge and the Justice Department attorneys representing the government noted that compensatory legislation was planned. "You have a judge saying basically that he has empathy for the workers," Miller said.

Under the DOE-supported bill, workers would receive wage replacement and health insurance or a $100,000 lump-sum payment if they have beryllium disease and worked at a DOE defense nuclear facility or metals manufacturer. The bill does not require workers to prove causation but does bar them from suing DOE or its contractors if they receive compensation.

Another administration bill would provide similar benefits to Paducah plant workers with specific cancers associated with radiation exposure. It also excludes compensated workers from filing claims against the government and contractors, except for state workers' compensation actions.

Although the beryllium bill does not specifically include Paducah workers, they would be eligible

if they have beryllium disease because it is "a fingerprint" from beryllium exposure, Miller said.

The pending legislation has greater importance now that DOE has admitted the possible use of beryllium at Paducah during the Cold War. DOE says machine shop workers at the plant may have used beryllium to coat nuclear bombs for defense plants.

But Miller said the administration's bills are too narrow, and he is working with various members of Congress to draft broader legislation covering workers at more plants.

"Most members on Capitol Hill want to make sure that if you take the lump sum you also get health insurance," Miller said of the beryllium bill. "Many think that ($100,000) is not adequate compensation for destroying somebody's lungs."

He said lawmakers want a bill that is fairer and provides for "one-stop" compensation, rather than forcing sick people to visit various governmental offices to get help.

"It's clear that no bill is going to pass Congress that limits compensation to one plant at the expense of other plants where the hazards are equal or greater," Miller said.

The Oak Ridge decision apparently has little bearing on two federal lawsuits filed last year against contractors who once ran the Paducah plant for the federal government. Both suits focus on the contractors - alleging they covertly poisoned workers and the public - and exclude the Energy Department.

One of the suits is a false-claims action alleging contractors defrauded the government by accepting millions of dollars in performance bonuses. The other seeks to be a class action on behalf of as many as 10,000 workers and families.

Bill McMurry, a Louisville lawyer who filed the class-action suit, said that while he had not seen the Oak Ridge opinion, "I can tell you that there is no implication to our worker class action. We did not sue the U.S. government nor would it have been necessary to recover compensatory damages."

McMurry said the federal government is "obligated" to pay any judgment against contractors in cases, such as the class-action suit, that arise from a "nuclear incident or occurrence." Law requires the government to indemnify contractors for any compensatory, and in certain circumstances, punitive damage judgments against them.

The Associated Press contributed to this report.

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The Paducah Sun

February 19, 2000

CIA denies recent Paducah visit

By Joe Walker
Sun Business Editor

A spokesman for the Central Intelligence Agency said he has no information that an agent interviewed workers at the Paducah Gaseous Diffusion Plant in recent days.

"I haven't found any indication that anyone has been down there recently, but people who do analyses on weapons of mass destruction programs do visit facilities like that," CIA spokesman Tom Crispell said by phone from Washington. "My understanding is that Paducah is a place they have visited in the past to learn how the uranium enrichment process works."

Crispell said he is unaware that any CIA agent has been at the plant recently, and an agent "certainly wouldn't have been down there in an investigative context."

Sources told the Sun last week that a CIA agent was at the plant, interviewing employees amid a Department of Energy investigation into the past use and disposal of nuclear weapons components there.

Crispell said the CIA works abroad and has no jurisdiction in the United States. Its agents visit U.S. plants to gather information for possible use internationally, he said.

"So we're a little confused and perplexed about interviewing employees," he said. "I don't know what that rumor is about."

Although plant operator USEC Inc. is known to be considering gas centrifuge, a foreign technology, to replace gaseous diffusion, Crispell said the CIA would not be involved in gathering information about that.

"The CIA doesn't work on behalf of U.S. companies," he said.

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The Paducah Sun

February 18, 2000

Bechtel Jacobs records seized

By Joe Walker
Sun Business Editor

KEVIL, Ky.

The U.S. Department of Energy has seized computer records from the Kevil offices of its lead environmental contractor as part of a Justice Department probe into a federal false-claims lawsuit.

Assistant U.S. Attorney Bill Campbell, who is heading the investigation, confirmed that the hard drives of about 30 computers were obtained starting Tuesday, as well as backup tapes of the computer system operated by Bechtel Jacobs Co. Campbell said agents of the DOE inspector general's office took the records after serving a subpoena.

No computer records were obtained from the Paducah Gaseous Diffusion Plant, for which Bechtel Jacobs does environmental and waste management work, Campbell said.

"What they did was essentially make a mirror image of the hard drive," Campbell said. "The DOE inspector general retained the original hard drive and left a mirror image with each computer."

He would not say specifically what evidence was being sought but said the records were obtained "to facilitate the investigation" into the false-claims suit filed last year by three plant employees and a large nuclear activist group. Campbell said a federal judge has given his office until early April to finish its work.

"At this point, we do have a court-imposed deadline that we're working fervently to meet," he said. "If there is additional evidence that we have to evaluate, then we might file a petition with the court (for an extension). But at this point no decision has been made about that."

The suit, filed in U.S. District Court at Paducah, alleges that Lockheed Martin (formerly Martin Marietta) fraudulently obtained millions of dollars in performance bonuses from DOE while secretly poisoning workers and the public. Justice Department investigators are trying to determine if the allegations, denied by Lockheed Martin, have enough merit for the government to join the suit as a plaintiff.

Among the claims is that the company compiled DOE-published annual environmental reports that contained false information and deceived the public. Neither DOE nor Bechtel Jacobs is a defendant in the suit, but many Bechtel Jacobs employees once worked for Lockheed Martin, maintaining computer records of environmental sampling and cleanup, and waste management. Bechtel Jacobs replaced Lockheed Martin as the contractor two years ago.

Some light may have been shed in a DOE fact sheet distributed a week ago to employees of Bechtel Jacobs and its subcontractors in the Kevil area and to employees of USEC Inc. who work at the plant.

The fact sheet revealed that tritium, a radioactive component of nuclear-bomb triggers, was found in five of eight outfalls sampled in May 1991. One of the outfalls, where treated effluent drains into creeks, is in the northwest corner of the plant near a classified burial ground containing parts of nuclear bombs without warheads. The fact sheet also said that tritium reservoirs could have smelted or buried at the plant during the Cold War era.

Other documents published by DOE say that fewer than 20 grams of tritium typically are in reservoirs, which are vessels used to help detonate nuclear bombs. Tritium is a radioactive form of hydrogen that is harmful if ingested. About 90 percent of the substance decays into a form of helium in 40 years, the department says.

Although the traces of tritium found in drainage were well below safe drinking-water standards, there is no record that the findings, made by Martin Marietta, were disclosed to state environmental protection officials, DOE says.

Mark York, spokesman for the Kentucky Natural Resources Cabinet, said that before the fact sheet came out, the state was unaware that tritium was present in drainage at the plant. The state regulates effluents by issuing permits that are supposed to list all contaminants for monitoring purposes.

Since 1991, tritium has not been mentioned in annual environmental reports. York said data are reviewed by the state before they go into the reports. Bechtel Jacobs officials said the firm has not seen the substance in sampling in the past two years.

York said the state knew that some materials used to detonate bombs were in a landfill.

"We knew the location but were not aware of any other issues related to (tritium and nuclear weaponry)," he said. "We'll be requiring information from DOE and will be seeking to get regular reports on monitoring for tritium."

The computer records seizure was the latest in a string of intriguing incidents at the Bechtel Jacobs offices and the plant.

A week ago, FBI agents entered the plant and asked security officers to guard five classified records storage areas there. While issuing the fact sheet, DOE banned the shredding of all documents, even paper jammed in office equipment. That followed disclosure of a false-claims statement from a plant health physics manager who was worried about worker safety because he was told as much as 1,600 tons of old nuclear weapons parts had been buried at the plant.

Earlier this week, sources said the Central Intelligence Agency had at least one agent at the plant to interview some employees, although it was unclear why. CIA spokesman Tom Crispell said he could not confirm the report, but said CIA presence at the plant would be "highly unusual" because the CIA has no domestic jurisdiction.

"The agency is an international collector of intelligence. It operates abroad and not in the United States," he said. "Those would be U.S. weapons systems. We have enough problems worrying about foreign weapons systems. That's completely outside our legal portfolio."

