PADUCAH GASEOUS DIFFUSION PLANT
SITE SPECIFIC ADVISORY BOARD

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

2000 McCracken Boulevard • Paducah, Kentucky 42001 • (502) 744-9010

Co-Chairs

Mark Donham
Vicki Jones

Board Members

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

***Ex Officio* Members**

Carl Froede, Jr.
Environmental Protection Agency

Wayne L. Davis
Fish and Wildlife Resources
(Kentucky)

Tuss Taylor
Division for Waste Management
(Kentucky)

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

Jimmie C. Hodges
Department of Energy

DOE Federal Coordinator

John D. Sheppard

Additional information about contacting board members directly can be obtained from the SSAB web site or by contacting Shirley Speer at (502) 462-2550.

Final agenda for the June 17, 1999, meeting:

- Call to order/Discussions
- Minutes
- Public Comments and Questions
- Information Handouts
- Program Status Updates
  - EM&EF Projects
  - Vortec (new fact sheet)
  - Depleted UF_6
  - DOE Public Workshop
- Sitewide Cummulative Effects
- Programmatic Presentations
  - WAG 6—Gregory Waldrop
  - WAGs 3, 8, 28/ Data Gaps—Bob Pratt
  - Life Cycle Baseline—John Morgan
  - *Paths to Closure* document—Mark Donham
- SSAB Subcommittee Reports
  - Community Relations—Judy Ingram
  - Consultant—Bill Tanner
  - Membership—Nola Courtney
- SSAB Recommendations Status—Jimmie Hodges
- Administrative Issues for the Board
  - Co-chair Status
  - Review of the SSAB Draft Workplan
  - Tours
  - Financial Update
  - SSAB Letterhead
  - Status of Name Change Proposal

PADUCAH GASEOUS DIFFUSION PLANT
SITE SPECIFIC ADVISORY BOARD

padssab@apex.net

www.oro.doe.gov/pgdpssab/

2000 McCracken Boulevard • Paducah, Kentucky 42001 • (502) 744-9010

Co-Chairs

Mark Donham
Vicki Jones

Board Members

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

***Ex Officio* Members**

Carl Froede, Jr.
Environmental Protection Agency

Wayne L. Davis
Fish and Wildlife Resources
(Kentucky)

Tuss Taylor
Division for Waste Management
(Kentucky)

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

Jimmie C. Hodges
Department of Energy

DOE Federal Coordinator

John D. Sheppard

Additional information about contacting board members directly can be obtained from the SSAB web site or by contacting Shirley Speer at (502) 462-2550.

Meeting Minutes
Paducah Site Specific Advisory Board
June 17, 1999

The June 17, 1999, Paducah Site Specific Advisory Board (SSAB) meeting took place at the Paducah Information Age Park Resource Center in Paducah at 5:30 p.m.

The following board members were present: Kit Atkinson, Nola Countney, Mark Donham, Angela Farmer, Vicki Jones, Merryman Kemp, Ronald Lamb, Linda Long, Douglas Raper, Craig Rhodes, Rosa Scott, Jim Smart and Bill Tanner. *Ex officio* members present were Tuss Taylor and Todd Adams. The facilitator present was Steve Kay. The United States Department of Energy (DOE) federal coordinator present was John D. Sheppard. LeRoy Chittenden of Kentucky Division of Waste Management (KDWM) was present. Also present were the following members of the public and employees, contractors, and subcontractors of the DOE: Norm Jetta, Sam Leone, Dave Massey, Jimmy Massey, Mary Molott, John Morgan, Bob Pratt, Shirley Speer, and Debbie Wattier.

Agenda

Steve Kay called the meeting to order and asked if there were any modifications to the agenda. John Sheppard asked that the upcoming national Transportation workshop and the member orientation packet be added. The modified agenda was approved and adopted.

Facilitator's Orientation

Steve Kay reviewed highlights of the SSAB bylaws. Kay said the facilitator's role is to help the board stay on the agenda, to reach closure on issues, and to check for consensus when there are decisions to be made. His role also includes making sure all views are heard and valued until a decision is reached.

Public Comments from Guests

There were no comments made during this period.

