PADUCAH GASEOUS DIFFUSION PLANT
SITE SPECIFIC ADVISORY BOARD

Chartered under the Federal Advisory Committee Act

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MEMORANDUM
SITE SPECIFIC ADVISORY BOARD

TO: SSAB Members
Ex Officio Members

FROM: Mark Donham
Vicki Jones

DATE: March 8, 1999

SUBJECT: **MEETING REMINDER**

The next meeting will be held March 18, 1999, at the Information Age Park Resource Center at 5:30 p.m.

Tentative agenda for the March 18, 1999, meeting:

- Facilitator's Orientation on Procedures to New Members
- Public Comments from Guests
- Minutes
- Information (Handouts)
- EM&EF Project Updates
- Vortec Update
- Depleted UF_6 Programmatic EIS Update
- Transportation of Wastes/Hazardous Materials
- WAG 6 — Gregory Waldrop
- WAG 22, SWMUs 2 and 3 — Nola Courtney
- WAGs 9 and 11
- FFA Review — John Morgan
- Recommendations from SSAB Evaluation Subcommittee — Jim Smart
- Northeast and Northwest Plume Pump and Treat Facilities — Bill Tanner
- Cumulative Effects on the Site
- Comments on Risk Profile Document
- DOE Response to SSAB Recommendations — Jimmie Hodges
- Administrative Issues for the Board
  - Review of the SSAB Draft Workplan
  - Financial Update
  - Web Page Update

Action Items

- Nola Courtney and John Sheppard to determine a timeframe for a tour of the plant for the SSAB members.
- Jim Smart, Vicki Jones, and Gregory Waldrop to meet before the March meeting to review the SSAB Evaluation and make recommendations to present at the March meeting.
- Bryan Clayton to provide Angela Farmer with information on molar concentrations used for the Potassium Permanganate testing at PNNL for the WAG 6 Treatability Study. **(Complete)**
- Shelley Hawkins to provide new board members with a copy of the FFA and the SMP. **(Complete)**
- Shelley Hawkins to provide Jim Smart with the Internet address for the FFA. **(Complete)**
- Dennis Hill to provide SSAB with a copy of the addendum for the Fernald EA. **(Complete)**
- Dennis Hill and Shelley Hawkins to contact other sites and obtain copies of sitewide EISs for the office along with information such as cost and effectiveness for SSAB members. **(Complete)**
- John Sheppard to place a discussion of the effectiveness sitewide EISs on the agenda for the national chairs meeting.
- Dennis Hill to provide new SSAB members with a copy of DOE's NEPA regulations. **(Complete)**

PLEASE SIGN IN

Paducah Gaseous Diffusion Plant
Site Specific Advisory Board

Name	Affiliation
Linda Long	SSAB
Shelley Hawkins	JACOBS
DENNIS Hill	BJC
STEVE KAY	ROBERTS & Kay
JOHN D. SHEPPARD	DOE
CATHY SHEPPARD	SELF
Vicki Jones	BJC
[illegible]	Vortec Corp.
Walter Perry	DOE Oak Ridge
Mark Dawson	SSAB
[illegible]	SSAB
[illegible]	SSAB
Jimmy Massey	BJC
[illegible] Fwedeh	EPA
John Morgan	BJC
[illegible] W. Plant	BJC
Ronald Lamb	SSAB
Mike Guffey	KY. - DEP
Debbie Walker	BJC
Nola Courtney	SSAB
[illegible]	SSAB
Gregory Waldrop	SSAB

March 18, 1999

Site Specific Advisory Board
Meeting Schedule for 1999

January 21, 1999 — 5:30 p.m. at the Information Age Park Resource Center

February 18, 1999 — 5:30 p.m. at the Information Age Park Resource Center

March 18, 1999 — 5:30 p.m. at the Information Age Park Resource Center

April 15, 1999 — 5:30 p.m. at the Information Age Park Resource Center

May 13, 1999 — 5:30 p.m. at the Information Age Park Resource Center

June 17, 1999 — 5:30 p.m. at the Information Age Park Resource Center

July 15, 1999 — 5:30 p.m. at the Information Age Park Resource Center

August 19, 1999 — 5:30 p.m. at the Information Age Park Resource Center

September 16, 1999 — 5:30 p.m. at the Information Age Park Resource Center

October 21, 1999 — 5:30 p.m. at the Information Age Park Resource Center

November 18, 1999 — 5:30 p.m. at the Information Age Park Resource Center

December 16, 1999 — 5:30 p.m. at the Information Age Park Resource Center

Post-it® Fax Note 7671	Date 3/9/99	# of pages ▶ 1
To Dr. Jim Smart	From Shelly Hawkins	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # 502-534-6092	Fax # 502-402-2551	

EM Site-Specific Advisory Board (SSAB)
Chairs Meeting
February 17-18, 1999
Sheraton Augusta Hotel
2651 Perimeter Parkway
Augusta, Ga.

A meeting of the Environmental Management (EM) Site-Specific Advisory Board (SSAB) Chairs was held February 17-18, 1999 at the Sheraton Hotel in Augusta, Ga. An agenda and list of participants is attached. Twenty-five meeting participants toured the Savannah River Site (SRS) on Tuesday, February 16, 1999. This meeting was held in accordance with the Federal Advisory Committee Act (FACA), and public notification was provided in the *Federal Register*. Martha Crosland acted as Designated Federal Official (DFO) for the Department of Energy (DOE).

Welcome and Introductory Remarks

Mr. Greg Rudy, Manager, DOE Operations Office welcomed the SSAB Chairs to the Savannah River Site area and thanked the SRS CAB for hosting the meeting. He discussed five imperatives that drive SRS operations noting that safety is the first and foremost priority at SRS. Technical capability and performance along with community, state and regulatory relationships are also key to SRS operations. Mr. Rudy noted the sincere respect SRS has for its Citizens Advisory Board and stated he thinks DOE has made better decisions because of stakeholder involvement. Mr. Rudy also discussed cost effectiveness and corporate perspective and how SRS relates to other sites across the DOE complex and across government.

Ms. Martha Crosland, Acting Director, EM Office of Intergovernmental and Public Accountability welcomed all SSAB participants in attendance and recognized Fred Butterfield and Karol Hazard of EM-22. She also thanked the SRS CAB for Tuesday's tour of SRS and for hosting the meeting.

SRS CAB Facilitator Mike Schoener acted as meeting facilitator and briefly discussed "Rules of Engagement" (see attached).

"Round-Robin" Issues & Information Exchange Among EM SSAB Site Boards

All SSABs provided an update of local SSAB activity and provided feedback on the following four questions relating to an upcoming Fernald-sponsored SSAB Transportation Seminar to be held May 20-23, 1999 in Cincinnati, Ohio:

- What are the key transportation issues, challenges and decisions at your site?
- What are the key things your SSAB would like to learn from this workshop?
- On which specific transportation issues can stakeholders be the most helpful?
- What would your SSAB most like to see happen at this workshop?

FERNALD

Jim Bierer, Fernald CAB Chair extended an invitation to everyone to attend the transportation workshop in May. He also discussed the accelerated cleanup schedule at Fernald emphasizing that any interruption in transportation offsite would pose a major problem at Fernald. He stated that 80 percent of Fernald's waste would be disposed onsite and 20 percent offsite. The key issues for the Fernald SSAB are mode of transportation, routing, and emergency response. he said. A key challenge is to effectively keep material moving. Mr. Bierer stated that most decisions have already been made and now the Fernald SSAB would like to see a complex-wide plan or grounds for DOE to develop a comprehensive transportation plan.

HANFORD

Merilyn Reeves, Hanford CAB Chair, acknowledged a letter from Chuck Rice, Idaho SSAB Chair, dated January 27, 1999 regarding the Transportation Seminar (see attachment). She stated she agreed with the letter and remarked that lessons learned had proved you cannot take information gathered at a workshop and try to go back to individual SSABs for ranking of priorities. Mr. Reeves provided a document – "Radioactive Material Transport in Oregon, 1997-98" prepared by the Oregon Office of Energy as background material for the seminar and encouraged other SSABs to locate similar state documents.

Ms. Reeves responded to a DOE-Headquarters memorandum encouraging participation of high school students on advisory boards. She stated it was too difficult to give students a seat on the board due to travel restrictions, liability, etc., however the Oregon Waste Board did send several students to attend a meeting in Portland, Oregon and had provided the student's evaluation of the meeting (see attachment).

Ms. Reeves also discussed the Office of River Protection stating the Hanford Advisory Board is not pleased with this new bureaucratic structure which is to oversee the eventual construction of a vitrification plant at Hanford. She also mentioned key personnel changes noting the Site Manager had retired and Program Manager for the K Basin had transferred to SRS. In addition, Ms. Reeves provided a copy of an article by James M. Owendoff, Acting Assistant Secretary for EM, regarding public participation (see attached). In her opinion, the article was erroneous regarding common concerns related at a summer stakeholder workshop. She stated a report by the League of Women Voters better characterized the meeting.

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY (INEEL)

Chuck Rice, INEEL Chair, relayed his concerns regarding the "National Dialogue" effort and stated he thought it was good that follow-on activities had been disapproved by DOE-HQ. He stated the Idaho Board had also looked at bringing in a student, however this was on low-profile but not yet rejected.

Mr. Rice announced that John Wilcynski moved to Washington to head all the field offices (FM-1) and that DOE-HQ's gain was Idaho's loss. Warren Bergholz is taking over as Acting Manager, he said.

Mr. Rice stated the bidding process for the new contractor at Idaho had commenced. The Lockheed-Martin contract is not being extended five years as it could have been, he said. The

Idaho Board commented on the Request for Proposals and that although many of their comments did not make the document, the new contractor will be expected to work with the Board.

Mr. Rice announced that on February 11, 1999, 350 boxes that Centers for Disease Control (CDC) researchers had identified as useful had been destroyed. This is at least a perception problem, if not a real problem, he said. Sixty-two boxes contained records that could have been useful.

Regarding transportation, Mr. Rice noted the following key issues:

Continuing receipt of Naval Spent Fuel, which is governed by a settlement agreement.

- No more than 24 shipments through 1994
- No more than 26 shipments in 1996
- No more than 20 shipments a year from 1997-2000
- No more than a retrieving average of 20 per year from 2001-2035
- Total shipments through 2035 shall not exceed 575 and must be certified by the Secretary of Defense as necessary to meet national security requirements.

DOE Spent Fuel Receipt

- Maximum receipt of 61 shipments of foreign research reactor fuel through 12/31/00
- Maximum receipt of 55 tons or 497 shipments after 12/31/00
- Fort. St. Vrain fuel receipts only if permanent repository is open and accepting spent fuel
- Idaho will accept up to 244 total shipments for treatment
- West Valley: less than 83 truck shipments per calendar year
- Others: no more than 20 shipments per year

Shipments of Spent Nuclear Fuel and High Level Waste Out

- All spent nuclear fuel out by 2035
- Virtually all aluminum-clad spent nuclear fuel has been shipped to SRS
- The cumulative in shall not exceed the cumulative out
- High-Level Waste (HLW) must be road-ready by 2035

Transuranic Waste Shipments Out

- 65,000 cubic meters to the Waste Isolation Pilot Plant or other facility designated by DOE as follows:
  - First shipment being by 4/30/99
  - No fewer than 3,100 cubic meters per calendar year shipped out by 12/31/02
  - After 1/1/03, a running average of greater than 3000 cubic feet per calendar year
  - Radioisotopes will be shipped out by plane and truck

Some low-level and mixed low-level waste will be shipped to Envirocare in Utah, however most will stay on site.

Mr. Rice noted the following key challenges: meeting the settlement agreement; WIPP opening; travel across tribal lands; status of training of HAZMAT Teams; and a solid public participation program.

LOS ALAMOS

George Chandler, SSAB Chair, stated that WIPP is the key issue regarding transportation in New Mexico. The State is still in an uproar over the facility, he said. Training of emergency response personnel along routes is one concern. He noted that while on tour of WIPP with Pueblo Tribe members, the WIPP engineers bragged about emergency response, but had been unresponsive to request made for WIPP to publish consistent data regarding radiation levels around trucks. Simplifying the data clouds the issue, he said.

Mr. Chandler noted that the Los Alamos CAB is reorganizing and had lost half its membership. He mentioned recent workshops held on risk assessment and environment surveillance and monitoring. He also announced that a well drilled near an old explosive production facility had led to discovery of high explosives approaching the lower aquifer. TNT, HMX and RDX had been detected three miles from the wells serving the community. The aquifer turned out to be higher and the contamination deeper than expected. The slow release of this information has been a crisis for the Board, he said. Now they were taking this opportunity to change how the Laboratory thinks about releasing information.

Connie Thompson-Ortega, Los Alamos CAB Vice-Chair discussed contamination around the river and provided two personnel changes. The Lab has a new DOE Manager and M.J. Byrne is now the Deputy Designated Federal Official (DDFO) for the Los Alamos Area Office. She also announced that the Board had formed a new Outreach Committee. Ms. Ortega noted that regarding transportation, safety is of concern in Santa Fe. She questioned if FEMA and DOE could develop a training partnership for the various routes.

Tom Marshall, Rocky Flats CAB, inquired about the previous difficulties with the Los Alamos Board and asked if everything had been resolved. George Chandler reported that the old board had attempted to address too many issues other than EM. As a result, a new Board was formed when term expirations were not renewed for former Board members. New members were selected by DOE and this led to a great deal of discussion regarding membership replacement procedures and the autonomy of the SSABs. Mr. Marshall asked for an explanation of what happened at Los Alamos with input from old and new Board members. Martha Crosland responded that a discussion on the selection of board members would probably be more productive than an explanation of a period of history that has already been documented in the SSAB Evaluation Report. (This issue was deferred for further discussion at an upcoming meeting.)

NEVADA TEST SITE (NTS)

Dick Telfer, NTS Board Chair, stated the NTS CAB had supported six of the 17 issues identified during the Low-Level Waste (LLW) Seminar. Regarding transportation, he noted things were different for Nevada since it is a receiving site there will be little shipment of materials offsite. The Board feels transportation routes are a key issue, he said and noted their concern regarding transportation through the "spaghetti bowl" in the heart of Las Vegas, NV. Yucca Mountain is also a key issue and he would like to see transportation issues regarding it addressed as well at the upcoming seminar, he said. Mr. Telfer questioned how interested people really are and noted the NTS CAB does not get much public participation in its meetings. Mr. Telfer noted that NTS would be joined by state agency representatives at the Transportation Seminar and said he looked forward to gaining valuable information and

everyone helping to solve shared problems. Mr. Telfer also introduced the Board's new facilitator, Victoria Coston.

OAK RIDGE

Bill Pardue, SSAB Chair, noted that there has been fairly little outcry over transportation and no high level of concern raised by stakeholders at Oak Ridge. WIPP is a major concern for Oak Ridge since it has a large volume of transuranic waste, he said. He hoped the outcome of the seminar would be public education noting that knowledgeable people do not see transportation as risky and others are not well informed. He noted that output from the seminar should be concrete, widely supported and definitive and complimented Chuck Rice on the INEEL letter regarding the seminar.

Mr. Pardue noted that Oak Ridge Operations Manager, Jim Hall was on loan to Hanford and they wanted him back, however Assistant Manager Rod Nelson continues to be very supportive. He stated the Oak Ridge was adjusting to a new management integration contractor from a managing and operating contractor and although this didn't impact Board relations with DOE it was chaos for the workforce. Mr. Pardue stated that the Oak Ridge Reservation had been in characterization for 6-7 years and was now moving on with cleanup efforts. He also noted that the Oak Ridge SSAB may have a high school student as an *ad hoc* member. Mr. Pardue stated the SSAB had strengthened its public outreach and was trying to improve. He noted that major present Board activity is focused on stewardship and he hopes to compel other SSABs to get involved.

PANTEX

Sidney Blankenship, Board Co-Chair introduced John Blakely from the Pantex Guards Union who was filling in for Co-Chair Ron Zerm for the meeting. He then discussed Board activity covering the last year. Pantex SSAB recommendations are sent directly to the Secretary of Energy, he said, and the number of recommendations is limited since they are consensus oriented. The Board does have policy concerns regarding shipments of LLW to unlicensed facilities. Pantex also has some mixed low-level waste (MLLW) going to a facility in Andrews, however the waste inventory for transportation is minimal, he said. Mr. Blankenship stated that transportation through the state and worker qualifications are important issues.

Mr. Blankenship noted that environmental remediation at Pantex is proceeding according to schedule and Pantex has requested to be deleted from the National Priorities List (NPL). Mr. Blankenship noted that the pit conversion mission was going to Savannah River and things have been somewhat "up in the air" until this decision was made. Mr. Blankenship stated his concerns regarding stewardship and its definition. Regarding the transportation seminar, he stated Pantex would be interested in learning more about transportation routes. He noted that an Emergency Manager for the City of Amarillo sits on the Pantex Board.

ROCKY FLATS

Tom Marshall, Board Vice Chair introduced Victor Holm, Executive Committee Member and Ken Korkia, Staff Coordinator. He noted that the Rocky Flats staff is the key to its success. Mr. Marshall stated the Board had not discussed the Transportation Seminar and therefore any comments were his ideas and did not represent the opinion of the Board. Mr. Marshall stated that the general idea of the "national dialogue" was still sound and there should be a national dialogue on waste. He questioned where the proposed workshop would take the SSABs and how it fit in

with larger concerns around transportation. He asked how DOE will use the input; who would prepare and present information; who would be and would not be at the table; and who is expected to invite and pay for non-SSAB members to attend. He questioned if joint recommendations make best use of participant's time and if the SSABs were even chartered to make joint recommendations. Mr. Marshall also noted there is no certification process for emergency responders in Colorado.

Mr. Marshall noted that final closure of Rocky Flats is expected by 2010. He stated that he thinks one of the best examples of public participation is the cleanup of a site and there are still many cleanup decisions to make even though many important decisions have already been made.

Victor Holm discussed an independent study initiation by the Rocky Flats CAB. Over two years ago, a study on soil action cleanup levels was released and the community felt it wasn't science-based so a panel was formed to review actinide migration in the environment, he said. A request for proposals for an independent expert was provided and a contract should be awarded in six weeks. Mr. Holm stated that many important decisions remain at Rocky Flats, such as how to decontaminate and decommission buildings with contamination on surfaces of concrete and how to address actinide impact on rubble onsite. He noted the importance of the project and its national ramifications.

SANDIA

Hugh Joy, Sandia CAB Chair, stated they had very little involvement in transportation issues. He thought key issues would be emergency preparedness; alternative routes; and public awareness. He stated Sandia would like to learn about the alternatives associated with wastes and what it takes to start or stop shipping. The selection of routes is also very important, he said. He stated Sandia is interested in a comprehensive understanding of the entire transportation system and would like to see some nationwide consensus on the program as a result of the Transportation Seminar.

Mr. Joy noted the Sandia CAB had new members and a new administrator, Abbey Wells. The board is still concerned with public engagement, he said. He stated that final remediation of Sandia is scheduled within two years and the Board will bid farewell if DOE can prove it will pay for cleanup.

Dianne Terry, Sandia Board member, stated Sandia has only a small problem with mixed waste and therefore no great interest in transportation. She also noted the Environmental Management Integration (EMI) Contractor Report and encouraged other SSABs to consider this report.

SAVANNAH RIVER SITE

Ann Loadholt, Board Chair, noted the following recent Board recommendations:
support for the "melt and dilute" alternative for spent nuclear fuel management at SRS;
a recommendation questioning the need for full corrective measures of a groundwater plume; the submittal of a minority report by seven members who supported three of the five corrective measures proposed a Board commendation to DOE, EPA and SC DHEC for implementation of a "Plug-In ROD" approach to remediation of eight reactor basins;
comments on the hazardous waste permit for WIPP which discourages any authority imposed on SRS by the New Mexico Environment Department; and a recommendation to cancel a HLW Tank Closure Environmental Impact Statement

Ms. Loadholt also noted that 45 candidates are being considered for 15 board positions in March. She noted the Board held a Process Improvement Retreat in January that has led to a restructuring of subcommittees and the way the board conducts business. Ms. Loadholt stated student involvement was being achieved through essay contests sponsored by the Board and that although there is no seat on the board for a student, the SRS CAB is trying to involvement students in other ways.

Regarding the Transportation Seminar, Ms. Loadholt noted the Board had not had much discussion. She questioned the need for ten persons from each SSAB and recommended the number of SSAB participants be reduced. She also noted that 12 hours was a long day, although the preliminary agenda did appear productive.

Stewardship Seminar

Bill Pardue and Lorene Sigal of the Oak Ridge SSAB presented plans for fall seminar regarding stewardship. Lorene Sigal first provided a presentation to explain stewardship (see attachment). She described stewardship as the long-term protection of all sites. Residual contamination will be here for thousands of years, she said. A good institutional program is needed. Who takes care of these sites if DOE is not in existence, she asked. She stated that planning must be developed concurrently with environmental restoration.

Ms. Signal noted recent meetings held regarding stewardship that were by invitation only and without the benefit of stakeholder input. She presented a draft agenda for the proposed Stewardship Seminar and discussed why it was important to Oak Ridge. Oak Ridge is divided into three major sites with five associated watersheds. A watershed approach to cleanup is being pursued for contaminated areas covering 3500 acres, which will result in fewer CERCLA Records of Decision. The Oak Ridge SSAB formed an End Use Working Group (EUWG) to develop community values related to cleanup of the Oak Ridge Reservation and to develop future use recommendations to guide cleanup efforts. The stewardship effort found its roots in the EUWG. A 16-member Stewardship Committee was formed in the spring of 1997. The Committee defines Stewardship as the acceptance of responsibility and the implementation of activities necessary to maintain long-term protection of human health and of the environment from hazards posed by residual radioactive and chemically hazardous materials.

The goal of the Stewardship Committee is to identify elements of effective stewardship; develop long-term stewardship requirements for the Oak Ridge Reservation; identify options and promote the acquisition of adequate long-term funding for stewardship; promote public understanding and promote stewardship interaction among individuals and governments. Ms. Sigal noted the need for amendments to CERCLA regarding stewardship and stated that DOE in Oak Ridge was including stewardship requirements in CERCLA documents at the request of the Stewardship Committee.

Mr. Pardue asked for SSAB support of the Stewardship Seminar and for comments on the proposed draft agenda. Chuck Rice-Idaho congratulated Oak Ridge on an excellent job and stated Idaho would support the seminar. Merilyn Reeves-Hanford request information on the timing and when stewardship "kicks in." She also noted key interest by Native Americans since their Treaty rights will be impacted. She remarked that funding is needed here and now and that there is a lot of stabilization not taking place due to lack of funding. (Further discussion on Meeting Day 2 resulted in agreement by all SSAB representatives that they were comfortable their individual boards would support the Stewardship Seminar).

Update and Questions & Answers on the Environmental Management Integration (EMI) Process

Steve Schneider of DOE-Headquarters EM Office of Waste Management provided an update on DOE Environmental Management Integration (EMI) (see attachment). The EMI effort began two years ago with 22 integration recommendations made by contractors. Mr. Schneider stated that integration is a culture EM has embraced and was motivated by the need to make sustainable configuration decisions and the need to operate more efficiently in light of budget constraints. EMI utilizes a systems approach of identifying needs and obtaining lessons learned. Currently, one hundred opportunities have been identified and forty are being worked including the 22 submitted by the contractors. Some opportunities are being evaluated as part of the existing NEPA/CERCLA decision process, he said.

Mr. Schneider stated that much progress has been made in developing baseline data, maps and diagrams. A new computer tool helps generate maps and they see a great need to strengthen links between maps and transportation. DOE also wants to identify stoplights and solutions. They want consistency from site to site and want to continue to work with stakeholders as well. Mr. Schneider discussed the Integration Structure that includes an Executive Committee, a Core Team and 12 Program Area Integration Teams. Integration teams identify and evaluate opportunities; the Executive Committee and Core Team develop and approve evaluation plans for implementation. Mr. Schneider stressed that the Integration Process does not replace decisions under NEPA and CERCLA. The Integration Opportunities Process includes three decision gates. Mr. Schneider provided several examples of opportunities at various decision gates. The visual testing of transuranic waste drums; the establishment of four nuclear materials management centers; the need to establish a singe DOE-wide transportation policy; and the use of M-100 containers as the standard low level waste disposal container were cited as specific examples.

Much discussion pursued regarding stakeholder participation in the EMI effort, the lack of stakeholder dialogue, and the disconnect in communications. Mr. Schneider could offer no answer to questions regarding equity and what is equitable. When questioned on urgency and timelines, Mr. Schneider stated that working schedules with timelines would be available in the springtime. One SSAB Chair commented that the EMI effort smacks of "DAD"— "decide, announce, defend" — and noted she sees no public involvement program. Mr. Schneider stated he hoped to see interactive two-way dialogue at the SSAB meetings. Chuck Rice of the INEEL CAB pointed out that political aspects have not yet been added integration maps and that he would like to see non-technical aspects included such as tri-party and settlement agreements. Mr. Schneider requested that Mr. Rice prepare of a list of the aspects he'd like incorporated. Mr. Schneider also stated he would provide a list of EMI Site contacts to the SSABs and follow-up on concerns regarding ER funding expressed by one SSAB member.

Tom Marshall commented that EMI should be a likely agenda item for the Secretary's Summit. Mr. Schneider stated the Secretary now planned to meet first with the governors although no agenda or timeline has been established. He concluded his presentation by stating

that Integration is important to DOE, it has the commitment of field management, DOE would like stakeholder input and they want to see the effort succeed.

Overview of DOE's Center for Risk Excellence and Discussion of Development of Site "Risk Profiles"

Dr. Al Young, Director of DOE's Center for Risk Excellence (CRE) provided an overview of the organization (see attachment). The CRE vision is to be a catalyst for improved environmental decisions through sound risk management. Its mission is to provide leadership, expertise and integration of risk activities through strategic partnerships and apply science and technology to manage risks and enhance understanding of risks in environmental issues. CRE was created by DOE to help coordinate risk-related activities involved in restoring sites. It is located in the Chicago Operations Office and reports to the DOE Chicago Environmental Programs Group and the DOE/EM-52 Office of Science and Risk Policy. Dr. Young discussed strategic goals by six program areas including assessment, management, education, policy, and communication. He provided a brochure and newsletter (see attachment) and invited SSAB members to visit the CRE web site.

Dr. Young focused on communication strategies and the development of risk profiles for each of the DOE sites. He said clear descriptions of hazards, risk and performance are needed along with reference points to track progress with the "Accelerating Cleanup: Paths to Closure" document. Identification of end state and long-term stewardship plans are also needed, he said. CRE has been working with field offices for the past year to develop these profiles and admitted they were involving stakeholders too late. The Risk Profiles give an overview story of major risk concerns at each site; reflect project baselines; show risk management reduction progress over time: and keep information separate from funding. This approach allows flexibility to identify the most serious risks with regards to hazards and avoids subjective arguments about "high, medium, and low." Key data, such as material types, amounts and exposure concerns, are being developed by the field in a bottoms-up approach. Dr. Young also discussed the need to move beyond public health risks and talked about incorporating ecological and cultural risks as well.

Dr. Young presented a Draft Public Involvement Plan for Risk Profiles (see attachment) which calls for stakeholder review of the profiles by April 30, 1999. He plans to brief the Environmental Management Advisory Board on all ten Risk Profiles on March 25, 1999. Dr. Young encouraged the SSABs to review the Risk Profiles since they are part of the data call for the updated *Accelerating Cleanup: Paths to Closure* (PtC) report.

Merilyn Reeves of the Hanford Advisory Board expressed concern that the Hanford Board will be reviewing the FY2000 Budget in March and were these risk-based data sheets being developed in an effort to determine funding. She also expressed skepticism that new information was being generated and noted several plans already available with this type of information. She stated she did have the opportunity to see an early draft of the Hanford Risk Profile prior to regulator approval. George Chandler of the Los Alamos CAB stated he would appreciate receiving the information for Los Alamos since he's been unable to obtain it for four years. Tom Marshall of the Rocky flats CAB cautioned that we may not know how dangerous plutonium is since we are constantly finding out more about radiation. He also asked about the number of projects at CRE and what portion of the CRE budget was focused on Risk Profiles. Dr. Young responded that of the $2.7 million budget, about one million is tied to the profile project.
Tom Wagner of the Fernald CAB admonished that the time schedule for stakeholder feedback was too tight and should be moved out. Dr. Young stated this wasn't likely since the profiles are part of the data call for the PtC. Dr. Young stated that CRE works on a national level but needs to get the stakeholders and asked the SSABs to help him solve this problem. Karen Patterson of the SRS

CAB stated this is further evidence that EM does not take stakeholder participation seriously. Ann Loadholt, also of the SRS CAB, noted that between CRE and the Consortium for Risk Evaluation and Stakeholder Participation, DOE was spending $8 million on risk information. She stated that even if it was only $1 million, it sounds like a lot of money to citizens and there are many programs at SRS the stakeholders want completed.

Transportation Seminar

Doug Sarno, Fernald Facilitator, discussed an upcoming workshop on transportation to be held May 20-23, 1999, in Cincinnati, Ohio. The workshop is being hosted by the Fernald Citizens Advisory Board, which has been working on transportation issues for several years. The goals of the workshop are education, dialogue and SSAB cooperation to identify joint issues and concerns and begin to draft joint recommendations to the resolution of those concerns. Expected outcomes of the workshop are twofold: an event-specific stakeholder statement, and inter-SSAB coordination on joint recommendations. Mr. Sarno requested feedback on the goals and expected outcomes.

The following comments were provided:

A statement should be provided on any outcome materials that clearly states the information is to be used in its entirety. A preamble prepared in advance would protect the credibility of the SSABs.

Need to drive to a clear outcome if people are going to commit resources to effort.

The workshop needs to be focused on transportation and not disposition issues. The purpose of the workshop is to discuss how materials are moving, not if and where they are going.

You are starting with the supposition that waste should move. It will be difficult to discuss transportation without looking at disposition. Waste is moving and impacting communities. Don't be exclusionary regarding who participates in workshop and how do you account for stakeholders in corridor states.

The workshop should cover motor transportation, security, transport hours, emergency response and routing information.

Much discussion pursued on the outcomes of the workshop and whether participants should work by consensus or voting. Regarding an event-specific outcome, there was concern that a consensus-driven workshop will end in deadlock, but some questioned the value of a statement of concern that's adopted by a 70/30 vote. Merilyn Reeves of Hanford suggested making participants sign the statement of concern. She noted that although consensus would be far more valuable and voting would lead to politics, signatures would be better than trying to reach consensus in two days. Max Dakins of the INEEL CAB noted that it's the process of searching for areas of agreement that is valuable.

Regarding an opportunity for inter-SSAB coordination on joint recommendations, SSAB members discussed logistics and timing challenges, noting that board agendas are planned well in advance.

Several members emphasized that a timely summary of the workshop is needed. It was also noted that knowledgeable SSAB members should attend the workshop.

On day two of the meeting as transportation seminar discussion continued, Doug Sarno noted that the idea of an inter-SSAB product is going to be difficult to realize, but stated the facilitators want to get a product out for the SSABs to review. One SSAB member suggested that individual recommendations from each of the SSABs be sent under one joint cover letter to DOE-Headquarters.

Next, discussion turned to who should participate from each SSAB. Mr. Sarno stated that each board was asked not to exceed ten participants and that could include SSAB members, contractors, regulators, or any individual the SSAB deemed appropriate. The selection of participants will be each SSABs responsibility. Several SSAB members commented that ten participants seemed high and the total number should be held to around 75 individuals more in accordance with the Low-Level Waste Seminar. By a show of hands, SSAB members expressed agreement that ten participants are too many and Boards should send approximately four SSAB members and three other/support personnel. It was determined that costs will be shared by the SSABs for its individual participants and noted that non-government participant travel could become an issue. Martha Crosland noted this would not be the only forum for receiving stakeholder input on transportation. Tom Marshall suggested it may be helpful if DOE-Headquarters encouraged field office support of the transportation workshop.

DOE/EM Informational and Status Updates

Waste Management PEIS and Disposal Records of Decision

Martha Crosland provided an update on Records of Decision for the WM PEIS. A Record of Decision on how and where to treat and store transuranic waste was released in December 1998. The Hazardous Waste ROD was released in July 1998 and a ROD on mixed low level waste is still being worked, but expected this spring. A decision regarding high level waste treatment and storage is also expected this spring.

PEIS Lawsuit Settlement

Ms. Crosland reported that the PEIS lawsuit was settled on December 14, 1998. The settlement contained the following three components:

- DOE will create a central Internet database and will sponsor at least two national stakeholder forums to address issues relating to the database
  - DOE will perform a study on long-term stewardship activities following NEPA regulations for public review
  - DOE will set up a Citizen Monitoring and Technical Assessment Fund in the amount of $6.25 million.

Ms. Crosland discussed specifics of the settlement agreement and provided a copy for all in attendance. She noted that it had been misreported that the fund was limited to plaintiffs. It is in fact available to any non-profit or non-governmental organization. These funds are not available for SSABs. Jim Werner is the point of contact at DOE-Headquarters. Merilyn Reeves of the Hanford Advisory Board commented on the short lead time to conduct a productive meeting in

June and suggested meeting planners review the lessons learned from the National Dialogue facilitation team.

Waste Isolation Pilot Plant

Ms. Crosland provided the Department's official policy statement regarding WIPP in an editorial from Secretary Bill Richardson (see attachment). She stated that he would like to see the facility open as quickly as possible. Ms. Crosland discussed the various legal impediments in opening WIPP. There is an injunction against DOE from transporting TRU waste to WIPP, and oral argument is scheduled for March 12, 1999. EPA certified WIPP as complying with federal requirements for nuclear waste disposal on May 18, 1998 and the New Mexico Environment Department is in the process of permitting WIPP under the Resource Conservation and Recovery Act. Hearings will be held in Santa Fe and Carlsbad in February and March.

Ms. Crosland also provided a presentation regarding WIPP and transportation (see attachment). She stated that DOE has attempted to get the public prepared and is working closely with the Western Governor's Association (WGA) and the Southern States Energy Board (SSEB). Education programs and training have been a priority and there has been a major training effort along WIPP routes, she said.