USEC Inc. is known to be looking at gas centrifuge, a procedure used extensively in some foreign countries, as a more efficient replacement for expensive gaseous diffusion to enrich uranium. Crispell said it is more plausible for the CIA to be involved in intelligence gathering for that issue, but that is speaking hypothetically.

DOE spokesman Walter Perry and Campbell referred questions about the CIA to Crispell. "I'm not in a position to respond to that right now," Campbell said.

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The Paducah Sun

February 17, 2000

DOE: Tritium detected at plant but at safe levels

By Joe Walker
Sun Business Editor

Traces of tritium, a radioactive substance used to help detonate nuclear weapons, were found a decade ago in five treated wastewater discharge points at the Paducah Gaseous Diffusion Plant, but the amount was below drinking-water standards, the U.S. Department of Energy says.

DOE spokesman Walter Perry said the amounts discovered in May 1990 ranged from 23 to 3,800 picocuries per liter - a measurement of radioactivity in liquid - in five outfalls where treated effluent is discharged into ditches and creeks.

Perry said the drinking-water standard for tritium is 20,000 picocuries per liter. A picocurie is one-trillionth of a curie, which measures radioactivity in disintegrations per second.

"So the highest detectable level was less than 20 percent of the drinking water limits established by federal environmental regulations," he said.

The standards are set based on scientific studies including laboratory tests on animals. They require municipal water to be treated to remove contaminants if detected above certain levels. The outfalls are not part of the plant's drinking water system.

Perry said sampling for tritium began in response to a finding at Paducah's sister plant near Portsmouth, Ohio, by a DOE special unit known as the "Tiger Team." The team also investigated the Paducah plant in 1990.

Outfalls at Paducah are routinely sampled and regulated under permits granted by the state Environmental Protection Cabinet. Perry said ongoing sampling since 1990 has included tritium, but "there was no documentation found" showing that the May 1990 results were reported to the state.

Perry said the sampling was done by DOE contractor Martin Marietta Energy Systems, which then operated the plant, and analyzed by a laboratory at another uranium enrichment plant in Oak Ridge, Tenn. Since 1990, tritium sampling has been ongoing because some of the original findings were above the lab's minimum detection limit of 800 picocuries per liter, he said.

On Wednesday, a spokesman for Bechtel Jacobs, which replaced Martin Marietta (now called Lockheed Martin) about two years ago, said Bechtel Jacobs has never detected tritium in outfall sampling at the plant.

Because tritium emits beta radiation that cannot penetrate the skin, it is hazardous only when ingested and safe when stored in special containers, according to DOE published material.

Information provided by Perry came in response to the Sun's questions about a fact sheet distributed to Paducah plant employees Friday. The fact sheet suggests that nuclear weapons parts and related contamination at the plant are more widespread than previously disclosed.

Although the fact sheet mentioned that tritium was found in five of eight plant outfalls sampled in 1990, it did not say where or at what levels. Perry said one of the outfalls is in the northwestern part of the plant near a classified burial yard. The burial ground contains nuclear weapons components

that DOE says did not contain warheads and were milled to recover valuable metals.

Among other things, the fact sheet said some nuclear weapons parts were built in the plant's machine shop and shipped to customers; some whole weapons, "minus the nuclear package," were buried at the plant, and "tritium reservoirs could have been smelted and/or buried."

Workers received the fact sheet Friday amid publicity about a federal false-claims statement filed by Ray Carroll, a senior health physics manager at the plant. Carroll said he was very concerned about worker safety with tons of nuclear weapons waste at the plant.

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The Courier-Journal

Thursday, February 17, 2000 LOCAL NEWS

Are you ready to retire?

U.S. seizes records at uranium plant

By JAMES MALONE, The Courier-Journal

PADUCAH, Ky. -- Federal authorities have seized information from 30 computers at the Paducah uranium-enrichment plant in their investigation of a whistle blower's fraud and mismanagement claims.

And a memorandum distributed to workers at the Paducah Gaseous Diffusion Plant reveals that radioactive tritium, a component of nuclear-bomb triggers, was found in drainage from the plant in 1991.

The memo also discloses that a machine shop at the plant once made parts for nuclear bomb that may have included hazardous beryllium coatings.

Beryllium, a rare element used as a strengthening alloy in atomic weapons, causes a debilitating lung disease. The Clinton administration said last year that it supports legislation to compensate an estimated 500 to 1,000 sick workers at Energy Department weapons plants Until now, Paducah workers were not believed to have been exposed to beryllium.

Officials with the Energy Department's inspector general's office served an administrative subpoena Tuesday at the plant and copied the hard drives and took copies of backup tapes of computers used by Bechtel Jacobs Corp., a contractor in charge of cleanup and storage of waste at the plant.

Bill Campbell, an assistant U.S. attorney in Louisville, confirmed that the Energy Department had seized the material. Campbell is leading a Justice Department inquiry into whether to joi a whistle-blower lawsuit that alleges past plant operators cheated the government out of millions of dollars in performance bonuses. He said seizure of the computer information was part of that inquiry.

Bechtel Jacobs is not a defendant in the whistle-blower suit and has not been accused of wrongdoing. Campbell said the information in the computers may relate to employees who had worked for Lockheed Martin, which once ran the plant for the government and is a defendant.

He said the Energy Department has asked for Bechtel Jacobs' cooperation in the federal investigation.

Bechtel Jacobs, a joint venture of the giant Bechtel Inc. construction company and Jacobs Engineering Inc., would not answer any questions about the seizure, said Greg Cook, a Paducah spokesman for the company.

The Energy Department recently released a memo to Paducah workers acknowledging that assembled weapons, "minus the nuclear package," and weapons parts were once shipped to Paducah for reclamation of precious metals -- including gold and silver.

"While the general practice was to totally disassemble and smelt the weapons materials some weapons were disassemble (sic) and buried," the memo said. "Some documentation indicates that a few complete weapons were buried minus the nuclear package and that tritium reservoirs could have been smelted and/or buried."

The memo also notes that radioactive tritium had been found in five of eight drainage flows tested in 1991.

This information has not appeared in previous annual environmental monitoring reports mad public.

The memo did not disclose the amounts of tritium found, or whether testing had found any tritium in the drainage after 1991.

An Energy Department spokesmen in Oak Ridge, Tenn., referred questions to the Justice Department.

Mark York, a spokesman for the state Natural Resources Cabinet, said the state had not been aware of tritium in drainage leaving the plant, but knew that some bomb triggers were in burial pits.

He said the Energy Department is supposed to tell the state about materials that show up in its tests, but it had not informed the state about the tritium. York said the state will add tritium to its list of isotopes to monitor and will seek more information from the Energy Department.

About 20,000 workers at department facilities nationwide may have been exposed to beryllium, Energy Secretary Bill Richardson said last November. But the Paducah plant had not been mentioned as a place where that metal was a hazard.

Health experts have estimated that 1,200 people nationwide have contracted beryllium disease since the 1940s.

The Clinton administration has proposed compensation for workers with chronic beryllium disease. It would include coverage of medical costs, disability benefits for lost wages and, if necessary, job retraining.

Legislation similar to the administration plan is before Congress.

The Energy Department also has launched a program to shield workers from beryllium exposure.

Last Friday, armed FBI agents "secured a trailer" at the Paducah plant, Campbell said. He declined to be more specific. The move came after disclosure of a complaint filed with the Nuclear Regulatory Commission by Raymond Carroll, a senior member of U.S. Enrichment's employee health and safety program. Carroll alleged he had heard that records related to weapons disposal and disassembly were being taken from the plant at night and that the Energy Department's former site manager had acknowledged he did not have a full accounting of the 1,600 tons of nuclear ordnance brought in for dismantlement and smelting.

The former site manager, Dale Jackson, also said that more highly radioactive transuranic material might have come to the plant in the ordnance-disposal program than has been disclosed, the complaint alleged.

The Paducah Sun
02/24/00 - P. A12
(orig. ½ pg. ad)

IN MY DIFFERING PROFESSIONAL OPINION, THE PADUCAH SUN DID NOT IDENTIFY THOSE MOST RESPONSIBLE FOR THE "BREACH OF TRUST" FOR WORKER AND PUBLIC SAFETY AT THE PADUCAH GDP IN ITS RECENT EDITORIAL.

by Joseph P. Carson, P.E. DOE worker and nuclear safety engineer and "six-time prevailing" DOE whistleblower.

I take professional issue with the Paducah Sun's Editorial of February 19, 2000, "BREACH OF TRUST."