Minutes

The minutes from the May 13, 1999, meeting were approved by consensus and adopted.

Information Handouts

No comments regarding handouts.

Environmental Management and Enrichment Facilities Project Updates

Mark Donham asked for minutes from the recent Innovative Treatment Remediation Demonstration (ITRD) meeting in Paducah. John Sheppard agreed to see if these could be provided to the board. Donham asked if the SSAB could have a representative present at these ITRD meetings. Sheppard said there would be no problem. Angela Farmer asked for an explanation of the ITRD. Sheppard explained that it is a functioning technical group that reviews technologies that may potentially be applied to the site's groundwater remediation. Donham questioned how Federal Advisory Committee Act (FACA) requirements apply to the ITRD. John Morgan said the group does not circumvent the CERCLA process, that it supports the process, and that any suggestions from the ITRD group would be part of a Proposed Remedial Action Plan, which would undergo a public comment period. Steve Kay asked for clarification regarding the FACA requirements. Farmer suggested that the board receive e-mail distribution of agenda for June 22-23, 1999, ITRD meeting, and also be provided previous meeting minutes.

Vortec Update

Ronnie Lamb ask if vitrification failed at the DOE Savannah River Site, then what would be the difference at the Paducah site. Norm Jetta, Vortec site manager, addressed this, and a similar question by Kit Atkinson, regarding failures at other sites (Savannah River, Fernald, and Oak Ridge). Jetta said this type of failure would not occur at Paducah because the Vortec melter is a different design and operates on a different principle. The other units are a batch method, Joule heated (electric) melters, and the Vortec unit is a continuous flow, high temperature thermal (non-electric) process. Angela Farmer and Mark Donham asked questions regarding assurance of glass stability and the type of material to be processed. Jetta described the material to be treated and said all glass testing will be done using U.S. EPA protocols. Jimmy Massey explained the characterization of the wastes. Lamb asked if the Savannah River unit was still operating. Jetta replied that the design problems were corrected and the unit is processing high level waste sludge. Lamb asked whether there are bulletins on the problems that might be experienced with Vortec if demonstrated at Paducah. Jetta said that the probability of failures are analyzed. Donham said that he would share the technical report from the Fernald vitrification project with the board.

Depleted Uranium Hexafluoride (DUF_6)Programmatic Environmental Impact Statement Update

Tuss Taylor said representatives of the Commonwealth of Kentucky and DOE had met June 17 regarding development of a plan to assure that even if DOE funding is reduced, that the DUF_6 cylinders at Paducah are maintained, painted, and inspected, until the material is converted. The plan will be formalized as an Order. Ohio and Tennessee already have similar cylinder management plans in place.

Sitewide Cumulative Effects

Ronnie Lamb asked about a DOE document that had been declassified that mentions plutonium. The document number is KY-A-46. John Sheppard agreed to try to locate the document.

Mark Donham said he had received a call from a reporter saying that DOE needs more money for the DUF_6 conversion facilities. Donham asked if the upcoming DOE Request for Proposal (RFP) will be for the total conversion process, or if it will be just a first step. Sheppard said the RFP is expected to relate to the whole conversion project; he added that the DOE Paducah Site Office has a representative in Oak Ridge working on the RFP. Sheppard said that a fact sheet on the status of the RFP for DUF_6 conversion will be provided at the July meeting.

SSAB participation in the DOE Public Workshop scheduled for July 27, 1999, was discussed. Merryman Kemp said that it seemed that the board agreed at the last meeting that it would be a good idea to participate. Vicki Jones proposed the SSAB participate. The proposal was approved by consensus. Jones said that the board could provide a handout on the SSAB scope, contacts, etc. Angela Farmer said that people from the community should attend the workshop. She asked if the Chamber of Commerce is being invited. Debbie Wattier said that Chamber members as well as plant neighbors, public officials, and the general public are invited. Linda Long volunteered to work at the SSAB table at the workshop. Bill Tanner, Vicki Jones and Doug Raper agreed to help. Mark Donham expressed a concern that the board be independent, and capable of criticizing when warranted. Bill Tanner said that to have access to the public, the board needs to participate in activities such as the DOE Public Workshop. He said the board also needs to be at the West Kentucky Wildlife Management Area for the Environmental Fairs (or Earth Day), and to be at other functions in the community. Farmer said the SSAB could have a feedback form at the information table at the workshop. It was suggested that the Community Relations subcommittee help support this effort. Kemp suggested that the SSAB community outreach subcommittee work on the logistics for the workshop participation. Craig Rhodes said that this subcommittee would handle this. Tanner proposed that the community outreach subcommittee arrange to publish an ad on behalf of the SSAB on July 25, 1999, in *The Paducah Sun*, encouraging the public to attend. The suggestion of the SSAB ad was presented as an amendment to the proposal to participate, and was approved.