George Chandler of Los Alamos noted they had recommended that a SSAB be created for WIPP. He asked why there was not one. Martha Crosland replied that the impetus for creating a CAB comes from the community and no desired had been expressed from the Carlsbad area. She stated DOE would not be opposed. Fred Butterfield stated that recently the Brookhaven (NY) community had showed interest in forming a board and following a SSAB panel discussion, the community decided not to have a FACA-chartered board and formed another citizens action group that is independently funded.

U.S. DOE NEPA Status Update

Ms. Crosland provided a detailed chart ongoing NEPA activities in DOE. She also noted the following two publications that may prove helpful to SSABs:

- Key Environmental Impact Statement of the Department of Energy, EH-42, Oct. 1998
- Recommendations for Preparing Environmental Impact Statements, EH-42, May 1993

Merilyn Reeves of Hanford urged Ms. Crosland to periodically update the EM SSAB Federal coordinators on any new documents that would provide useful to the public. She noted that "Closing the Circle" and "Leaking Legacies" had been very useful tools.

Transportation Protocol Standardization Initiative

Martha Crosland provided an update on the Transportation Protocol Standardization Initiative (see attachment). DOE currently employs a number of practices, many of which involve national security, she said. DOE recognized the need to address concerns regarding lack of uniformity and clear protocol. This initiative will review protocols and those appropriate for standardization and will be conducted in the following four phases:

Phase I- Compile information on existing practices
Phase II-Work with stakeholder groups to identify practices that can be standardized

Phase III-Identify draft protocols and provide for formal review and comment
Phase IV-Establish standard protocols

Fred Butterfield commented that this had been a challenging effort to pull together the various protocols by the Senior Executive Transportation Forum and representatives do plan to attend the SSAB Transportation Workshop.

Update on DOE Field & HQ Personnel Changes

Martha Crosland stated that John Wilcynski was now the head of Field Management at DOE-Headquarters and Tom Todd has moved to Defense Programs. Gary King has joined the Department from the State of New Mexico as a Senior Advisor to the Assistant Secretary for Environmental Management and is very interested in public participation.

New Business

Merilyn Reeves of Hanford commented on the presentation from the Center for Risk Excellence stating she sees a trend that concerns her due to the amount of money being spent on risk. She stated a lot of good progress is being made in the cleanup of sites and she doesn't see it being reported. She said in her opinion, the nation is getting a fairly decent value on stabilization and cleanup and couldn't one of the new missions of the CRE be tabulating how we have reduced risk to workers, the environment and the public.

Brendolyn Jenkins, SRS CAB, commented that she is discouraged by the continued challenges about CRE and CRESP. She stated these organizations are here, not going away, and underutilized. She stated it is disingenuous to speak ill will of people not present and instead of antagonism, we need to get the "best bang for our buck" and maximize utilization of these organizations. Ms. Jenkins stated the SSABs should tell them what is expected of them and demand from CRE and CRESP what the SSABs want. Hugh Joy of Sandia commented that following the last SSAB Chairs meeting, they were left with the impression that CRESP was "off doing their own thing." He stated the SSABs should help Al Young, CRE do his job. Maxine Dakins of the INEEL CAB echoed Ms. Jenkins stating that nothing is more important than risks. It is how decisions are made, she said. She commented that in addition to communicating risk reduction, other issues that need communicating are residual risk and how risk assessments are done. She stated she would like to see the SSABs work with CRE on the risk profiles. Doug Sarno commented that Ms. Jenkin's statement was one of the most effective and poignant statements he had heard regarding public participation.

Bill Pardue of the Oak Ridge SSAB stated he needed closure on the Stewardship Seminar. He said Oak Ridge would like to move forward with their plans and suggested the seminar would need less prior involvement by the facilitators that the other workshops. He stated DOE has made a strong financial commitment and resources will not come from SSAB pockets. All SSABs acknowledged support for the Stewardship Seminar.

Chuck Rice, INEEL CAB, suggested that discussion regarding the SSAB membership selection process be included in the next SSAB Chairs meeting during the "Round Robin" portion of the meeting. The next meeting will be held in the fall and hosted by the Hanford SSAB.

No public comments were provided during the meeting. The meeting adjourned at 11:15 a.m.

Action Items

- Membership Selection on Next Meeting Agenda
- WIPP Fact Sheet- inconsistencies in radiation levels (Martha Crosland)
- Provide Comments on Oak Ridge Stewardship Seminar
- Provide EMI Site Contacts (Fred Butterfield/Martha)
- ER/WM Funding Issue (Steve Schneider)
- More EMI meetings with SSABs and More Systematic Public Participation (Steve)
- EMI Schedules and Timeline-Springtime (Steve)
- DOE Definition of Equity (Fred/Martha)
- Items for Updated Integration Maps (Chuck Rice)
- Risk Profiles and Site Contacts (Al Young)
- Request extension on public comment of Risk Profiles (Martha/Al)
- Marshall request for how Transportation Workshop fits into public involvement concepts (Martha)

OAK RIDGE OPERATIONS OFFICE

RISK PROFILE

March 1999

Prepared by the
Center for Risk Excellence
U.S. Department of Energy

Introduction

This document contains a brief description of the risks to public health and safety for the Environmental Management (EM) Program at the U.S. Department of Energy Oak Ridge Operations Office (DOE-ORO). The DOE Center for Risk Excellence (CRE) and DOE-ORO have created this document to increase communication regarding the risks at DOE-ORO sites by creating a common-sense approach to telling the risk story of DOE-ORO. This profile is one of a series of similar documents created for the other major DOE operations and field offices.

In February 1997, the Assistant Secretary for Environmental Management signed a Memorandum of Agreement with the Chicago Operations Office creating the Center for Risk Excellence (CRE). The CRE's goal is to help DOE make more credible risk-informed decisions. The role of the Center is to support the EM program and other DOE offices by providing field-based expertise and resource coordination.

The risk profile uses existing data from the sites to present the risk information in a user-friendly manner and to support communication of hazards to those not familiar with the sites. First, key risk-related challenges are listed. The current risk situation is then examined and future risk reduction activities are discussed. Finally, the document presents tabular and graphical illustrations showing planned risk reduction activities.

The technical approach taken in this profile is to focus first on the hazards that exist at the sites. The hazards are briefly described in terms of the characteristics that could impact the public. Second, potential pathways for exposure of the public to site hazards are discussed. Next, the profile looks at the control, storage, treatment, disposal, characterization, and other activities that DOE has taken, is taking, or will take to limit the risks posed by the hazards. This hazard-pathway relationship is discussed in the context of potential human "receptors" at the sites.

The risk profile is not a comprehensive look at all risks at the sites, as it does not include all programs. Rather, it focuses on activities and/or materials addressed by the EM program. This focus is on human health and, to a lesser extent, on worker safety. Ecological risk and other project, cultural, and societal risks are not specifically included. In addition, not every hazard is described, to that the profile can provide a summary portrayal of overall site risks; some hazards that pose little or no risk may not have been included.

Two general caveats should be kept in mind when viewing this and other risk information. First, risk levels are highly dependent on the assumptions used to estimate them. For example, assumptions about future land use may drastically affect the estimate of health risk from contaminated groundwater. Second, different risks may be of greater concern to different people. For example, local residents may be concerned about chronic or accidental releases of contaminants to environmental media, whereas neighboring businesses may be more concerned about an acute release that generates greater news media attention than small chronic releases. Regulatory agencies, as surrogates for future residents, are concerned about managing residual contamination and minimizing releases. Showing that the calculated risks are small does not always assuage concerns. For these and other reasons, accurate risk calculations do not always lead to clear, straight-forward cleanup decisions. Nevertheless, the consideration of these risks is a critical element in deciding about DOE-ORO cleanup actions.

Oak Ridge Operations Office Risk Profile

The Oak Ridge Operations Office (ORO) of the U.S. Department of Energy (DOE) is located in Oak Ridge, Tennessee. The ORO is responsible for Environmental Management (EM) activities at six sites in four states:

Oak Ridge National Laboratory (ORNL or X-10) in Oak Ridge, Tennessee
Y-12 Nuclear Weapons Facility (Y-12 Plant) in Oak Ridge, Tennessee
East Tennessee Technology Park (ETTP) (formerly known as the K-25 plant or the Oak Ridge Gaseous Diffusion Plant) in Oak Ridge, Tennessee
Portsmouth Gaseous Diffusion Plant (PORTS) in Pike County, Ohio
Paducah Gaseous Diffusion Plant (PGDP) in McCracken County, Kentucky
Weldon Spring Site Remedial Action Program (WSSRAP) in St. Charles County, Missouri.

The major risk management and reduction activities at these sites are those related to (1) environmental restoration at release sites known to be contaminated with hazardous and/or radioactive materials from historical operations, (2) management of waste in inventory and generated from environmental restoration activities and continuing facility operations, (3) management of special nuclear materials and weapons components, and (4) decontamination and decommissioning of radioactively contaminated facilities.

The remedial goals for environmental restoration projects in the ORO are to (1) protect industrial workers from direct exposure to contaminated media or facilities, (2) protect the groundwater users at the DOE property boundary, (3) protect recreational users outside the secure areas, (4) protect sensitive ecosystems outside the secure, industrialized areas. To accomplish these goals the environmental restoration program includes a combination of source-control actions followed by groundwater, surface water and soil remedial actions.

DOE is currently in the process of reducing its inventory of hazardous and radioactive materials. By reducing the amounts of stored waste, the risks at the sites are reduced. DOE intends to only maintain materials that are directly involved in key operations, such as the uranium enrichment cascades at Portsmouth and Paducah. In addition, DOE has mapped the disposition of low level waste, mixed low level waste, and environmental restoration wastes for these sites; the treatment and disposition of legacy wastes will reduce the volume of these wastes on-site and lessen the likelihood of environmental contamination from these materials. The disposition of special nuclear materials and weapons components, and the stabilization of contaminated facilities will leave the ORO facilities in a low-risk condition. Long-term monitoring and institutional control will be maintained to ensure continuing protection of human health and the environment.

Three of the ORO sites (ORNL, Y-12, and ETTP) are located on the Oak Ridge Reservation (ORR). These will be considered in a single risk profile. The individual risk profiles for each of the sites under the direction of the ORO are provided on the following pages.

> *"EM is committed to achieving compliance with laws, regulations, and agreements that protect human health and the environment and is focusing its resources on cleanup of inactive waste sites and facilities; conducting safe and effective waste management operations; minimizing risk to the public, the worker, and the environment; emphasizing waste minimization and pollution prevention; and coordinating applied technology development initiatives."*
>
> James Hall
> Manager, DOE Oak Ridge Operations Office

Major Risk-Related Challenges at the Oak Ridge Operations Office

* **Oak Ridge Reservation**
  - 140 acres of buried waste in water-rich environment
    40 million pounds of uranium
    6 million Curies of radioactivity
  - Current releases of radioactivity to the environment
    100 miles of contaminated streams and rivers
  - 6 shutdown reactors
  - 156 surplus facilities in deteriorating condition

* **Paducah Gaseous Diffusion Plant**
  - TCE plume impacting 10 billion gallons of groundwater off-site

* **Portsmouth Gaseous Diffusion Plant**
  - TCE contaminated groundwater

* **Weldon Spring Site**
  - Contaminated groundwater plume 0.5 miles from well field serving 60,000 residents

OAK RIDGE RESERVATION (ORR)

Site Description

TENNESSEE
Cleanup Sites

Oak Ridge Reservation

The Oak Ridge Reservation (ORR) is a 14,000-ha (34,700-acre) federally owned facility managed by the Department of Energy (DOE). The ORR has three major plant sites: the Oak Ridge National Laboratory (ORNL, also known as X-10), the Y-12 Nuclear Weapons Facility (Y-12 Plant), and the East Tennessee Technology Park (ETTP, formerly known as the K-25 site and the Oak Ridge Gaseous Diffusion Plant). The ORR also has approximately 8,800 ha (22,000 acres) of relatively undisturbed natural land known as the Oak Ridge National Environmental Research Park (Research Park). The three plants were established in the early 1940s as part of the Manhattan Project. Except for a small western portion, the ORR is within the limits of the city of Oak Ridge, located in Anderson and Roane counties in east Tennessee. Oak Ridge lies in a valley between the Cumberland and the Blue Ridge mountain ranges and is bordered on two sides by the Clinch River. The population of the ten-county region is approximately 800,000, with 5% of its labor force employed on the ORR. Other towns near the reservation include Oliver Springs, Clinton, Lenoir City, Farragut, Kingston, and Harriman. Knoxville, the major metropolitan area nearest Oak Ridge, is located about 45 km (25 miles) to the east. ORR was placed on the National Priorities List (NPL) in 1989, and site remediation is being conducted under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

The ORR is located in a water-rich environment with diverse hydrologic and hydrogeologic characteristics. The Clinch River borders the site to the south and west. Each of the major plant areas on the ORR drains into one or more tributaries to the Clinch River. This surface water system serves as a primary water source for site employees and approximately 94% of the population in surrounding Anderson, Knox, Loudon, Morgan, and Roane counties. The

Y-12 Nuclear Weapons Facility

Oak Ridge National Laboratory (Main Plant)

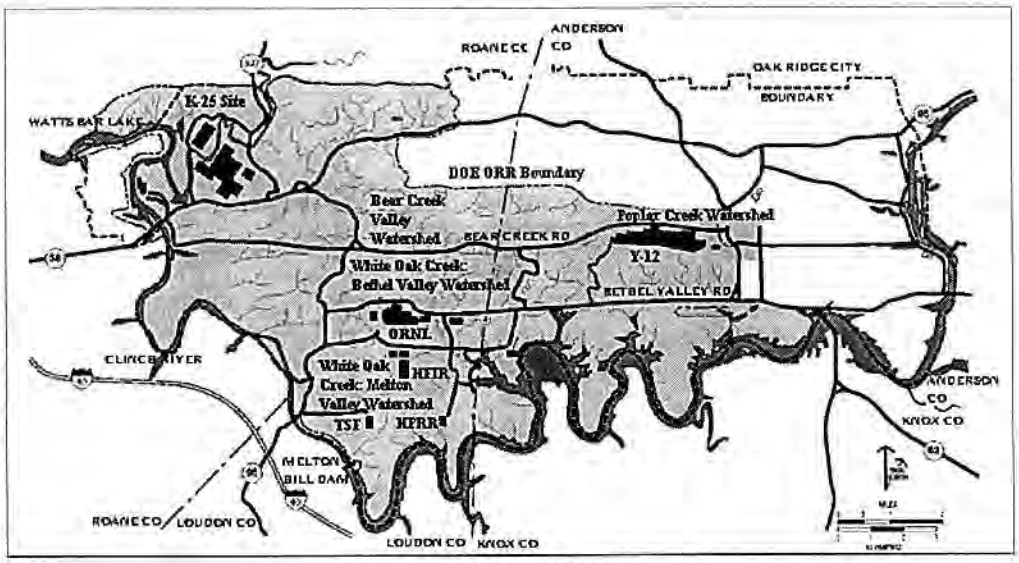
East Tennessee Technology Park

ETTP TSCA Incinerator

Clinch River is classified by the State of Tennessee as a domestic water supply source. In rural areas near the ORR that are not served by a public water supply, groundwater wells are used for domestic water supply and other uses. Water yields in shallow unconfined aquifers are typically low, while deep carbonate aquifers typically provide greater yields.

Major surface water features at the Y-12 Plant include Bear Creek and Upper East Fork Poplar Creek (UEFPC). For purposes of environmental restoration, the Bear Creek Valley and UEFPC watersheds are addressed separately. Surface water drainage at ORNL discharges into White Oak Creek and ultimately into the Clinch River. For purposes of environmental restoration, ORNL has been subdivided into the Bethel Valley and Melton Valley watersheds. ETTP surface water runoff discharges into the ETTP holding ponds and Poplar Creek and finally to the Clinch River. For purposes of environmental restoration, ETTP is considered as a single watershed.

Current operations at ORNL involve research and development for the DOE in the areas of science and technology, including energy resources, environmental quality, and national security. The Y-12 Plant operates as a technology-based



ORR Watersheds

manufacturing center, which focuses on the production of complex components and assemblies, and the dismantlement, disposition, and evaluation of decommissioned nuclear weapons. Uranium enrichment operations at the ETTP site were discontinued in 1985, and the current mission focuses on environmental restoration and waste management, to facilitate productive redevelopment of the site by commercial industry (reindustrialization). The ETTP Toxic Substances Control Act (TSCA) incinerator is the only currently operational facility in the United States for incineration of radioactive wastes that contain constituents regulated under the Resource Conservation and Recovery Act (RCRA) and TSCA from DOE facilities.

Current Understanding of Hazards and Risks

Materials at the ORR that pose a potential risk may be categorized as those associated with environmental restoration, waste management, and nuclear materials inventory. Risks associated with these materials are summarized in Table 1 and discussed below. Many sites at the ORR have been contaminated through accidental releases, past material management practices, and waste disposal practices that were formerly considered acceptable. Impacted environmental media include soils, surface water, and groundwater. Surface water and groundwater transport constitute the primary mechanisms for contaminant transport which could potentially result in off-site exposures. In addition, previously generated radioactive and hazardous wastes (legacy wastes) are managed on-site in controlled storage pending final disposition, and additional wastes continue to be generated from ongoing facility operations and environmental restoration activities. Finally, radioactive and chemically hazardous materials maintained in the nuclear materials

inventory at ORR may also pose potential hazards.

Environmental Restoration. Because of the complex surface water and groundwater flow regimes that exist on the ORR, the environmental restoration program is organized in Watershed Project Areas, whereby the ORR has been subdivided into five watershed areas. Within each watershed, multiple contaminated areas and media are linked together by groundwater and surface water flow. The division of the site by watersheds was designed to focus remediation and risk reduction activities on: (1) groundwater and surface water transport as the primary pathways for movement of contaminants on the ORR; (2) development of realistic future land use scenarios (in order to determine appropriate cleanup levels); and (3) effective utilization of existing environmental data to focus attention on activities with the greatest potential for reducing risk and to promote cost savings and more timely completion of the cleanup process. Separate remedial investigations and feasibility studies (RI/FSs) are underway for each of these watershed areas. A brief summary of the current hazards and risks associated with each of the watersheds is presented below.

The **Bethel Valley Watershed** encompasses the northern portion of White Oak Creek, including the main plant area at ORNL. More than 220 contaminated areas have been identified for potential remediation, including groundwater plumes, buried waste tanks, transfer pipelines, inactive radiochemical processing facilities, inactive nuclear reactors, and various shops and warehouse facilities. Contaminants of concern include radionuclides, metals, and volatile organic compounds. Potential risks to on-site and off-site receptors are maintained at protective levels through appropriate engineering and institutional controls. The RI/FS for the Bethel Valley Watershed is scheduled for completion in 1999. Early response actions taken to date to reduce potential risks include removal of contaminated sediments from inactive surface impoundments, and upgrades to liquid waste piping and collection systems, sanitary sewer systems, and process waste treatment systems.

The **Melton Valley Watershed** includes White Oak Lake and the reaches of White Oak Creek south of the main plant area at ORNL. Planned remediation areas include buried waste sites (e.g., solid waste storage areas 4, 5, and 6), impoundments, basins, inactive piping, seepage pits, trenches, and inactive nuclear reactors. Contaminants of concern include radionuclides, metals, volatile organic compounds, and polychlorinated biphenyls (PCBs). Releases of contamination to off-site surface water have occurred due to past process water discharges at ORNL and leachate migration from waste disposal areas. Potential risks to on-site and off-site receptors are maintained at protective levels through appropriate engineering and institutional controls. The RI/FS for the Melton Valley Watershed is scheduled for completion in 1998. Early response actions taken to date to reduce risks include the transfer of more than 60,000 gallons of TRU wastes from aging underground storage tanks to safe storage in the Melton Valley Storage Tanks, stabilization of potentially explosive conditions at the molten salt reactor experiment facility, capping and water management actions at waste burial grounds, and sediment retention measures in White Oak Creek.

The **Upper East Fork Poplar Creek (UEFPC) Watershed** contains the operational industrial facilities at the Y-12 Plant and waste storage and disposal areas on Chesnut Ridge. Potential remediation sites include groundwater plumes, numerous industrial facilities, as well as waste processing, storage, and disposal areas. Primary contaminants of concern include uranium, carbon tetrachloride, nitrates, PCBs, and mercury. Off-site releases of contamination to surface water and groundwater have occurred, but potential off-site risks associated with these releases are controlled through institutional controls to prevent use of contaminated water. The RI/FS for the UEFPC Watershed is scheduled for completion in 1998. Early response actions taken to date to reduce risks include removal actions to remediate contaminated sumps and sediment basins and an inactive firing range, RCRA closure and capping of various waste management units, effluent reduction measures, and imposition of restrictions on groundwater use. In addition, approximately 45,000 yd^3 of mercury-contaminated soils and sediments have been excavated from the floodplain of the Lower East Fork Poplar Creek, immediately downstream from the UEFPC watershed.

The **Bear Creek Valley Watershed** consists of largely undeveloped land west of the main Y-12 Plant including numerous areas historically used for storage and disposal of radioactive and hazardous wastes. Potential remediation sites include waste storage areas, burial grounds, burnyards, surface disposal areas, and groundwater plumes. Primary contaminants of concern include uranium, nitrates, metals, PCBs, and organic compounds. Surface

water appears to be the most significant pathway for contaminant migration, carrying contaminants from shallow groundwater to tributaries which flow into Bear Creek. However, these contaminants have not been identified to exceed water quality criteria beyond the site boundary, and no adverse exposure conditions or off-site risks have been identified. Potential risks to on-site personnel are controlled through engineering and institutional controls. The RI/FS for the Bear Creek Valley Watershed was completed in 1998, and a Record of Decision (ROD) is scheduled for 1999. Early response actions taken to date to reduce risks include closure and capping of various waste management units and development of groundwater interception systems to control contaminant migration.

The **East Tennessee Technology Park (ETTP) Watershed** addresses the entire ETTP site. More than 100 structures or contaminated areas at ETTP have been identified as known or suspected sources of environmental contamination. Potential remediation sites include groundwater plumes, waste storage and disposal areas, retention ponds, process buildings, and various shops and warehouse facilities. Releases of contamination to surface water and groundwater appear to have occurred primarily from process drains that discharged to holding ponds; however, no adverse exposure conditions or off-site risks have been identified, and risks to on-site personnel are controlled through engineering and institutional controls. Primary contaminants of concern include uranium, volatile organic compounds, and PCBs. The RI/FS for the ETTP site is scheduled for completion in calendar year 1999. Early response actions taken to date to reduce risks include removal actions for demolition of inactive process buildings, remediation of retention basins, improvements to holding ponds, installation of groundwater interception systems, and closures of inactive facilities.

Waste Management. The ORR facilities also manage and dispose of wastes in storage (legacy waste) and continue to generate waste from ongoing facility operations and environmental cleanup activities. Major categories of wastes posing potential risk at the ORR include low level waste (LLW), mixed low level waste (MLLW), spent nuclear fuel (SNF), transuranic waste (TRU), and special nuclear materials (NM). The ETTP site also operates the DOE TSCA incinerator for MLLW, which receives wastes from ORO facilities and other DOE facilities for incineration. DOE is currently in the process of reducing its inventory of hazardous and radioactive materials. The treatment and disposal of legacy LLW, MLLW, SNF, TRU, NM and environmental restoration wastes will reduce the volume of these wastes on-site and lessen the likelihood of further environmental contamination. Potential risks associated with these wastes are managed through containment, controlled storage, and monitoring. Access controls and comprehensive surveillance and monitoring programs help to prevent environmental releases or accidental exposures.

Waste management facilities operate on-site to treat, store, and dispose of waste generated by ongoing operations and environmental cleanup activities, or to prepare waste for off-site treatment or disposal. Waste management activities are conducted in accordance with the requirements of applicable Federal and state regulations and DOE directives. Mixed wastes will be managed in accordance with the Site Treatment Plan submitted under the Federal Facility Compliance Act and the Unilateral Order for compliance issued by the State of Tennessee; mixed waste treatment technologies currently identified include incineration, stabilization, chemical/physical treatment, and metal recovery. Disposal options are driven by waste type and include off-site disposal at various DOE and commercial LLW, MLLW, and TRU disposal facilities, as well as potential on-site disposal alternatives.

Nuclear Materials Inventory and Facilities Stabilization. In addition to the contaminated environmental media and wastes at the ORR, risks also may be associated with the nuclear materials inventory (NMI) in storage at ORR facilities. The major categories of NMI and other inventoried materials posing potential risk at the ORR include highly enriched uranium (HEU), low enriched uranium (LEU), depleted uranium (DU), natural uranium (NU), plutonium (Pu), lead (Pb), sodium/potassium (Na, NaK), lithium (Li), weapons components (WC), and other nuclear materials management and safeguards system (NMMSS) tracked materials. These materials may present high radiation and thermal hazards. The risks associated with these materials are controlled through rigorous containment, storage, and monitoring programs designed to prevent environmental releases or accidental exposures. Site access restrictions including security, fences, and locks further reduce the risk of exposure to these materials. DOE is reducing the amounts of these materials on the ORR through dismantlement or sale to industry for beneficial reuse. DOE intends to only maintain materials that are directly involved in ongoing operations or necessary for national strategic defense. In addition, 50,000 tons of slightly radioactive inventoried scrap metal are also stored on the ORR. Reuse, recycle, and sale of this material is being actively pursued; the potential value of this material is estimated at 6.5 million dollars.

Also, several ORR facilities are scheduled to enter the Facility Stabilization Program or undergo decontamination and decommissioning (D&D). These programs will reduce potential safety and health risks to workers and the environment by stabilization and deactivation of contaminated buildings.

D&D activities at ETTP are scheduled to be complete by 2009. Stabilization activities for decommissioning include the deactivation of surplus facilities to bring them to a safe shutdown condition, limited demolition of internal structures, and disposition of sensitive and hazardous materials. Removal of uranium deposits which pose potential criticality concerns from the gaseous diffusion process pipelines at ETTP constitute one of the most significant risk reduction activities ; large portions of the process lines have been decontaminated to date, and these uranium removal actions are expected to be complete by 1999. The primary goal of these D&D actions is to minimize or eliminate the hazardous characteristics of these facilities and minimize long-term surveillance and maintenance requirements.

A total of 70 facilities at the ORNL and the Y-12 Plant are managed under the Nuclear Material and Facility Stabilization Program or scheduled to enter the program. This program seeks to accomplish stabilization and deactivation of facilities previously used for management of nuclear materials, thereby reducing potential risks to human health and safety or the environment, consolidating and removing waste inventories, and reducing surveillance and maintenance costs as facilities are prepared for decommissioning. Stabilization activities also may include limited demolition of internal structures and management and disposition of surplus materials to reduce hazards. Designated facilities are either currently declared surplus or projected to be surplus within the next five years. Nineteen of these facilities, which were formerly used to produce radioactive isotopes for a variety of purposes, began the process of stabilization/deactivation in 1994. Thirty-one additional facilities, which were added to the program in 1996, are currently in a pre-stabilization surveillance and maintenance phase. A total of 23 of these 31 facilities are located at the Y-12 Plant, and three of these 23 facilities comprise almost 93,000 m^2 (1 million ft^2) of combined floor space. Additional facilities may transfer to the program over time.

End-State Disposition and Risk

DOE is currently in the process of reducing its inventory of hazardous waste and radioactive materials at the ORR. The amounts of NU, DU, LEU, HEU, NMMSS, Pb, WC, Na, Pu, and LiOH stored on-site will be reduced through sale to industry, identifying opportunities for reuse, and dismantlement. Only those materials that are directly involved in ongoing facility operations or necessary for national strategic defense will be maintained on-site. The disposition of legacy LLW, MLLW, SNF, TRU, NMI and environmental restoration wastes will reduce the volume of these wastes on-site and lessen the likelihood of further environmental contamination. Treatment or removal of contaminated groundwater, soil, sediment, or surface water will reduce risks to on-site and off-site personnel. Planned risk reduction activities for each material category are summarized in Table 1.

Environmental Restoration. Final remediation of ORR facilities will follow completion of the CERCLA decision documents for each watershed, which will be completed over the period 1998 through 2000. Environmental restoration, inventory waste reductions, and D&D actions will be implemented according to a schedule determined by the watershed cleanup strategy, in order to optimize resources (time and money) and to ensure consistent, environmentally sound cleanup actions. Ultimately the goal of environmental restoration activities at all of these sites is to return them, as nearly as possible, to a state that presents little or no risk to human health and the environment. Where contaminants remain on-site at levels that could pose a potential future risk, the potential for off-site migration will be restricted through engineering (e.g., containment) and institutional (e.g. access restrictions) controls; in addition, long-term monitoring programs will be implemented so that mitigative actions can be taken before any unsafe conditions arise.

All legacy environmental management waste is expected to be shipped off-site for final disposal by 2006. Beyond 2006, groundwater treatment systems will continue operation, and surveillance and maintenance activities will continue to monitor the effectiveness of remedial actions and to ensure the safety of the public and the environment. Some areas (e.g., waste disposal areas and locations where contaminants have been contained on-site at relatively high levels) may require long-term engineering and/or institutional controls; future use at such locations would be restricted to ensure safety. End-state conditions for each facility will be determined through the completion of the CERCLA decision

process.

Waste Management. The treatment and disposition of legacy LLW, MLLW, SNF, TRU, NMI and environmental restoration wastes will reduce the volume of these wastes on-site and lessen the likelihood of further environmental contamination or exposures. All waste management operations will continue to comply with applicable Federal and state rules and regulations and best management practices.

Legacy wastes currently stored at ORR facilities are expected to be disposed of by 2006 for TRU waste, 2008 for MLLW, and 2013 for LLW. TRU wastes are targeted for the Waste Isolation Pilot Plant (WIPP) for ultimate disposal. Off-site DOE and commercial treatment and disposal facilities will be evaluated for disposal of LLW and MLLW. Some buried wastes at ORR facilities are expected to remain isolated in place with appropriate engineering and institutional controls implemented to prevent migration or exposures. Certain wastes generated from environmental restoration activities are expected to be disposed of in a potential on-site disposal facility.

Nuclear Materials Inventory and Facilities Stabilization. Stabilization and D&D of contaminated facilities will continue to reduce risk. Removal of uranium deposits with potential criticality risk in former process buildings at ETTP will be complete by FY1999. Final disposition of nuclear materials (e.g., for off-site reuse) and stabilization of contaminated facilities will achieve safe conditions at ORR facilities. Residual risks due to any materials remaining on-site will be maintained at low levels through engineering and institutional controls..

After completion of environmental remediation activities, disposal of wastes, and disposition of nuclear material inventories, some areas at ORR will still require long-term engineering and/or institutional controls. Some areas, such as waste disposal grounds, will not be available for other uses in the future.

ORNL is expected to continue to operate as a federal research facility. Future land use at the Y-12 Plant is expected to include continuing DOE operations, commercial industrial activities, and recreational use; some areas will continue to be managed by DOE under controlled access for secure storage of nuclear materials and waste. The end -state use for ETTP is expected to be an industrial park occupied by private business.

Planned risk reduction activities for ORR are illustrated in the following figure, which represents the rate of relative risk reduction associated with activities that address environmental restoration, waste management, and the nuclear materials inventory at ORR. The potential risk from LLW, MLLW, TRU, SNF, NM (uranium), and LiOH will be effectively eliminated with the total removal of these materials from ORR. Quantities of DU, NM (all others), HEU, LEU, Na, Na/K, NMMSS, NU, Pb, Pu, and WC will likely be sold or removed from the ORR; however, the final dispositions of these materials have not been determined. Residual risk from the contaminated environmental media on-site will remain; however, the potential for exposures or associated risks will be controlled to low levels through engineering (e.g., containment) and institutional controls (e.g., access controls), and such residual risk may diminish over time. The effectiveness of the groundwater containment systems will be monitored to ensure that any residual risk to off-site receptors is very small.