This is because it fails to state that a specific class of professionals in DOE (including its predecessors) and its contractors appear to be professionally blameworthy for the recent revelations at the Paducah Gaseous Diffusion Plant and other DOE facilities.

I'm a licensed Professional Engineer (P.E.) who has significant worker and public safety responsibilities as part of my professional duties in DOE. In other words, I'm a "DOE safety professional." I'm independently accountable to my profession, including the State Engineering Board that licenses me, to comply with my profession's rules of professional conduct/code of ethics. I'm not just a "government official." I'm privileged to hold an engineering license, which can be removed for cause if I fail to hold paramount public and worker safety in the performance of my professional duties as a "government official." Those are the rules in my profession and employment.

I am charged to know these rules and comply with them. Additionally, my profession works on a "strict honor code" - not only am I required to follow the rules, but those rules require me to report knowledge of the violation of those rules, by myself or others, to the appropriate professional body. Additionally, those rules require me to inform the appropriate officials, workers and/or public when my professional judgment is overruled in matters involving worker and public safety. That's my duty. It's not an elective. I'm not "free" to voice safety concerns, I'm "obligated" to. I'm required to risk my career if necessary, by voicing them publicly if my employer does not, in my professional opinion, act appropriately on my safety concerns.

Those are the rules of the safety professions. A trustworthy - ethical, competent and accountable - safety professional must comply with them, even at risk of his job and career, similar to how a trustworthy law enforcement official must be willing to risk death and injury to do his/her duty to the public.

These rules apply to DOE (and DOE contractor) safety professionals including professionally licensed engineers (P.E.s), professionally licensed geologists (P.G.s), certified safety professionals (CSPs), certified industrial hygienists (CIHs) and certified health physicists (CHPs).

At Paducah as at other DOE facilities, DOE safety professionals have and do, with isolated exceptions, subom their professional duty to their economic self-interest "when the going gets tough." They don't want people to get hurt. But they are not willing to risk their jobs for the sake of professional duty to see that workers and/or the public don't get hurt. That's the ugly truth and it needs to be clearly stated and accepted, if it's to change.

Want clear proof? Look at the initials after the names of many members of the recent Phase I and Phase II review teams at Paducah - initials like P.E., CSP, CIH, CHP, P.G. All those individuals were duty bound to report knowledge of violations, identified during their reviews at Paducah, on the part of Paducah Safety Professionals - not necessarily to DOE, but to the appropriate professional body. They didn't. Why? They subom their professional duty to economic self-interest when "the going gets tough." They are not adequately trustworthy to worker and public safety, so neither is the government that employs them. They breach (if not betray) their professional duty and they continue to be rewarded for it, while the relative few DOE safety professionals who put duty first, continue to be punished for their temerity.

And it won't change, in my professional opinion, until the public, DOE stakeholder organizations, and workers know the duty of DOE safety professionals - to hold paramount the health, safety and welfare of workers and the public in the performance of their professional duty - and are willing and able to report knowledge of violations of that duty to the appropriate professional body.

Respectfully Submitted
Joseph P. Carson
Joseph P. Carson, P.E. NSPE

(It's Engineer's Week from February 20-26, my P.E. License number 21155 in Louisiana)
SIX-TIME PREVAILING DOE WHISTLEBLOWER AND DOE Nuclear and worker safety engineer.
<jpcarson@mindspring.com> "A Call for Accountability, Competency and Ethics in the Department of Energy
<http://www.mindspring.com/~jpcarson>
(soon to be changed to
<http://www.carsonversusdoe.com>)

The Paducah Sun Editorial • IN OUR OPINION • February 19, 2000 • BREACH OF TRUST - Federal officials misused Paducah plant

A Department of Energy "fact sheet" recently distributed to employees of the Paducah Gaseous Diffusion Plant sheds new light on federal officials' betrayal of the trust of plant workers and the community during the era of Cold War nuclear weapons production.

The fact sheet makes it clear the government secretly used the uranium enrichment facility to handle a number of potentially hazardous tasks, including the burial of whole nuclear weapons - "minus the nuclear package" - and the possible smelting of reservoirs of radioactive tritium.

This information was kept from most plant employees and the public, leaving the misleading impression that the facility was engaged solely in the enrichment of uranium.

Moreover, as recently as 1991, testing of wastewater on the plant grounds reportedly revealed the presence of tritium, but there is no record of the public being informed of this disturbing finding. This suggests that even after the Cold War had come to an end, the federal government was still keeping Paducah in the dark about potential radioactive hazards.

In fact, federal officials have yet to remove the veil of nuclear secrecy from some of the activities that occurred at the gaseous diffusion plant. In the wake of the filing of an employee false-claims lawsuit, bits of information have dribbled out, causing surprise and dismay among current and former plant employees who had mistakenly assumed they were aware of all the risks they were exposed to on the job.

Less than eight months ago, DOE officials said there was no evidence beryllium, a highly toxic metal used in nuclear weapons, was handled at the Paducah plant. Now the agency is saying the machine shop at the plant may have done beryllium coating work for other agencies.

The DOE also now admits the machine shop built nuclear weapons parts. This activity was kept under cover, again leaving the Paducah community in the dark about the full extent of its role in the nuclear industry.

We understand the need for secrecy, especially at a time when the nation was engaged in a mortal struggle with the Soviet Union. However, other U.S. communities with bomb-making facilities were generally aware of their purpose and so had some understanding of the risks involved in the process. The government chose to mislead the people of Paducah, exploiting and abusing their trust.

The facts slowly emerging from ongoing federal investigations of contamination at the gaseous diffusion plant show the facility was used practically as an unlicensed nuclear dump as well as a workshop for potentially dangerous tasks.

This underlines why Americans' trust in government has almost completely eroded over the past 30 years. The secrecy and deception in Paducah again highlight the callous indifference with which the federal government has, on more than a few occasions, treated citizens who placed their faith in its good intentions.

Even so, there's no point dwelling on past betrayals. The government now has an opportunity to show good faith by finally admitting its transgressions in Paducah, cleaning up the natural area it despoiled and dealing honestly with current and former plant workers who have serious health concerns.

But it should be emphasized that few people in this community will ever take federal officials' words at face value again. Soothing words must be backed up by aggressive remedial action.

The Courier-Journal

Thursday, February 24, 2000 LOCAL NEWS

Need Insurance?

Officials concede plant needs cleanup

Citizens tell about unknowingly using radioactive waste

By JAMES MALONE, The Courier-Journal

PADUCAH, Ky. -- A broader, better-funded cleanup and programs to compensate workers are needed at the Paducah Gaseous Diffusion Plant, federal officials acknowledged last night at a community meeting.

Energy Department officials said their massive investigation into the first 38 years of operations at the plant had driven home the need for a more thorough cleanup and for programs to compensate former employees who suffered as a result of working at the plant.

"The workers and public need to know what happened," said Pat Worthington, who led the department's investigative team.

And Dale Jackson, the agency's Paducah site manager, said the investigations had sparked a broad internal review about how to achieve the goal of cleaning up the plant by 2010 by aggressively attacking some long-standing problems, such as Drum Mountain, a pile of crushed radioactive barrels which looms over the site.

But even as the government was wrapping up its investigation, officials at the community meeting last night faced skeptical questions and heard startling new allegations of past sloppy environmental practices.

Ernest Ray English said he formerly worked for the Kentucky Department of Fish and Wildlife in the West Kentucky Wildlife Management Area that borders the 1,700-acre diffusion plant. English told officials how unknowing wildlife agency employees would take drums from plant dumps and use them for trash burners or heaters in the field.

English also related accounts of how state wildlife employees would routinely recover gloves, goggles, coats and boots from landfills, thinking they were surplus and not suspecting they were radioactive. And as fast as the government would dump radioactive concrete rubble outside the plant's fence, state trucks would haul it away to be used to shore up creek banks, he said.

"I would see people (from the area) out there every day getting stuff" from the landfills, English said. "How can you clean a 70-foot (tall) hill up?"

After the meeting, Energy Department officials rushed to interview English and obtain more information.

Worthington, leader of the agency's investigative team, told other questioners that the team did not have the task of finding out who was at fault for the radiation exposure.

That was not what former plant worker Al Puckett wanted to hear. He asked whether

the government was making any effort to identify which former plant officials may have exposed workers to hazards.

"Will they be prosecuted?" Puckett asked.