Waste Area Group 6

No comments.

WAGs 3, 8, 28/Data Gaps

Bob Pratt of Bechtel Jacobs Company gave an overview of the environmental field work underway this summer, and over the upcoming weeks to investigate: four of the operating plant switchyards, locations related to the original construction of the plant, three burial grounds, and also to fill in needs for data from previous investigations. Mark Donham asked about the capacitors in the switchyards. Jimmy Massey said that some of these capacitors had failed over the years, and released oils containing Polychlorinated Biphenyls (PCBs) onto the gravel and ground. Dave Massey said that information on management of PCBs is available to the public through records related to the TSCA federal regulations. Pratt said that problems identified through the investigations and evaluations of this project would be addressed.

Lifecycle Baseline

John Morgan of Bechtel Jacobs Company provided a briefing and handout on the Lifecycle Baseline process. He said that DOE has had similar plans for years. The Lifecycle Baseline relates to scope of work, sequencing, priorities, and budget throughout the whole cycle of plant cleanup from now until completion. He said that Congress will provide funding to the sites that get work done quickly, sites that have an effective plan with an end point in mind. He said this is why DOE's *Paths to Closure* document is important, because DOE is showing that it is trying to finish work, as it competes with other federal agencies for funding. Mark Donham asked how this relates to CERCLA. Morgan said that each Lifecycle Baseline process supports both the Federal Facility Agreement and the CERCLA process. Morgan suggested that the Groundwater Operable Unit and the Scrap Metal are two of the major projects for the board to track. Sheppard noted that the budget information covered in the Lifecycle Baseline briefing by Morgan includes DOE Environmental Management (cleanup and waste), and not the DUF_6 budget. Jim Smart asked why Oak Ridge receives so much more money than Paducah or Portsmouth. Morgan said that D&D in Oak Ridge includes major building demolitions and reindustrialization along with monitoring and remediation. Taylor asked if there is a compliance schedule for reindustrialization in Oak Ridge. Jimmy Massey said there is not a compliance schedule for reindustrialization in Oak Ridge, but that there is a compliance schedule for D&D and cleanup. Ronnie Lamb said that Paducah has the largest area of off-site contamination in the system, but gets less money. He said he had not seen much environmental cleanup at Paducah. Morgan said that Paducah has been in the investigation stage in recent years, but that it is ready to go into Remedial Action. Morgan said the challenge is to get the funding for Paducah, and that it will help if the community supports the need for funding.

Smart asked if the board could participate in the effort to get more money for cleanup at Paducah. Jimmy Massey said that now is the time to ask Kentucky's U.S. senators and Congressman Whitfield to try to have Congress put more money in the D&D fund to provide better funding for

Oak Ridge Operations, which includes Paducah. Kit Atkinson cited the example of the success of citizens in Ohio in obtaining better funding for action at the Fernald DOE Site. Morgan said that DOE at Paducah and Bechtel Jacobs Company can provide the Paducah SSAB information to assist with any such requests for better funding. Farmer said that the problem is that the community does not know what is going on, and that the board would need to get other groups behind such an effort.