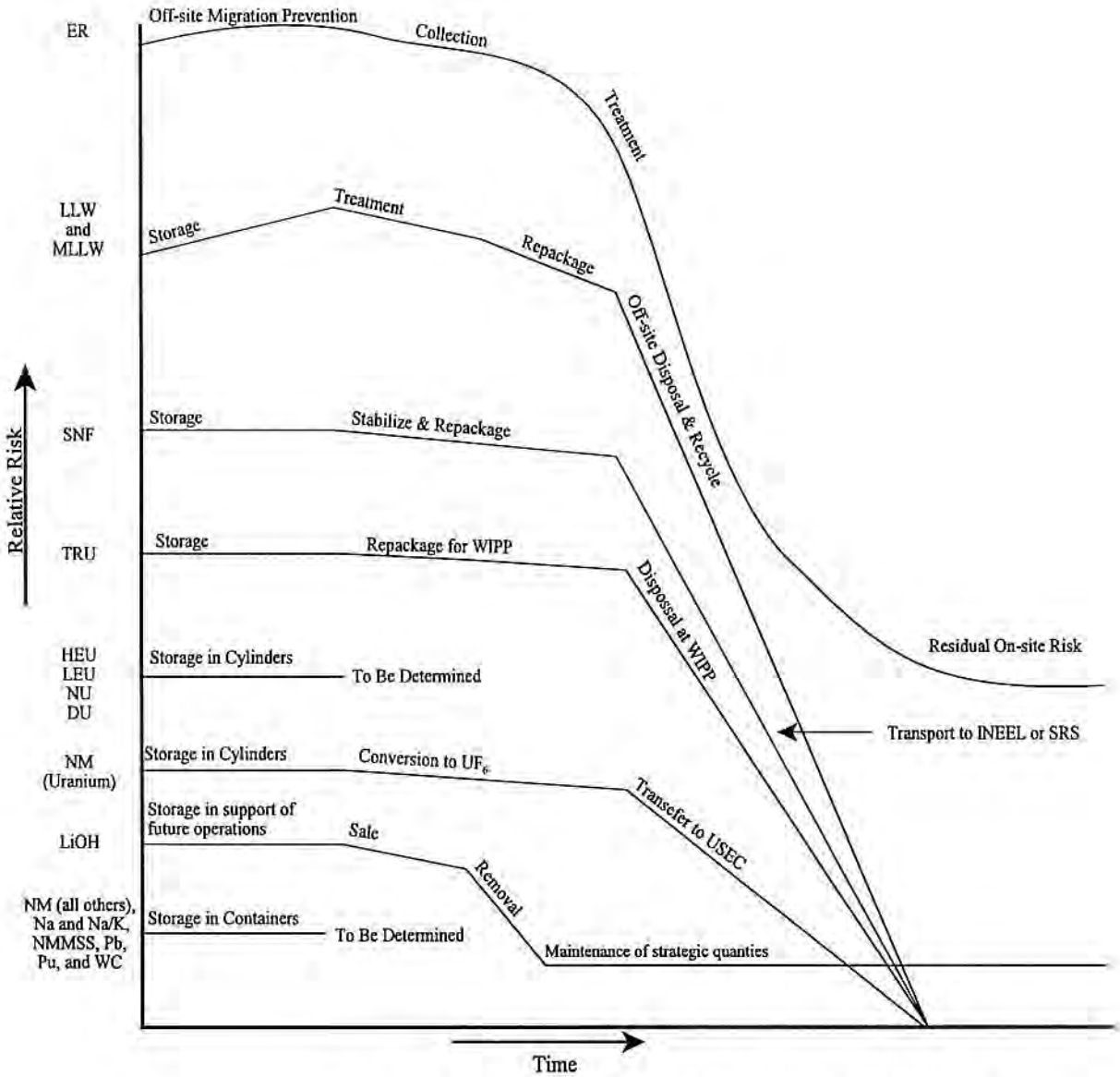


Illustration of Relative Risk Reduction Activities for the ORR

Table 1. Summary Risk Profile for the Oak Ridge Reservation

Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
Environmental Media (contaminated soil, sediment, groundwater, surface water)	Approximately 550,000 m^3 of contaminated media are estimated to exist in-situ (exclusive of groundwater, or surface water, and capped areas). Nineteen (19) categories of contaminated media have been identified, including PCBs, LLW solids, MLLW solids, TRU solids, LLW groundwater, MLLW groundwater, and others. Approximately 5,600,000m^3 of environmental restoration waste is expected to be generated following implementation of the various response actions at the ORR. These media include soil, sediment, surface water, groundwater, and other solids.	Heavy metals, organic compounds, and radionuclides have been detected in onsite groundwater, surface water and soils. Cs-137 has been detected in channel sediments approximately 23 miles downstream from the site boundary. Hg has been detected in floodplain sediments of EFPC and Poplar Creek. The groundwater and soil at the South Campus Facility are contaminated with TCE. The groundwater at the Bear Creek area is contaminated with volatile organic compounds and nitrates. Exposure to contaminated media could result in adverse impacts to human health or ecological resources if no mitigative actions were taken.	Current risks from exposure to off-site surface water and sediments are managed through engineering (e.g., hotspot removal, sediment retention controls) and institutional (e.g., access and use restrictions, monitoring). Current risks from exposure to on-site media are managed through institutional controls (e.g., use restrictions, access controls). To efficiently address contamination at the ORR, remediation efforts are organized by 5 watersheds. This strategy involves making cleanup decisions for an entire watershed, to promote a consistent remediation approach, cost savings, and timely completion of cleanup activities.	Some contaminated soil, sediment, groundwater, surface water, and solids will be collected for treatment or disposal, while others may be managed in place. Some contaminated media will remain on-site with appropriate institutional controls (e.g., containment under caps, access controls, etc) to ensure that residual risks are maintained at low levels.	Contaminated media (groundwater, soil, surface water, sediment) will be remediated or managed in place through appropriate institutional controls. Approximately 95%of all remedial actions will be completed by the year 2006.	By 2006, all legacy wastes associated with environmental restoration are expected to be recycled, discharged, or disposed (i.e., shipped off-site or placed in on-site CERCLA disposal cell). Liquid wastes will be treated and disposed or discharged in accordance with a protective release permit. Some contaminated media will remain on-site with appropriate institutional controls (e.g., containment under caps, access controls, etc) and long-term monitoring to ensure protection of health and the environment.
LLW & MLLW (residues, debris, other solids, liquids)	Currently 26,000 m^3 of LLW exist; an additional 550,000,000 m^3 of LLW is expected to be generated through the year 2070. The current inventory of MLLW is approximately 26,000 m^3, and an additional 16,000,000 m^3 is expected to be generated through the year 2070.	Potential exposure to radiation and/or hazardous chemicals could occur if no control measures were taken.	Risks are managed by restricting access to waste storage facilities and conducting routine maintenance of storage containers.	Some wastes will be treated at on-site facilities prior to disposal at off-site or on-site facilities. Materials that can not be treated by on-site facilities will be repackaged for shipment and treated at off-site commercial facilities for disposal.	On-site and off-site treatment facilities are beginning to receive LLW for treatment and disposal. Treatment and disposal of LLW is expected to be completed by 2013. Treatment and disposal of MLLW is expected to be completed by 2006.	Final disposition of all LLW includes yet-to-be-determined off-site disposal and recycle. Potential risk will be removed from the ORR following off-site disposal. Materials remianing on-site will be managed in controlled conditions with appropriate engineering and institutional controls and continuing monitoring and maintenance to ensure protection of health and the environment.
SNF	Currently 0.96 metric tons of heavy metals exist in dry storage. Seven separate material streams have been identified. An undetermined amount of DOD material is also present.	Potential exposure to radiation could occur if n0 control measures were taken.	Risks associated with SNF are managed by limiting access to storage facilities and reactor buildings. SNF is currently stored in various manners including: underwater pools with aluminum cladding, Fort St. Vrain (FSV) cask, and left in place within reactor cores. Underwater storage pools are routinely monitored for water purity.	HFIR, BSR, and ORRR SNF will be stabilized on-site and sent to Savannah River Site (SRS) RBOF or L-Basin to be made disposition ready. TSR SNF will be disassembled on-site. DOD SNF will be repackaged at a yet-to-be-determined site. Peach Bottom Fuel will be transferred to Lined Storage at ORNL. Sectioned SNF in dry storage will be repackaged and stored at ORNL pending shipment to Idaho National Engineering and Environmental Laboratory (INEEL).	73 SNF elements will be shipped to SRS in FY1998. The TSR may go back online utilizing existing fuel. SRS is receiving the aluminum clad Sectioned SNF in dry storage in BMI-1 cask. INEEL is receiving stainless steel, zircalloy-, and graphite clad SNF in FSV cask; INEEL is also receiving 9 spent fuel elements from Peach Bottom fuel in FSV cask.	Final disposition of SNF will be storage at INEEL or SRS. All potential risk will be removed from the ORR.

Table 1. Summary Risk Profile for the Oak Ridge Reservation

Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
TRU (solids, sludges)	Currently 2,300 m^3 of TRU exist in 5 separate material streams, including contact and remote handled solids and sludges. An additional 1,100 m^3 are expected to be generated through the year 2070. This includes volumes expected to be received from other sites.	Potential exposure to radiation and/or hazardous chemicals	Risks are managed by limiting access to waste storage facilities and routine maintenance of storage containers. TRU waste is collected in storage tanks. TRU solid debris (both contact-handled [CH] and remote-handled [RH]) have been stored in waste storage facilities at ORNL.	Contact handled (CH) TRU solid debris, remote handled (RH) TRU solid debris, and RH TRU sludge will be repackaged on-site at the Transuranic Waste Treatment Plant (TWTP). After 2006, newly generated TRU will be transported directly to the Waste Isolation Pilot Plant (WIPP).	A Transuranic Waste Treatment Plant (TWTP) is being constructed to repackage TRU waste to meet disposal requirements of WIPP. This will be completed by 2006. TRU waste generated after 2006 will be certified by the generator for immediate transfer to WIPP.	All current existing and future generated TRU waste will be disposed at WIPP after meeting waste acceptance criteria. After 2006 newly generated TRU waste will be directly transported to WIPP, greatly reducing the on-siterisk of container failure.
HEU LEU NU (Metals, oxides, other solids, and solutions)	Y-12, ETTP, and ORNL maintain HEU in inventory in classified amounts. Unclassified amounts of HEU at the ORR total 85 metric tons including metals, oxides, and other forms (nitrates, fluorides, scrap, and residues). ORR maintains an inventory of 21 metric tons of LEU at the ETTP, in storage in nitrate and other forms; and 83 metric tons of NU in oxide, nitrate, and other forms.	HEU and LEU and NU are generally stored in cylinders. Exposure to radionuclides could occur if containment failed and control measures were not maintained. Theft of material could result in a security risk. Storage configuration failure could result in a criticality event.	These materials are stored in high security facilities. Routine maintenance is performed to ensure container integrity and criticality measures are in place.	Disposition pathways are presently being investigated by the Materials Disposition Program	Disposition decisions will be based on reducing risk at the site. Once disposition has been determined, implementation of the plan will reduce on-site risks.	Not determined at present
DU (metals, other solids)	ETTP maintains 54,000 metric tons of DU in UF_6 form. Y-12 has a classified inventory of DU in UF_6 and metal forms. Together, these comprise >10% of DOE's entire quantity in inventory.	DU is stored in cylinders. Failure of containers could result in exposure to radionuclides by workers or the public.	Risks are managed by limiting access to storage areas and by routine maintenance of storage containers. Improved storage practices, restacking to allow visual inspection, and repainting skirted cylinder ends, currently contol risks to low levels.	Disposition pathways for DU are presently being investigated by the Materials Disposition Program	Disposition decisions will be based on reducing risk at the site. Once disposition has been determined, implementation of the plan will reduce on-site risks.	Not determined at present.
NM (metals, oxides, other solids)	Currently 15 different material categories have been identified under NM (OR-NM-1 to OR-NM-15), including: plutonium metal, plutonium oxide, plutonium residuals, uranium metal, uranium oxide, UF_6 depleted, UF_6 normal feed, LEU, U/Al metal off-spec, recycled uranium off-spec, uranium scrap recovery, ETTP uranium residues, other unspecified uranium non-excess, ORNL U-233, and sources and other accountable material.	Exposure to radionuclides and chemicals could occur if control measures were not taken. Theft of some of these materials could result in security risk. Storage configuration failure could result in criticality.	As these materials are identified and characterized, appropriate risk management practices are being employed. Risks are controlled to safe levels through access restrictions and other institutional and engineering controls. Storage configurations are designed to avoid criticality accidents. Materials capable of use in nuclear weapons are heavily guarded.	No attempt has been made to quantify these materials or to develop actions to stabilize them. Little to no research has been done on some of these materials; however, some portion of the materials may be recycled for reuse or for commercial uses. For the UF_6 materials, DOE is preparing a PEIS, which is currently in draft form. Disposition pathways for Pu, HEU, and U-233 are presently being investigated by the Materials Disposition Program.	Disposition decisions will be based on reducing risk at the site. Once disposition has been determined, implementation of the plan will reduce on-site risks.	Uranium may be converted toUF_6 and transferred to the U. S. Enrichment Corporation. SRS may receive the Pu residuals. LANL may receive the Pu material and oxides. Final disposition for the 10 remaining material categories is yet-to-be-determined but disposal, recycle, and sale are all possibilities.

Table 1. Summary Risk Profile for the Oak Ridge Reservation

Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
Pu (metal, oxides, other solids and liquids)	ORNL and Y-12 maintain small amounts of Pu. More than 300 sources are maintained at Y-12.	Storage of Pu metal, oxides, solutions, scrap and reactor fuel is managed in drums, cans, casks, pipes, and tanks. Failure of containment system could result in criticality or exposure to ionizing radiation. Theft of Pu could result in threat to public health and safety.	Extensive criticality controls are in place to ensure safe storage. Risks are controlled to safe levels through access restrictions and tight security measures, and stringent monitoring and maintenance programs.	Disposition pathways for Pu are presently being investigated by the Materials Disposition Program	Disposition decisions will be based on reducing risk at the site. Once disposition has been determined, implementation of the plan will reduce on-site risks	SRS may receive Pu residuals. LANL may receive Pu metal and oxides. Following removal of these materials from the site, on-site risk will be effectively eliminated.
Pb (metal, solids)	ORR maintains an inventory of 308,000 kg of radioactively contaminated lead. An additional 717,000kg have yet to be categorized. This constitutes >10% of DOE's entire quantity in inventory.	If exposed to the weather, lead can leach into surrounding soils. Potential ingestion or absorption of lead can cause detrimental health impacts.	Access to these storage facilities is restricted. Storage under cover and on concrete pads reduces risk of migration.	Not determined at present.	Not determined at present.	Not determined at present.
Li (metals, salts, other solids)	Y-12 maintains strategic Li in the following forms: metal, LiH/deuterium, Li_2CO_3, LiCl, LiCl-KCl, $LiOH*H_2O$, and Li_3PO_4. Amounts are classified, but the total is more than 10% of DOE's entire quantity in inventory.	Exposure to lithium could occur if containment failed. Inhalation of released powder could cause toxic effects	Currently all Li has been removed from ETTP (23,000,000 pounds). Y-12 remains the sole repository of L on the ORR. All Li was recently repacked and restacked to ensure container effectiveness and allow for visual inspection. Access to Li warehouses is restricted.	Strategic Li will remain at Y-12 at sufficient quantities to support any future operations. Excess nonstrategic Li will be sold.	Removal of 23,000,000 pounds of Li from ETTP was completed in FY1998.	Li will continue to be stored at Y-12 under special management controls to minimize risk.
Na and Na/K	As of 1996, the ORR maintained an inventory of 15,500 gallons of Na. The majority of this inventory is radioactively contaminated. Also, 330 gallons of NaK alloy are maintained in inventory.	These materials are highly reactive, and are typically stored under inert gas. Failure to maintain appropriate storage controls could result in explosive reaction.	Access to these storage facilities is restricted. Storage conditions are controlled and monitored to reduce risk.	Not determined at present.	Not determined at present.	Not determined at present.
Weapons Components (WC)	Y-12 reports 120,000 weapons component "pieces" in inventory. The number of "parts", reported mass, and storage volume are not reported.	Failure of boxes and bins used to store WC could result in criticality risk. Theft of WC could result in a threat to public safety.	WC parts and subassemblies are rigorously controlled and accounted for by a classified secret restricted data system. Safeguard of WC is extremely vigilant to prevent theft. Access to these facilities is restricted to prevent exposure.	Y-12 will continue to store pieces and parts in inventory. No risk reduction is planned.	Not determined at present.	Not determined at present.

Table 1. Summary Risk Profile for the Oak Ridge Reservation

Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
NMMSS	ORNL maintains very small amounts of Am-241, Am-243, Cm, Np-237, and Th. ORNL also maintains 423 kg of U-233. Y-12 maintains a classified amount of deuterium and 3,000 kg of Th.	Storage of these materials is managed in drums, cans, casks, pipes, and tanks. Failure of containment systems could result in criticality risks or exposure to ionizing radiation. Theft of NMMSS could result in a threat to public health and safety.	Extensive criticality controls are in place to ensure safe storage. NMMSS materials are under constant guard to prevent theft. Access to storage areas is restricted.	Not determined at present.	Not determined at present.	Not determined at present.

PORTSMOUTH GASEOUS DIFFUSION PLANT

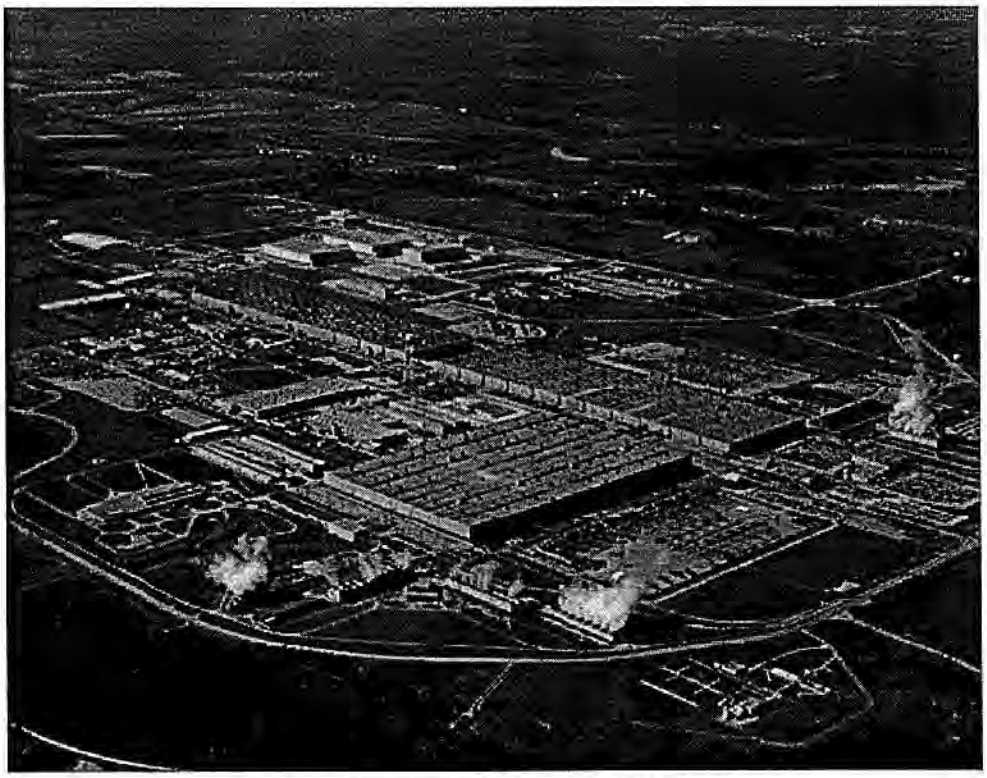
Site Description

The Portsmouth Gaseous Diffusion Plant (PORTS) is located in south-central Ohio, approximately 43 km (27 mi) north of Portsmouth, Ohio, and 113 km (70 mi) south of Columbus, Ohio. The site is situated on a 1,500-ha (3,700-acre) U. S. Department of Energy (DOE) reservation, located in Pike County. Pike County has a population of approximately 24,250. The nearest community, Piketon, is 8 km (5 mi) north of the site and has a population of less than 2,000. The environment surrounding the site consists largely of farmland and forests.

OHIO
Cleanup Sites

The Portsmouth facility was constructed between 1952 and 1956 and has been operational since January 1955. The primary mission of the facility is the enrichment of uranium for use in commercial nuclear reactors and other applications. Until 1991, the facility also produced highly enriched uranium for the U.S. Navy. The facility receives feedstock from another gaseous diffusion plant in Paducah, Kentucky, for further enrichment in the fissionable uranium-235 isotope. In 1993, uranium enrichment operations at the plant were transferred to the U.S. Enrichment Corporation. DOE has retained responsibility for cleanup of legacy wastes and contaminated environmental media created as a result of past operations.

The Portsmouth site lies within the Scioto River drainage basin, approximately 3 km (2 mi) east of the Scioto River, a major tributary to the Ohio River. Two small tributaries of the Scioto River, Little Beaver Creek and Big Run Creek, cross the site. Surface water from the site discharges into these two tributaries, two pipelines, and the plant's west drainage ditch, all of which ultimately flow into the Scioto River.



Aerial view of Portsmouth Gaseous Diffusion Plant

Groundwater flow at the Portsmouth reservation is characterized by 4 separate flow regions, which are termed quadrants. The site is underlain by two aquifer systems, which are poorly connected due to confining shale and clay layers. The most productive aquifer system near the site is the Scioto River aquifer system, which serves private drinking water wells and provides water to the site.

Current Understanding of Hazards and Risks

The hazards and risks at Portsmouth are summarized in Table 2 and discussed below. Categories of materials that may pose potential risks at the site include low level waste (LLW), mixed low level waste (MLLW), highly enriched uranium (HEU), low enriched uranium (LEU), depleted uranium (DU), and contaminated environmental media (soil, sediment, groundwater, and surface water). The hazards posed by these stored materials and environmental media are currently controlled through containment and monitoring programs to maintain risk at safe levels. Contaminant migration through soil, sediment, surface water, and groundwater has been restricted through the use of interim control and containment actions.

Environmental Restoration. As a result of facility operations from the 1950s to the present, large quantities of environmental media have become contaminated with radioactive and chemical materials at the PORTS site. The cleaning and changeout of process equipment at the facility has generated spent solvents and other contaminants that were disposed of in on-site landfills and surface impoundments; contaminants include chlorinated solvents, uranium and other radionuclides, metals, and polychlorinated biphenyls (PCBs). Additional sources of contaminants include uranium deposits in process equipment, as well as radionuclides and chemical contaminants in buildings, cooling towers, burial grounds, and wastewater ponds. Remedial actions for the site are being conducted under the Resource Conservation and Recovery Act (RCRA) [with Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) provisions].

The site has been divided into four separate cleanup areas, or quadrants, based on groundwater flow directions, to facilitate the assessment and remediation process. This process is based on a standard action plan: (1) remove well-defined sources of contamination; (2) consolidate and integrate remedial actions, corrective measures, and RCRA closures for solid waste management units (SWMUs) or SWMU groups that have common contaminant sources or inter-related groundwater contaminant plumes; (3) contain groundwater plumes within site boundaries; (4) use risk-based closure criteria rather than "clean" closure criteria where practical; and (5) use results of risk analyses to establish cleanup levels and the sequence of cleanup efforts. By prioritizing activities that address contaminants most likely to migrate off-site, risks of off-site exposure are maintained at low levels. Contaminated sites within each quadrant are summarized below.

Quadrant I: Sites requiring remedial cleanup alternative assessments include two oil biodegradation plots and a trichloroethylene (TCE) groundwater plume. The oil biodegration plots contain chlorinated organic solvents and uranium-contaminated waste oil. The primary contaminant in the groundwater plume is TCE. Eighteen other sites which require no action or alternative assessment will be deferred to the Decontamination and Decommissioning (D&D) program.

Quadrant II: Sites requiring remedial cleanup alternative assessments include TCE groundwater plumes, an acid neutralization pit, and neutralization/settling retention ponds. The primary contaminant in the groundwater plumes is TCE. The neutralization pit and settling ponds are contaminated with cyanide, TCE, uranium, and technetium. Twenty-one other sites require no action or alternative assessment, and will be deferred to the site D&D program.

Quadrant III: The site requiring a remedial cleanup alternative assessment is a waste oil handling facility and its associated groundwater plume. The primary contaminant is TCE and secondary contaminants are TCE breakdown products. Twenty-eight other sites require no action or alternative assessment and will be deferred to the D&D program.

Quadrant IV: The sites requiring remedial cleanup alternative assessments are sanitary and construction landfills. The primary contaminants are uranium and TCE. Thirty-eight other sites require no action or alternative assessment and will be deferred to the D&D program.

Currently, these contaminated environmental media do not pose significant off-site risks, as contaminants have not migrated off-site; potential on-site risks are currently managed through appropriate engineering and institutional controls. The primary environmental concern at the site is groundwater contamination by TCE and , to a lesser degree, uranium, technetium and metals. Groundwater contamination appears to be limited to the on-site, shallow aquifers that are not hydrologically connected to the nearby Scioto River aquifer that is used for drinking water. Contaminated groundwater will be remediated through on-site treatment facilities or other technologies to decrease contaminant concentrations and reduce the potential for off-site migration.

Contaminated soils at the site contain TCE, uranium, technetium and metals. Remedial actions completed to date include stabilization of an unrestricted waste storage facility, removal of a chromic acid tank, closure of a solid waste landfill, and capping of a landfill. Ten under-ground and above-ground storage tanks have also been addressed. Three tanks that had never been placed into service were removed, as was another underground tank that did not pass container tightness tests; six inactive above-ground storage tanks have also been demolished. Surrounding soils have been characterized and, where necessary, excavated and treated according to protective regulatory requirements for petroleum contamination in soil. Interim measures have been implemented to prevent contaminants from migrating off-site, including construction of an in-ground slurry wall and a seep collection system. Additional environmental restoration actions are underway or are being planned for seven other potential release sites, including two holding ponds, a radiological storage yard, a waste neutralization pit, a waste oil tank and facility, and an oil biodegradation plot.

Waste Management. In addition to contaminated environmental media, other materials have the potential for posing risk at the site. As a result of its mission activities, the site currently has large quantities of HEU, LEU, and DU in storage, as well as lithium hydroxide monohydrate (LiOH). Current inventories of these materials include approximately 5,900 m^3 of LLW, 8,800 m^3 of MLLW, undisclosed amounts of HEU and LEU, 160,000 metric tons of DU, and 28 million kg (62 million lb) of LiOH. Approximately 610 kg (1350 lb) of lead and 11 million kg (11,143 tons) of scrap metal are also stored on-site in inventoried quantities. Risks associated with these materials are controlled through rigorous containment, storage, and monitoring programs designed to prevent environmental releases or accidental exposures; site access restrictions and other institutional controls further reduce the risk of exposure to these materials. Current waste storage and management practices comply with applicable state and federal rules and regulations.

All LiOH was recently repacked, which decreases the potential for containment release, and restacked to allow for visual inspection of the drums. Portsmouth is currently removing the drummed LiOH which has been in storage since the 1950's. DOE has sold the LiOH and has been shipping it off-site since 1996, with 20,000 drums shipped to date. The HEU is currently being transported off-site and downblended to LEU as a product. The DU is currently being evaluated for future use. DOE will directly dispose of approximately one-third of the LLW solids, which will be sorted, segregated, and volume-reduced prior to disposal. MLLW will be treated, as necessary, in accordance with applicable requirements as prescribed in the Ohio EPA Site Treatment Plan; treatment technologies currently identified include incineration, stabilization, chemical/physical treatment, and metal recovery. Some LLW may require treatment to immobilize radiological or chemical constituents before disposal; treatment technologies for this waste will be identified through successful treatability studies. Disposal options are driven by waste type and include disposal at various commercial and DOE low-level and mixed waste disposal facilities.

End-State Disposition and Risk

DOE is currently in the process of reducing the inventory of hazardous and radioactive materials at the site, thereby reducing risk of environmental release or accidental exposures. Only those materials that are directly needed for ongoing facility operations will be maintained.

Environmental Restoration. RCRA remedial facility investigations (RFIs) for each quadrant have been completed and cleanup alternatives are now being assessed. Response actions have already been completed in several areas of the site, and interim measures have been implemented to prevent off-site migration of contaminants. Following completion of all cleanup actions at the site, a low level of residual risk will remain, due to trace quantities of contaminants remaining in remediated soils and groundwater. A comprehensive environmental surveillance and monitoring program will be maintained to provide early warning of any off-site contaminant migration. Institutional controls will be

maintained for any on-site landfills or burial grounds that may be closed with contamination remaining in place.

All legacy environmental management waste is scheduled to be shipped off-site for final disposal by 2007. Beyond 2007, groundwater treatment systems will continue operation, and surveillance and maintenance activities will monitor remedial action and decontamination and decommissioning. Active groundwater treatment facilities will be shut down in 2050 and passive groundwater monitoring and treatment will continue until 2055. While future use of the site area will be determined at a later date, long-term surveillance, maintenance and institutional controls are expected to continue indefinitely, which will limit future use. The current land use of mixed industrial/recreational is expected to be the most likely future use at the site.

Waste Management. The treatment and disposal of legacy LLW, MLLW, and environmental restoration wastes will reduce the volume of these wastes on-site and lessen the likelihood of further environmental contamination or exposures. All waste management operations will continue to comply with applicable state and federal rules and regulations and best management practices. LiOH currently stored on site is being sold to an off-site vendor, which will eliminate any associated hazard and potential risk. All LiOH is to be shipped off site by FY 2001. The HEU trap and oxide material will be shipped off-site by FY 1998, effectively removing associated risks from the site. Other HEU will be downblended to a useable product. DU is being evaluated for future use, and the end-state disposition is not yet determined. LLW will be disposed of at an off-site facility, effectively removing associated risks from Portsmouth. MLLW will be shipped off-site for treatment beginning in FY 1998. Cyanide waste will be sent to an off-site destruction facility, mercury will be sent to the Idaho National Engineering Laboratory, and incinerable material will be mixed with similar LLW materials for off-site incineration or other appropriate treatment.

After the uranium enrichment operations at Portsmouth are no longer needed, DOE will decommission the site. Under provisions in the U. S. Enrichment Corporation lease, stabilization and shutdown activities are the responsibility of the U.S. Enrichment Corporation. The end use for the property may include restricted industrial, open space/recreational, and controlled access. Several landfills may be closed with contamination in place in the industrial area.

The following figure illustrates the rate of relative risk reduction associated with environmental management activities at the Portsmouth site. As shown by this graph, the potential risk from the quantities of LLW, MLLW, HEU, LEU, and LiOH will be effectively reduced to zero with the total removal of these materials from the site. The DU will likely be sold and removed from the site, effectively removing any risk. Residual risk from the contaminated environmental media on-site will remain; however, this risk would be very low and may diminish over time. The effectiveness of the groundwater containment systems will be monitored, and maintained as necessary, to ensure that there is no adverse impact to off-site receptors.

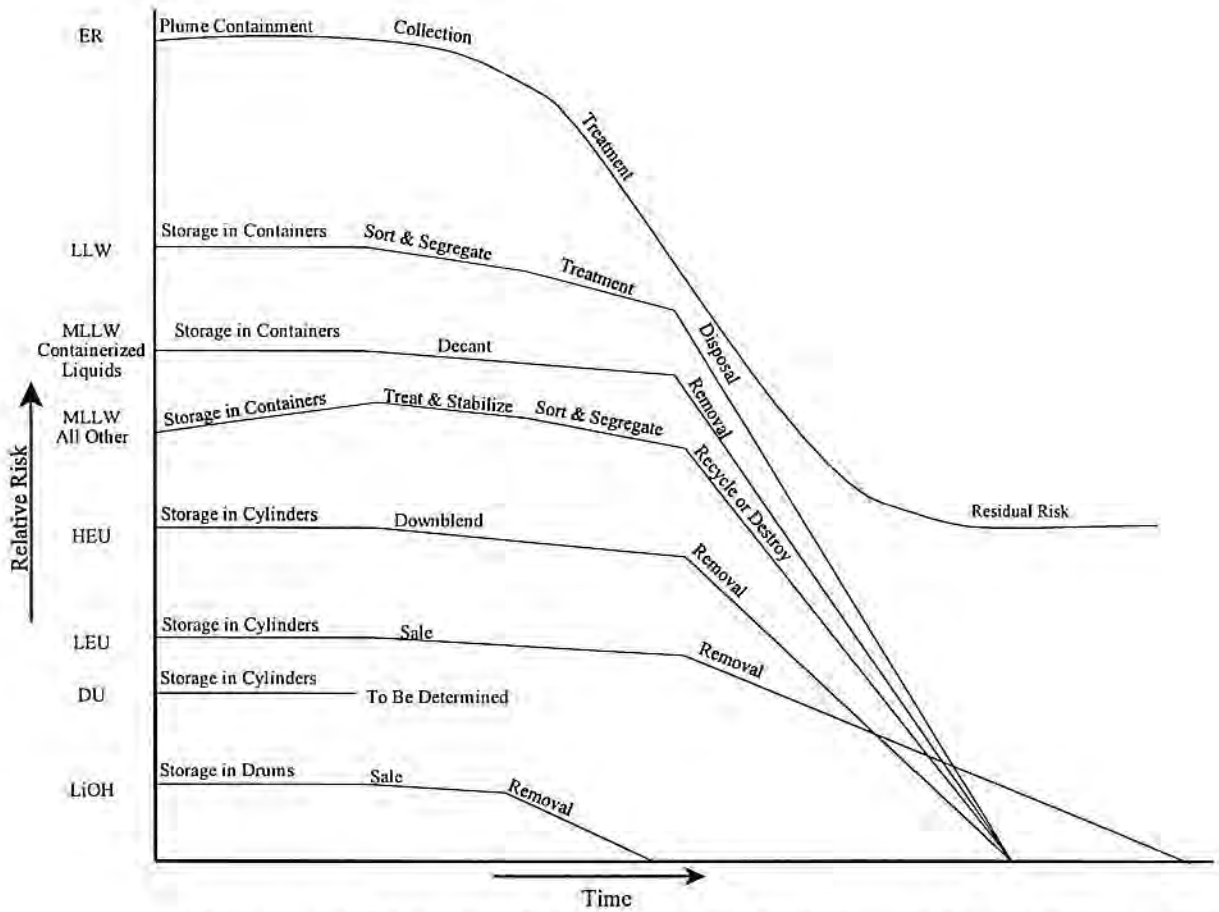


Illustration of Relative Risk Reduction Activities for Portsmouth Gaseous Diffusion Plant

Table 2. Summary Risk Profile for the Portsmouth Gaseous Diffusion Plant

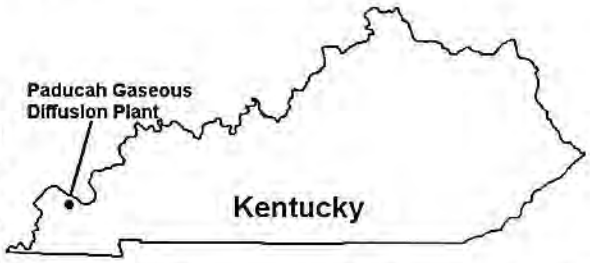
Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
Environmental media (groundwater, soil, sediment, other solids and surface water)	Nearly 13 million m^3 of environmental media (soil, sediment, surface water, groundwater, and solids) are expected to be generated from environmental restoration activities. Primary contaminants of concern include TCE, uranium, and technetium-99.	Currently, off-site migration of contaminants via groundwater and surface water have been mitigated by interim containment actions. If containment failed, then exposure to TCE and radionuclides could be possible.	For purposes of remediation activities, the Portsmouth reservation has been divided into 4 separate groundwater flow regions, termed quadrants. Quadrant division is the basis for nearly all environmental restoration activities at PORTS. A RCRA remedial facility investigation (RFI) has been completed for each quadrant.	Contaminated soil, sediment, groundwater, surface water, and solids will be collected and treated. Contaminants under caps will remain.	Migration of contaminants off-site via groundwater and surface water have been controlled by interim containment actions. Groundwater is actively being remediated by on-site treatment facilities. At present, corrective actions are being assessed for each quadrant. All remedial actions are expected tol be in place by 2004.	By 2007, all legacy waste associated with environmental restoration of the site will be dispositioned (excluding D&D activity, which will be conducted following termination of uranium enrichment operations at the plant).
LLW	An inventory of 12,000 m^3 of LLW is stored on-site. No additional LLW is expected to be generated through 2070.	Potential exposure to radionuclides could result from the failure of containment and/or institutional controls.	Risks are controlled to low levels by limiting access to waste storage facilities and routine maintenance of storage containers.	LLW will be sorted and segregated prior to treatment on-site or disposal off-site.	Waste treatment is expected to begin in 1998.	Disposition for all LLW has not been determined. Most materials are expected to be treated or disposed off-site, which would effectively eliminate on-site risk from these materials.
MLLW	Theexisting inventory of MLLW is 8,800 m^3. This total includes 12 distinct waste streams including TSCA, Asbestos, RCRA, and cyanide materials. An additional 8,200 m^3 of MLLW is expected to be generated through the year 2070.	Potential exposure to the radionuclides and chemicals could result from the failure of containment and/or institutional controls.	Risks are managed at safe levels by limiting access to waste storage facilities and routine maintenance of storage containers.	Containerized liquid MLLW will be treated under the ER program. Other remaining MLLW will be treated, sorted, segregated, stabilized, recycled, or destroyed.	Waste treatment is expected to begin in 1998 by several off-site vendors.	Most MLLW is expected to be treated and disposed off-site at commercial facilitie, which would effectively eliminate on-site risk from these materials.
Highly enriched uranium, HEU (>10% of the entire quantity in DOE's inventory)	A classified quantity of HEU is stored on-site, including HEU trap and oxide material that will be removed by FY1998. Other HEU will be downblended into the process system by U.S. Enrichment Corp.	HEU is stored in approved cylinders. Potential exposures to radionuclides and chemicals could occur if the cylinders fail to provide containment. Theft of material could also result in public safety risk. Storage configuration failure could result in criticality risk.	HEU is stored in high security facility. Routine maintenance is performed to ensure container integrity and criticality safety measures are in place.	HEU trap and oxide material will be removed by FY1998. Other HEU will be downblended into the process system by USEC.	HEU is currently being transported off-site and downblended to a useable product.	All HEU will be removed from the site or downblended to LEU as a product, effectively eliminating on-site risks from this material.