Rose Byers said her son lost some ability to breathe while working in the plant's converter-repair shop, yet was sent back to the same assignment for two years before he drowned at age 27 in 1978.

Worthington answered Byers by saying that the Energy Department report's purpose "was not to draw conclusions about illnesses."

Released earlier this month, the 69-page report found that there had been human experimentation with uranium inhalation and ingestion. While some participants volunteered, investigators were unable to confirm that all participants knew they were being experimented on.

The report also found that a Cold War mentality to produce material for weapons influenced how the plant's environment, safety and health program were administered during its early years. The report said risks and hazards of exposure to uranium were neither fully understood nor appreciated.

It found that contamination-control programs at Paducah were limited, even into the 1980s. It noted that workers were allowed to eat, drink and smoke in contaminated areas without washing their hands, that showering was not mandatory and that employees had been allowed to wear personal clothing to work without changing at the end of a shift.

And the report said that although officials at the plant learned as early as 1957 that highly radioactive elements had been introduced through spent fuel from nuclear-weapons reactors, workers were not fully informed of the increased risks and dangers.

Much of the plant's waste was discharged into ditches, and radioactive materials were buried in trenches and landfills both inside and outside the plant's fence, the report said. It said that contaminants had spread throughout the site in surface-water runoff.

BACK TO NEWS DIGEST TO NEWS ARCHIVE

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The Paducah Sun
02/23/00 - P. 4A

Nuclear power generation under constant, unwarranted attack

EDITOR:

The recent announcement of a joint effort of Paducah and Metropolis, along with Southern Illinois, to promote this area is most welcome news. Together we have much to offer and would reap economic benefits as well. It would probably require some fundamental changes for both Paducah and Metropolis to develop into a seven-day-a-week destination for many people from either urban areas or just those away from home wishing a more sophisticated area in which to spend time to reach their full potential.

The announcement of the planned layoffs by USEC is, of course, most unhappy news. The local nuclear industry is, unfortunately, bearing the brunt of, in my opinion, a very unwise situation.

Nuclear power generation has been under almost constant and unwarranted attack. Rather than develop it as the best source of independent power available to the United States beyond natural sources, it has been dealt sufficient blows to halt progress. I feel most of us who have or do work in one of the local facilities that process radioactive material accepted the fact care must be and was taken to protect the well-being of the public and ourselves.

The deal with Russia that has made the problem so much worse is, as far as I'm concerned, a pact with the devil. Russia continues to help rogue nations and will most likely continue to do so. They prowl our coasts with weapons of war while we send them help. They have a huge number of nuclear weapons, and I read are still processing more weapons' materials and developing new weapons. Other nations will either obtain weapons from Russia or China or develop them on their own.

Nuclear weapons will be used without a doubt in the future and the only way we will avoid an attack is to make certain massive destruction will result from attacking us. Walking softly and carrying a big stick is still the only way to keep ourselves relatively at peace.

It appears that there is a real possibility that one of USEC's facilities will be shut down sooner or later due to the government's decisions. This will add even more misfortune for displaced employees and the areas they live in. We will continue to be subject to price fixing by the oil cartel and probably continue to place our finest in harm's way to protect the very countries who are overcharging us. To add insult to injury, the members of our armed forces based in these places are forbidden to exercise their fundamental rights on their bases, which I'm sure we pay outrageously to use.

CHARLES L. PAYNE
Metropolis, Ill.

The Courier-Journal

Wednesday, February 23, 2000 LOCAL NEWS

Need Insurance?

Deadly metal taints Paducah plant

Tests of site find beryllium in soil, water

By JAMES MALONE, The Courier-Journal

C-J Photo: Jim Roshan

PADUCAH, Ky. -- The U.S. Energy Department acknowledged yesterday that beryllium, a metal suspected of causing cancer, has been found at the Paducah Gaseous Diffusion Plant.

Tests conducted for the Energy Department since 1998 found beryllium at higher than natural levels in numerous samples of soil, surface water and ground water beneath the plant.

In one soil sample, beryllium was found at 155 times natural levels, according to records examined this week by The Courier-Journal.

"The issue is not that we have it (beryllium) in the soil and water," said John Tillson, a geologist who did environmental detective work at the plant for five years. "The question is from what source did these concentrations originate. At these levels, it could not have come from anywhere else but plant operations."

The beryllium was found in soil from around buildings where parts for nuclear bombs were secretly milled and where scrapped weapons were dismantled and precious metals recovered, and in soil from around nearby landfills. Beryllium is used to harden nuclear weapons and in electrical circuitry.

Stronger than steel and lighter than aluminum, the durable silvery metal has been linked to chronic illnesses among 500 to 1,000 workers at other Energy Department installations and among employees of private firms that processed it.

Last summer, the Energy Department announced it would push for legislation to compensate workers at other sites who had developed beryllium disease or shown signs of exposure, but Paducah workers have not been included.

The Energy Department said yesterday that it can't explain how or when the beryllium got to the Paducah plant; nor does it know whether workers there were exposed to toxic beryllium dust.

"We are still looking for records to show how it was used in operations" at Paducah, said Walter Perry, an Energy Department spokesman in Oak Ridge, Tenn.

Tillson suspects that the answers lie in the plant's low-profile role as a junkyard and recycling center for nuclear weapons or in top-secret machining work to fabricate bomb parts -- called "nose cones" by workers.

TILLSON, WHO lost his job at the plant in 1996 when his employer's government

On-Site CERCLA Disposal Cell

Does This Make Sense for Paducah?

Presented to Paducah Gaseous Diffusion Plant
Citizens Advisory Board
March 16, 2000

OBJECTIVES

- ❑ To respond to public/regulatory requests to evaluate on-site disposal
- ❑ To bring the Board up-to-date on information gathered thus far
- ❑ To gain the Board's involvement in review and decision-making

Advantages of an On-Site Disposal Facility

- ❑ **Flexibility = aggressive actions, project acceleration**

- ❑ **Designed for long-term safety**
- ❑ **Reduced transportation risk**
- ❑ **Local economic benefits**

On-site disposal could mean more jobs and revenues for the local economy

Challenges Facing an On-Site Facility

❑ Unresolved Questions

Where would it go?

What would go in it?

What are the special considerations?

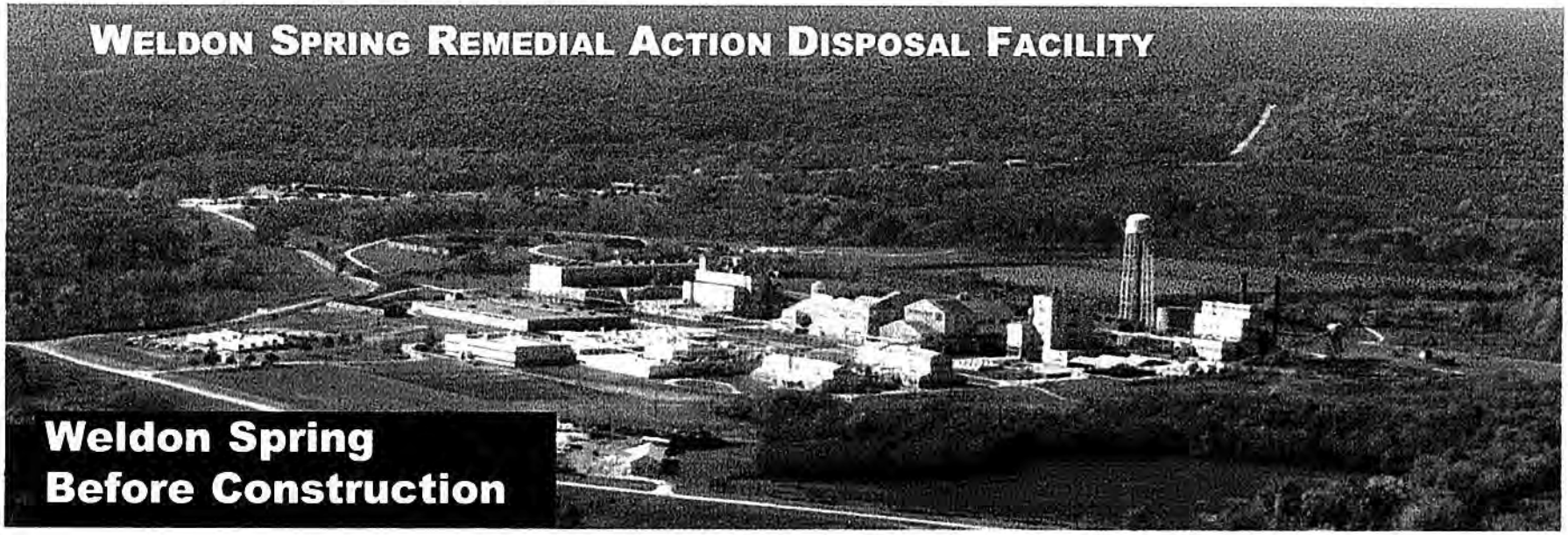
❑ Public Acceptance

What does the community think about this idea?