Mark Donham said that everyone involved wants the site cleaned up, but that DOE needs the board's support, and must develop it. Mark stated he wouldn't write a blank check without knowing what is was to be spent on. John Morgan noted that ideas of the board had been incorporated into the new remedial action strategy for a sitewide approach to cleanup. Donham said the sources of contamination are not being cleaned up. Morgan said that is now the focus of the program. Craig Rhodes said there is a lack of information and confusion, facilitated by the Paxton media group, and that the public is not going to support the need for more funding. John Sheppard said that everyone agrees that remediation is a long process, and that it is hoped that the new sitewide strategy will work. He said the site must be cleaned up, and this must be done in compliance with CERCLA and the public participation process.

Merryman Kemp said that Paducah has had a Chamber of Commerce attitude for years, not wanting people to know how big the problems are at the plant. She said that the board needs to express enough concern to get the attention of Congress. Bill Tanner suggested starting with the SSAB ad before the DOE Public Workshop, possibly running something that would attract attention. Kemp said that perhaps a flier could be developed. Craig Rhodes said that perhaps the board should try again to have Fred Paxton meet with the board. Tanner suggested that instead, the board take the first step, work at the grass roots level with advertisement and mailings to the public, to have political influence to obtain better funding.

Community Relations

This subcommittee will address the politics of getting more community involvement in cleanup. Merryman Kemp said the Community Relations subcommittee will take on the political aspects of seeking better funding. Steve Kay suggested that this committee work in between the monthly meetings. Kay said that this board has made progress in understanding the plant and issues, and that now it is at the point to take on more work.

Consultant

Tanner said the RFP for a technical consultant to the board has been issued, with responses due July 1, 1999. This will be addressed at July meeting.

New Members

Will be addressed at July meeting.

Co-Chair Discussion

Will be addressed at July meeting

Workplan

The workplan is going to be addressed by Nola Courtney and Mark Donham at the July meeting.

Financial Update

Will be addressed at July meeting. Handout was provided.

Site Specific Advisory Board Letterhead

All members' names will be listed on letterhead with addresses and phone numbers deleted.

Tours

Will be addressed at July meeting.

Transportation Workshop

Nola Courtney and Doug Raper will plan to participate in an upcoming conference call related to national SSAB transportation working group, described in a handout.

Member Orientation Kit

Member input was invited on the sample kit assembled by Shirley Speer. Also will be addressed at July meeting.

Adjournment

The next meeting will be held July 15, 1999, at the Information Age Park Resource Center at 5:30 p.m. Shirley Speer will identify a different meeting location, and consult with the SSAB co-chairs before finalizing. The normal location (Rooms 126-127) is not available through August. Meeting in the open area (Great Hall) is not satisfactory for a board meeting because it is difficult to hear and understand people.

The meeting was adjourned.