Table 2. Summary Risk Profile for the Portsmouth Gaseous Diffusion Plant

Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
Low-enriched uranium, LEU	USEC has an agreement to purchase 500 metric tons of HEU from dismantled Russian nuclear weapons from the Russian Federation over 20 years. This material is to be downblended to LEU before being shipped to the Portsmouth site. This LEU will be sold as commercial reactor fuel by USEC.	Russian LEU is stored in cylinders. Potential exposures to radionuclides and chemicals could occur if the cylinders fail to provide containment.	Risks are managed at safe levels by limiting access to the storage facilities and by routine maintenance of storage containers.	The LEU will be sold as commercial reactor fuel by USEC throughout the 20-year purchase agreement.	The LEU will continue to be shipped off-site.	The Russian LEU will be removed from the site and sold as fuel for commercial nuclear reactors, effectively removing all on-site risk from this material.
Depleted uranium, DU (>10% of the entire quantity in DOE's inventory)	13,400 cylinders (160,000 metric tons) of depleted uranium hexafluoride are in storage at the Portsmouth site, as well as relatively small quantities of depleted UF_4 and UO_3.	DU is stored in cylinders. Potential radiation and chemical exposures to workers or the public could occur if the cylinders fail to provide containment.	Risks are managed at safe levels by limiting access to the storage facilities and by routine monitoring and maintenance (repainting skirted cylinder ends and restacking to allow visual inspection).	A Programmatic Environmental Impact Statement (PEIS) is in progress to determine future disposition of material.	Not determined at present. Continuing engineering and institutional controls will maintain risk at safe levels until disposition.	Not determined at present.
LiOH (>10% of the entire quantity in DOE's inventory)	More than 187,000 drums (62 million pounds) of lithium hydroxide monohydarate are stored on-site.	Potential exposure to hazardous chemcals could occur if containment and institutional controls fail (e.g., rupture of a packaged drum).	All LiOH was recently repacked and restacked to ensure container effectiveness and allow for visual inspection. Access to DOE LiOH sale and removal program warehouses is restricted by security measures.	All LiOH is expected to be shipped off-site before repackaging is necessary. The buyer has responsibility for maintenance of the inventory.	DOE has sold the entire inventory of LiOH. To date >60,000 drums have been shipped off-site. Risk will continue to be reduced as additional shipments are completed.	By 2001, all LiOH will be removed from the site, effectively eliminating on-site risk from this material.

PADUCAH GASEOUS DIFFUSION PLANT

Site Description



The Paducah Gaseous Diffusion Plant (PGDP) is located in western Kentucky in McCracken County about 6 km (4 mi) south of the Ohio River and 32 km (20 mi) east of the confluence of the Ohio and Mississippi Rivers. The closest communities are the villages of Heath and Grahamville, 2-3 km (1-2 mi) east of the plant, Magruder Village, approximately 3 km (2 mi) southwest of the plant, and Kevil, approximately 5 km (3 mi) southwest of the plant. The closest municipality is Paducah, Kentucky, about 12 km (8 mi) east, with a population of 29,000. Approximately 39,500 people live within 10 miles of the plant, and approximately 300,000 people live within 50 miles of the plant. Total employment at the PGDP is approximately 2,300. The DOE reservation occupies 3,400 acres, of which 750 are within the main security fence. Approximately 1,800 acres outside the secure area and a surrounding buffer zone is leased to the public or to the Commonwealth of Kentucky as part of the Western Kentucky Wildlife Management Area. Land use in the vicinity of the site is primarily agricultural and undeveloped forest land.

Since its construction in the early 1950's, in part of the area occupied by the former Kentucky Ordnance Works, the primary mission of the plant has been the enrichment of uranium for use in commercial nuclear reactors, in defense applications, and as feedstock for another gaseous diffusion plant in Portsmouth, Ohio. Construction of the plant began in 1951, enrichment operations began in 1952, and the plant was fully operational by 1955. During the enrichment process, the percentage of uranium-235 is increased by passing a uranium hexafluoride (UF_6) feedstock through a series of converters. The maximum enrichment state reached at PGDP ranges from 2 to 2½% uranium-235 by mass. Operation of the enrichment facility requires an extensive array of support facilities. These include a steam plant, electrical switchyards, cooling towers, a recovery and decontamination building, water and sewage treatment facilities, a cooling water blowdown treatment facility, ancillary maintenance buildings, and a security department. In 1993, uranium enrichment operations at PGDP were transferred to the U.S. Enrichment Corporation. DOE has retained responsibility for cleanup of legacy wastes and contaminated environmental media created as a result of past operations.

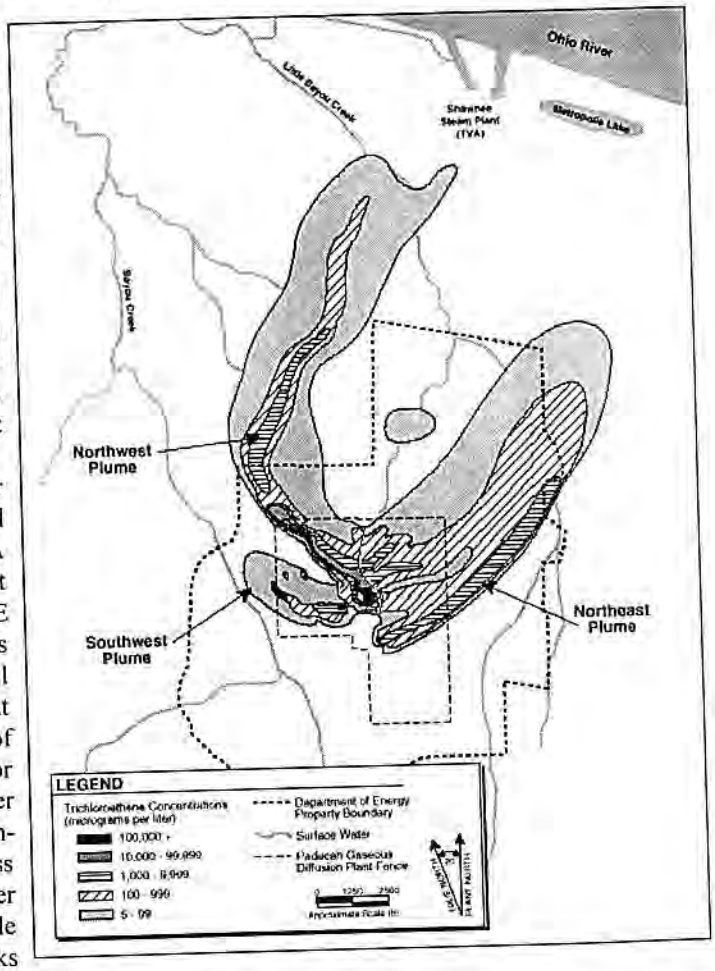
Paducah Gaseous Diffusion Plant (Looking towards the Ohio River)

Surface water features at the site include Big Bayou Creek to the west and Little Bayou Creek to the east, which both ultimately discharge to the Ohio River. Drinking water for the plant and surrounding communities is provided through public water supplies obtained from the Ohio River. A major hydrogeologic feature of interest is the Regional Gravel Aquifer. This aquifer underlies the majority of the DOE property, is the uppermost aquifer at the plant [approximately 12-15 m (40-50 ft) below ground], and flows towards the Ohio River; it also is the primary aquifer used by local private residents, and domestic wells within 1 km (0.6 mi) of the site have been identified. Other interconnected aquifers at the site include McNairy Flow System, Terrace Gravels, and Upper Continental Recharge System.

Current Understanding of Hazards and Risks

Hazards and risks at PGDP are summarized in Table 3 and discussed here. Past practices at PGDP have resulted in contamination of environmental media and accumulation of hazardous and radioactive wastes. Categories of materials that may pose potential risks at PGDP include low level waste (LLW), mixed low level waste (MLLW), transuranic waste (TRU), low enriched uranium (LEU), depleted uranium (DU), natural uranium (NU) and contaminated environmental media (soil, sediment, groundwater, and surface water). The hazards posed by these materials are currently controlled through containment and monitoring programs to maintain risk at safe levels. Contaminant migration through soil and sediment to groundwater and surface water has occurred. In 1988, groundwater samples collected from residential wells north of the site had detectable levels of technetium and trichloroethylene (TCE). PCBs have been found downstream of the plant in sediment and fish, and are also present in on-site soil and off-site drainage ditches.

Environmental Restoration. Environmental restoration activities at PGDP are being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The remedial goals for all environmental restoration projects at the PGDP are to: (1) protect industrial workers from direct exposure to surface (0–1 ft below ground surface) and subsurface soils when working inside the secure areas (2) protect the groundwater users at the DOE property boundary (3) protect recreational users outside the secure area; and (4) protect sensitive ecosystems outside the secure, industrialized areas. To accomplish these goals, the remedial strategy includes a combination of source-control actions followed by groundwater and surface water (integrator unit) actions. This strategy recognizes that the integrator units serve as potential transport and exposure pathways to receptors both on-site and off-site. Therefore, the strategy also includes interim actions to address exposure to contaminated media in the following integrator units:



Groundwater: Two major off-site groundwater plumes have been identified at PGDP (designated the Northwest Plume and Northeast Plume). A third plume has also been idenfied, the Southwest Plume, which has not migrated beyond the DOE site boundary. Suspected sources of the plumes include: burial pits, leaking process lines, spill sites, and process buildings. It is estimated that about 13 million m^3 (3 billion gallons) of groundwater is contaminated with TCE or technetium or both, with plumes extending over an area of approximately 1,000 ha (4 sq mi) on- and off-site in the uppermost aquifer. To address these issues, DOE extended a community water line to residences with contaminated wells while pursuing long-term remedial actions. Thus, risks

associated with groundwater are controlled through provision of this alternate water supply to prevent exposures.

Surface water/sediment: Soils, drainage ditches, surface waters and sediments are contaminated with PCBs. Suspected sources include electrical switchyards, landfills, and waste oil biodegradation plots. Current use restrictions of the impacted surface water bodies are intended to limit exposure to contaminants by the public. Landfill caps have been installed or improved to reduce leachate migration, and underground storage tanks are being closed or monitored to prevent additional releases.

Remedial investigations (RIs) have been completed for several waste area groupings and feasibility studies (FSs) are now being conducted. Removal and treatment of contaminated groundwater, soil, sediment and surface water will reduce risks to potential receptors on-site and off-site. A groundwater monitoring network of 164 wells has been installed, and there are two operating groundwater containment systems. Contaminated groundwater is pumped to existing towers within the plant for treatment with an air stripping process; more than 37 million gallons of contaminated groundwater has been treated to date. Risks associated with on-site and off-site groundwater are controlled by preventing exposures through provision of an alternate water supply; DOE extended community water lines and offered municipal water hook-ups to all residents in the potentially impacted area. Contaminant migration has been restricted through the use of interim control and containment actions. Current use restrictions of surface water bodies are designed to limit exposure to contaminants by the public. The combination of groundwater treatment, containment, and provision of an alternate water supply are intended to mitigate the potential risks associated with contaminated groundwater. Institutional controls restricting site access also help to reduce risk to low levels.

Waste Management. As a result of its mission activities, PGDP has accumulated large quantities of natural uranium (NU), low-enriched uranium (LEU), and depleted uranium (DU) in storage, as well as radioactive (LLW, MLLW, TRU) and hazardous wastes. The hazards posed by these stored materials are all controlled through standard containment and monitoring methods to maintain risk at safe levels.

Approximately 7.6 m^3 of transuranic waste (TRUW) is currently stored at the site. Risks associated with this material are managed by limiting access to waste storage facilities and routine maintenance of storage containers. The TRUW will be treated on-site then transported to the Oak Ridge Reservation for storage and eventual disposal (targeted for WIPP).

The current amount of MLLW in storage is approximately 4,200 m^3, including PCBs and asbestos wastes. This volume includes approximately 2,000 m^3 of MLLW soils, sludges, and other solids, and approximately 80 m^3 of MLLW liquids. The risks associated with stored MLLW are managed by site access controls, limiting access to waste storage facilities and routine maintenance of storage containers. The soils, sludges and other solids will be treated by VORTEC vitrification. The MLLW liquids will be collected and incinerated.

There are 6,100 m^3 of LLW soils, sediments, rubble, liquids, and other solids. In addition, 65,000 tons (92,000 m^3) of slightly radioactive scrap metal are also stored at PGDP in inventoried quantities; this is more than 10% of the entire DOE inventory of scrap metal. The risks associated with LLW are managed by limiting access to waste storage facilities, site access controls, and routine maintenance of storage containers. The scrap metal will be decontaminated and recycled. The soil will be collected and disposed of off-site. Rubble and debris will be characterized and shipped off-site to a LLW landfill. Other solids will be characterized, treated and disposed of either on-site or at an off-site LLW landfill. Liquids will be characterized and shipped to a licensed incinerator in Oak Ridge.

An additional 16,000 PC-contaminated gaskets are also stored on-site.

There are 2,200 cylinders of natural uranium (NU), 1,700 cylinders of low enriched uranium (LEU), and 28,000 cylinders of depleted uranium (DU) on site. The risks associated with these materials are managed by limiting access to the uranium storage yards and by routine maintenance of storage containers. The DU is in the form of DUF_4 and presents primarily a chemical toxicity hazard; cylinder failure would result in release of hydrogen fluoride gas and uranium, which would form a crystalline solid, resealing the cylinder.

Two facilities (C-410 and C-340) have begun decontamination and decommissioning procedures with monitoring. Contamination includes depleted uranium, normal uranium, UF_4, PCBs, asbestos, and lead paint.

End-State Disposition and Risk

DOE is currently in the process of reducing its inventory of legacy hazardous and radioactive materials at the site, thereby reducing risk of environmental release or accidental exposures. Only those materials that are directly needed for ongoing facility operations (e.g., enrichment cascades) will be maintained.

Environmental Restoration. Treatment or removal of the contaminated groundwater, soil, sediment, or surface water will lower the risks to on-site and off-site personnel. All legacy environmental management waste is expected to be shipped off-site for final disposal by 2006. Low levels of residual contamination will remain in soils, and also in groundwater because the pump-and-treat system is not capable of completely removing all contamination; however, such residual risks will be small and are expected to eventually diminish over time. Beyond 2006, the groundwater treatment systems will continue operation, and the surveillance and maintenance program will continue to monitor the effectiveness of the remedial action and decontamination and decommissioning activities. Institutional controls will be maintained for any on-site disposal areas that may be closed with levels of contamination in place that require continued management to ensure long-term safety.

Waste Management. The disposition and treatment of legacy TRUW, MLLW, LLW and environmental restoration wastes will reduce the volumes of these wastes on site and lessen the likelihood of related environmental contamination. The TRUW, MLLW, and LLW will be shipped off-site. Following shipment, there will be no end-state risk at PGDP associated with these materials. At present, the end-state disposition of the NU, LEU and DU materials have not yet been determined, but it is likely that they also will be removed from the site, effectively eliminating risk. DOE plans to have all the legacy environmental management waste shipped off-site for final disposal by 2006.

After the uranium enrichment operations at PGDP are no longer needed, DOE will decommission the site. Under provisions in the U. S. Enrichment Corporation lease, stabilization and shutdown activities are the responsibility of the U.S. Enrichment Corporation. The end use for the property may include restricted industrial, open space/recreational, and controlled access. Several landfills will be closed with contamination in place in the industrial area.

The following figure illustrates the rate of relative risk reduction associated with environmental management activities at the PGDP site. The relative ranking between material categories is not precise and is provided for illustration purposes only. As shown by this graph, the potential risk from the quantities of LLW, MLLW, and TRU will be effectively reduced to zero with the total removal of these materials from the site. The NU, DU, and LEU will likely be sold and removed from the site, effectively removing any risk. Residual risk from the contaminated environmental media on-site will remain; however, this risk is expected to be very low. The effectiveness of the groundwater containment systems will be monitored, and the systems maintained as necessary, to ensure that any residual risk to off-site receptors is very low.

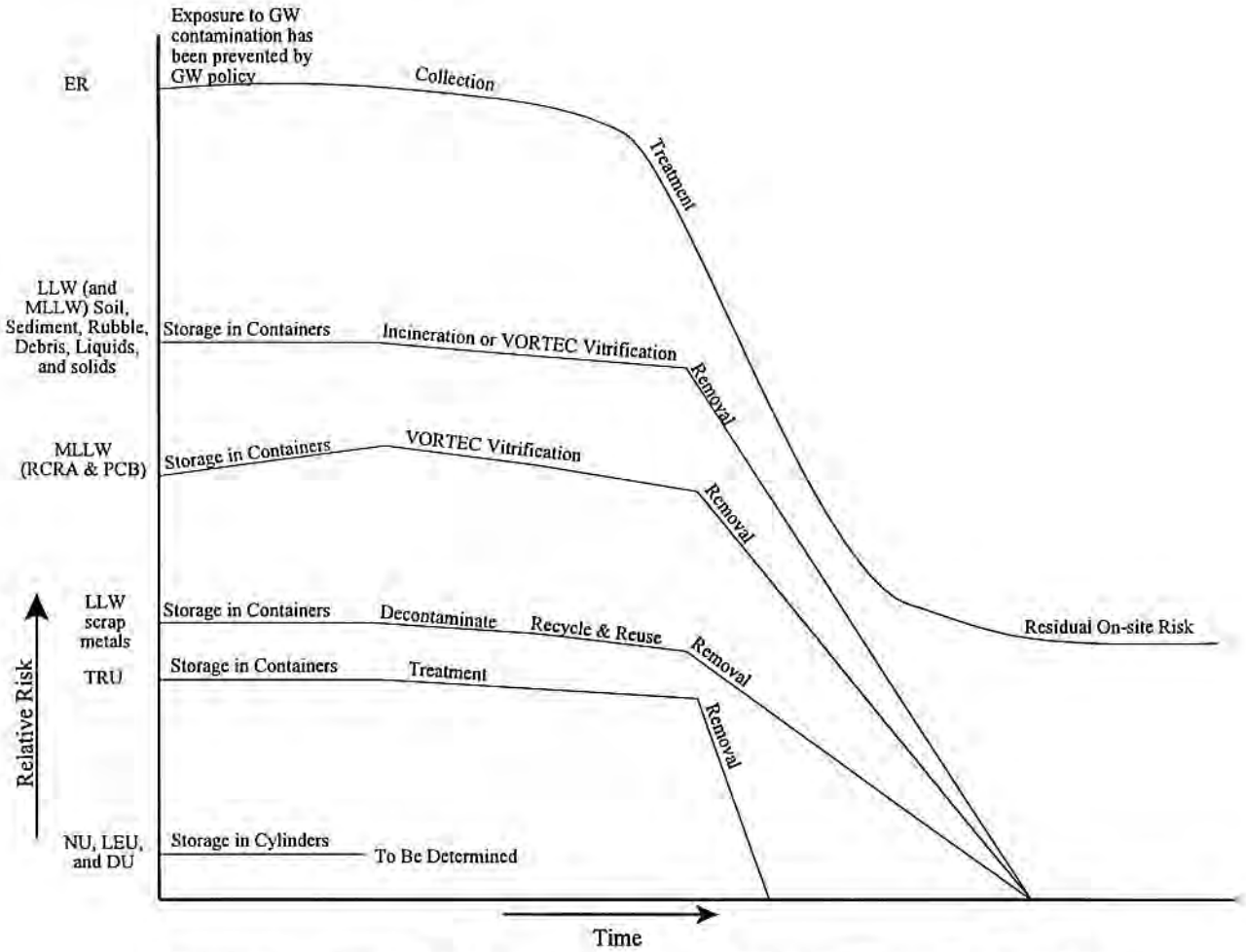


Illustration of Relative Risk Reduction Activities for Paducah Gaseous Diffusion Plant

Table 3. Summary Risk Profile for the Paducah Gaseous Diffusion Plant

Material Category	Nature of Hazard	Nature of Potential Risk	Status of Current Risk Management	Planned Risk Reduction Measures and Control Measures	Anticipated Risk Reduction Progress	End State Disposition and Risk
Environmental Media (contaminated groundwater, surface water, soils and sediments)	More than 13 million m^3 (3 billion gallons) of groundwater is contaminated with trichloroethylene (TCE) and/or technetium-99, in two contaminant plumes that extend beyond the DOE property boundary in the uppermost aquifer at the site. PCBs and heavy metals in surface water are transported beyond the DOE boundary. Additionally, contaminants exist in soil (metals and radionuclides), sediment, and biota. In addition, more than 270 tons of uranium, in various forms, is buried on-site.	Failure of the groundwater policy to prevent use of groundwater potentially could expose the public to TCE and Tc-99. Failure of access controls could allow the public to be exposed to contaminated off-site surface water and sediments and soils on-site.	Currently risk from exposure to contaminants in groundwater is controlled by providing alternative water supply to residents potentially affected by the contaminated groundwater and implementation of groundwater containment systems. Institutional controls (e.g. access restrictions) help to prevent exposure to surface water and on-site contaminated media.	Contaminated groundwater is currently being collected and treated by air stripping. Remedial alternatives for contaminated soils, sediments, and surface water will be determined for each investigation unit [208 solid waste management units (SWMUs) grouped into 30 Waste Area Groupings]. Contaminants under caps and landfills may remain on-site.	Exposure to contaminated groundwater has been mitigated by the groundwater policy to restrict use and provision of alternative water supply. Four RODs have been signed. Eight interim remedial actions are underway.	Contaminated groundwater will continue to be collected and treated with treatment residues disposed off-site or contained. Residual contaminants in groundwater are expected to be below drinking water standards. Other legacy waste associated with environmental restoration is expected to be shipped off-site by 2006 (excluding D&D activities, which will be conducted following termination of uranium enrichment operations).
LLW (scrap metals, soil, sediment, rubble, other solids, and liquids)	Approximately 92,000 m^3 (65,000 tons) of contaminated scrap metals, and 6,100 m^3 of other LLW soils, sediments, rubble, liquids, and solids are stored on-site.	Potential exposure to radionuclides could result from the failure of containment and/or institutional controls.	Risks are managed at safe levels by limiting access to waste storage facilities, routine maintenance of storage containers, and sediment control measures	Scrap metal will be decontaminated and recycled. Rubble and debris will be characterized and shipped off-site for disposal. Other solids will be characterized, treated using VORTEC technology and disposed either in the on-site landfill or at an off-site LLW disposal site. Liquids will be characterized and shipped to the TSCA incinerator in Oak Ridge for incineration.	Valuable scrap metals have been identified and processed for potential recycling and reuse. An additional 1,000 m^3 of LLW is expected to be generated as part of future DOE activities through the year 2070.	Scrap metals will be removed from the site, effectively removing any risk. Other LLW transported for off-site treatment or disposal also would not contribute to site risks. Residual risk may remain from LLW disposed on-site, and will be controlled at safe levels through engineering and institutional controls.
MLLW (soil, sediment, liquids, and solids)	Approximately 4,200 m^3 of MLLW is currently in storage, including PCB and asbestos materials, as well as RCRA-regulated wastes.	Potential exposure to the radionuclides and chemicals that comprise the MLLW category could result from the failure of containment and/or institutional controls.	Risks are managed at safe levels by limiting access to waste storage facilities and routine maintenance of storage containers.	MLLW will be treated by vitrification, incineration, or other treatment processes, as necessary, prior to off-site disposal.	An additional 2,000 m^3 of MLLW is expected to be generated as part of future DOE activities through the year 2070.	MLLW will be vitrified, incinerated, or treated for off-site disposal, effectively removing all risks from the site.
TRU waste	Approximately 7.6 m^3 of TRU waste is stored on-site.	Potential exposure to radioactive and hazardous materials could result from the failure of waste containers and release of waste.	Risks are managed at safe levels by limiting access to waste storage facilities and routine maintenance of storage containers.	TRU waste will be treated on-site and transported to the Oak Ridge Reservation for storage and eventual disposal (at WIPP).	No additional TRU waste is expected to be generated.	All TRU waste will be shipped off-site to the ORR. No risk from this material will remain at PGDP following off-site shipment.

PADUCAH GASEOUS DIFFUSION PLANT SITE SPECIFIC ADVISORY BOARD
U.S. DEPARTMENT OF ENERGY
ENVIRONMENTAL MANAGEMENT & ENRICHMENT FACILITIES
PROJECT UPDATES
MARCH 18, 1999 *(italicized entries new this month)*

BURIAL GROUNDS PROJECT FY 99

Waste Area Group 3/burial grounds

WAG 3 is composed of three burial grounds within the PGDP security fence — C-747 Contaminated Burial Yard (SWMU 4), C-746-F Classified Burial Yard (SWMU 5) and C-747-B Burial Yard (SWMU 6). The yards, located in the western section of PGDP, contain natural and slightly depleted uranium, Technetium-99, magnesium fluoride, uranium-contaminated solid waste, security-classified weapons components, radionuclide-contaminated scrap metal, and slag from nickel and aluminum smelters.

WAG 3 is being combined with WAGs 8 and 28. The Site Evaluation and Remedial Investigation tasks for these projects are being combined into one program for the completion of field work and report writing. The revised proposal addressing the WAGs 3/8/28 Data Gaps tasks was received Dec. 3 and is being evaluated.

Waste Area Group 22/SWMU 2

This project includes the investigation of burial grounds in the west-central portion of the plant. Original plans included installation of a cap at SWMU 2, the C-749 Uranium Burial Ground, but investigation activities have determined that the buried material was saturated in the water table, indicating a cap would have limited effect. In addition, KDEP prefers excavation of the burial ground as the only acceptable alternative addressed in the D1 Feasibility Study.

The SWMU 2 D1/D2 Feasibility Study presents four potential remedial alternatives 1) No Action, 2) In-situ containment with soil cap and subsurface barriers, 3) In-situ containment utilizing low-pressure permeation grouting, and 4) Bulk waste excavation. Current issues between DOE and the regulators are associated with the pre-selection of alternative 4 (excavation) by regulators as the preferred remedial alternative.

The preferred remedy outline in DOE's Proposed Plan for SWMU 2 is No further action (continued institutional controls and groundwater monitoring of the RGA). KDEP rejected the Proposed Plan on Dec. 7, 1998, and additional comments were received from the Radiation Control Branch on the Feasibility Study.

The Proposed Plan will not be revised until the regulatory agencies have approved the PGDP Land Use Controls Assurance Plan, projected for June 1999. This delay will preempt the development of the Record of Decision previously scheduled for late Spring 1999.

Waste Area Group 22/SWMU 7&30

This project includes the investigation of burial grounds in the northwest corner of the plant. The Feasibility Study for SWMUs 7 & 30 (the C-747-A Uranium Burial Ground and C-747-A Burn Area), was issued to regulatory agencies for review in March, proposing four remedial alternatives: 1) No action, 2) Limited action (installation of additional monitoring wells and long-term groundwater monitoring), 3) Soil cover and groundwater monitoring with additional monitoring wells, and 4) Surface soil removal and groundwater monitoring with additional monitoring wells.

Regulatory comments on the FS have been received and responded to, but as per the new regulatory agreements, all other activities following the issuance of the D2 FS will be deferred.

Northwest Plume Interim Remedial Action Pilot Plant
More than *350 million gallons* of water have been treated at the Northwest Plume Groundwater Treatment Facility since operations began Sept. 1, 1995. The facility operates to contain a high contamination zone of the degreaser trichloroethylene and the man-made radionuclide technetium- 99.

System was down for 2 hours, 23 minutes due to system shutdown during severe weather.

Northeast Plume Interim Containment System
The Northeast Plume project includes extraction wells in the northeast quadrant of DOE property with an underground pipeline running to the existing PGDP cooling towers as part of the containment system.

Routine operations began in March 1997, with more than *182 million gallons* of groundwater treated to date. The system was down for 11 hours and 38 minutes Jan. 21 due to a power outage during severe weather.

Lasagna™ demonstration
With EPA's signature of the Record of Decision for Solid Waste Management Unit 91 (the former cylinder drop test site) the Paducah site will give the Lasagna™ soil remediation technology its first go at full-scale remediation.

A subcontractor proposal was issued Nov. 9 and the subcontract was scheduled to be awarded in December. However, the subcontract award was delayed due to problems associated with paying a license fee to Monsanto, which caused a two-month slip in the schedule. *Issues associated with indemnity and paying a license fee to Monsanto have been resolved, and the award to CDM Federal Programs appears imminent.*

Groundwater Operable Unit/Waste Area Group 6/Trichloroethylene spill site
The C-400 TCE spill site is a major source of TCE in the groundwater and soil. The Industrial Hydrogeologic Study focused on piping, utilities and building foundations in the C-400 building area to determine how these man-made structures and systems influence groundwater infiltration and flow.

Following the completion of the WAG 6, 27 and 28 Remedial Investigations, all data will be used for developing a Feasibility Study for the Groundwater Operable Unit. (WAG 6, 27, 28). Following the Feasibility Study, a Proposed Plan and Record of Decision for the selected remedial action will be developed. The selected remedial action will be designed and implemented after the ROD is signed.

The D1 Remedial Investigation Report is still under state regulatory review. Comments were due Dec. 16, but an extension through Feb. 15 was requested.

Two additional documents have since been submitted to the regulators, the D1 GWOU Feasibility Study Work Plan (Feb. 5) and the D1 Treatability Studies reports (on chemical oxidation and surfactant flushing) for WAG 6/C-400 Chemical Cleaning Facility area (Feb. 11).

The Innovative Treatment Remediation Demonstration process was kicked off Feb. 10-11 for the GWOU Feasibility Study. The scope of this process includes a cooperative public-private partnership developed to significantly reduce remediation schedules and costs by accelerating the acceptance and use of new technologies. The program coordinates DOE, EPA, industry and regulatory agencies in evaluating, implementing and validating innovative remediation technologies at selected DOE sites.

A comment resolution meeting was scheduled on March 18, 1999.

Waste Area Groups 8 & 28
WAG 8 includes SWMUs 82 (C-531 Electrical Switchyard), 83 (C-533 Electrical Switchyard), 84 (C-535 Electrical Switchyard), 85 (C-537 Electrical Switchyard) and the C-340 building area (reduction and metals facility).

WAG 28 includes SWMUs 99 (C-745 Kellogg Building site), 183 (McGraw Underground Storage Tank), 193 (McGraw construction facilities), 194 (McGraw Construction facilities) and Area of Concern 204.

The concern at WAGs 8 & 28 is potential groundwater contamination in the RGA, upper McNairy and other sources of contamination that may be contributing to the Northeast Plume.

The FY 99 scope for this project includes initiation of the Site Evaluation field activities for WAG 8 and the completion of Remedial Investigation field activities for WAG 28.

Mobilization activities (equiment purchases, facility set-up etc.) associated with WAGs 3/8/28 Data Gaps field tasks continued. Completed development of the WAGs 3/8/28 Data Gaps Excavation Permits.

Waste Area Groups 9 & 11
WAGs 9 and 11 are being investigated to determine if there have been contaminant releases from buried tanks, vaults and pits around the PGDP. This project is being combined with two petroleum underground storage tank (UST) investigations, and the collection of six groundwater samples from the C-747-A burial yards.

WAG 9 consists of the C-722 acid neutralization tank, off the northeast corner of the C-720 maintenance facility; the C-712 acid neutralization tank, off the southwest corner of the C-710 laboratory; the C-616-L Pipeline and vault soil contamination area; and the C-729 Acetylene building drain pits, just east of C-720.