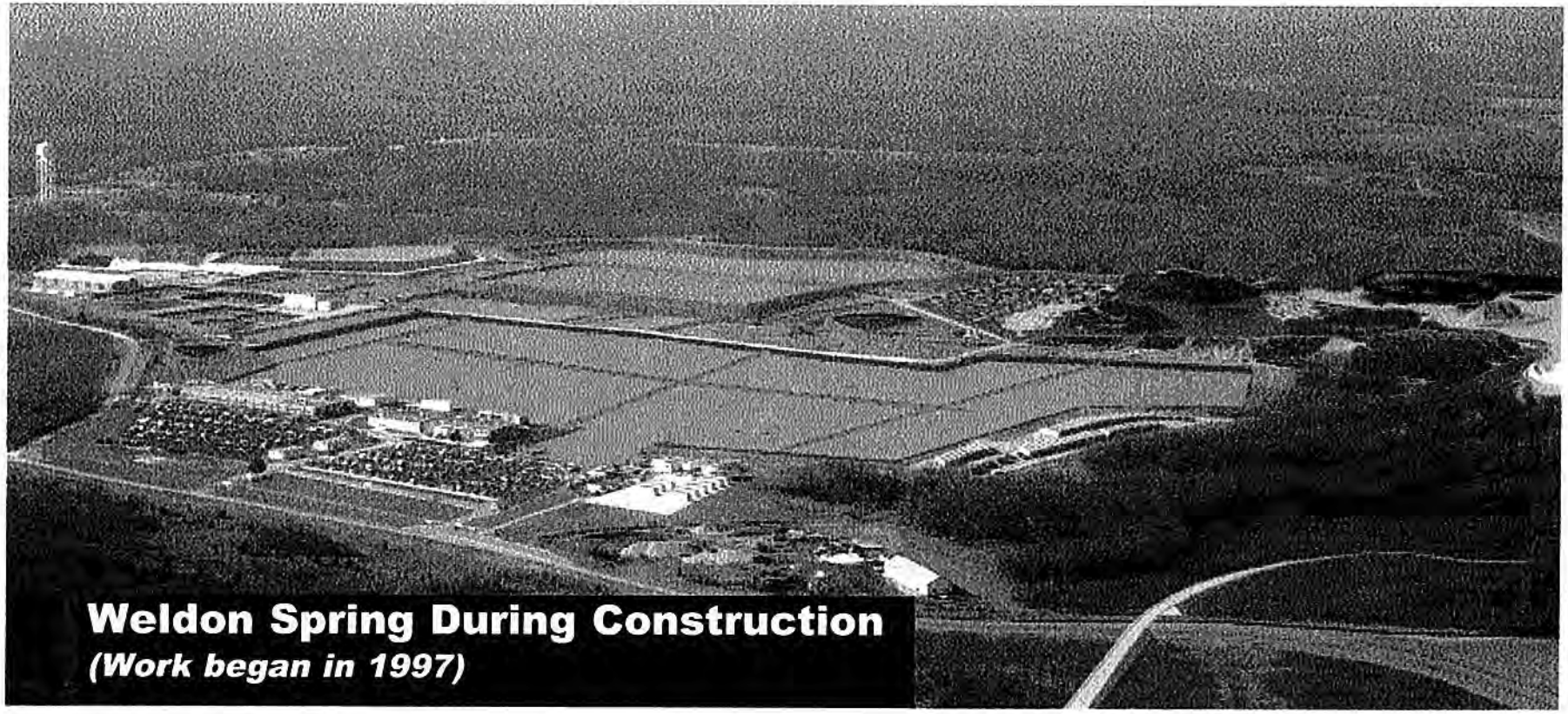
Does the Board think it's a viable idea?