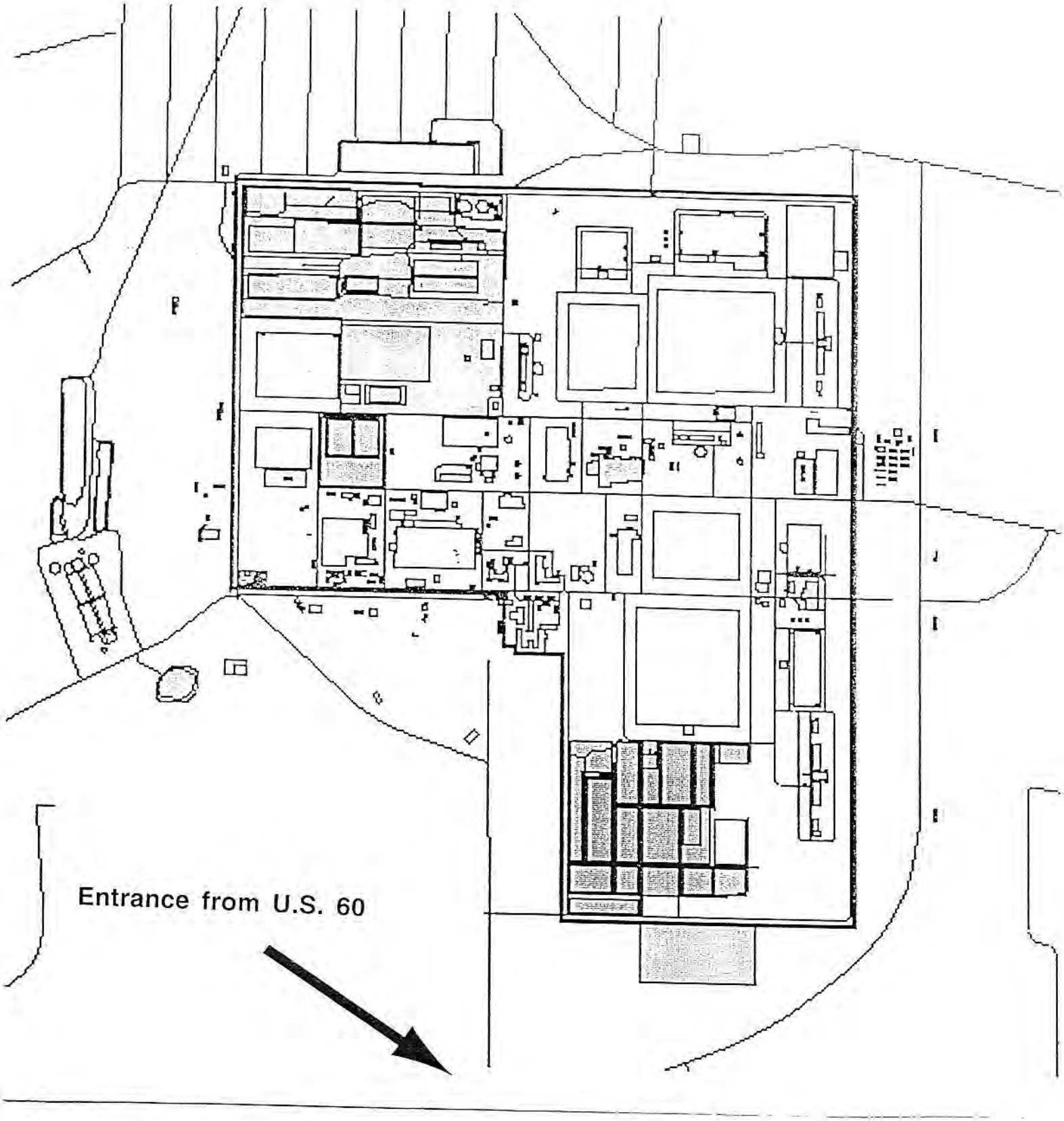
PLEASE SIGN IN

Paducah Gaseous Diffusion Plant
Site Specific Advisory Board

Name	Affiliation
Craig Rhodes	SSAB
Shirley Speer	
Russ Taylor	KDWM
[illegible]	SSAB
Vicki Jones	SSAB
John Shypsel	DOE
Kit Atkinson	SSAB
Douglas L Napier	SSAB
Todd Adams State/Radiation Program	
Norm Jetta	Vortec Corp.
ROSIA SCOTT	SSAB
Jimmy Massey	BJC
Mary Moritt	Public
Mark Dahan	SSAB
John Morgan	Bechtel Jacobs
Nora Courtney	SSAB
Angela Farmer	SSAB
Merryman Kemp	SSAB
Sam Leone	BJC
Dave Massey	BJC
Ronald Lovell	SSAB
Jim Smart	SSAB
R.A. Pratt	BJC
W. L. Roy Chittenden	Ky Hwy Waste Management

June 17, 1999

Linda Long (SS)	SSAB
Debbie Wattier (SS)	Bechtel Jacobs


Entrance from U.S. 60

Funds OK'd for dam, lock, USEC work

The spending bill now goes to the full Senate for consideration, and if passed then to the House. Differences would then be worked out by a House-Senate conference committee.

By Joe Walker
Sun Business Editor

The Senate Appropriations Committee has approved member Sen. Mitch McConnell's funding requests for major work at the Paducah Gaseous Diffusion Plant and two area lock and dam projects.