WAG 11 consists of the C-410-B hydrofluoric acid (HF) neutralization sludge lagoon; the C-410-E HF emergency holding pond; and the C-410-C HF neutralization tank.

A site investigation was completed in FY 98 and the Site Evaluation Report was distributed to the Environmental Protection Agency and Kentucky Department for Environmental Protection on Dec. 23, 1998.

Comments from the state were due Feb. 1.

Based on the data and subsequent risk screening calculations, a "no further action" status has been recommended for the four SWMUs in WAG 9. As to WAG 11, DOE is recommending that a risk assessment be performed on the three SWMUs in this WAG. Any activities beyond these recommendations will be deferred to the Surface Soil Operable Unit.

Waste Area Group 16 & 19/PCB sites
WAGs 16 & 19 are considered low-risk PCB sites. WAG 16 includes a PCB spill site, inactive PCB transformer area, PCB soil contamination and an outfall ditch. WAG 19 includes PCB spill sites and soil contamination.

The D1 Work Plan issued to KDEP July 10 is still under review, but the Site Evaluation Report is still scheduled for FY 99.

Waste Area Group 23/Polychlorinated Biphenyls (PCBs) Spill Sites
Excavation of approximately 175 cubic yards of contaminated soil at several PCB sites was

DOE NEWS

NEWS MEDIA CONTACTS:
Matthew Donoghue / Michael Terwilliger, 202/586-5806
matthew.donoghue@hq.doe.gov

FOR IMMEDIATE RELEASE
March 5, 1998

Energy Department Seeks Industry Input into Plan to Convert Nuclear Material to a More Environmentally Benign Form

The U.S. Department of Energy (DOE) today issued a solicitation seeking private sector solutions for converting tons of depleted uranium hexafluoride stored at government facilities in Kentucky, Ohio, and Tennessee to a safer form. The solicitation for 'Expressions of Interest,' asks private industry to submit innovative strategies for transforming the 700,000 metric tons of depleted uranium hexafluoride (DUF_6) to a safer, more environmentally benign state. The DOE is seeking ideas from industry to help it construct the conversion plants at Paducah, Kentucky and Portsmouth, Ohio, well before the construction deadline of January 31, 2004.

DUF_6 is a byproduct of the enrichment of uranium from the gaseous diffusion process. The material was generated in vast quantities as a result of several decades of uranium enrichment operations for both commercial and defense purposes. Since 1990, DOE has conducted a focused program of cylinder inspections, re-coatings, and relocations to assure that DUF_6 is safely stored until final disposition. While this material can continue to be safely contained for years, the advanced age of some of the cylinders has highlighted a potential environmental concern.

"We are seeking the help of private industry for two reasons," said William D. Magwood IV, director of DOE's Office of Nuclear Energy, Science and Technology. "First, we believe that industry, with the incentive of market forces, is in a better position than government to develop novel, effective and economical solutions for the eventual disposition of our DUF_6 inventory. This is a significant step forward."

With the information received through this solicitation, DOE will be able to examine a range of possible solutions and proceed with implementation of a procurement strategy that will meet the department's critical milestone for initiation of construction.

(MORE)

R-99-036

DOE's request for expressions of interest seeks private industry's expert advice and counsel as it develops a strategy to achieve important objectives that include: cylinder surveillance and maintenance; design, construction, operation and final decommissioning of conversion facilities; storage or use of conversion end products; and disposition of unused products such as uranium, fluorine compounds, and empty storage cylinders.

Interested parties may submit responses to the solicitation of Expressions of Interest to: Thomas E. Brown, Procurement Analyst, U.S. Department of Energy (MA-52), 1000 Independence Ave. SW, Washington, DC 20585, *no later than* April 5, 1999. Additional information may be obtained from http://www.ne.doe.gov/.

- DOE -

R-99-036

SIDE A

Paducah Gaseous Diffusion Plant (PGDP)
Site Specific Advisory Board (SSAB)
1998/1999 Workplan

ISSUE	EXPECTED ACTIONS	STATUS/APPROACH	Dec 98	Jan 99	Feb 99	Mar 99	Apr 99	May 99	Jun 99	Jul 99	Aug 99	Sep 99	Oct 99	Nov 99
Waste Management		Transuranic Waste												
Waste Minimization/ Pollution Prevention	Review documents	Monitor and provide suggestions as appropriate												
Transportation of Wastes/ Hazardous Materials		Discuss issues for Paducah				✔								
Decontamination & Decommissioning	Review documents	Monitor and provide suggestions as appropriate							✔					
Economic Impact on Community	Monitor	Monitor and provide suggestions as appropriate												
Protection/Restoration of Natural Resources & Ecological Values	Review documents	Monitor and provide suggestions as appropriate												
Protection of Workers, Public Health, and Safety	Monitor projects	Monitor and provide suggestions as appropriate												
Technology Development and Transfer	Review documents	Monitor and provide suggestions as appropriate												
Strategies for Effective and Meaningful Public Input	Work 2 DOE/CRP	Monitor and provide suggestions as appropriate												
Cost Effectiveness	Review documents	Monitor and provide suggestions as appropriate												
WAG 6	Review documents	Review State of Kentucky Comments on the RI Report		✔		✔								
WAG 22, SWMUs 2 and 3	Review documents	Review DOE's reply to regulator comments		✔ SWMU 2		✔								
WAG 22, SWMUs 7 and 30	Review documents	Monitor and provide suggestions as appropriate		✔										
WAGs 9 & 11 Preliminary Assessment/Site Inspection (PA/SI) Process Site Evaluation Report				✔		✔								
WAG 17		Record of Decision (ROD) signed 9/29/97												
Lasagna														
Drum Mountain (WAG 24)	Review documents	Monitor and provide suggestions as appropriate												
Site Treatment Plan Annual Report														

February 25, 1999

SIDE B

Paducah Gaseous Diffusion Plant (PGDP)
Site Specific Advisory Board (SSAB)
1998/1999 Workplan

ISSUE	EXPECTED ACTIONS	STATUS/APPROACH	Dec 98	Jan 99	Feb 99	Mar 99	Apr 99	May 99	Jun 99	Jul 99	Aug 99	Sep 99	Oct 99	Nov 99
Federal Facilities Agreement (FFA)	Review progress of update	Discuss milestones and schedule				✔								
Integrated Waste Management Plan		IWMP yearly update completed 12/15/97												
Vortec	Receive update			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Board Evaluation	Receive recommendations	Conclusions presented by the SSAB Evaluation Committee			✔	✔								
Bechtel Jacobs M&I														
National Environmental Protection Act (NEPA)														
Environmental Report														
Accelerating Cleanup Plan - Paths to Closure	Review documents	Monitor and provide suggestions as appropriate												
Depleted UF_6 PEIS	Receive update	Review budget		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Northeast and Northwest Plumes Pump and Treat Facilities		Discuss hiring technical support		✔	✔	✔								
Training Options for SSAB	Review catalog	Discuss hiring technical support												
DOE Rulemaking Process														
Membership and Public Outreach		Review membership applications		✔								✔		
Paducah-Area Community Reuse Organization (PACRO)		Discuss how PACRO relates to the SSAB		✔										
Risk Assessment		Receive training and relate to WAGs 6 and 22		✔										
Cumulative Effects on the Site		Open discussion; Review effectiveness of EISs from other sites			✔	✔								
Groundwater Operable Unit	Review Feasibility Study	Monitor and provide suggestions as appropriate			✔									
Surface Water Operable Unit	Review documents						✔							
Risk Profile	Review documents	Monitor and provide suggestions as appropriate				✔								

February 25, 1999

FERNALD CITIZENS ADVISORY BOARD

1999 DOE Site-Specific Advisory Board Workshop on Waste Transportation

PRELIMINARY INFORMATION

May 20 – 23, 1999
Cincinnati, Ohio
Hosted by the Fernald Citizens Advisory Board

GOALS OF THE WORKSHOP

This workshop is being designed for stakeholders who are actively involved in the remediation of the DOE complex, to;

1. Improve stakeholder understanding of transportation-related issues and decision-making processes;
2. To foster dialog among SSABs about national transportation issues and create opportunities for continuing that dialog;
3. To identify joint issues and concerns and begin to draft joint recommendations to the resolution of those concerns.

REGISTRATION

This workshop is being conducted for the benefit of all site specific advisory boards in the DOE complex. Space is limited due to the type of activities envisioned and the physical location. Highest priority will be given to SSAB members and their guests. Each DOE site with a SSAB is provided up to 10 total registrations to fill as they see fit for this topic area. We recommend having five (5) SSAB members and up to five (5) non-members (for example: other stakeholders, local government officials, DOE and contractors) attend the workshop. See attached registration form.

LOCATION and ACCOMODATIONS

Vernon Manor Hotel
400 Oak Street
Cincinnati, OH 45219
513-281-3300
513-281-8933 Fax
800-543-3999 Reservations

The Vernon Manor is Cincinnati's oldest operating hotel and has just undergone a complete renovation. It is the only hotel in Ohio to be featured in the Connoisseur's Guide to Elegant Small Hotels. Rooms are spacious and the hotel is close to museums and the zoo, as well as the Mt. Adams area of Cincinnati where there are many restaurants. The hotel runs a complimentary shuttle to downtown activities but does not offer airport transportation. A block of rooms has been reserved at a government rate of $68 per night for a single room and $78 per night for a double room. This includes free parking, a daily continental breakfast, and USA Today.

You must register with Vernon Manor no later than April 29, 1999 to take advantage of these room rates.

INFORMATION

Contact Gwen Doddy, Phoenix Environmental
703-971-0030 • 703-971-0006 fax • PhnxEnvir@aol.com

CORE TOPICS

- Routing and Mode
- Packaging, safety, and risk assessment
- Stakeholder involvement and risk communication
- Notification and Emergency response

EXPECTED RESULTS

1. Participants will draft statements which identify areas that are important to stakeholders and in which stakeholders expect to be involved. These statements will help guide DOE both nationally and at sites as they make transportation-related decisions.
2. Participants will identify of issues where joint SSAB recommendations are possible and draft language for recommendations that will be presented to SSABs for possible action.
3. A method for continued discussion and activity among SSABs on transportation-related issues, such as a joint-SSAB Working Group on Transportation will be established.

DRAFT AGENDA

Thursday, May 20	
7:00 – 9:00 pm	Reception
Friday, May 21	
7:45 – 1:00 pm	Tour of the Fernald site (box lunch available)
Friday, May 21	
1:00 – 6:00 pm	Welcome and overview Discussion of workshop goals Site introductions Panel presentations and Q&A on core topics Discuss conference approach and plan for breakouts
Saturday, May 22	
8:00 – 10:00 am	Plenary discussion on core topics - Identify key stakeholder issues on core topics
Saturday, May 22	
10:00 – Noon	Breakout groups on core topics Develop draft statements of interest regarding topics Identify one or two possible issues for a future joint SSAB recommendation
Saturday Lunch	Bill Richardson (Invited)
Saturday, May 22	
1:30 – 3:00 pm	Reconvene breakout groups to complete work
Saturday, May 22	
3:15 – 5:00 pm	Preliminary results of breakout groups presented Discuss statements of stakeholder interest Discuss possible joint SSAB recommendations
Saturday, May 22	
6:30 – 8:00 pm	Breakout groups to revise statements and recommendations based on full-group feedback
Sunday, May 23	
8:00 – 12:00 noon	Statements amended and approved by full group Recommendation language reworked as time permits Next steps and follow-on activities identified

FERNALD CITIZENS ADVISORY BOARD

1999 DOE Site-Specific Advisory Board Workshop on Waste Transportation
May 20 – 23, 1999
Vernon Manor Hotel (513-281-3300)
Cincinnati, Ohio

SSAB REGISTRATION FORM

Administrative Contact:

- Please complete this form and make sure each individual also completes an individual registration form.
- Register **a maximum of** ten (10) people per SSAB site. We recommend having five (5) SSAB members and five (5) non-members (for example: other stakeholders local government officials, DOE and up to contractors) attend the workshop.
- Use this form to identify **all ten (10)** people who plan to attend the workshop from your site. Fax this form to Gwen Doddy, Phoenix Environmental, at 703-971-0006 by **April 9, 1999.** Thank you.

Administrative Contact for the SSAB (this person will receive all correspondence regarding the workshop):

Name: _____

Title: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail: _____

SSAB members who will be attending the workshop:

Name	Affiliation
1)	
2)	
3)	
4)	
5)	

Non-members who will be attending the workshop:

Name	Affiliation
1)	
2)	
3)	
4)	
5)	

FERNALD CITIZENS ADVISORY BOARD

1999 DOE Site-Specific Advisory Board Workshop on Waste Transportation
May 20 – 23, 1999
Vernon Manor Hotel (513-281-3300)
Cincinnati, Ohio

INDIVIDUAL REGISTRATION FORM

Everyone planning to attend the workshop must complete this form.
Please return this form to your SSAB Administrator or fax to:
Gwen Doddy, Phoenix Environmental, at 703-971-0006 by **April 9, 1999**.
Thank you.

Name: _____

SSAB: _____

Title: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail: _____

Please check all that apply:

❑ I **will** attend the reception on Thursday night, May 20, 1999.

❑ I **will** attend the tour of the Fernald Site on Friday, May 21, 1999.

If you are attending the tour:
(The buses will leave the Vernon Manor at 7:45 am. You will return to the hotel at approximately 1pm. It is a bus tour of the site. A box lunch may be purchased. The attached access request form **must** be filled out)

Please choose one of the box lunches for the tour (*included are a 3.5 sub sandwich with cheddar cheese, lettuce and tomato; your choice of soda, chips; and a cookie*). **$6 per person.**

❑ Turkey ❑ Ham ❑ Roast Beef ❑ Vegetarian

❑ I **will** attend the **Saturday, May 22, 1999** luncheon (The Secretary of the Department of Energy, Bill Richardson is the invited speaker) **Cost is $15 per person.**

Special Requests/Needs (please specify):
❑ I require vegetarian meals or kosher meals: _____
❑ I have special access requirements: _____
❑ I have other requirements: _____

Total cost of meals selected = $ _____

❑ Check attached (make payable to Phoenix Environmental)
❑ I will pay at the Workshop's registration

Please note: *Breakfast is provided by the hotel. You are responsible for the purchase of all other meals. You are also responsible for making your own room arrangements with the Vernon Manor.*

Fact Sheet
Federal Facility Agreement

Background

- PGDP was placed on the CERCLA National Priorities List (NPL) in May 1994.
- Section 120 of CERCLA requires federal facilities on the NPL to enter into a Federal Facility Agreement for site remediation.
- The Paducah Federal Facility Agreement (FFA) which was signed February 13, 1998 is a tri-party agreement between DOE, U.S. EPA, and Kentucky.
- The FFA contains key milestones for site remediation with certain work activities in the current FY through FY+2 (2000) designated as enforceable commitments under the Agreement.
- Attached is the most recent list of enforceable commitments for FY 1999 through FY 2001, which is based on the new remedial strategy recently approved by EPA and Kentucky and documented in the FFA.

Key 1998 Accomplishments

- Pumped and treated approximately 181 million gallons of contaminated groundwater from the Northeast and Northwest Plumes, thereby removing 2521 pounds of TCE.
- Completed the remedy evaluation process and signed a Record of Decision (ROD) selecting full scale deployment of Lasagna as the preferred remedial action for TCE contamination at the Cylinder Drop Test Area (Solid Waste Management Unit [SWMU] 91).
- Completed fieldwork for the remedial investigation for Waste Area Group (WAG) 6 (C-400 DNAPL Sources) and issued the Remedial Investigation (RI) report to EPA and Kentucky.
- Completed fieldwork for the RI for WAG 27 (Northwest DNAPL Sources) and issued the RI report to EPA and Kentucky.
- Completed the remedy selection process and issued a ROD for WAGs 1 and 7 which selected engineering and institutional controls, as well as long-term monitoring, as the preferred remedy for the seep areas in the creek bank adjacent to the C-746-K Landfill.
- Expedited removal of 162 cubic yards of PCB-contaminated soils under the WAG 23 Project.
- Developed and issued RI work plans for WAG 28 (northeast DNAPL sources), WAG 8 (Electric Switchyards), and WAG 3 (Burial Grounds).
- Completed the Feasibility Studies for WAG 22, C-749 burial ground, and burial areas associated with SWMUs 7 and 30 in the northwest corner of the plant.
- Revised the remedial action strategy under the Site Management Plan to reflect accomplishment of site-wide remedial objectives as opposed to a SWMU-by SWMU approach, which has the potential to save approximately $50M from gained efficiencies and reduced documentation costs.

Attachment 1

PADUCAH
ENFORCEABLE COMMITMENTS

SUBPROJECT	FY 1999	FY 2000	FY 2001	COMMENTS
WAGs 1&7	D1 Postconst Rpt (03/15/99)	D1 O&M Plan (06/21/00)		
WAG 6	D1 TS Report (02/15/99)			FS will be completed under the GW OU interim action
WAG 27	D1 RI Rpt (01/03/99)*			FS will be completed under the GW OU interim action
WAG 28	Field start	D1 RI Rpt (01/26/00)*		FS will be completed under the GW OU interim action
GW OU (Interim Action)	FS Phase	D1 RI/FS Rpt (06/18/00)* D1 PP (11/26/00)*	D1 ROD (05/20/01)* DOE ROD signature (09/02/01) RD start	Includes, but not limited to, groundwater sources from WAGs 6, 27, and 28 and off-site plumes in WAG 26. Final action decision will be addressed under the CSOU
Lasagna	D1 RD Rpt (03/19/99)* D1 Construction QC Plan (03/19/99) D1 RA WP (03/19/99)* RA start D1 O&M Plan (04/07/99)	D1 Postconst Rpt (01/24/00) O&M activities	O&M activities	
WAG 3	Field start	D1 RI Rpt (08/02/00)*		FS/PP/ROD will be completed under Surface Soil/Burial Grounds OU interim action after scrap removal
WAG 22 (SWMUs 7&30)	Complete FS			PP/ROD will be completed under Surface Soil/Burial Grounds OU interim action after scrap removal

Attachment 1

PADUCAH
ENFORCEABLE COMMITMENTS

SUBPROJECT	FY 1999	FY 2000	FY 2001	COMMENTS
WAG 8	Field start	D1 SE Rpt (06/22/00)*		SE data will be used to support RI/FS for Surface Water OUs interim action. Final action will be conducted under D&D
WAGs 9&11	D1 SE Rpt (12/29/98)*			SE data will be used to supplement the RI/FS which will be conducted under Surface Soil OU interim action
WAG 23	D1 PP (12/07/98)* D1 ROD (05/16/99)* DOE ROD signature (09/06/99)			Assumes a 30-day regulator review for D1 PP
WAG 24	D1 EE/CA (05/27/99)*	D1 Action Memo* RA start	Continue scrap removal	Fieldwork scheduled for completion by end of FY 2003. D1 RI/FS WP scheduled for submittal in FY 2003 under Surface Soil/Burial Grounds interim action
Surface Water OU (Interim Action)	D1 RI/FS Scoping Doc (04/06/99) D1 RI/FS WP (09/30/99)*	Field start	RI Phase	Includes WAGs 18&25 and suspected sources. Final action decision will be addressed under the CSOU
Surface Soils OU (Interim Action)		D1 RI/FS Scoping Doc (04/06/00)* D1 RI/FS WP (09/30/00)*	Field start	Excludes WAGs 24, 22, and 3, which will be conducted under the Surface Soil/Burial Grounds OU after scrap removal. Final action decision will be addressed under the CSOU

Attachment 1

PADUCAH
ENFORCEABLE COMMITMENTS

SUBPROJECT	FY 1999	FY 2000	FY 2001	COMMENTS
NE Plume IRA	O&M activities	O&M activities Five-Year ROD Review (05/15/00)*	O&M activities	Future operation will be addressed under ROD for GW OU interim action
NW Plume IRA	O&M activities	O&M activities	O&M activities	Future operation will be addressed under ROD for GW OU interim action
WAG 22 (SWMU 2)	Complete FS D1 PP (10/21/98)* D1 ROD (05/03/99)*	DOE ROD signature (10/06/99)	RA start	
N-S Ditch IRA	Five-Year ROD Review (03/28/99) O&M activities	O&M activities	O&M activities	
SMP	11/15/98*	11/15/99*	11/15/00*	

*Denotes primary documents designated as enforceable timetables and deadlines under the FFA.

Note:
All submittal dates assume FFA review time frames are followed, with exception of WAG 23 which assumes a 30-day regulatory review period for the Proposed Plan, as opposed to a 45-day review.

Fact Sheet
FY 2001 Budget Update

Background

- The Congressional budget process consists of a two-year cycle:
  - FY 1999 budget was prepared and submitted in FY 1997
  - FY 2000 budget was prepared and submitted in FY 1998

- DOE is currently in the process of developing its FY 2001 budget request to Congress, which will be documented in the Project Baseline Summaries due to DOE-HQ on April 15, 1999.

- The Federal Facility Agreement and Site Treatment Plan Agreed Order provide EPA and Kentucky the opportunity to review DOE's budget request, prior to submittal, to ensure adequate funding is requested to meet regulatory obligations.

Prioritization Process

- DOE historically used the Environmental Management Risk-Based Prioritization (EMRP) system, risk-based methodology, as the basis for establishing budget priorities within ORO.

- That system was recently replaced with a new ranking process that accounts for enforceable commitments, contracting strategies, construction approaches, and other completion-oriented logic.

- Under the revised ranking criteria outlined in Attachment 1, imminent risks are the first priority followed by enforceable commitments. All Category 15 activities (operations) were automatically funded and not subject to prioritization.

Funding Levels

- DOE recently revised its lifecycle baseline for the entire Environmental Management Program (EM-40), which included the development of new schedules and estimates for FY 2000 and beyond.

- Attachment 2 depicts the total available funds for FY 1998 and FY 1999, the anticipated funding level for FY 2000 based on the Presidents budget request to Congress, and the Paducah funding request for FY 2001.

- Historically, DOE has rarely received the amount of funding from Congress that was included in DOE's annual budget request.

- The Office of Management and Budget (OMB) routinely provides DOE target funding levels that more closely resemble what Congress may allocate for a given budget year, which is also depicted in Attachment 2 for FY 2000.

- The OMB target for FY 2001 is approximately $5.5M less than the DOE request, which would result in deferral of Remedial Investigation fieldwork for the Surface Soils Operable Unit, and deferral of facility upgrades (fire protection, OSHA, etc.) for certain waste management facilities.

- Attachment 3 contains a detailed table outlining each Paducah project, the associated ranking, the FY 2001 budget request, and impacts under the Target Case.

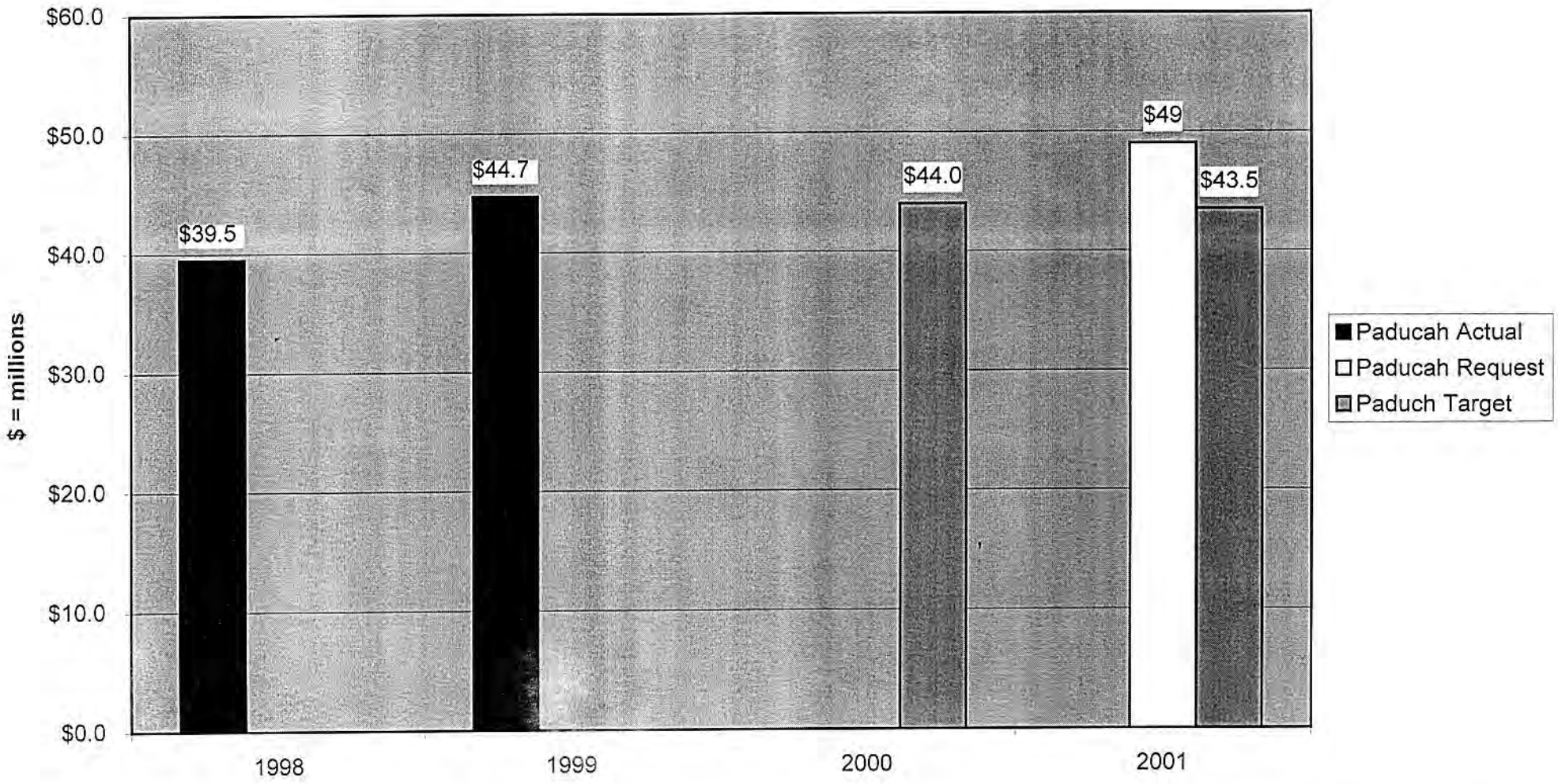
Attachment 1

Prioritization Categories
Decontamination and Decommissioning (D&D) Fund

High Priority	1	Imminent human health risk or safety hazard
	2	Enforceable agreements
	3	Paducah groundwater
	4	ETTP critical path
Balanced Criteria	5	Portsmouth remediation completion
	6	Paducah surface water
	7	ETTP D&D
	8	ETTP soils
	9	Paducah scrap metal/burial ground cap
	10	ETTP burial grounds
Low Priority	11	Paducah soils
	12	Paducah burial ground excavation
	13	Portsmouth legacy waste
	14	Paducah legacy waste
Operations	15	Operational activities, such as surveillance and maintenance and waste operations are not prioritized.

Attachment 2

D&D FUND
PADUCAH BUDGET SUMMARY



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Unescalated FY 1999 Dollars
($s x 1000)

Attachment 3

3/18/99

NEW_WBS	NEW_TITLE	Ranking	FY00 (President's Target)	FY01 (PGDP Request)	FY01 (OMB Target)	Target Impacts
04.01.01.01	PAD Surface Soils-Assessments	2	2,329	50	50	
04.01.01.02	PAD Burial Grounds-Assessments	2	6,039	660	660	
04.01.01.03	PAD Groundwater-Assessments	2	3,832	1,841	1,841	
04.01.01.04	PAD Surface Water-Assessments	2	2,082	2,276	2,276	
04.01.01.05	PAD UST Closures-Assessments	2	11	0	0	
04.01.02.05	PAD LASAGNA-Cleanup	2	467	442	442	
04.01.02.03	PAD Groundwater-Cleanup	2	0	248	248	
04.01.02.04	PAD Surface Water-Cleanup	2	0	0	0	
04.01.02.04	PAD Surface Water-Cleanup (Scrap Removal)	2	2,100	12,000	12,000	
04.03.01.01	PAD Low-Level Waste Projects (treatment)	2	2,972	309	309	
04.03.02.01	PAD Mixed Low-Level Waste Projects (characterization)	2	1,380	1,379	1,379	
04.03.02.01	PAD Mixed Low-Level Waste Projects (treatment)	2	3,015	1,793	1,793	
04.03.02.01	PAD Mixed Low-Level Waste Projects (disposal)	2	452	744	744	
04.03.04.01	PAD Hazardous Waste Projects	2	429	479	479	
04.01.02.02	PAD Burial Grounds-Cleanup (capping)	9	0	0	0	
04.01.01.01	PAD Surface Soils-Assessments (RIFS/PP/ROD)	11	0	3,110	0	RI fieldwork deferred
04.01.01.06	PAD Comprehensive Site-Wide OU (CSOU)	11	0	0	0	
04.01.02.01	PAD Surface Soils-Cleanup	11	0	0	0	
04.01.02.06	PAD CSOU-Cleanup	11	0	0	0	
04.01.02.02	PAD Burial Grounds-Cleanup (excavation)	12	0	0	0	
04.03.01.01	PAD Low-Level Waste Projects (disposal)	14	0	0	0	
04.03.02.01	PAD Mixed Low-Level Waste Projects (vortec)	14	1,470	1,069	1,069	
04.03.02.01	PAD Mixed Low-Level Waste Projects (disposal)	14	0	0	0	
04.03.03.01	PAD Transuranic Waste Projects	14	0	0	0	
04.03.01.01	PAD Low-Level Waste Projects (storage)	15	3,340	3,567	3,567	
04.03.02.01	PAD Mixed Low-Level Waste Projects (storage)	15	3,608	3,691	3,691	
04.03.02.01	PAD Mixed Low-Level Waste Projects (Facility Upgrades)	15	0	2,304	0	Deferred
04.03.05.01	PAD Sanitary Waste Projects	15	1,768	1,761	1,761	
04.02.01.01	PAD LT S&M Projects	15	6,016	6,952	6,952	
04.02.02.01	PAD Routine S&M Projects	15	1,880	2,534	2,534	
	Totals		43,190	47,210	41,796	

Trichloroethylene

Trichloroethylene released to the atmosphere will exist primarily in the vapor phase based on its relatively high vapor pressure. It will react fairly rapidly, especially under smog conditions. Atmospheric residence time of 5 days has been reported with formation of phosgene, dichloroacetyl chloride, and formyl chloride. It is not subject to direct photolysis. If trichloroethylene is released to water, the primary removal process will be evaporation with a half-life of minutes to hours, depending upon turbulence. Biodegradation, hydrolysis, and photooxidation are extremely slow by comparison. Adsorption to sediment and bioconcentration in aquatic organisms are not important processes. Releases to soil will be partially evaporated and partially leached into ground water, where it may remain for a long time. However, there is some monitoring data that suggests degradation to other chlorinated alkenes. High levels of exposure are expected for workers in degreasing plants due to inhalation of vapors or adsorption through the skin. Lower exposure by inhalation is expected in persons living near degreasing plants or at spill sites. Broad population exposure to low levels is expected from inhalation of contaminated ambient air and ingestion of contaminated drinking water.

Natural Sources:

Artificial Sources: Air emissions from metal degreasing plants [11] are likely. Wastewater from metal finishing, paint and ink formulation, electrical/electronic components, and rubber processing industries contain trichloroethylene [56].

Terrestrial Fate: Spills or releases of trichloroethylene to soil will evaporate rapidly due to its reasonably high vapor pressure. It will also leach into ground water rapidly. Trichloroethylene appears to be fairly stable in soil although one field study of ground water contamination from a leaking trichloroethylene tank has detected cis- and trans-1,2-dichloroethylene [39] which suggests that degradation in ground water can occur. Hydrolysis is not an important process.

Aquatic Fate: The primary removal process will be evaporation [18,57] with a half-life of minutes to hours, depending upon turbulence. Biodegradation, hydrolysis, and photooxidation are extremely slow by comparison. Adsorption to sediment and bioconcentration in aquatic organisms are not important processes [18].

Sandia National Laboratories
Operated for the U.S. Department of Energy by
Sandia Corporation
Albuquerque, New Mexico 87185-0755

date: March 12, 1999

to: Paducah ITRD Project
Technical Advisory Group Participants

from: Mike Hightower and Ken Kuzio

subject: Next Paducah ITRD Project Meeting

The next meeting of the Paducah ITRD Project will be held on Thursday and Friday morning April 22-23, 1999 at the Hilton Greater Cincinnati Airport. The agenda for this meeting is attached, and is based on technology discussions from the March 10th and 11th conference calls. A block of rooms has been reserved at the government rate at the Hilton for this meeting. Directions to the Hilton Greater Cincinnati Airport and reservations information are included with this letter.

The purpose of the meeting is to:

- Discuss technical information on previously identified technologies.
- Assess these options and possible strategies, and
- Identify appropriate technologies for more in-depth evaluation.

We have allotted approximately 30-45 minutes for each presenter to discuss the basic capabilities and applications of these technologies. The presentations should include:

- Background on the technology including the type and the number of applications to date (technical basis, overall maturity, and acceptability),
- Most appropriate application areas (vadose zone, DNAPL, ground water, etc.),
- Range of possible technology performance in terms of contaminant reduction levels and required duration,
- Range of probable costs ($/yd, $/gal, $/ft^2, etc.) for deployment,
- Affect on associated co-contaminants, positive or negative,
- Types and amount of wastes that might be generated.

Following this format will help participants to assess technologies relative to the criteria we developed at our initial kick-off meeting. This will also help us identify those technologies that need to be evaluated in more depth, ways to combine technologies to develop the most cost-effective remediation strategies, and technology areas needing site-specific evaluation or testing.

If you have any questions or need additional information, please contact Mike Hightower at 505-844-5499, mmhight@sandia.gov or Ken Kuzio at 505-284-3145 or kakuzio@sandia.gov. Please let us know if you will or will not be attending this meeting.