❑ Long-term stewardship

Weldon Spring Remedial Action Disposal Facility

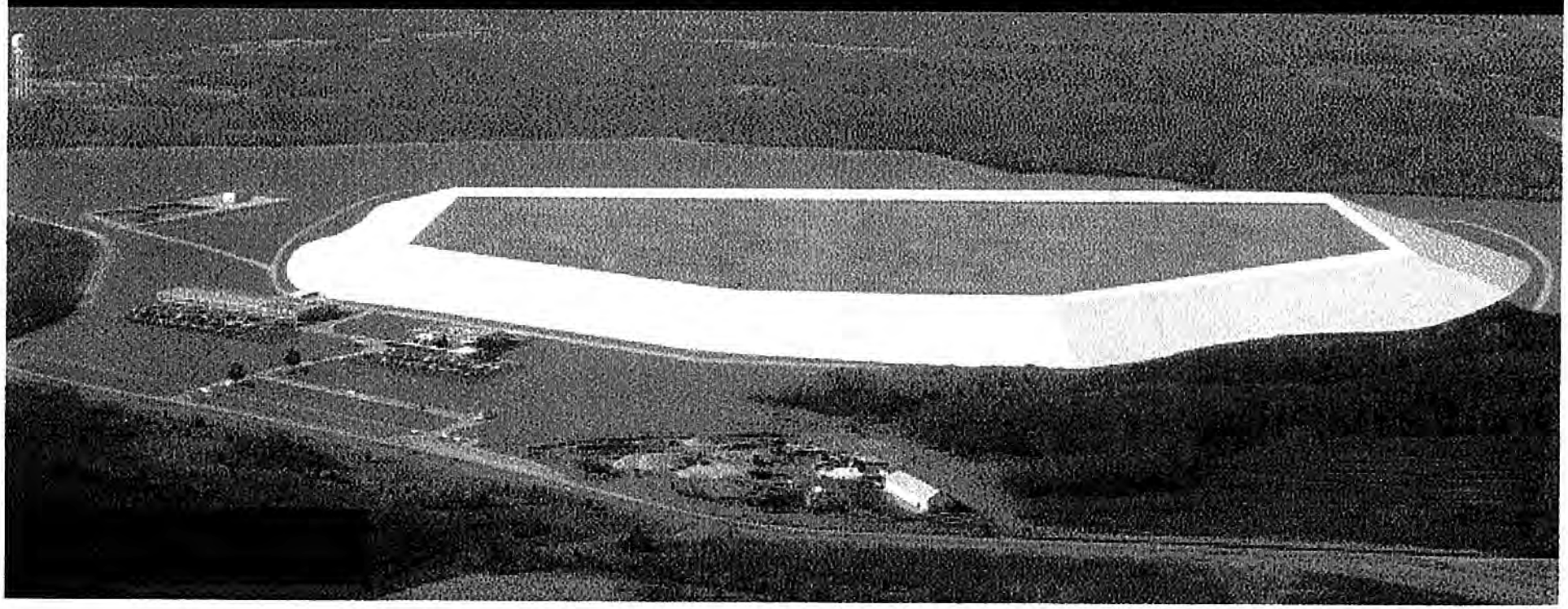


Weldon Spring Before Construction



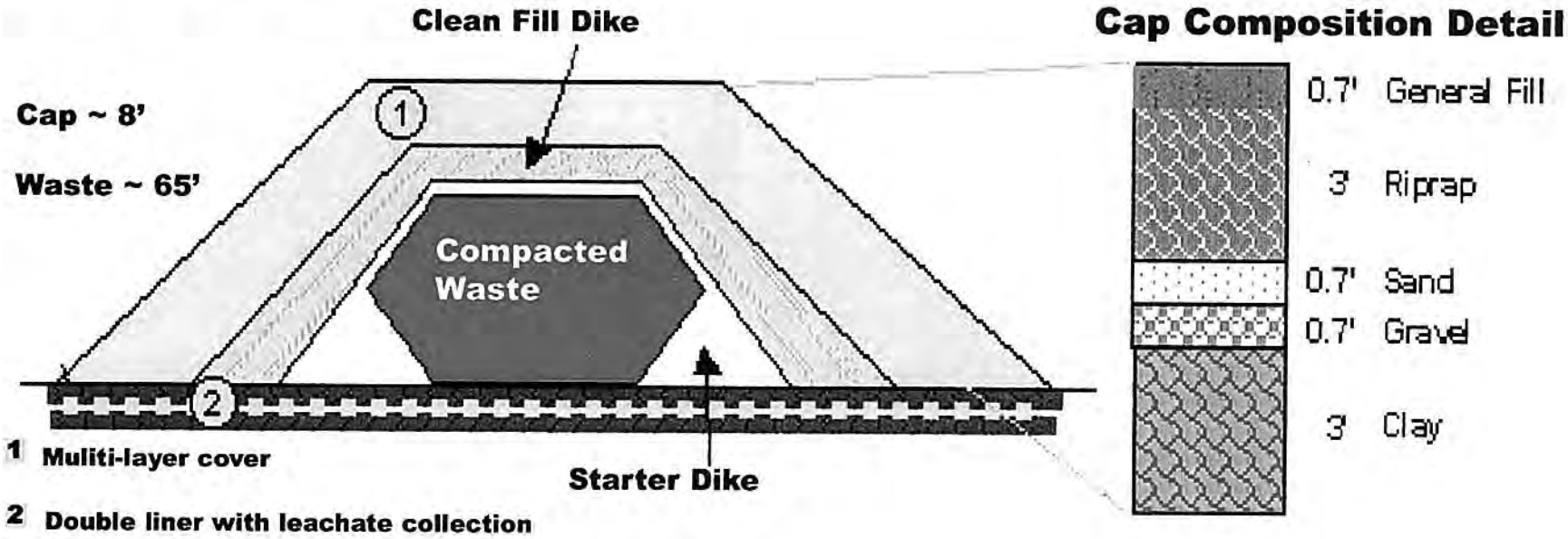
Weldon Spring During Construction
(Work began in 1997)

Weldon Spring After Construction of Disposal Facility Completed



Weldon Spring Remedial Action Disposal Facility

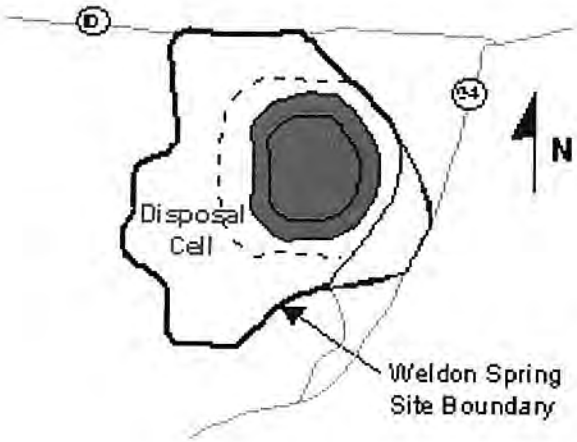
Cell Design



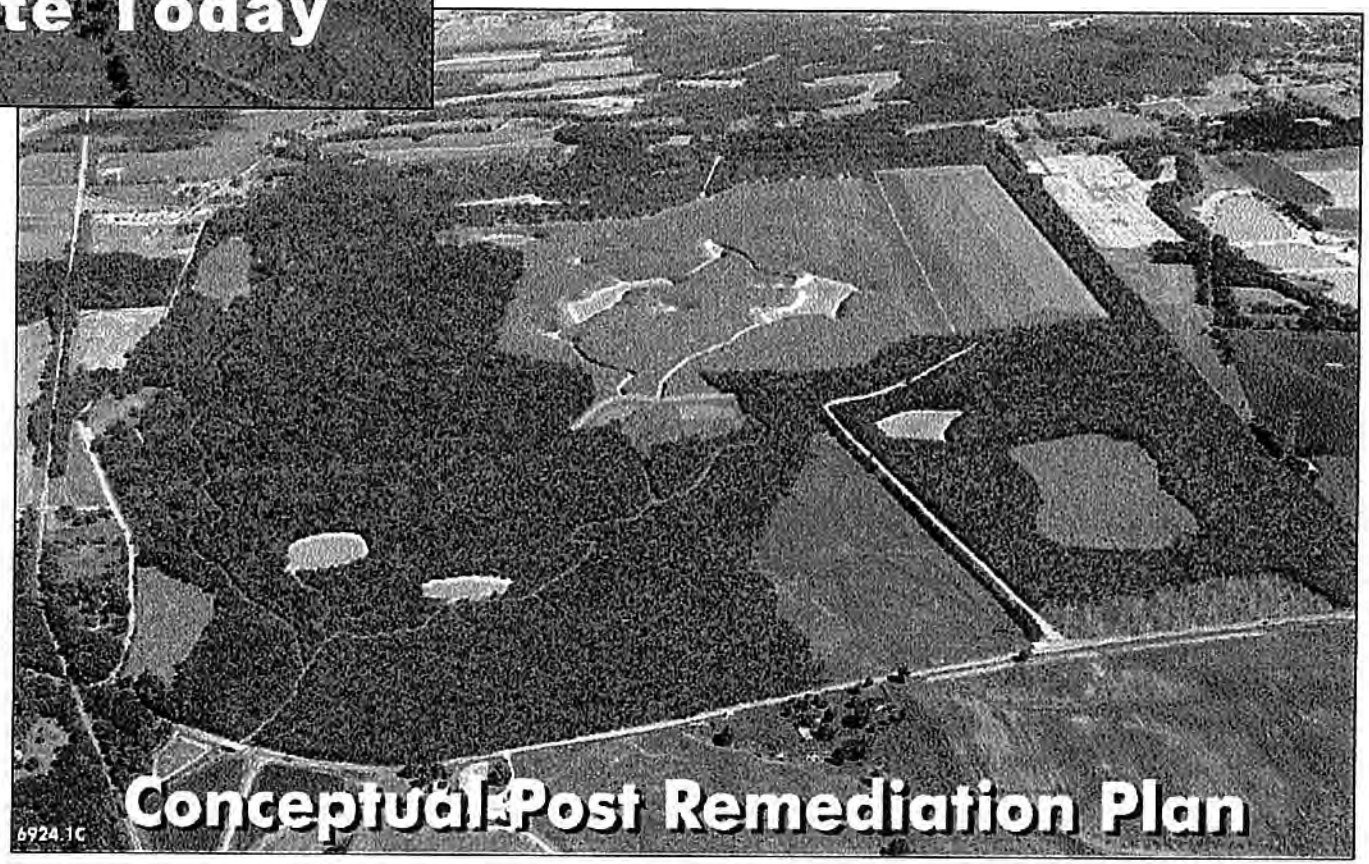
Key Facts

Size	About 40 acres
Volume	About 1.5 million cubic meters
Wastes	LLW, Mixed LLW, Hazardous
Site Conditions	1 mile to Missouri River; 4 miles to municipal wells; .5 mile to high school
Status	Operational

Site Layout



Fernald On-Site Disposal Facility



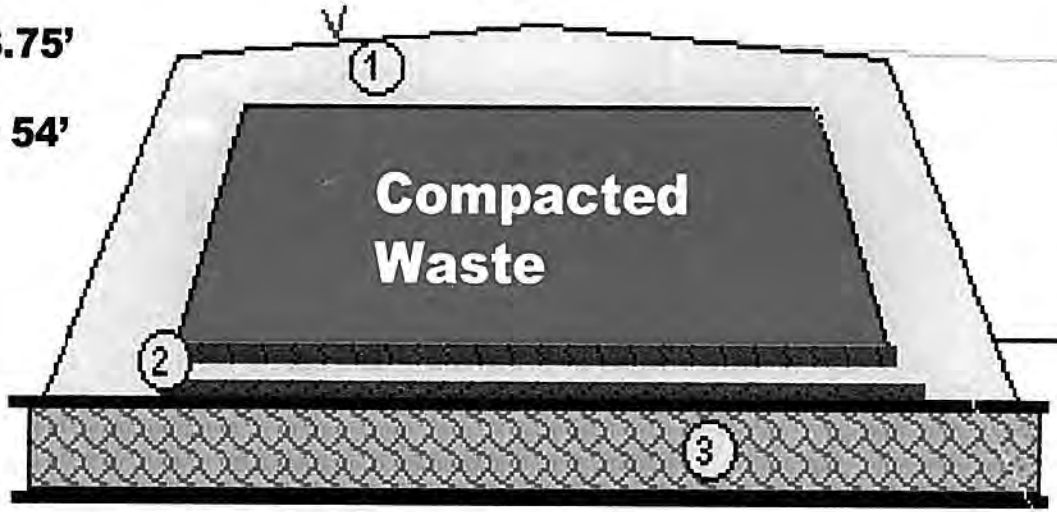
Fernald On-site Disposal Facility

Cell Design

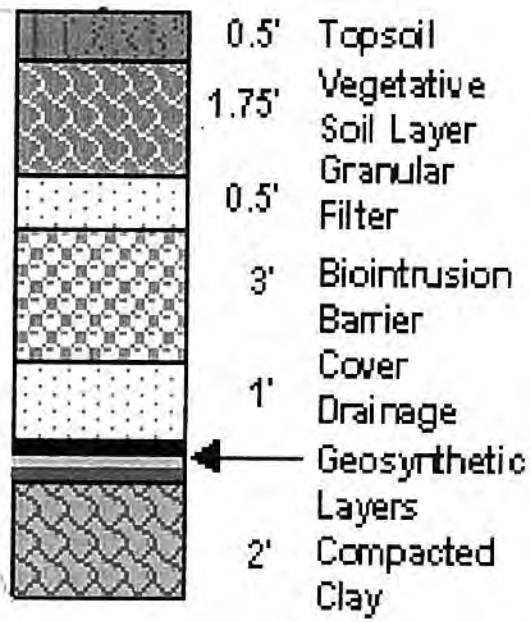
Cap ~ 8.75'

Waste ~ 54'

Min. Barrier From Aquifer ~ 15'



Cap Composition Detail



1 Multi-layer cover

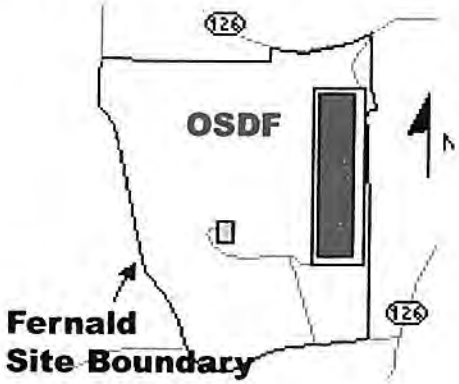
2 Multi-layer liner with leachate collection

3 Buffer between cell and water table

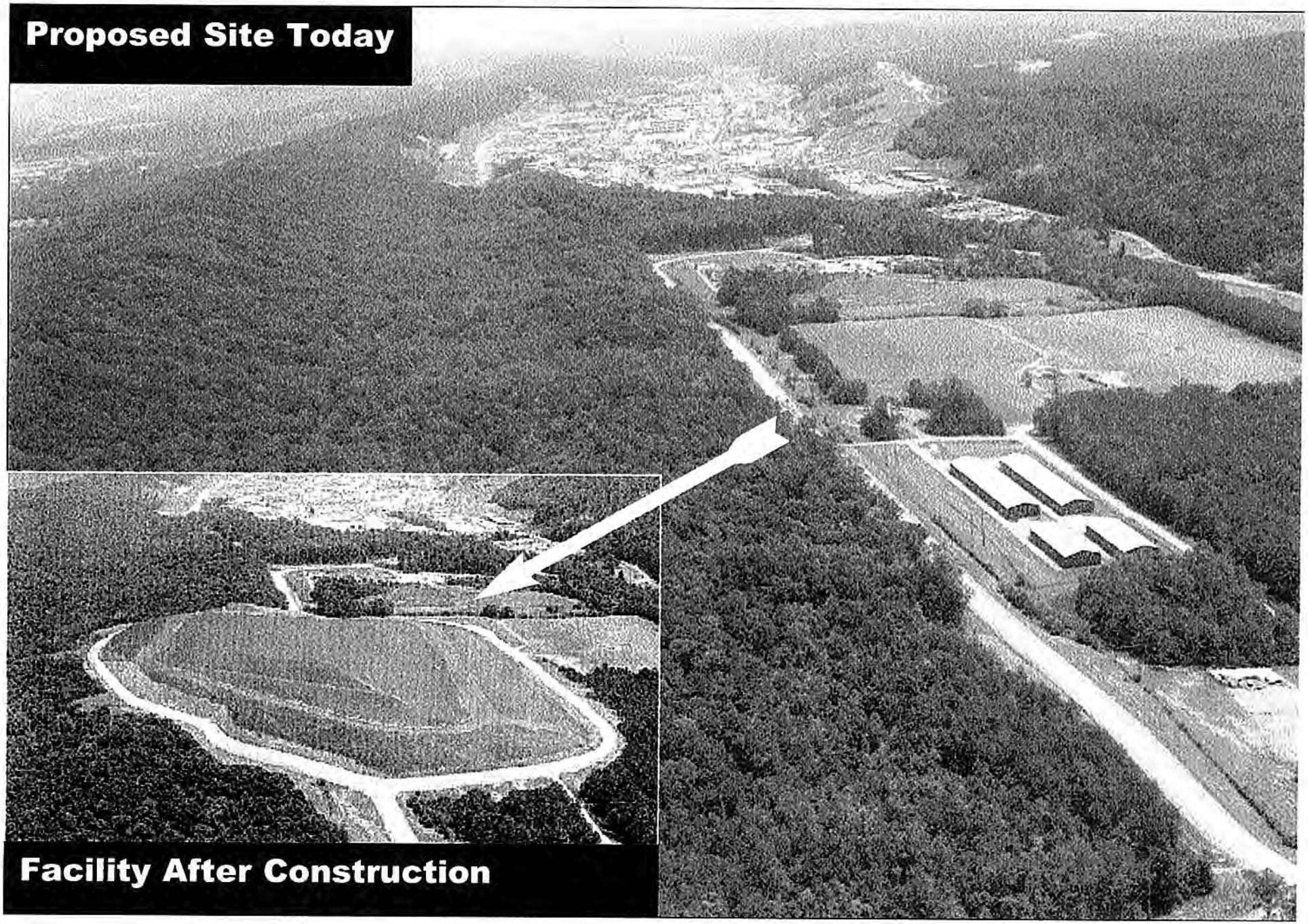
Key Facts

Size	About 70 acres
Volume	About 2.5 million cubic meters
Wastes	LLW only
Site Conditions	Drinking water aquifer below cell; .5 mile to nearest creek; 1-2 miles to nearest town
Status	Operational