PADUCAH ITRD MEETING
APRIL 22-23, 1999
HOTEL INFORMATION

The next meeting of the Paducah ITRD Project will take place at the Hilton Greater Cincinnati Airport on April 22-23, 1999. The Hilton is located on the south side of the Greater Cincinnati Airport at 7373 Turfway Road in Florence, Kentucky.

A block of rooms has been reserved at the Hilton for Wednesday and Thursday at a government rate of $76/night. Reservations can be made by calling the hotel directly at 606-371-4400, or 1-800-HILTONS, or through the web at www.hilton.com. Please let them know you are attending the Sandia National Laboratories conference. Cut-off for date the government rate is April 7, 1999. After that date rooms rates will be on an as available basis, so please make your reservations if possible before April 7.

The Hilton provides a free shuttle to and from the Greater Cincinnati Airport. Courtesy phones are available in the airport lobby. For those who may be driving to the meeting, the Hilton Greater Cincinnati Airport is about 10 miles south of Cincinnati at the intersection of I-75 and Turfway Rd.

DOE SITE-WIDE EIS EXPERIENCE SUMMARY

Hanford -- Relies on existing EIS's, a comprehensive land-use plan/EIS and CERCLA documents instead of site-wide EIS. (Hanford RA EIS is still in draft after 8 years, and was originally intended to analyze cumulative impacts of all Hanford CERCLA actions. DOE has changed the scope of the HRA EIS to a comprehensive land-use plan. Hanford is currently 4 years behind schedule in preparation of a site-wide EIS because no funding from Environmental Management (EM)* available.

Lawrence Livermore National Lab -- Completed site-wide EIS. A 5-year evaluation of the EIS is currently being prepared. Renewal of the University of California contract to operate the site triggered an EIS under the California Environmental Quality Act. Site-wide EIS has covered some new actions proposed under the Record of Decision (ROD). Some of the new actions are small and consistent with the activities analyzed in the EIS, while others have required individual NEPA review. Defense Programs (DP) funded the EIS.

Rocky Flats -- Site-wide EIS started 9/90. Placed on hold until completion of WM PEIS and the resulting RODs.

Los Alamos National Lab -- Site-wide EIS started 5/94. Final issued 2/19/99. ROD scheduled 3/99 (58 months from start). Contractor removed by DOE in Oct. '97 a possible factor in delays. EIS funded through Defense Programs.

Oak Ridge -- DOE ORO may prepare Site-wide EIS for Y-12 (weapons facility) site only. Would be funded by Defense Programs..

Pantex -- Site-wide EIS finished 1/27/97, $15.7 million, 30 months to complete. (Driver was concern about number and configuration of plutonium pit storage. Limited to 12,000 until EIS completed). Funded by Defense Programs.

Nevada Test Site -- Site-wide EIS finished 12/13/96, $10.4 million, 26 months to complete. Funded by Defense Programs.

Sandia -- Determination to conduct site-wide EIS 8/96. Notice of Intent published in Federal Register 5/30/97. Sheduled to be completed 7/99, 35 months. (Analyze all operations and planned activities over 10-year period.) EIS was funded through Defense Programs.

* Since Secretarial Policy on NEPA was issued in 1994, no Environmental Management sponsored EIS's have been completed.

Date:

To: David Allen

From: W. D. Tidwell

Subject: **National Environmental Policy Act (NEPA) Categorical Exclusion (CX) 1999 Legacy Waste Shipments from the Paducah Site, Paducah, Kentucky, CX-PAD-99-3**

The Department of Energy (DOE) proposes to ship various legacy wastes to two treatment or disposal facilities in 1999. DOE may ship additional wastes in 1999, as funding is available. The two proposed receiving facilities have the appropriate permits for the type of waste shipped. The legacy wastes to be removed and shipped are classified as low-level mixed waste, currently stored on the Paducah Site. The two proposed shipments are listed in Table 1.

Table 1. Proposed 1999 Legacy Waste Shipments

Purpose of Shipment	Facility	Quantity of Shipment	Quantity Routinely Handled at the Receiving Site
Treatment and Disposal	Envirocare	2,280 cubic feet	320,000 cubic feet annually
Treatment and Subsequent Appropriate Disposal by INEEL	INEEL	9,538 kg	227,000 kg annually

Each waste shipment would be handled in accordance with the appropriate regulations, orders, and guidance including Department of Transportation regulations. The receiving facilities would have the appropriate permits, and routinely handle the type of waste to be shipped. The Paducah Site waste would be a small portion of the waste received at each facility, as shown in Table 1. A major expansion of the receiving waste facilities would not be required.

The proposed action would not disturb existing contaminants previously released to the environment. No potential historic or sensitive resource impacts are anticipated from the proposed action. The shipments would pose no threat of significant individual or cumulative environmental effects. The described action would not be part of an ongoing environmental assessment or environmental impact statement. No extraordinary circumstances would be related to this action, and the proposal would not be connected to other actions with potentially significant impacts.

This description accurately describes the proposed transfer actions. These actions fulfill the requirements of the categorical exclusion B1.30 ,"Transfer actions in which the predominant activity is transportation, and in which the amount and type of materials, equipment or waste to be moved is small and incidental to the amount of such materials, equipment, or waste that is already part of ongoing operations at the receiving site. " Such transfers are not regularly scheduled as part of ongoing routine operations in DOE NEPA Implementing Procedures, 10 CFR 1021, Subpart D, Appendix B as amended August 8, 1996. Therefore, I recommend that the proposed actions be categorically excluded from further NEPA review and documentation.

W.D. Tidwell, DOE PAD, Program Manager

3-2-99
Date

Based on my review and the recommendation of the DOE Program Manager, I have determined that the proposed action is categorically excluded from further NEPA review and documentation.

David R. Allen, DOE ORO NEPA Compliance Officer

Date

c: S. E. Knaus/Kevil

DEPARTMENT OF ENERGY

Office of Arms Control and Nonproliferation Policy; Proposed Subsequent Arrangement

AGENCY: Department of Energy.

ACTION: Subsequent Arrangement.

SUMMARY: This notice is being issued under the authority of Section 131 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2160). The Department is providing notice of a proposed "subsequent arrangement" under the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy Between the Government of the United States of America and the European Atomic Energy Community (EURATOM).

This subsequent arrangement concerns the approval of RTD/RS(EU)-2 which involves the retransfer of U.S.-origin nuclear components including 632 pieces of stainless steel fuel guard, 649,690 meters of zircaloy fuel cladding tubes, 7,296 pieces of zircaloy spacers, and 1,480 kilograms of zircaloy end-plug from Germany to the Elektrostal Nuclear Fuel Fabrication Facility in Moscow, Russia for fabrication of fuel assemblies. Siemens AG will then sell the fuel assemblies to nuclear power plants in western Europe.

This request is the commercial phase of a three-part cooperation between Siemens AG and Elektrostal. DOE approved the qualification phase and test phase in January 1995 and April 1998, respectively. The Russian government has confirmed that the assurances it gave in 1994 for the transfer of zircaloy fuel cladding tubes, confirming no nuclear explosive or other military use and no retransfer except to Western European countries without prior U.S. consent, would apply equally to the transfer of fuel guards, spacers, and end-plugs.

In accordance with Section 131 of the Atomic Energy Act of 1954, as amended, we have determined that this subsequent arrangement will not be inimical to the common defense and security.

This subsequent arrangement will take effect no sooner than fifteen days after the date of publication of this notice.

Dated: March 9, 1999.

For the Department of Energy.

Terry Tyborowski,

Acting Director, International Policy and Analysis Division, Office of Arms Control and Nonproliferation.

[FR Doc. 99-6477 Filed 3-16-99; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

DOE Response to Recommendation 98-2 of the Defense Nuclear Facilities Safety Board, Safety Management at the Pantex Plant

AGENCY: Department of Energy.

ACTION: Notice.

SUMMARY: The Defense Nuclear Facilities Safety Board published Recommendation 98-2, concerning the safety management at the Pantex plant, on October 7, 1998 (63 FR 53884). Under section 315(e) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2286d(e), the Department of Energy must transmit an implementation plan on Recommendation 98-2 to the Defense Nuclear Facilities Safety Board by March 10, 1999, or submit a notification of extension for an additional 45 days. The Secretary's notification of extension for an additional 45 days follows.

ADDRESSES: Send comments, data, views, or arguments concerning the Secretary's notification to: Defense Nuclear Facilities Safety Board, 625 Indiana Avenue, NW, Suite 700, Washington, DC 20004.

FOR FURTHER INFORMATION CONTACT: Mr. Gene Ives, Deputy Assistant Secretary for Military Application and Stockpile Management, Defense Programs, Department of Energy, 1000 Independence Avenue, SW, Washington DC, 20585.

Issued in Washington, DC, on March 11, 1999.

Mark B. Whitaker, Jr.,

Departmental Representative to the Defense Nuclear Facilities Safety Board.

March 10, 1999.

The Honorable John T. Conway,
Chairman
Defense Nuclear Facilities Safety Board 624 Indiana Avenue, NW, Suite 700, Washington, DC 20004.

Dear Mr. Chairman: This is to notify you, pursuant to 42 U.S.C. 2286d(e), that the Department of Energy will require an additional 45 days to transmit the implementation plan for addressing the issues raised in the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, "Safety Management at the Pantex Plant." The additional time will be beneficial for both the Department and the DNFSB to assure the implementation plan represents a comprehensive approach to this complex issue.

Mr. Gene Ives, Deputy Assistant Secretary for Military Application and Stockpile Management, will further discuss the implementation plan with you on March 9, 1999. Together, we can then determine the appropriate commitments for incorporation into the implementation plan. The implementation plan will be provided to the DNFSB by April 23, 1999.

Yours sincerely,

Bill Richardson,

[FR Doc. 99-6478 Filed 3-16-99; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

Site-Wide Environmental Impact Statement (SWEIS); Oak Ridge Y-12 Plant

AGENCY: U.S. Department of Energy (DOE).

ACTION: Notice of Intent (NOI).

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA), DOE announces its intent to prepare a Site-Wide Environmental Impact Statement (SWEIS) for the Oak Ridge Y-12 Plant (Y-12), DOE's primary site for enriched uranium operations and storage related to the nation's nuclear weapons program. The SWEIS will analyze current levels of Y-12 operations and foreseeable new operations and facilities for approximately the next ten years. The alternatives to be analyzed in the SWEIS include: an extensive upgrade/retrofit of existing processes and facilities; construction of new facilities to replace existing processes and facilities; a combination of upgrades of existing processes and facilities and new construction; and the No Action alternative. The No Action alternative is to continue current facility operations throughout Y-12 in support of assigned missions. There is no preferred alternative at this time. The purpose of this notice is to invite public participation in the process and to encourage public dialogue on the alternatives that should be considered.

DATES: The DOE invites other federal agencies; state, local and tribal governments; and the general public to comment on the scope of this SWEIS. The public scoping period starts with the publication of this Notice in the **Federal Register** and will continue until May 17, 1999. DOE will consider all comments received or postmarked by that date in defining the scope of this SWEIS. Comments received or postmarked after that date will be considered to the extent practicable. Public scoping meetings will be held in the Oak Ridge area and their dates, times, and locations will be published in local newspapers and other appropriate media.

The DOE is requesting, by separate correspondence and this Notice, that federal and state government agencies desiring to be designated as cooperating

agencies on the Y–12 SWEIS inform DOE by April 30, 1999.

ADDRESSES: Written comments or suggestions to assist the DOE in identifying the appropriate scope of the Y–12 SWEIS should be directed to: Gary S. Hartman, SWEIS Document Manager, U.S. Department of Energy, Oak Ridge Operations Office, Post Office Box 2001, Oak Ridge, Tennessee 37831, or by facsimile at (423) 576–1237, or by E-Mail at Y12EIS@oro.doe.gov.

For general information on the DOE NEPA process, please contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Assistance, EH–42, U.S. Department of Energy, 1000 Independence Avenue SW, Washington, D.C. 20585.

Ms. Borgstrom can also be reached at (202) 586–4600, or by leaving a message at 1–800–472–2756.

Additional information regarding DOE NEPA activities and access to many NEPA documents is available on the Internet through the NEPA Home Page at http://www.eh.doe.gov/nepa.

SUPPLEMENTARY INFORMATION:

Background

The DOE is the federal agency responsible for providing the nation with nuclear weapons and ensuring that those weapons remain safe and reliable. As one of the DOE major production facilities, Y–12 has been DOE's primary site for enriched uranium processing and storage, and one of the primary manufacturing facilities for maintaining the U.S. nuclear weapons stockpile. Y–12 is located on the Oak Ridge Reservation (ORR), approximately 40 km (25 mi) west of Knoxville, Tennessee. For purposes of the SWEIS, the Y–12 Site is defined as approximately 5,000 acres of the 34,516 acre ORR, bounded by the DOE Boundary and Pine Ridge to the north, Scarboro Road to the east, Bethel Valley Road to the south, west to Mount Vernon Road, and then extending west down Bear Creek Valley to the security fence-line near the Roane/Anderson County boundary. Y–12 has a current annual budget of approximately $460 million and houses approximately 5,000 employees on site.

Nondefense-related activities at the Y–12 Plant include environmental monitoring, remediation, and deactivation and decontamination activities of the Environmental Management Program; management of waste materials from past and current operations; research activities operated by the Oak Ridge National Laboratory; support of other federal agencies through the Work-for-Others Program; and the transfer of highly specialized technologies to support the capabilities of the U.S. industrial base.

In response to the end of the Cold War and changes in the world's political regimes, the emphasis of the U.S. weapons program has shifted dramatically over the past few years from developing and producing new weapons to dismantlement and maintenance of a smaller, enduring stockpile. Even with these significant changes, however, DOE responsibilities for the nuclear weapons stockpile continue, and the President and Congress have directed DOE to continue to maintain the safety and reliability of the nuclear weapons stockpile.

In order to meet the challenges of the post-Cold War era, DOE has prepared several Programmatic Environmental Impact Statements (PEISs) to determine how best to carry out its national security requirements. The Stockpile Stewardship and Management PEIS (SSM PEIS, DOE/EIS–0236), which was completed in September 1996, evaluated alternatives for maintaining the safety and reliability of the nuclear weapons stockpile without underground nuclear testing or production of new-design weapons. The Storage and Disposition of Weapons-Usable Fissile Material PEIS (S&D PEIS, DOE/EIS–0229), which was completed in December 1996, evaluated alternatives for the long-term storage of fissile material, and the disposition of surplus fissile material. The Records of Decision (RODs) from these two PEISs form a starting point for the scope of actions that are contemplated in this Y–12 SWEIS.

In the SSM PEIS ROD, DOE decided to maintain the national security missions at Y–12, but to downsize the plant consistent with reduced requirements. These national security missions include: (1) maintaining the capability to fabricate uranium and lithium components and parts for nuclear weapons, (2) evaluating components and subsystems returned from the stockpile, (3) storing enriched uranium that is designated for national security purposes (also referred to as non-surplus enriched uranium), (4) storing depleted uranium and lithium materials and parts, (5) dismantling nuclear weapon secondaries returned from the stockpile, (6) processing uranium (which includes chemical recovery, purification, and conversion of enriched uranium to a form suitable for long-term storage and/or further use), and (7) providing support to weapons laboratories. In the S&D PEIS ROD, DOE decided that Y–12 would also store surplus enriched uranium pending disposition.

The DOE NEPA strategy for both the SSM and the S&D programs consists of multiple phases. The first phase was to prepare PEISs (now completed) to support program-wide decisions. In the second phase, DOE would prepare any necessary site-wide and/or project-specific NEPA documents required to implement any programmatic decisions. This Y–12 SWEIS is the next step for DOE's NEPA strategy for the Y–12 Plant. As such, the proposals in this NOI are consistent with previous decisions of the DOE in the PEIS RODs to downsize the Y–12 Plant and store non-surplus and surplus enriched uranium. As described in the "alternatives" section of this NOI, DOE is proposing several different approaches to carrying out these missions.

Public scoping meetings held in the Oak Ridge area will facilitate dialogue between DOE and the public and provide an opportunity for individuals to provide written or oral statements. In addition to providing comments at the public scoping meetings, all interested parties are invited to record their comments, ask questions concerning the Y–12 SWEIS, request time to speak, request assistance for special needs at the public meetings (e.g., an interpreter for the hearing impaired or special access), or request to be placed on the Y–12 SWEIS mailing or document distribution list. This may be done by contacting the SWEIS Document Manager at the address given above.

Proposed Action

DOE proposes to continue to provide the capability and capacity to maintain the nation's stockpile, in support of the U.S. Nuclear Weapons Program. Further, DOE proposes to continue the processing and storage of enriched and depleted uranium, lithium compounds, and other materials; and the manufacturing and assembly/disassembly mission assigned to the Y–12 Plant in the safest and most efficient manner practicable. The SWEIS will provide a baseline of impacts associated with current activities, analyze the potential impacts of constructing a new enriched uranium storage facility, and address siting issues associated with other possible modernization projects.

Alternatives to be Analyzed

As described below, DOE will analyze three broad alternatives involving upgrades of existing facilities, construction of new facilities, and a combination of these two approaches. Analysis will be performed at a level of detail sufficient to enable DOE to make

decisions regarding approach (i.e., upgrade or construct) and location (i.e., where on the site) for each function or activity. Environmental considerations will be addressed for footprint reduction activities as Y–12 surplus facilities are transitioned into the Environmental Management program consistent with the SSM PEIS and the Department's Lifecycle Asset Management Order. For most major functions or activities, additional NEPA evaluations would be required as more detailed information becomes available in order to make subsequent decisions regarding construction and operation. However, as an exception to this general approach, DOE will analyze the potential impacts of designing, constructing, and operating a new enriched uranium storage facility, for which conceptual design has begun and sufficient information is available.

Under the Upgrade Alternative, the SWEIS will assess impacts from extensive upgrade/retrofit of existing processes and facilities, such as: enriched uranium manufacturing, depleted uranium manufacturing, lithium manufacturing, assembly/disassembly, general manufacturing, office facilities, and other support facilities.

Under the Construction Alternative, the SWEIS will assess the impacts of replacing existing processes and facilities with newly designed and constructed processes and facilities, such as: enriched uranium manufacturing, depleted uranium manufacturing, lithium manufacturing, assembly/disassembly, general manufacturing, office facilities, and other support facilities.

Under the Upgrade/Construction Alternative, the SWEIS will assess the impacts of the combination of extensive upgrades to certain existing processes and facilities and the design and construction of certain new processes and facilities. This alternative will include a combination of both existing upgraded/new processes and facilities, such as: enriched uranium manufacturing, depleted uranium manufacturing, lithium manufacturing, assembly/disassembly, general manufacturing, office facilities, and other support facilities.

The No Action Alternative would continue current facility operations throughout Y–12 in support of assigned missions. NEPA regulations require analysis of the No Action alternative to provide a benchmark for comparison with environmental effects of the other alternatives. This alternative reflects the current nuclear weapons program missions at Y–12, and includes the manufacture and assembly/disassembly of weapons components, and the continued processing and storage of enriched uranium materials in existing facilities. As specified in the SSM PEIS and the S&D PEIS, these operations would continue in a reduced footprint of consolidated operations. This alternative also includes environmental considerations of footprint reduction activities as Y–12 surplus facilities are transitioned into the Environmental Management program consistent with the SSM PEIS and the Department's Lifecycle Asset Management Order. Limited upgrades of existing facilities are underway and their completion would be included in the No Action alternative.

Other Alternatives Considered

Members of the public have in the past expressed interest in shutting down all operations at Y–12 and deactivating some or all facilities. As discussed in the Background section above, DOE has considered these suggestions in previous PEIS documents. DOE recognizes that Y–12 has unique capabilities and diverse roles supporting a variety of national programs, and that there is an essential near-term need to manage and maintain the safety and stability of the existing nuclear materials inventory. In addition, the *National Security Strategy for a New Century*, issued by The White House in October 1998, emphasizes the need to "ensure the continued viability of the infrastructure that supports U.S. nuclear forces and weapons." Accordingly, the DOE view at this time is that a decision to shut down or further reduce Y–12 missions within the time frame of the SWEIS would be highly unlikely. Therefore, DOE does not plan to analyze an alternative involving an orderly shutdown or further reduction during this period.

The Role of the SWEIS in the DOE NEPA Compliance Strategy

The SWEIS will be prepared pursuant to the NEPA of 1969, 42 USC 4321 et seq., the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500–1508) and the DOE NEPA regulations (10 CFR Part 1021). The DOE has a policy (10 CFR 1021.330) of preparing SWEISs for certain large, multiple-facility sites such as Y–12. The purpose of a SWEIS is to: (1) provide DOE and its stakeholders with an analysis of the individual and cumulative environmental impacts resulting from ongoing and reasonably foreseeable new operations and facilities (and reasonable alternatives) at a DOE site; (2) provide a basis for site-wide decision making; and (3) improve and coordinate agency plans, functions, programs, and resource utilization. A SWEIS can be used to efficiently and effectively analyze multiple proposals and help establish an efficient, environmentally sound, and cost-effective plan for operating the site and its facilities. Additionally, a SWEIS provides an overall NEPA baseline for a site that is useful as a reference when project-specific NEPA documents are prepared. The NEPA process allows for federal, state, tribal, county, municipal, and public participation in the environmental review process.

In accordance with 10 CFR 1021.330(d), DOE will evaluate the SWEIS at least every five years after its completion to determine whether it remains adequate, should be supplemented, or should be replaced with a new SWEIS.

The Y–12 Site-Wide Analysis

The SWEIS will address operations and activities that DOE foresees at Y–12 for the ten years following the publication of the ROD. The SWEIS is expected to facilitate and streamline subsequent NEPA reviews at Y–12 by allowing DOE to focus on project-specific issues and narrow and simplify the scope of later reviews. This process is called "tiering" (40 CFR 1508.28). DOE believes that the SWEIS analysis will provide adequate NEPA analysis for impacts related to existing and reasonably foreseeable activities and projects covered within the SWEIS.

Preliminary Environmental Analysis

The following issues have been identified for analysis in the SWEIS. The list is tentative and intended to facilitate public comment on the scope of this SWEIS. It is not intended to be all-inclusive, nor does it imply any predetermination of potential impacts. The DOE specifically invites suggestions for the addition or deletion of items on this list.

1. Potential effects on the public and workers from exposures to radiological and hazardous materials during normal operations, construction, and credible accident scenarios.
2. Impacts on surface and groundwater, floodplains and wetlands, and on water use and quality.
3. Impacts on air resources.
4. Impacts to plants and animals and their habitat, including species which are federal- or state-listed as threatened or endangered, of special concern, or economically/recreationally important.
5. Impacts on physiography, topography, geology, and soil characteristics.

6. Impacts to cultural resources such as historic, archaeological, scientific, or culturally important sites.

7. Socioeconomic impacts to affected communities.

8. Environmental Justice, particularly whether or not activities at Y-12 have a disproportionately high and adverse effect on minority and low-income populations.

9. Potential impacts on land use plans, policies, and controls.

10. Transportation of radiological and hazardous materials on and off the Y-12 Plant.

11. Pollution prevention and waste management practices and activities.

12. Impacts on aesthetics and noise levels of the Y-12 facilities on the surrounding communities and ambient environment.

13. Unavoidable adverse impacts due to natural phenomena (e.g., floods, earthquakes, etc.),

14. Cumulative effects of past, present, and future operations within the Y-12 region of influence.

15. Reasonably foreseeable impacts associated with the shutdown of excess facilities.

16. Status of compliance with all applicable federal, state, and local statutes and regulations; required federal and state environmental consultations and notifications; and DOE orders on environmental protection and waste management.

Related NEPA Reviews

The following is a list of recent NEPA and other documentation related to the scope of this SWEIS. The summaries below are intended to familiarize the reader with the purpose of these other NEPA reviews and how Y-12 is considered in them.

Programmatic NEPA Reviews

Stockpile Stewardship and Management PEIS (DOE/EIS-0236). A ROD was issued on December 19, 1996 (61 FR 68014, December 26, 1996). The DOE decided to maintain, but downsize, the weapons secondary and case component fabrication capability at Y-12.

Storage and Disposition of Weapons-Usable Fissile Materials PEIS (DOE/EIS-0229). A ROD was issued on January 14, 1997 (62 FR 3014, January 21, 1997). Oak Ridge, in particular Y-12, will continue to store non-surplus highly enriched uranium and surplus highly enriched uranium pending disposition in upgraded and consolidated facilities.

Waste Management PEIS (DOE/EIS-0200). The Final PEIS was issued in May 1997. Multiple RODs are being prepared for various categories of waste. A ROD for the Treatment of Non-Wastewater Hazardous Waste was issued on July 30, 1998 (63 FR 41810, August 5, 1998). The DOE decided to continue to use off-site facilities for the treatment of major portions of the non-wastewater hazardous waste generated at DOE sites. The ORR will treat some of its own non-wastewater hazardous waste on site, where capacity is available in existing facilities and where this is economically favorable. A ROD for Transuranic Waste was issued on January 20, 1998 (63 FR 3629, January 23, 1998). Transuranic waste at the ORR will be packaged to meet waste acceptance criteria for the Waste Isolation Pilot Plant (WIPP) in New Mexico and then stored on site for eventual disposal at the WIPP. Decisions for managing low-level radioactive waste, low-level radioactive and hazardous mixed waste, and high-level radioactive waste are still pending.

Project-Specific NEPA Reviews

Disposition of Surplus Highly Enriched Uranium EIS (DOE/EIS-0240). A ROD was issued on August 5, 1996 (61 FR 40619, August 5, 1996). The ORR, particularly Y-12, is one of four DOE sites selected for implementing blending technologies for highly enriched uranium.

Interim Storage of Enriched Uranium Environmental Assessment (EA) (DOE/EA-0929). A Finding of No Significant Impact (FONSI) was issued on September 14, 1995. This allowed for the continued interim storage of enriched uranium at Y-12, with an increase in the amount of material stored above the historical maximum level. The S&D PEIS, discussed above, confirmed and extended this mission beyond the ten years assessed in the EA.

Replacement and Operation of the Anhydrous Hydrogen Fluoride (AHF) Supply and Fluidized-Bed Chemical Processing Systems EA (DOE/EA-1049). A FONSI was issued on September 20, 1995. This allowed for replacement of the AHF supply and fluidized-bed reactor systems at Y-12 to meet operational and safety requirements and extend the life of the process by approximately 20 years.

ORR Related NEPA Reviews

Spallation Neutron Source (SNS) EIS (DOE/EIS-0247). The draft EIS was issued for review in December 1998. This document evaluates four alternative DOE sites for construction and operation of a new SNS facility. The preferred alternative is a site at the Oak Ridge National Laboratory (ORNL) on the ORR.

Lease of Land and Facilities Within the East Tennessee Technology Park (ETTP) EA (DOE/EA-1175). A FONSI was issued on December 1, 1997. The EA evaluated impacts of alternatives on future use and/or disposition of surplus facilities at the former K-25 Site on the ORR, and allowed for the lease of some facilities and land to commercial entities.

Long-Term Management and Use of Depleted Uranium Hexafluoride PEIS (DOE/EIS-0269). The final PEIS and ROD are scheduled to be issued in 1999. The ETTP is an alternative site for management and storage of this material.

Receipt and Storage of Uranium Materials from the Fernald Environmental Management Project Site EA (DOE/EA-1291). The draft EA was issued for review in February 1999. Y-12 and ETTP are among the candidates for storage of materials being removed in the cleanup effort at the Fernald site in Ohio.

Transuranic Waste Treatment Facility EIS (DOE/EIS-030J). An NOI was published in January 1999. DOE proposes to treat wastes at ORNL at a new facility to be constructed near the Melton Valley Storage Tanks, where the material is currently being stored.

Other Documents

Environmental, Safety and Health Vulnerabilities Associated with the Storage of Highly Enriched Uranium (HEU) (DOE/EH0525). This report was issued in December 1996; the related Management Plan (DOE/DP-0139) was issued in April 1997. In this report, the DOE evaluated 22 sites that handle and store HEU materials in a variety of forms, including disassembled weapons parts, reactor fuels, solids, solutions, and scrap and residues. Most of the HEU vulnerabilities identified at those sites, including Y-12, are associated with poor facility conditions and institutional weaknesses. Further analyses are being conducted on particular facilities and issues presented in the Vulnerability Assessment Report.

Report on the Remedial Investigation (RI) of the Upper East Fork Poplar Creek Characterization Area at the Oak Ridge Y-12 Plant (DOE/OR/01-1641/D2). The RI was issued in August 1998. The feasibility study that accompanies the RI is still in draft form. A ROD on remediation of the Upper East Fork Poplar Creek watershed will be issued in the future.

The SWEIS Preparation Process

After the scoping period, DOE will prepare the draft Y-12 SWEIS. Additional public meetings or

workshops may be scheduled during this time based on stakeholder interest. The DOE intends to complete the draft SWEIS in early 2000 and will announce its availability in the **Federal Register** and through local media. The DOE will hold public hearings to solicit comments on the draft SWEIS from the public, organizations, and other agencies, and will consider all comments in the preparation of the final SWEIS. The DOE intends to complete the final SWEIS in August 2000, and issue a ROD in October 2000, but at least 30 days after the Environmental Protection Agency's Notice of Availability of the final SWEIS is published in the **Federal Register**.

Classified Material

DOE will review classified material while preparing this SWEIS. Within the limits of classification, DOE will provide to the public as much information as possible to assist public understanding and comment. Any classified material DOE needs to use to explain the purpose and need for the action, or the uses, materials, or impacts analyzed in this SWEIS, will be segregated into a classified appendix or supplement, which will not be available for general public review. However, all unclassified results of calculations using classified data will be reported in the unclassified section of the SWEIS, to the extent possible in accordance with federal classification requirements.

Availability of Scoping Documents

Copies of all written comments and transcripts of all oral comments related to the Y-12 SWEIS will be available at the following locations:

The DOE Public Reading Room, 230 Warehouse Road, Building 1916-T-2, Suite 300, Oak Ridge, Tennessee 37831.

Oak Ridge Public Library, 1401 Oak Ridge Turnpike, Oak Ridge, Tennessee 37831.

Issued in Washington, D.C., this 11th day of March 1999, for the United States Department of Energy.

Peter N. Brush,

Principal Deputy Assistant Secretary, Environment, Safety and Health.

[FR Doc. 99-6481 Filed 3-16-99; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

Environmental Management Site-Specific Advisory Board, Rocky Flats

AGENCY: Department of Energy.

ACTION: Notice of Open Meeting.

SUMMARY: This notice announces a meeting of the Environmental Management Site-Specific Advisory Board (EM SSAB), Rocky Flats. The Federal Advisory Committee Act (Public Law 92-463, 86 Stat. 770) requires that public notice of these meetings be announced in the **Federal Register**.

DATES: Thursday, April 1, 1999: 6:00 p.m.-9:30 p.m.

ADDRESSES: College Hill Library, (Front Range Community College), 3705 West 112th Avenue, Westminster, CO.

FOR FURTHER INFORMATION CONTACT: Ken Korkia, Board/Staff Coordinator, EM SSAB-Rocky Flats, 9035 North Wadsworth Parkway, Suite 2250, Westminster, CO 80021, phone: (303) 420-7855, fax: (303) 420-7579.

SUPPLEMENTARY INFORMATION: Purpose of the Board: The purpose of the Board is to make recommendations to DOE and its regulators in the areas of environmental restoration, waste management, and related activities.

Tentative Agenda

1. Follow-up discussion on low-level waste disposition issues; responses to questions, comments, and inquiry requests from the Board.
2. Review and approve the Request for Proposal (RFP) and contract for the Community Radiation Monitoring (COMRAD) program.
3. Other Board business will be conducted as necessary.

Public Participation: The meeting is open to the public. Written statements may be filed with the Committee either before or after the meeting. Individuals who wish to make oral statements pertaining to agenda items should contact Ken Korkia at the address or telephone number listed above. Requests must be received 5 days prior to the meeting and reasonable provision will be made to include the presentation in the agenda. The Designated Federal Officer is empowered to conduct the meeting in a fashion that will facilitate the orderly conduct of business. Each individual wishing to make public comment will be provided a maximum of 5 minutes to present their comments at the beginning of the meeting.

Minutes: The minutes of this meeting will be available for public review and copying at the Freedom of Information Public Reading Room, 1E-190, Forrestal Building, 1000 Independence Avenue, SW, Washington, DC 20585 between 9:00 a.m. and 4 p.m., Monday-Friday, except Federal holidays. Minutes will also be available at the Public Reading Room located at the Board's office at 9035 North Wadsworth Parkway, Suite 2250, Westminster, CO 80021; telephone (303) 420-7855. Hours of operation for the Public Reading Room are 9:00 a.m. and 4:00 p.m. on Monday through Friday. Minutes will also be made available by writing or calling Deb Thompson at the Board's office address or telephone number listed above.

Issued at Washington, DC on March 11, 1999.

Rachel M. Samuel,

Deputy Advisory Committee Management Officer.

[FR Doc. 99-6479 Filed 3-16-99; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

International Energy Agency Meeting

AGENCY: Department of Energy.

ACTION: Notice of Meeting.

SUMMARY: The Industry Advisory Board (IAB) to the International Energy Agency (IEA) will meet March 25, 1999 at the headquarters of the International Energy Agency in Paris, France.

FOR FURTHER INFORMATION CONTACT: Samuel M. Bradley, Acting Assistant General Counsel for International and Legal Policy, Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585, 202-586-6738.

SUPPLEMENTARY INFORMATION: In accordance with section 252(c)(1)(A)(i) of the Energy Policy and Conservation Act (42 U.S.C. 6272(c)(1)(A)(i)), the following meeting notice is provided:

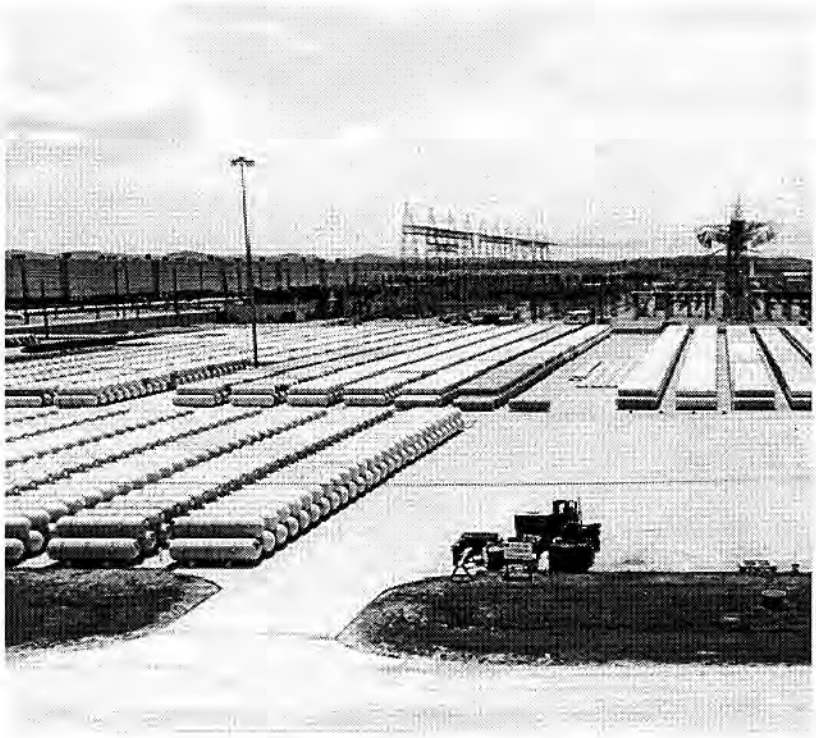
A meeting of the Industry Advisory Board (IAB) to the International Energy Agency (IEA) will be held on March 25, 1999, at the headquarters of the IEA, 9 rue de la Federation, Paris, France, beginning at approximately 9:00 a.m. The purpose of this meeting is to permit attendance by representatives of U.S. company members of the IAB at a meeting of the IEA's Standing Group on Emergency Questions (SEQ) scheduled to be held at the IEA's offices on March 25, including a preparatory encounter among company representatives from approximately 9:00 a.m. to 9:30 a.m. The Agenda for the preparatory encounter among company representatives is to elicit views regarding items on the SEQ's Agenda. The Agenda for the SEQ meeting is under the control of the SEQ. It is expected that the SEQ will adopt the following Agenda:

1. Adoption of the Agenda
2. Approval of the Summary Records of the 93rd and 94th Meetings
3. SEQ Work Program
   - The 1999 SEQ Work Program
   - First Elements of the Year 2000

U.S. Department of Energy

Initial Plan for the Conversion of Depleted Uranium Hexafluoride

As Required by Public Law 105-204



Office of Nuclear Energy, Science and Technology
U.S. Department of Energy

Initial Plan for the Conversion of Depleted Uranium Hexafluoride

Executive Summary

One of the more significant legacies left with the Department of Energy after the privatization of the United States Enrichment Corporation (USEC) is the large inventory of depleted uranium hexafluoride (DUF_6) located at the three gaseous diffusion plant sites. Some 700,000 metric tons of DUF_6 is being stored at the Paducah site in Kentucky, the Portsmouth site in Ohio, and the East Tennessee Technology Park (ETTP) in Tennessee.

This material is a stable but toxic, granular solid, much of which has been stored for long periods. The advanced age of some of the steel cylinders in which the DUF_6 is contained, and the way in which the cylinders were originally arranged (sometimes too close together to permit inspection, and sometimes in direct contact with the ground leading to cylinder corrosion) has created a potential environmental and safety hazard. This was underscored by Defense Nuclear Safety Board (DNFSB) Recommendation 95-1 which recommended that the Department improve storage and maintenance of the DUF_6 cylinders. While DUF_6 is not as significant a radiological threat as other isotopes, it is a chemical hazard.

In recent years, the Department, the DNFSB, State environmental agencies, and the public have become sensitized to the need for better management of these approximately 57,700 cylinders (approximately 37,000 are in Kentucky, 16,000 in Ohio, and 4,700 in Tennessee).

Since 1990, the Department has conducted a focused program of cylinder inspections, recoatings, and relocations to assure that DUF_6 is safely contained until the Department arranges for its disposition. This plan recognizes that this important work is the responsibility of the Federal Government and that it must continue until all the DUF_6 is properly dispositioned.

The current program has largely focused on the ongoing maintenance of the cylinders containing DUF_6. The question, however, of the long-term management and eventual disposition of DUF_6 is the subject of a Programmatic Environmental Impact Statement and considerable debate in Congress. The Department will issue a final Programmatic Environmental Impact Statement shortly, followed by a Record of Decision concerning the Department's decision on the long term management and use of DUF_6.

Congress stated its intentions with regard to DUF_6 in Public Law (P.L.) 105-204, signed by the President in July 1998 (See Appendix A). This law directed the Secretary of Energy to prepare and submit to Congress a plan (herein referred to as the "Plan") to ensure that all funds accrued on the books of USEC for the disposition of DUF_6 will be used for the construction and operation of plants to treat and recycle the DUF_6 consistent with the National Environmental Policy Act. Approximately $373 million was accrued by USEC for this purpose.

"Treat and recycle," in this context, refers to the chemical processing of DUF_6 to remove the fluorine and create products that would present both a lower long-term storage hazard and provide a material that would be suitable for use or disposal. Importantly, this would also allow the private and government sectors to explore the reuse of some of the end products resulting from

the conversion of DUF_6. Important examples include the potential use of depleted uranium oxide in various spent fuel storage and disposal methodologies and the reuse of the fluorine removed from the DUF_6 by the nuclear fuel industry. While these applications must still be explored, they present the possibility that some of the relatively high cost of disposition of DUF_6, as much as $2.6 billion for the most expensive methods, could be offset to the benefit of the American taxpayer. These applications could also provide long-term benefits to the communities that have hosted the Nation's uranium enrichment facilities for so many decades by turning the large inventory of DUF_6 into a resource that could be used to spur new industrial activity.

The first step for future use or disposition is to convert the material. To do so, construction and long-term operation of one or more conversion plants is essential. The Department is considering a variety of activities including the construction of facilities ranging from demonstration size plants to full-scale conversion plants. Conversion, therefore, is the centerpiece of an integrated approach to eliminate or reduce the long-term liability to the Federal government for up-keep of the DUF_6 inventory. An integrated approach would encompass all or most of the following elements: cylinder surveillance and maintenance; the design, construction, operation, and final decommissioning of conversion facilities; storage or use of conversion end products; and disposition of end products not used -- uranium and fluorine compounds, and empty storage cylinders.

The Department believes that the private sector, rather than the Government, may be better able to provide an integrated approach for the management of the Department's DUF_6 inventory. The Department, for its part, would expect contracts under negotiated terms and with prices sufficient to compensate private companies to carry out the required construction and operation of the plants. In addition, the Department is considering near-term demonstrations during calendar year 1999. The Department requires that any such demonstrations be cost-effective and able to provide substantive information that will benefit the overall program.

This is the Initial Plan. On March 4, 1999, the Department issued a request for expressions of interest (EOI) on the disposition of the Department's DUF_6 inventory. The responses to the EOI will provide information to develop the Department's detailed procurement strategy for an integrated approach to the management of the Department's DUF_6 inventory. A Final Plan, incorporating detailed information from the private sector, and ideas from affected members of the local communities, Congress, and other stakeholders, and providing a detailed schedule will be issued in May 1999. Once the Final Plan is issued, the Department recognizes that some aspects of this approach will evolve as its interactions with the private sector and stakeholders continue.

Because of the high cost of transporting large quantities of DUF_6, safety questions and State regulatory issues, the DUF_6 conversion will likely take place at or in the vicinity of the Paducah and Portsmouth plant sites. A base assumption made by this Plan is that the relatively small quantity of material in storage at the ETTP will eventually be relocated for disposition.

This Plan is based on an aggressive schedule to begin construction of conversion facilities in 2002, and relies on significant private sector involvement to be successful. The Department also looks forward to close coordination with affected State and local governments an communities, stakeholders, and interested Congressional delegations as this program completes its planning phase and moves toward implementation.

U.S. Department of Energy
Initial Plan for the Conversion of Depleted Uranium Hexafluoride

INTRODUCTION

The Department of Energy has established a Plan, pursuant to P.L. 105-204 (see Appendix A), for the construction of plants to convert its large inventory of the depleted uranium hexafluoride (DUF_6). This is the Initial Plan. On March 4, 1999, the Department issued a request for expressions of interest (EOI) on the disposition of the Department's DUF_6 inventory. The responses to the EOI will likely provide information to develop the Department's detailed procurement strategy for an integrated approach to the management of the Department's DUF_6 inventory. A Final Plan, incorporating detailed information from the private sector, and ideas from affected members of the local communities, Congress, and other stakeholders, and providing a detailed schedule will be issued later this year. Once the Final Plan is issued, the Department recognizes that some aspects of this approach will evolve as its interactions with the private sector and stakeholders continue.

Public Law 105-204 requires:

..The Secretary of Energy shall prepare, and the President shall include in the budget request for fiscal year 2000, a plan and proposed legislation to ensure that all amounts accrued on the books of the United States Enrichment Corporation for the disposition of depleted uranium hexafluoride will be used to commence construction of, not later than January 31, 2004, and to operate, an onsite facility at each of the gaseous diffusion plants at Paducah, Kentucky, and Portsmouth, Ohio, to treat and recycle depleted uranium hexafluoride consistent with the National Environmental Policy Act.....

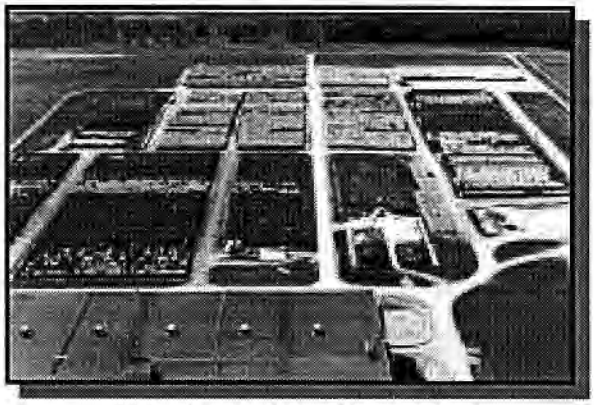
While P.L. 105-204 focuses on the construction of plants to convert DUF_6, the Department has considered the management of DUF_6 in an integrated fashion, considering all aspects of DUF_6 management. Management of the Department's DUF_6 inventory involves the following elements: cylinder surveillance and maintenance; the design, construction, operation, and final decommissioning of conversion facilities; storage or use of conversion end products; and disposition of end products not used -- uranium and fluorine compounds and empty storage cylinders. This Initial Plan, therefore, covers three primary aspects of this management challenge:

- the continued inspection and maintenance of the Department's 57,700 DUF_6 cylinders located in Kentucky, Ohio, and Tennessee;
- the establishment of the capability to convert (*i.e.*, convert the material from uranium hexafluoride to an oxide for long-term storage and disposal or reuse) the DUF_6 owned by the Department;
- the support for near-term demonstration and technology activities, including the development of a roadmap for government uses for components of the DUF_6.

This Initial Plan presents an integrated approach to address these challenges. Execution of this Plan would require future appropriations to the Department for its ongoing DUF_6 program, and funds obtained from USEC for the management of its material.

Even if the funds identified by P.L. 105-204 were made available to the Department, they would not be sufficient to construct facilities and convert all the DUF_6 for which the Department is responsible.

A key Departmental objective is to fully integrate all elements of managing the Department's DUF_6 inventory into a single contracting arrangement. Private industry would be responsible for design, construction, and operation of the conversion facilities, and decommissioning of the plants.



A Typical Cylinder Storage Yard

In order to try to reduce the cost for the management and conversion of its DUF_6 inventory, the Department plans to carry out some technology research and development to find government uses for products that can be derived from the DUF_6. Finally, until the inventory is completely converted, the Department's cylinder management program must continue.

Background

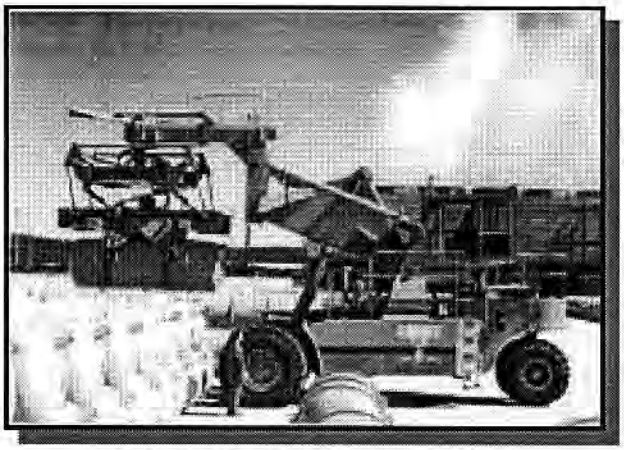
The Department of Energy's stockpile of DUF_6 is stored at the sites of the two gaseous diffusion plants located at Paducah, Kentucky and Portsmouth, Ohio, and at the East Tennessee Technology Park (ETTP) in Oak Ridge, Tennessee. The Department's current and expected inventory consists of approximately 700,000 metric tons of DUF_6 that the government has accumulated from uranium enrichment operations since approximately 1945 and includes 145,000 metric tons of DUF_6 that has or will be generated by USEC.

In 1994, the Department began working on the draft *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* (PEIS)[1]. The draft PEIS and supporting documents were published in December 1997.

The draft PEIS included a "no-action" alternative and several additional alternatives for the long-term management of the DUF_6 stockpile. These additional alternatives included: long-term storage as DUF_6 at a new site(s), conversion of the DUF_6 and long-term storage as an oxide, conversion of the DUF_6 to an oxide for use as radiation shielding, conversion of the DUF_6 to uranium metal for use as radiation shielding, and conversion of the DUF_6 to an oxide for disposal. The preferred alternative in the draft PEIS was to convert all of the inventory when uses for the conversion products have been identified.

Engineering analyses and cost analyses for each of these alternatives were also prepared and published in final form with the draft PEIS. The projected costs of the alternatives were presented in the PEIS in 1996 dollars and were developed in the *Cost Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride.* The costs ranged from approximately $327 million (in 1996 dollars) for continued storage of the

DUF_6 at the three sites, to as much as $2.6 billion (in 1996 dollars) for the most expensive methods of conversion and disposal[2]. These projected costs extended over a forty-year period, but the issue of storage beyond that period was not addressed. Included in the storage alternative were corrective actions required to address the results of poor DUF_6 cylinder storage practices. Due to the large quantity of DUF_6 cylinders in storage, continued (but steadily decreasing) cylinder maintenance actions were anticipated for DUF_6 cylinder storage during conversion activities.



Cylinder Handling Machine at Work

The Department held four public meetings in February and March 1998. Based on the comments received at the meetings and other discussions with stakeholders, the preference of the public and involved industry is not to wait for uses to be developed, but rather to begin conversion of the DUF_6 promptly.

In addition, since April 1997 the Department has held meetings and discussions with industry to identify cost effective management solutions. These meetings and discussions have suggested new uses for uranium oxide or depleted uranium metal materials and several companies have expressed interest in providing conversion services.

This interest on the part of industry coupled with the proposed use of funds accrued by USEC per P.L. 105-204, has prompted the Department to revise some of the assumptions used in the preparation of the draft PEIS and to reevaluate the most cost effective means for managing the DUF_6 inventory.

The Department plans to issue its final PEIS identifying a preferred alternative for long-term management of its DUF_6 and the Record of Decision (ROD) in the Spring of 1999.

PLAN ELEMENT ONE: CYLINDER MANAGEMENT

Overview

The first element of the integrated Plan is to continue to maintain the DUF_6 inventory to assure safe storage in accordance with the *UF_6 Cylinder Program Management Plan*[3] as appended to the Ohio Amended Consent Decree and the Tennessee Department of Environment and Conservation Agreement. Cylinder management involves the general maintenance and monitoring of the cylinders, including such activities as the construction and repair of cylinder storage yards, and the control of cylinder corrosion by surface cleaning and painting.

The Inventory

The Department owns approximately 700,000 metric tons of DUF_6 at the Paducah site in Kentucky, the Portsmouth site in Ohio, and the ETTP in Oak Ridge, Tennessee (see Table 1).

This inventory is the result of over 40 years of uranium enrichment activities by the Federal Government. Most of the uranium enrichment activities conducted by the United States from the 1940's through the 1960's was performed to create highly-enriched uranium (HEU) for defense purposes. Most of the oldest cylinders in the inventory (generally located at the ETTP) are associated with defense materials production.

Since the mid-1960's the Federal enrichment enterprise began to devote its production to primarily commercial customers–utilities that would ship "natural" uranium hexafluoride to the Department for "toll" enrichment services. After enrichment, these commercial customers received low-enriched uranium hexafluoride, leaving the Department with the associated depleted uranium hexafluoride.

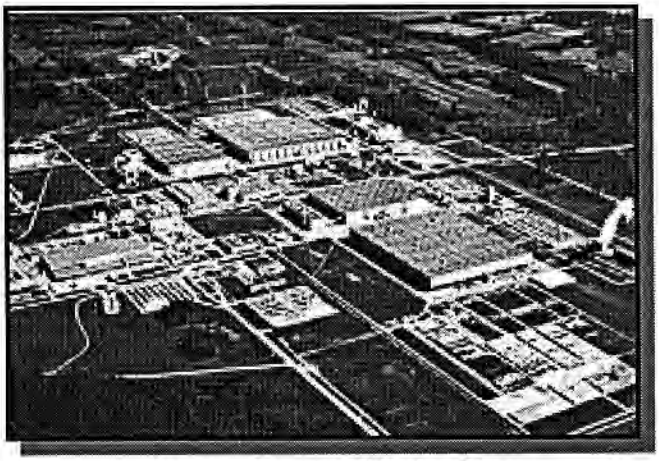
These operations continued through mid-1993, at which time Congress established the U.S. Enrichment Corporation (USEC). The Department was left with the responsibility to deal with all the DUF_6 created up to that point. Subsequent law clarified that the Department would be responsible for all the material produced by USEC after its formation and up to its privatization in 1998 (9,186 cylinders).

TABLE 1: LOCATION of DOE DUF_6

Location	Original DOE Cylinders	Cylinders From USEC	Total Cylinders	Total DUF_6 (metric tons)
Paducah, Kentucky	28,351	8,559	36,910	450,000
Portsmouth, Ohio	13,388	2,653	16,041	198,000
Oak Ridge, Tennessee	4,683	0	4,683	56,000
TOTAL	**46,422**	**11,212**	**57,634**	**704,000**

In addition, prior to privatization USEC paid the Department to take additional quantities of its DUF_6. Thus, the Department agreed to take ownership of an additional 2,026 cylinders generated by the privatized USEC, which will be delivered over the next six years.

The Department received in FY 1998 $66 million from USEC for the management and disposition of the 11,212 USEC-generated depleted uranium cylinders. The FY 1999 Energy and Water Development Appropriations Act requested an accounting of how the Department intended to apply the $66 million received from USEC. The Department submitted its plan on December 17, 1998. The USEC funds are administered in accordance with the terms of Memoranda of Agreements (MOAs) and related correspondence between the Department and USEC regarding activities required to accept and maintain the USEC material.



Paducah Gaseous Diffusion Plant

Ongoing Site Activities

The day-to-day management of the cylinders includes actions designed to cost effectively improve the storage condition of cylinders. This work includes:

- building new concrete cylinder storage yards to provide a suitable platform for long-term storage (cylinders allowed to rest on the ground tend to corrode faster);
- repainting cylinders to arrest corrosion;
- restacking cylinders to improve drainage and enable inspections; and
- inspecting cylinders to assure no degradation of their condition.

The Department recognizes that it will take decades to convert all of the DUF_6 in the inventory. As a result, the long-term management of existing cylinders, the management of any future cylinders added to the inventory from USEC operations, and the continual effort to remediate and maintain the safe condition of the cylinders will remain a Departmental responsibility for many years into the future. As such, the Department is determined to abide by all relevant Federal and State regulatory requirements and to keep all applicable commitments (such as those with the DNFSB, and the States of Ohio and Tennessee) associated with the environmental safety of the inventory.

In addition, the Department will configure its inventory to:

- assure effective conversion operations that minimize the handling and transport of the cylinders;
- facilitate experimentation and demonstration with inventory material; and
- develop and foster potential industrial activity that employs DUF_6-derived materials.

PLAN ELEMENT TWO: CONVERSION

The second, and most important, component of this integrated Plan deals with the Department's effort to establish a DUF_6 conversion capability. Traditionally, a project like this might be the subject of a multi-year Federal government-managed project to build one or two plants. However, such projects require a significant outlay of Federal funds early on and require many years to complete. In comparison, the private sector is well-equipped to pursue plant projects expeditiously and economically as needed for the DUF_6 program. The Department believes that the private sector can and will be willing to take on the primary responsibility for designing, constructing, and operating the needed conversion plants.

Specifically, the Department believes:

- the private sector, rather than the Government, may be better able to design, build, operate, and manage anticipated DUF_6 plants;
- the private sector can complete the plants expeditiously, apply the most cost-effective technologies and methods, and develop private sector uses for DUF_6 to minimize the Government's costs; and
- the Government should explore arrangements with the private sector to make it economically attractive to make the investments required to carry out the program's objectives and develop government uses for DUF_6.

To implement these decisions, the Department's Plan includes an aggressive schedule of activities to enable the execution of conversion contracts in approximately one year, should the Department receive a suitable proposal. This schedule is shown on Table 2.

Procurement Approach

The Department plans to engage the private sector in a series of interactive activities focused on the issuance of a Request for Proposals (RFP) from the Department to the private sector for an integrated solution approach for DUF_6 for conversion and disposition. The Department will remain flexible in order to consider comments and input from industry and the public.

The first step in the procurement approach has been taken. On March 4, 1999, the Department issued a *Request for Expressions of Interest for a Depleted Uranium Hexafluoride Integrated Solution Conversion Contract and Near-Term Demonstrations (EOI)* (See Appendix B for copy of the EOI). Responses to this request will enable the Department to gauge industry interest in this activity, and learn about innovative approaches industry might suggest to carry out this program. Creative procurement approaches may be identified and implemented as long as they can reduce costs to the Department and guarantee that the inventory is converted. This EOI also addresses the potential advantages of near-term demonstrations; this component of the program is discussed under *Plan Element Three*.

TABLE 2: FULL-SCALE DUF_6 CONVERSION CAPABILITY SCHEDULE AND KEY MILESTONES	
Approximate Dates Subject to Procurement Strategy	*Key Milestone*
First Quarter 1999	– **Issue a request for Expressions of Interest (EOI)** – **Complete and issue the final PEIS**
Second Quarter 1999	– **Receive EOI responses** – **Issue the PEIS Record of Decision** – **Develop detailed procurement strategy** – **Issue draft Request for Proposals (RFP) for conversion contract** – **Hold conversion contract pre-proposal conference** – **Receive comments on draft RFP**
Third Quarter 1999	– **Issue final RFP for conversion contracts** – **Receive proposals**
Fourth Quarter 1999	– **Evaluate proposals**
2000	– **Award DUF_6 conversion contract(s)**
2002	– **Complete design, and start construction of full-scale facilities**

Next, based on the responses to the EOI, the Department will issue a final version of this Plan and establish a detailed procurement strategy which would include the issuance of draft and final requests for proposals and contract award(s) in time to support start of facility construction in 2002.

The Department's goal for this procurement will be to establish privately-financed conversion services capabilities at or proximate to the gaseous diffusion plant sites that can convert DUF_6 in a cost-effective manner. Conversion activities include material conversion, conversion product storage, and the cost of the subsequent disposal of any conversion products found to be unmarketable or not useable in other government applications. The box on the following page provides the key elements of the postulated contract.

Key Assumptions

In implementing this procurement approach, the Department makes the following assumptions:

- Execution of this Plan will require additional appropriations and/or alternative funding approaches in FY 2001 and beyond for the conversion activities.
- P.L. 105-204 calls for plants at the two major sites in Kentucky and Ohio; however, the Department is open to alternative proposals from industry which might save additional costs.
- The DUF_6 inventory at the ETTP will be moved as soon as practical and consistent with the requirements of state regulatory authorities.

- Contractual activity pursuant to this program will be indemnified under the Price-Anderson Act.

Key Elements of the Integrated Solution Conversion Contract

- Awardee must strive for lowest system and life-cycle cost compatible with environmental, worker, and public safety.
- Overall cost to the government for conversion services will be a major criteria in the contract award.
- Awardee would begin construction of conversion plants located on or proximate to the Paducah and/or Portsmouth sites no later than January 31, 2004.
- The awardee would be solely responsible for facility clean-up costs and the only reimbursement the awardee shall receive from the Government will be the fee for conversion services.
- Earnings made from the sale or use of DUF_6-derived materials must be used to offset annual costs to the Government.

PLAN ELEMENT THREE: NEAR-TERM DEMONSTRATIONS AND TECHNOLOGY ACTIVITIES

The final element of this integrated Plan focuses on the Department's intent to carry out 1) near-term demonstrations and 2) technology activities to reduce the overall costs of the DUF_6 program.

Near-Term Demonstrations

The Department plans to evaluate conducting near-term demonstration activities at the Paducah and Portsmouth sites to investigate conversion technologies and approaches that may benefit the DUF_6 program. The private sector has already generated several, potentially valuable concepts that could highlight important technical approaches to the conversion of DUF_6. Some of these approaches would involve the construction of new demonstration facilities while others would require the refurbishment of existing facilities and equipment already in place. The Department will evaluate any such concept so long as it is consistent with the primary goals of the program. The Department will evaluate proposals for near-term demonstrations based on cost-effectiveness and benefit to the overall program. In addition, timeliness is very important for this component of the program. The Department will insist that any near-term demonstrations be able to be quickly initiated.

The final version of this Plan will reflect the information garnered from the private sector in the *Request for Expressions of Interest for an Depleted Uranium Hexafluoride Integrated Solution Conversion Contract and Near-Term Demonstrations* (copy provided in Appendix B).

Technology Activities

In recent years the Department has gained valuable insight from industry about using materials derived from DUF_6 in various industrial processes. There are important barriers to many possible applications–such as regulatory uncertainties related to *de minimis* levels of radioactivity. But many potential applications hold considerable promise in the nuclear industry and to other Government programs. For example, the potential use of depleted uranium oxide derived from the DUF_6 to make DUCRETE™ (a concrete material containing depleted uranium) may provide significant benefits as a tool in the management and storage of spent nuclear fuel. Another potential nuclear industry application is the reuse of fluorine derived from the DUF_6 in the nuclear fuel industry. While these applications are unlikely to use all of the material available, they hold the potential for making a significant impact on the overall cost of this program, and the cost of Department's programs as a whole. The Department has proposed, in its FY 2000 budget request, funding for technology activities that will develop the application of DUF_6-derived materials to governmental programs.

The Department will develop a *DUF_6 Materials Use Roadmap* to establish a corporate plan for the application of DUF_6 and DUF_6-derived materials that will focus on potential governmental uses of DUF_6, but also incorporate limited analysis of established uses of DUF_6-derived materials in the nuclear industry. The Department expects to complete this roadmap before the end of FY 1999.

INTEGRATION AND IMPLEMENTATION ISSUES

The first step in the use or disposition of DUF_6 must be to convert the material. To do so, construction and long-term operation of one or more conversion plants is essential. The Department is considering a variety of activities including the construction of facilities ranging from demonstration size plants to full-scale conversion plants. Conversion, therefore, is the centerpiece of an integrated solution approach to eliminate or reduce the long-term liability to the Federal Government to maintain the DUF_6 inventory. An integrated solution approach would encompass the three DUF_6 program elements: cylinder management; conversion; and near-term demonstration and technology activities.

The three elements, implemented together, maximize the chances that the inventory will be managed safely and efficiently, and converted promptly at the lowest achievable cost to the government.

Program Authorities and Requirements

Additional funding would be needed. The Department does not believe that any other additional legislation is necessary at this time. The Department will continue to consider whether additional legislation is necessary or advisable in light of future developments in the program.

CONCLUSION

The Department is committed to the successful implementation of a program to convert its voluminous inventories of DUF_6. These inventories have been maintained in their current form because the Department and its predecessor agencies believe that these materials represent an asset to the Nation.

Conversion of the Department's DUF_6 would represent a major new undertaking that may span several decades and involve a significant investment of resources. This program would require a significant commitment and investment for the Department that demands careful planning, skillful execution, and good communications with stakeholders. This Plan provides a roadmap for such a program. Decisions regarding the funding necessary to execute this Plan will be made in the course of the normal budget process.

This Plan is based on an aggressive schedule to begin construction of conversion facilities as early as 2002, and relies on significant private sector involvement to be successful. The Department believes that this schedule can be achieved and looks forward to close coordination with affected State and local communities, stakeholders, and interested Congressional delegations as this program completes its planning phase and moves toward implementation.

END NOTES

1. DOE/EIS-0269, *Draft Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and use of Depleted Uranium Hexafluoride*, U.S. Department of Energy, December 1997.

2. Table 5.1 and 5.2, UCRL-ID-127650, *Cost Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride*, Lawrence Livermore National Laboratory, May 1997.

3. Lockheed Martin Energy Systems, Inc., 1997, *UF_6 Cylinder Program Management Plan*, K/TSO-30, Rev. 2, prepared by the Project Support Organization, East Tennessee Technology Park, Oak Ridge, TN, for the U.S. Department of Energy, July.

Appendix A

PUBLIC LAW 105-204
[[Page 112 STAT. 681]]
105th Congress

An Act

To require the Secretary of Energy to submit to Congress a plan to ensure that all amounts accrued on the books of the United States Enrichment Corporation for the disposition of depleted uranium hexafluoride will be used to treat and recycle depleted uranium hexafluoride.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. UNITED STATES ENRICHMENT CORPORATION

4. Plan.-- The Secretary of Energy shall prepare, and the President shall include in the budget request for fiscal year 2000, a plan and proposed legislation to ensure that all amounts accrued on the books of the United States Enrichment Corporation for the disposition of depleted uranium hexafluoride will be used to commence construction of, not later than January 31, 2004, and to operate, an onsite facility at each of the gaseous diffusion plants at Paducah, Kentucky, and Portsmouth, Ohio, to treat and recycle depleted uranium hexafluoride consistent with the National Environmental Policy Act.

(b) Limitation.-- Notwithstanding the privatization of the United States Enrichment Corporation and notwithstanding any other provision of law (including the repeal of chapters 22 through 26 of the Atomic Energy Act of 1954 (42 U.S.C. 2297 et seq.) made by section 3116(a)(1) of the United States Enrichment Corporation Privatization Act (104 Stat. 1321-349), no amounts described in subsection (a) shall be withdrawn from the United States Enrichment Corporation Fund established by section 1308 of the Atomic Energy Act of 1954 (42 U.S.C. 2297b-7) or the Working Capital Account established under section 1316 of the Atomic Energy Act of 1954 (42 U.S.C. 2297b-15) until the date that is 1 year after the date on which the President submits to Congress the budget request for fiscal year 2000.

(c) Sense of the Senate.--It is the sense of the Senate that Congress should authorize appropriations during fiscal year 2000 in an amount sufficient to fully fund the plan described in subsection (a).

Approved July 21, 1998.

Appendix B

Request for Expressions of Interest for an
Depleted Uranium Hexafluoride Integrated Solution Conversion Contract
and Near-Term Demonstrations

The U.S. Department of Energy through its Office of Nuclear Energy, Science and Technology is seeking expressions of interest (EOI) on the disposition of the Department's depleted uranium hexafluoride (DUF_6) inventory. The Department's objective is an integrated solution to eliminate or reduce the long-term liability, including potential environmental and safety concerns, to the Federal government for up-keep of the DUF_6 inventory. The Department will soon issue a final *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* followed by a Record of Decision. This EOI request will likely provide information to implement the Department's preferred alternative, if selected in the Record of Decision, and formulate a viable procurement strategy for an integrated solution.

One of the most important policy statements made by the Government with regard to DUF_6 has been Public Law 105-204, signed by the President in July 1998. This law directed the Secretary of Energy to prepare and submit a plan to ensure that all funds accrued on the books of the United States Enrichment Corporation (USEC) for the disposition of DUF_6 will be used for the construction and operation of plants at Paducah and Portsmouth to treat and recycle the DUF_6, consistent with the National Environmental Policy Act (NEPA). The Law also stipulates that the plan should be structured for construction of the plants to begin by January 31, 2004.

"Treat and recycle," in this context, refers to the chemical processing of DUF_6 to remove the fluorine and create products that would present both a lower long-term storage hazard and provide materials that would be suitable for use or disposal. Importantly, this process would also allow the private and government sectors to explore the use of the products.

The Department remains concerned about the future potential displacement of workers and economic disruptions at the Gaseous Diffusion Plants in Kentucky and Ohio in the wake of USEC privatization. The Department plans to work with the existing bargaining units for the onsite workforce, and community reuse organizations to assist in this transition. The Department is willing to commit funds to cover worker wages during training and training support to local community colleges. Many of these workers represent important experience which may be valuable to the Department's DUF_6 disposition program.

One of the most significant legacies left with the Department after the privatization of USEC is approximately 700,000 metric tons of DUF_6 stored in approximately 57,700 cylinders (37,000 are in Paducah, Kentucky, 16,000 in Portsmouth, Ohio, and 4,700 in Oak Ridge, Tennessee).

DUF_6 is a stable but toxic, granular solid, much of which has been stored for long periods. The advanced age of some of the steel cylinders in which the DUF_6 is contained has highlighted a potential and significant environmental and safety hazard. This was underscored by Defense Nuclear Safety Board Recommendation 95-1 which recommended that the Department improve storage and maintenance of the DUF_6 cylinders. While DUF_6 is not as significant a radiological threat as other isotopes, it is a chemical hazard. Since 1990, the Department has conducted a focused program of cylinder inspections, recoatings, and relocations to assure that DUF_6 is safely contained until the Department arranges for its disposition.