Site Layout

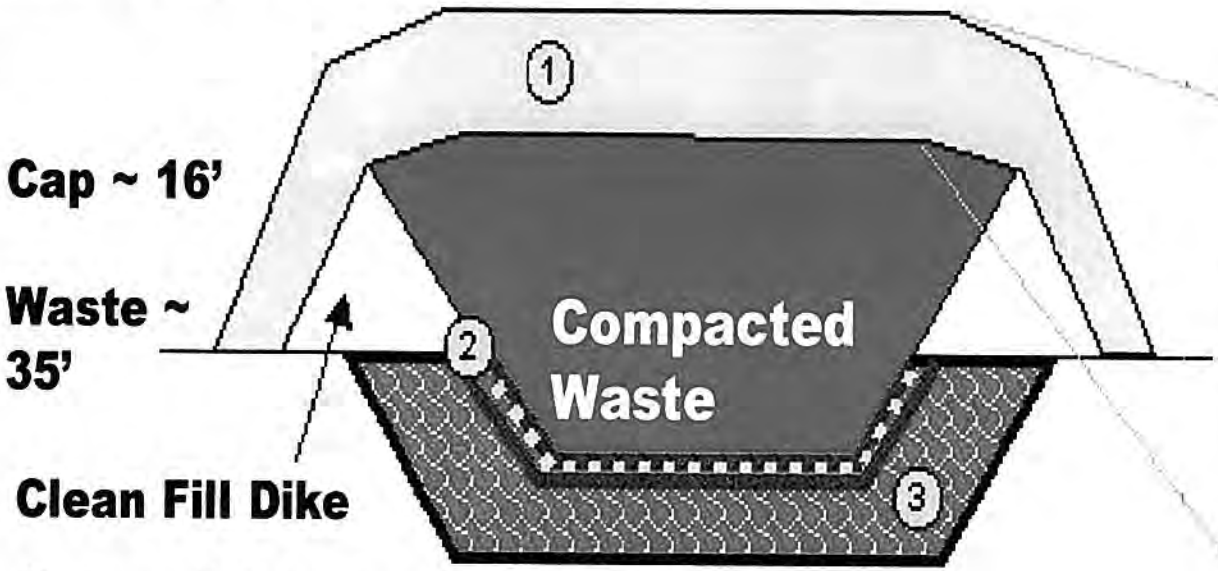


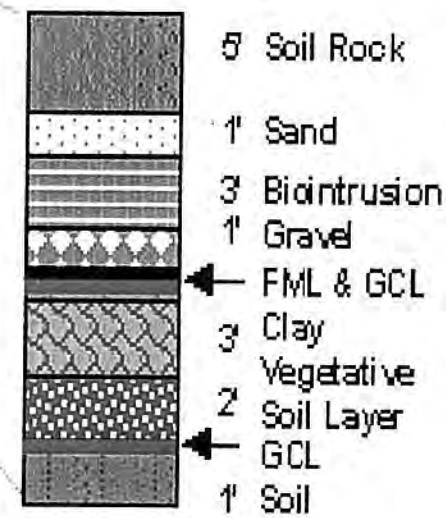
Oak Ridge Waste Management Facility



Oak Ridge Waste Management Facility

Cell Design





1 Cap with biointrusion layer

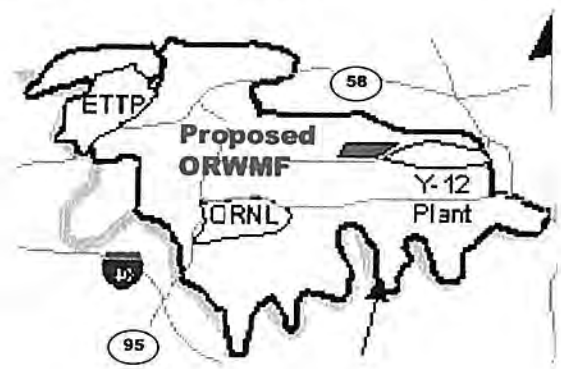
2 Double liner with leachate collection

3 Buffer between cell and water table

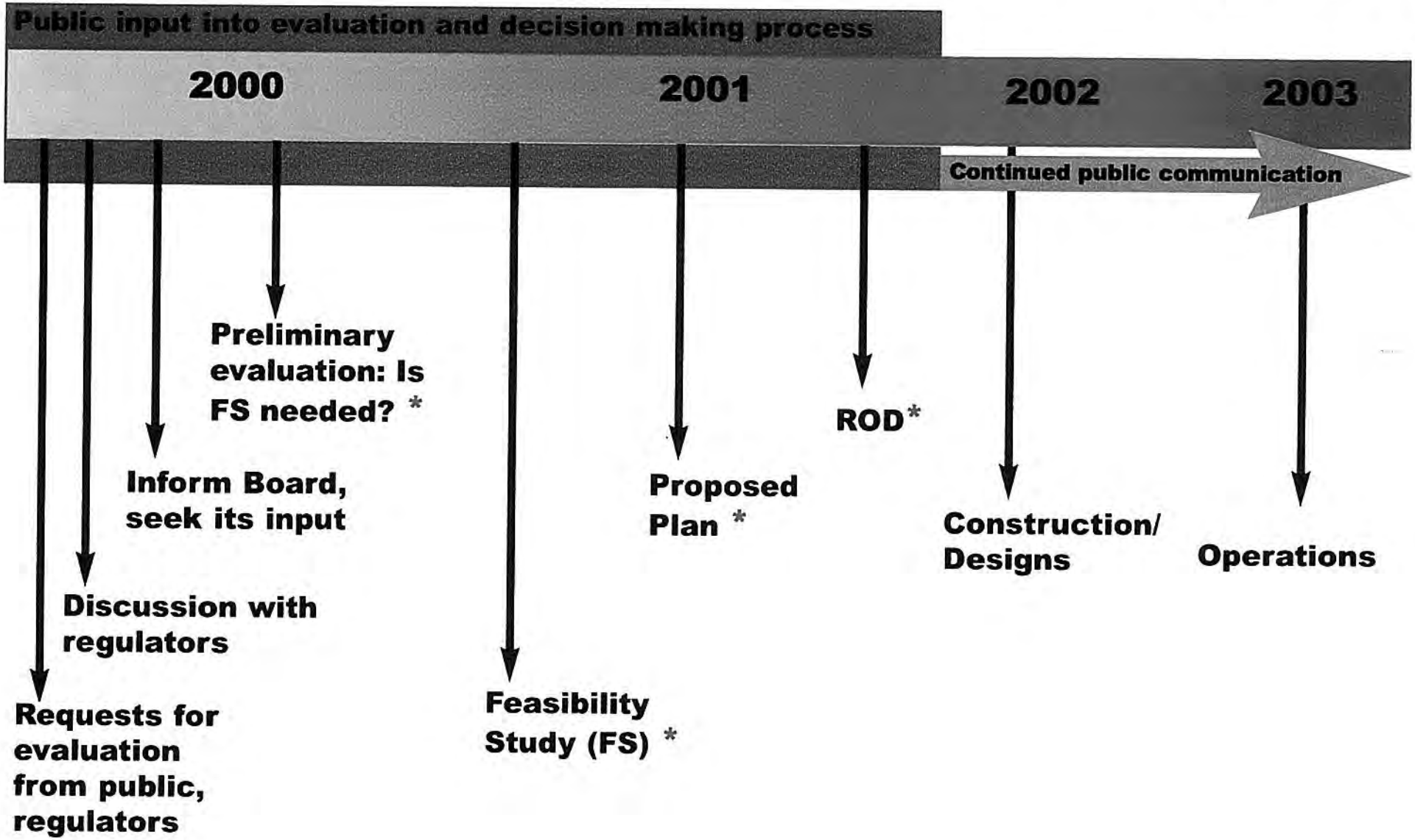
Key Facts

Size	22 to 44 acres
Volume	About 840,000 cubic meters
Wastes	LLW, Mixed LLW, RCRA, TSCA
Site Conditions	1,000 feet to creek; Adjacent to Y-12; Fractured limestone aquifer
Status	Construction 1/01; Operation 11/01

Site Layout



Approximate *(very)* Timetable for Decision



There are four "go", "no-go" points marked by a *

Does This Make Sense for Paducah?

We Want Your Opinion

BECHTEL JACOBS
Bechtel Jacobs Company LLC

NEWS RELEASE

MEDIA CONTACT:
Greg Cook (270) 441-5023
Bechtel Jacobs Company LLC Public Affairs

FOR IMMEDIATE RELEASE
March 6, 2000

USEC wins subcontract for Drum Mountain removal

KEVIL, KY — Bechtel Jacobs Company LLC has awarded a subcontract to the United States Enrichment Corporation for the removal of Drum Mountain at the Paducah Gaseous Diffusion Plant.

The competitively bid subcontract, valued at about $2.5 million, will mean additional work for USEC employees facing layoffs later this year as a result of company cutbacks.

"We are pleased with USEC's very competitive offer," said Gordon Dover, Paducah manager of projects for Bechtel Jacobs Company. "It allows us to maintain our aggressive schedule, while utilizing workers who would potentially have been laid off."

Drum Mountain is a distinct part of the scrap yards at the PGDP and encompasses about 10 percent of the estimated 65,000 tons of scrap metal stored at the uranium enrichment plant. The drums once contained uranium tetrafluoride and were crushed after being emptied.

Under terms of the contract, USEC will pack all of the drums for offsite shipment by September. Shipment to disposal facilities will follow by December. The crushed drums will be characterized to ensure that transportation and disposal are both safe and consistent with regulations.

USEC will shred and compact the drums before shipping, which is expected to cut disposal costs by about $750,000. The contract value does not include disposal fees.

-more-

Drum Mountain's removal is considered a priority for the U.S. Department of Energy because there is a concern that the drums could be a source of surface water

contamination and because the drums sit on an old burial ground, which is a potential contributing source of groundwater contamination and requires assessment. A plan to remove the remainder of the scrap metal at the plant is scheduled for completion later this year.

Bechtel Jacobs Company LLC is the managing and integrating contractor for DOE's Environmental Management program in Paducah; Portsmouth, Ohio; and Oak Ridge, Tenn. DOE owns the facilities at all three locations. USEC leases the enrichment plants in Paducah and Portsmouth.