The Department believes that the private sector, rather than the Government, may be better able to provide solutions for the management of the Department's DUF_6 inventory. A key Departmental objective is to fully integrate all elements of managing the Department's DUF_6 inventory into a single contracting arrangement. Management of the Department's DUF_6 inventory involves the following elements: cylinder surveillance and maintenance; the design, construction, operation, and final decommissioning of conversion facilities; storage or use of conversion end products; and disposition of end products not used -- uranium and fluorine compounds and empty storage cylinders. The Department anticipates that required conversion facilities will be built, owned, and operated by the private sector.

The Department wishes to better understand the capability of the private sector to handle this significant challenge. The Department is considering a variety of activities including the construction of facilities ranging from demonstration size plants to full-scale conversion plants.

The Department solicits your organization's ideas, opinions, and interest in participating in all or part of the Department's management of the DUF_6 inventory. Information provided through this EOI request will assist the Department in determining the best procurement strategy. Responses should be structured specifically addressing the following:

1. Description of your organization, its capabilities, and its interest in the Department's DUF_6 program.

2. The feasibility of a single integrated contract approach which fully incorporates all or most of the Department's DUF_6 management elements.

3. Description of your organization's proposed approach to meet the Department's objective. Describe the process that would be used to convert the DUF_6. Identify if this process is a proprietary process and is patented or has a patent pending. If this process is patented, identify who owns the patent and any licensing information. Identify and describe if the proposed process has been demonstrated or commercially applied and at what scale. Identify any challenges and risk in applying the proposed process in a full scale production plant. Identify how your organization would minimize these risks.

4. The necessity, in terms of technological and economic considerations, of near-term

demonstration-scale facilities at Paducah and Portsmouth that will provide substantive information which benefits the overall DUF_6 Program. Include any information your organization considers relevant, but specifically address:

- the purpose of the demonstrations with analyses that such demonstrations are safe and cost-effective;
- availability of equipment and buildings at the Paducah and Portsmouth sites that could support such demonstrations;
- NEPA and regulatory oversight issues which would need to be addressed to conduct the demonstrations;
- cost, schedule, safety considerations, and approximate numbers of personnel required to perform the demonstrations -- including the decontamination and decommissioning (D&D) of the demonstrations;
- transition to full-scale production.

5. Recommendations regarding the characteristics that should be reflected in full-scale plants. Include any information your organization considers relevant, but specifically address:

- product forms, throughput, waste streams, process chemical requirements, and general plant utility and other support requirements;
- modularity of facility design -- including advantages and disadvantages of modular approach;
- availability of existing plant designs, equipment, and buildings that could help accelerate the construction of full-scale plants at the Paducah and Portsmouth sites;
- NEPA and regulatory oversight issues which would need to be addressed to construct and operate the conversion plants;
- cost, schedule, safety considerations, and approximate numbers of personnel required to construct and operate full-scale plants -- including the eventual D&D of the conversion facilities.

6. Innovative approaches regarding the use of government land or facilities at Paducah and Portsmouth.

7. Private sector financing, construction, ownership and operation of conversion facilities that can be used to minimize cost, and begin conversion facilities construction as soon as possible before January 2004. Identify and justify the appropriate contract type(s) for each phase of the project.

8. Government actions that are needed to ensure successful implementation of respondent's concepts for this program.

9. Potential factors that should be considered by the government in selecting the proposed approach to implement this program.

10. Beneficial use or sale of DUF_6 and DUF_6-derived materials for restricted end-uses in commercial and Federal nuclear programs that could reduce the government's life-cycle costs for conversion, storage and disposition of the material, and innovative approaches to establish such activities.

11. The safe transportation, conversion, and disposition of approximately 4,700 DUF_6 cylinders currently stored at the Oak Ridge site.

12. The establishment of worker training programs with respect to the handling of materials and operation of the conversion facilities.

Proprietary information provided in your organization's response should be marked appropriately. This information will be held in confidence by the Department.

Send 12 copies of your responses to Thomas E. Brown, Procurement Analyst, U.S. Department of Energy, MA-52, 1000 Independence Avenue, S.W., Washington, DC 20585 no later than April 5, 1999. Before submitting questions regarding this EOI, please review the "*frequently asked questions*" section on this web page.

Massachusetts firm shows interest in uranium recycling

■ *Starmet has patented a process of mixing materials extracted from depleted uranium hexafluoride with concrete.*

BY JOE WALKER
SUN BUSINESS EDITOR

A Massachusetts firm that is the main supplier of feed material for an AVLIS pilot plant also is interested in plans to build a spent uranium recycling facility in Paducah.

Starmet, based in Concord, has patented a process of mixing materials extracted from depleted uranium hexafluoride with concrete to make protective vaults for radioactive material, said Donald King, manager of sales and contracts for the company.

Later this week, the U.S. Department of Energy is expected to start seeking technical input from companies such as Starmet to write a plan for recycling facilities in Paducah and Portsmouth, Ohio. The plan would detail the use of $385 million set aside last year by Congress to help offset the loss of 600 jobs at gaseous diffusion plants in the two communities.

Recycling facilities would convert depleted uranium hexafluoride from diffusion into safer material for commercial use. Federal lawmakers from Kentucky and Ohio have criticized DOE for missing a February deadline to submit the plan, and DOE has pledged to have it ready by summer.

Matthew Donoghue, a spokesman for DOE in Washington, said he does not expect the department to start soliciting information from firms before Thursday. The four-week "expressions of interest" process will involve publishing a notice in the Commerce Business Daily, a procurement-oriented publication similar to The Federal Register. DOE also will post the information on its World Wide Web site at http://www.ne.doe.gov.

While DOE compiles the plan, USEC Inc. — which leases the plants from DOE to enrich uranium — will select a site by late spring for AVLIS. The laser-based technology is expected to replace the plants' decades-old diffusion process starting in 2005. Starmet is the principal supplier of uranium hexafluoride, or UF6, to USEC's laser demonstration plant at Lawrence Livermore National Laboratory in California.

Starmet's subsidiary, Starmet CMI, has a UF6 processing facility at Barnwell, S.C., near DOE's Savannah River site. The site is among six mentioned in published reports as having bid for the AVLIS plant. King would not say if Starmet was involved in the reported Savannah River bid but acknowledged his firm has signed confidentiality agreements with USEC not to discuss the site-search process.

The Paducah and Portsmouth plants enrich uranium for use in

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Massachusetts firm interested in recycling

Continued from 1A

nuclear fuel. Depleted UF6, also called "tails," is stored in thousands of canisters on plant grounds. DOE wants to convert the material to something safer and more stable that could eventually be used or sold.

Starmet has used its Barnwell plant to convert the material to metal for various uses, mainly in ammunition and military weapon shielding. Those applications are outdated, and the focus has switched to shielding for radioactive materials used in health care, King said.

He said Starmet also has a patent on using uranium oxide, a byproduct of depleted UF6 conversion, in a substance called Ducrete that is three to four times denser than concrete and a far better radiation shield.

Sherman Brady, vice president of Starmet CMI, said DOE's problem is not converting UF6, but finding ways to market materials created by conversion.

"I think one of the challenges DOE has in going forward is, do they convert this stuff to some more stable form until they find a use for it, or do they just try to find a use for it right now?" he said.

Fluorine extracted from spent UF6 is more commercially promising than uranium oxide; some chemical forms of fluorine sell for as much as $1,500 a metric ton. King said Starmet has patents pending for removing fluoride from UF6 and has given USEC an exclusive option to form a joint venture with Starmet to explore the work.

"We're interested in teaming with USEC to bid on that project," he said.

Regardless of the products, it makes sense to use personnel from the Paducah and Portsmouth plants who are trained in UF6 work, King said.

"I think from our standpoint, the local labor force would be the one you'd want to use in whatever plant that's built," he said.

Finished plants are not foreseen until well into the 21st century. First District U.S. Rep. Ed Whitfield said last week that he was told DOE would have the recycling plants designed by 2001. Brady said it would take 12 to 18 months to build and make them operational.

Construction cost is another problem. Congress passed a law last year requiring that the $385 million, collected by USEC as part of its customer fees, be used for the conversion plants. But the money is stuck in the U.S. Treasury and may not be used until DOE submits the overdue plan.

Others have concerns about operational costs. In an article Tuesday about the recycling facilities, The New York Times quoted Donna Goodman, a hazardous waste inspector with the Ohio Environmental Protection Agency, as saying she is not certain where the estimated $50 million in annual operating expenses will come from.

DOE continues to get pressure from congressional sources, including Whitfield and Kentucky Sens. Jim Bunning and Mitch McConnell. While encouraged that DOE is preparing to solicit information from private firms, McConnell said he is upset with the department for being late with the conversion facility plan.

"Until that happens, I will continue to pressure DOE to meet its obligations and make cleanup (of depleted UF6) a priority," he said.

DOE sets summer deadline for uranium plan: Bunning

BY JOE WALKER
SUN BUSINESS EDITOR

U.S. Sen. Jim Bunning says the Department of Energy has set a summer deadline to produce an overdue plan to build uranium recycling plants in Paducah and Portsmouth, Ohio.

The plan, left out of the department's fiscal 2000 budget request, would detail the use of $385 million set aside last year by Congress to help offset the loss of 600 jobs at gaseous diffusion plants in the two communities. The new facilities would convert depleted uranium hexafluoride from the diffusion process into safer material for commercial use.

Bunning said Energy Secretary Bill Richardson made the promise Thursday during a budget hearing before the Senate Committee on Energy and Natural Resources on which Bunning sits. Richardson said he was aware of missing the February deadline and would release the proposal during the summer.

"While I am extremely disappointed that the Department of Energy has disregarded the law which required them to submit the proposal earlier this month, I continue to look forward to seeing their plan," Bunning said. "... I will hold the secretary's feet to the fire to make certain the deadline slides no further. This project is very important to many people in Paducah and they deserve to know DOE's plans as soon as possible."

Richardson said in the hearing that DOE will issue an expression of interest request next week. The request, describing the general approach and schedule for the conversion program, will seek technical input from private firms to help DOE write the plan.

"Finally, maybe, DOE is making progress, collecting the information they need to make their final proposal," Bunning said. "This EOI may also be an indicator of DOE's general approach and timetable for the plant."

The DOE budget proposal contains only $5 million to begin research and development of the recycling plants. In a House budget hearing on Wednesday, Rep. Ed Whitfield questioned Assistant Energy Secretary Ernest Moniz about the plan's delay and limited funding.

Whitfield said he was told later that the department would hasten the program to have the recycling plants designed by 2001.

New Mexico land deal could lure AVLIS plant

The Paducah Sun
02/15/99 - P. 1A

■ *Joe Framptom says the Greater Paducah Economic Development Council is 'doing everything possible in Paducah to lure AVLIS here.'*

ASSOCIATED PRESS

ALBUQUERQUE, N.M. — A Texas company has donated thousands of dollars to politicians in New Mexico, where it wants to sell some of its land for a uranium enrichment factory also being sought by Paducah.

"We didn't want to be strangers when we showed up with a request," said Mark Turnbough, a lobbyist and environmental consultant for Waste Control Specialists of Pasadena, Texas.

WCS wants to sell 450 acres in Lea County to USEC Corp., the world leader in enriching uranium fuel for nuclear power plants.

USEC would then use the 450 acres for a $2 billion-plus enrichment factory that would employ about 1,300 workers, the Albuquerque Journal reported Sunday.

The factory would use technology known as AVLIS (Atomic Vapor Laser Isotope Separation), which uses lasers to vaporize uranium metal and extract the U-235 isotope for use in nuclear fuel. It is seen as the future technology for enriching uranium.

USEC began site selection in October and will pick the winner by late spring. Operation is forecast for 2005.

WCS has offered to sell the New Mexico land to USEC for $1, Turnbough said. The water for the plant would come from Texas, he said.

The Nuclear Regulatory Commission would have to approve the site.

WCS hopes the factory would draw other facilities involved in the uranium-enrichment process to Lea County, Turnbough said.

The USEC factory and any other factories would produce waste that could be handled by the company, he said.

Gov. Gary Johnson, whose re-election campaign received $5,000 from WCS, has announced his support for the proposal.

Sen. Pete Domenici, R-N.M., also is on board, as are public officials from Lea County.

Lobbyists for WCS, including former state Sen. Mickey Barnett, are lobbying the Legislature on a package of tax breaks and other financial incentives to make the New Mexico site as attractive as possible to USEC.

In addition to Paducah, USEC is considering a possible site for the factory in Portsmouth, Ohio. The company plans to make a decision sometime this year.

WCS last year contributed at least $17,600 to House and Senate candidates and political committees run by House and Senate leaders, the Journal reported.

The company also gave $10,000 to the New Mexico Republican Party, $5,000 to the state Democratic Party and $1,200 to the Lea County GOP, the newspaper said.

Another $10,000 was donated to the State Legislative Leaders Foundation, a nonpartisan think tank in Massachusetts. The foundation's members include top leaders in the New Mexico Legislature.

WCS didn't learn until early October that USEC was looking for a plant site, Turnbough said. That was after the campaign contributions to Johnson and the others.

Harold Simmons, a Texas millionaire, controls WCS through a maze of family trusts and other companies, including Contran Corp.

Contran contributed $35,000 to Johnson's campaign last year.

As for the contributions from Contran to the governor, Turnbough said Simmons donates to politicians nationwide.

Johnson said the political donations by Contran and WCS have nothing to do with his support of the factory site.

"You're talking about a multibillion-dollar project that would employ thousands," Johnson said.

WCS received help from the administration in preparing the site proposal it submitted to USEC last fall.

Such assistance is available to any company seeking to build a factory in New Mexico, said Lou Gallegos, Johnson's chief of staff.

WCS owns about 1,500 acres in Lea County and another 14,500 acres in neighboring Andrews County, Texas.

WCS already operates a hazardous waste facility in Andrews County that could serve as a nuclear waste dump.

The company is donating some of its New Mexico land to Lea County for use as a landfill. The uranium-enrichment factory would be built nearby.

WCS also wants to attract to the area government laboratories, U.S. agencies and others involved in researching and developing waste-treatment technologies.

WCS then could be positioned to implement such technologies, also potential moneymakers.

"We don't get a lot out of it (the USEC plant) directly," Turnbough said. "We think we get a lot out of it indirectly. What we need is more technology support."

The goal of WCS is to develop more cost-effective, environmentally sensitive ways of dealing with wastes, he said.

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Joe Framptom, chairman of the Greater Paducah Economic Development Council board of directors, said the group trying to bring AVLIS to Paducah has worked hard on its proposal, but could not control what other groups do to try to lure the plant.

"We're doing everything possible in Paducah to lure AVLIS here," he said. "What other communities do to lure AVLIS is up to them. We have given them our best proposal."

Framptom refused to comment on any changes in strategy that might be caused by the actions of the Texas group

"We are bound by a confidentiality agreement," he said. "We were asked by USEC to sign a confidentiality agreement concerning all facets of the process. We are bound by that agreement and I believe we have honored that completely. If other groups have not, that is up to them."

The Paducah Sun
3/7/99 - P. C3

How they plan to get the money, use it to find new jobs

Prepared by Lockwood Greene and ELR consulting firms, the PACRO transition plan seeks $8 million in federal grant money from the Department of Energy to boost regional economic development and help ease jobs lost by downsizing or closing the Paducah Gaseous Diffusion Plant.

The program covers McCracken, Ballard, Graves, Marshall and Massac, Ill., counties. These are its components and costs:

■ Find ways for the private sector to reuse plant facilities — $1.82 million

As leasing/asset reuse manager for plant owner DOE, the reuse group will: (1) prepare to immediately complete a lease with USEC Inc should Paducah be named for a new laser-based enrichment plant called AVLIS; (2) plan for reusing thousands of cylinders of depleted uranium hexafluoride stored at the diffusion plant and leasing what is needed to convert the material to something more marketable; (3) study reusing large nickel and scrap metal inventories; (4) look into leasing or using plant utilities or other resources.

■ Develop new business/ industrial sites to attract companies — $2.98 million

PACRO recommends: (1) completing industrial park sites and acquiring more land in several of the counties; (2) creating a regional industrial center site of at least 1,000 acres that can handle a large firm or firms; (3) erecting five or more modular, expandable "spec" buildings across the region with plenty of land for expansion. PACRO would match funds with local governments for the buildings, whose sale would fund more structures.

■ Create programs to train and employ dislocated plant workers — $676,000

PACRO plans to: (1) start a business/industry retention and expansion council of employers, local government officials and economic development people; (2) establish a regional employment and training program to work in tandem with the council.

Among other things, the council would identify troubled businesses and find ways to help them. It would be a sounding board for business people on issues that affect them. The employment/training program would be a clearinghouse for employers, area training facilities and plant workers to avoid service duplication.

■ Stimulate jobs through new business ventures — $1.23 million

PACRO proposes to: (1) establish a regional center for contact and referral for people starting or expanding small businesses; (2) create a revolving loan fund — giving priority to displaced workers — to help develop small businesses.

The center would assess needs, match resources, design strategies and coordinate training for entrepreneurs at area schools.

It also would help build mentoring and scholarship programs for new business owners.

The fund would offer loans of about $2,500 at minimal, fixed interest to help "discover" or check the feasibility of new businesses. It also would help fill a void of working capital loan assistance in the area. A review board from public and private sectors would govern the fund.

■ Expand local and regional economic development resources — $253,000

PACRO would provide matching money for a regional marketing program staffed by existing economic development officials in McCracken, Graves, Marshall and Calloway counties. The team would participate in marketing trips, trade shows, sales calls to prospective companies and direct mail campaigns, and prepare marketing materials.

If the USEC plant closes...

The Paducah Sun
3/7/99 - P. C1

now there's a job plan

BY JOE WALKER
SUN BUSINESS EDITOR

Bob DeGrasse likes the classic line from the movie, "Field of Dreams": "If you build it, they will come."

He is director of the U.S. Department of Energy's Office of Worker and Community Transition, which holds the purse strings for $8 million in federal grant money sought by Paducah area civic leaders. The money would help them build a program to create jobs and business opportunities to offset downscaling or closing the Paducah Gaseous Diffusion Plant.

Last fall, DeGrasse's boss, Energy Secretary Bill Richardson, visited the plant and promised $6 million for the leadership group, known as the Paducah Area Community Reuse Organization, or PACRO. DeGrasse says the other $2 million should come from $20 million set aside last year to offset layoffs resulting from privatizing USEC Inc., which leases the plant from DOE to enrich uranium.

DeGrasse recited the movie line to give his impressions of the PACRO action plan to seek the money, which must be approved by the Economic Development Administration. Approval could come within two months, he said.

"There's no reason not to believe that with a good strategy and the right approach, there will be an interest on the part of industry to come here," DeGrasse said.

The plan is "nicely balanced," thorough and reflects a regional approach to economic development that other communities across the nation have used to recover from DOE plant closures or layoffs, DeGrasse said.

Industrial park development, a key element of the proposal, is the best way to create the most jobs, he said. For example, DOE, state and local government leaders teamed to lure SKF Bearings and Bridgestone-Firestone into DOE's Savannah River site in Aiken, S.C. Money from his office paid for a rail spur that helped convince the companies to invest more than $125 million and create at least 1,000 jobs.

"That's where having a regional plan is important to identify where facilities should be sited," he said. "These are mundane things, but they make or beak the attractiveness of an area for economic development."

Another plan objective, reusing unneeded DOE facilities, helps the department "by taking things off our hands," DeGrasse said. That happened after Paducah's sister plant in Oak Ridge, Tenn., closed several years ago. A reuse group there used DOE funds to generate more than 40 leases with firms that have hired nearly 500 workers.

The PACRO plan ensures that established businesses won't be overlooked and that programs will be in place to train laid-off workers for new job opportunities, he said.

Although creating new small businesses is the riskiest endeavor, it also has the most potential payback, DeGrasse said. "If you do find a firm or an idea that takes off, it can potentially be monumental."

Kristin Reese, PACRO chairman and president of the Greater Paducah Economic Development Council, said the plan is designed to enhance existing programs and create new ones only as needed.

"We're not looking at recreating any wheels," she said. "There are some good programs in place, but this needs to be coordinated at every level."

Because of competition for money, DeGrasse encouraged the group to move quickly with plan implementation while waiting for word on funding.

Although his budget is comparatively modest — $30 million a year compared $18 billion for DOE generally — some in Congress want to scuttle the office and spend the money elsewhere. Another in a series of audits has been ordered and DeGrasse must compile a plan to dismantle his group.

Last month, DeGrasse sent a memo to Secretary Richardson's chief of staff saying there is potential for USEC to cut 500 to 750 more jobs at the Paducah and Portsmouth, Ohio, diffusion plants after July 1, 2000. A copy of the memo, obtained by the Sun, says that after that date, any money unspent in the $20 million fund will be returned to the Treasury.

DeGrasse wrote that his office would need more money if the additional layoffs occur. Rep. Ed Whitfield, USEC officials and others have said there are no plans to cut jobs other than completing USEC's announced 500 layoffs later this year.

DeGrasse says he's confident his office will survive the budget scrutiny and last until at least after the next presidential election, which should guarantee PACRO's requested $8 million.

Meanwhile, PACRO should pursue state and federal grants, local bond issues and other funding sources to carry on long-term, he said.

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Area technical training

Post-secondary training is "exceptionally strong," diverse and aggressive for a relatively rural area. West Kentucky Tech, area colleges and universities, and private schools such as the Institute of Electronic Technology are highly rated. Businesses support the education system, as shown by $13 million raised for the new PCC engineering building. Institutions should work together to develop programs, match curriculum with companies' needs, and encourage more employers to participate.

Labor productivity

Employers generally report high productivity, long employee tenures, strong loyalty and relatively low turnover and absenteeism — all critical factors in company site selection. The area's "three-tiered" pattern of wages means that lower-paying firms have most trouble with recruitment, turnover and absenteeism.

Ground transportation

Interstate 24 leads a "moderately good" road system. Paducah is a hub of the inland waterway system, but port capacity appears limited. Rail and trucking service are good. Overall improvements are needed to lessen a "remote" image.

Electric power reliability and cost

Power is plentiful and fairly priced. Bordering several states and surrounded by many low-cost utilities, "the Paducah region is ideally situated to take advantage of future electrical energy deregulation."

Telecommunications

Despite its rural setting, the region has good resources, including the Paducah Information Age Park; access to high-speed, high-volume phone lines, and a regional BellSouth operation, various cooperatives and private firms vying for business. That helps recruit office/call center companies like LYNX Services, which is building an automotive claims processing center in the park.

Quality of life/community services

These factors are rated "overwhelmingly high," considering lakes activities, festivals and performing arts groups. Business has made a big commitment by helping raise $10 million for a performing arts center in Paducah. Shopping, hotels and restaurants are adequate to good. Local government services and cooperation among agencies are good.

Health care/medical services

The area's health care industry is excellent, anchored by Lourdes and Western Baptist hospitals and Paducah's diverse medical community. Charter Hospital, Easter Seals West Kentucky, Mercy Regional Emergency Medical Service and various other resources are noteworthy.

Housing/general cost of living

Housing availability and cost in the region are satisfactory, although conditions vary across the five counties. Smaller, rural areas would need more houses to accommodate a major new employer.

Economic development climate/financial incentives

Kentucky and Illinois have improved business incentives, offering enterprise zone programs, some tax abatements or exemptions from manufacturing, and income tax investment credits for new and expanding businesses. Both states provide financial support of worker training and infrastructure development.

Compared with states east of the Rockies, Kentucky is just above average and Illinois average in programs to lure businesses. Illinois has a "slight edge" in infrastructure development; Kentucky leads Illinois in work force development. Illinois has a "potentially significant" recruiting advantage with no inventory tax.

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Area's weaknesses

Inadequate air service/remote image

Those surveyed described the lack of affordable, reliable, convenient air service as the area's chief weakness. Many said they often drive to Nashville to catch flights. Barkley Regional Airport is marketing better and looking into service expansion. The Paducah Area Chamber of Commerce has commissioned an air service study. Those efforts, as well as trying to become a Metropolitan Statistical Area, should help greatly.

Lack of 'spec' buildings, prepared sites and industrial parks

For its size, the region has "inadequate" industrial sites for effective marketing. Most major sites aren't under local public or private developers' control or actively marketed. Site preparation, roads and utilities "are generally absent or underdeveloped." Some efforts have been made, but smaller, multi-tenant parks are also limited. The problem is "a critical weakness" in economic development.

Labor-management relations/ perceptions of union activity

Although the perception is far worse than reality, there is a "lukewarm atmosphere" of labor-management relations. Many still consider Paducah a "union town," but most say relations are improving.

Kentucky ranks first in the Southeast in employee affiliation with unions. It faces four problems in recruiting: (1) firms don't like to locate in heavily unionized areas; (2) labor-management relations are improving but not exceptional; (3) the region suffers from a lingering stigma; (4) Kentucky has no laws against contracts that require affected workers to be unionized, which scares some companies away.

Inadequate future water/sewer capacity

There are at least 14 water suppliers in four western Kentucky counties. Paducah and Mayfield systems are good, but many others are small, rural water systems with limited capacity. Wastewater disposal and treatment capacity are also "questionable" in surrounding counties. Lines should be extended to developable sites.

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3/12/99 - P. A1

McConnell delays DOE confirmation

■ *The ploy is a power play to force DOE to move faster in planning to build uranium recycling plants in Paducah and Portsmouth, Ohio.*

BY JOE WALKER
SUN BUSINESS EDITOR

Sen. Mitch McConnell has delayed confirmation of a leading Department of Energy official in a power play to force DOE to move faster in planning to build uranium recycling plants in Paducah and Portsmouth, Ohio.

McConnell has "held up" the approval of T.J. Glauthier for deputy secretary of energy, the second highest position in the department. He wrote Senate Majority Leader Trent Lott recently, saying he won't approve the nomination until DOE submits an overdue plan for the recycling plants and a "revenue-neutral" budget with no hurdles for spending $375 million to build them.

All nominees must be confirmed by the Senate through unanimous consent, and McConnell's stance means the process could be held up indefinitely.

Last year, McConnell and other lawmakers from Kentucky and Ohio led legislation to preserve the $375 million to build the plants, which would convert thousands of cylinders of spent uranium hexafluoride into safer, more stable material for storage or sale. The plants are viewed as a way to offset job losses as gaseous diffusion plants here and in Portsmouth are phased out.

The law required DOE to submit a plan that would free the money from the U.S. Treasury and put it to use. DOE missed the deadline to include the plan in Clinton's budget on Feb. 1, prompting a barrage of critical letters from lawmakers and others.

Energy Secretary Bill Richardson said in recent budget hearings that DOE would have the plan ready by summer, but McConnell said that is unacceptable.

"It's time for DOE to honor the commitments previously made with regard to the cleanup money," McConnell said. "I'll let Mr. Glauthier go when they submit a plan to construct conversion facilities at both Paducah and Portsmouth as was mandated in legislation I got passed last year."

Asked about DOE officials' response, he said, "I think we've gotten their attention, and I'm hoping this won't drag on."

DOE spokesman Matthew Donoghue said, "We are working to swiftly address the concerns Senator McConnell raises." He would not comment further.

Richard Miller, policy analyst for the atomic workers' union at the plants, said he is pleased McConnell "is using his clout to get DOE to focus on cleanup at Paducah and Portsmouth and moving forward with jobs."

McConnell and other lawmakers from Kentucky and Ohio have been "very patient" regarding the building plan, Miller said. DOE has been warned about the delay.

Miller said Glauthier told him in a meeting Thursday morning that if confirmed as deputy secretary, he would have the power to see that the $375 million is implemented. Since 1993, Glauthier has been the Office of Management and Budget's associate director for natural resources, energy and science. OMB has oversight over many agencies, including DOE.

EDITORIAL

POWER PLAY

McConnell puts needed pressure on DOE

The Paducah Sun
3/16/99 - P. A4

U.S. Sen. Mitch McConnell should be commended for standing on the toes of the federal bureaucrats who are defying a congressional order to get moving on plans to build uranium recycling plants in Paducah and Portsmouth, Ohio. A hope is that the senator will continue applying his weight until the Department of Energy lives up to its obligation to workers affected by job reductions at the USEC Inc. facilities.

McConnell is taking the unusual step of withholding his approval of a nominee for deputy secretary of energy, the second-ranking position in the department. Senate approval of nominees for such agency posts is usually considered routine, but McConnell is using his authority to block the appointment of T.J. Glauthier. The unanimous consent of the Senate is required for the nomination to be approved.

Kentucky's senior senator has nothing personal against Glauthier, but he's determined to see that the DOE develops a plan for spending $375 million it was designated to receive last year following the privatization of the United States Enrichment Corp. Congress directed that the money be spent to build plants at the Paducah and Portsmouth sites to convert thousands of cylinders of spent uranium hexafluoride into more stable material.

USEC collected the money for the cleanup of uranium hexafluoride when it was still an arm of the federal government. McConnell took the lead in the congressional effort to compel the Department of Energy to spend all the money on the recycling program.

The main point of the legislation was to provide some cushion for job losses at the two facilities following the privatization. USEC officials say they expect to eliminate a total of 600 jobs at the plants.

So far, the DOE has shown little concern for the USEC workers or the law earmarking the $375 million for the uranium hexafluoride conversion process.

The agency failed to meet a Feb. 1 deadline to include the plan for the recycling plants in President Clinton's budget. Late last month, in response to questions about the delay from 1st District U.S. Rep. Ed Whitfield, a top DOE official promised to move up the timetable for designing the facilities by one year. Later, Energy Secretary Bill Richardson said the congressionally mandated plan for building the conversion plants would be ready by summer. Sen. McConnell is entirely justified in rejecting this bureaucratic foot-dragging. A concern is that the DOE will continue stalling on the projects, thus thwarting the will of Congress as expressed in the legislation approved last year.

The Clinton administration clearly isn't enthusiastic about spending the $375 million on recycling plants in Paducah and Portsmouth. Under a plan released last summer that was supported by Vice President Al Gore, just $50 million would have been set aside for the conversion work.

McConnell and the other members of the Kentucky congressional delegation prevailed in this dispute, only to encounter frustration over the DOE's slow response to the mandate for submitting a plan to build the recycling plants.

We're encouraged by the senator's vow to sit on the Glauthier nomination until the DOE delivers its plan for spending the $375 million. Perhaps McConnell and some of his colleagues should consider taking a closer look at the DOE budget as well.

These unelected officials should not be allowed to sit by idly while the workforce reduction continues at the USEC plants in Paducah and Portsmouth. We urge Sen. McConnell and other members of Congress to use all the political leverage they command to force the DOE to do its duty under the law.

DOE cylinder plan reaches McConnell

The Paducah Sun
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■ *Energy Secretary Bill Richardson also committed to offset spending $375 million for the recycling project.*

BY JOE WALKER
SUN BUSINESS EDITOR

After weeks of pressure by federal lawmakers from Kentucky and Ohio, the U.S. Department of Energy has submitted a plan to start building uranium recycling plants in Paducah and Portsmouth, Ohio, as early as 2002.

Sen. Mitch McConnell received the plan Friday, a day after announcing that he would delay the confirmation of T.J. Glauthier as deputy secretary of energy until the overdue plan was provided. By law, DOE was supposed to have submitted the plan Feb. 1 with President Clinton's budget request.

"I think they got the message," McConnell said Monday.

McConnell also asked for, and got, a commitment by Energy Secretary Bill Richardson to offset spending $375 million for the recycling project. USEC Inc., which operates gaseous diffusion plants at Paducah and Portsmouth, transferred the money to the U.S. Treasury last year under legislation backed by McConnell and others to offset job losses as USEC phases out the plants.

"In effect, I won't have to go find the money somewhere in the budget," McConnell said. "They are going to find the offset for the $375 million from within the Department of Energy, which makes it a lot easier for me. You can't just go out and spend that much without an offset."

DOE's plan calls for building facilities to convert depleted uranium hexafluoride, or UF6, from the diffusion plants' uranium enrichment process into safer, more stable material for storage or sale. The UF6, which resembles rock salt, is stored in cylinders, including nearly 37,000 at Paducah.

In previous documents, the department has said viable, long-term use of the material could lead to as many as 2,100 direct jobs earning $130 million annually at the two plants. The most expensive methods of converting and disposing of the UF6 could cost $2.6 billion, it said.

This spring, DOE plans to issue a final environmental impact statement and record of decision on long-term management of the cylinders.

DOE started procurement March 4 by asking private companies for help in developing the recycling project. The department will receive responses through early April and issue a request for proposals this summer.

William Magwood, director of DOE's Office of Nuclear Energy, wrote McConnell Friday saying the plan anticipates "private sector responsibility" for designing, building and running the recycling plants. Several companies have shown an interest, including Starmet, a firm that has a depleted uranium processing facility in Aiken, S.C., and an option to get into the recycling business with USEC.

The plan calls for awarding a conversion plant contract next year and starting construction by Jan. 31, 2004. But Richardson wrote McConnell Friday, saying DOE has an "aggressive schedule" to start building the facilities as early as 2002.

DOE says in the plan that many potential applications for the material are promising, such as using it to make Ducrete, a concrete product developed by Starmet for use as radiation shielding. Another possibility is reusing fluorine derived from depleted UF6.

In its fiscal 2000 budget request, DOE has proposed funding to develop ways to use materials derived from spent UF6 for governmental programs.

McConnell said DOE's prompt response is enough for him to take part in Senate confirmation of Glauthier, who has extensive experience in the Office of Management and Budget that oversees DOE and various other agencies. Glauthier has pledged his help in seeing that the recycling plants are built.

Although McConnell said he is happy with the progress made so far, the recycling project has a long way to go.

"I think this whole thing is just a work in progress," he said, "and we're going to keep an eye on it as it goes along."

April 1999

Monthly Planner

March

S	M	T	W	T	F	S
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May

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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4	5 Site Tour	6 Site Tour	7	8	9	10 [redacted]
11	12	13 Site Tour	14	15 SSAB	16	17
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May 1999

Monthly Planner

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 Site Tour	6	7	8
9	10	11 Environmental Fair	12	13 SSAB	14	15
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April

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June

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