McConnell said the committee, at his request, included in the Energy and Water Development Appropriations Bill:

- His amendment to add two years to the life span of $373 million set aside to build uranium hexafluoride (UF6) conversion facilities at the Paducah and Portsmouth gaseous diffusion plants. The amendment requires that the funds be earmarked until 2002, rather than 2000.
- $200 million for environmental cleanup at the two plants and a closed uranium enrichment facility at Oak Ridge, Tenn. About $30 million from that fund will be spent at the Paducah plant.
- $30 million for the Department of Energy's Worker and Community Transition Program, which supports the Paducah Area Community Reuse Organization. The money goes for retraining, early retirement, outplacement and relocation of people who lose jobs at DOE plants through the country, including Paducah's.
- $38.6 million for the continued building of Olmsted Lock and Dam in Olmsted, Ill., across the Ohio River from Ballard County. The funding level is $10 million more than the Clinton administration's request.

Committee OKs dam, lock, USEC funding

Continued from 1A

- $9.75 million for an ongoing project to build a new lock at Kentucky Dam. That is $2 million higher than the Clinton budget proposal.
- $7 million for operation of the Land Between the Lakes.

The spending bill now goes to the full Senate for consideration, and if passed then to the House. Differences would then be worked out by a House-Senate conference committee.

"We are trying to finish with some of these appropriations bills early this year ... to avoid another shoot-out at the end of the fiscal year," McConnell said. He said congressional leaders want to avoid the problems that result from delaying the passage of the bills until after the start of the next fiscal year.

Last year, McConnell helped pass legislation to preserve $373 million for conversion facilities at Paducah and Portsmouth to treat and recycle spent material that is a byproduct of enriching UF6. DOE leases the plants to USEC Inc., which provides nuclear fuel services.

McConnell said there is a pressing need to protect the money until 2002, rather than 2000 as stated in last year's law.

"According to DOE's schedule for cleanup, the bulk of the funding will not be spent until 2002 and beyond," he said. "Therefore it is vital that we protect these funds until they are actually needed for cleanup."

DOE is expected to take final bids in August, award a contract by March 2000 and start building the conversion plants no later than 2002.

McConnell said the committee also approved his request for $5 million of the $373 million for DOE to start environmental evaluation of the sites and set licensing requirements.

Regarding Kentucky Lock, the senator said the funding would keep work on track to provide "safe and cost-effective transportation along the Tennessee River." The new lock will be twice the size of the existing lock, which is too small to handle the increasing barge traffic on the river.

The 10-phase Olmsted Dam project is targeted for completion in 2008. Two 1,200-foot-by-110-foot locks are expected to be completed in about a year. When completed, the Olmsted Lock and Dam will replace antiquated wicket dams 52 and 53 at Olmsted and Brookport, Ill.

TO: DENNIS HILL

Study to explore gas plant ex-workers' health problems

The Paducah Sun
05/11/99 - P. 8B

■ **Targeting mostly** *employees at the plant in the 1950s and '60s, the evaluation may last four years or more.*

By Joe Walker
Sun Business Editor

Health screening begins May 19 in an extensive study of about 2,000 people who may have been exposed to harmful substances while working decades ago at the Paducah Gaseous Diffusion Plant.

Jim Chesnut, a plant retiree and former atomic workers union president, said the goal is to screen five people weekly for as long as the federally sponsored program lasts. He said testing could take at least four years.

Former workers will be interviewed about their experiences and tested for signs of health problems possibly associated with the plant, particularly in the 1950s and 1960s before stringent occupational exposure reform took place. Before the screenings, workshops will be held at the atomic workers' union hall at 2525 Cairo Road to teach people the substances to which they may have been exposed and help them fill out questionnaires.

"The questionnaires will help make doctors aware of some of the more specific things they need to look for," said Chesnut, retiree representative for the health study.

Testing will be at the Prime Care Center in West Park Village; a second location is being sought in western Kentucky. Dr. Steven Markowitz, an epidemiologist with Queens College, City University of New York, will lead the study.

Markowitz heads an independent consortium composed of his school; the Paper, Allied-Industrial, Chemical and Energy Workers International Union (PACE), and the University of Massachusetts in Lowell. The U.S. Department of Energy, which owns the plant, is funding the study.

The first phase, which began last year, assembled information about worksites, harmful substances and conditions at the plant. Now doctors want to know what health problems people may have experienced from exposure to chemicals, radiation, noise and other factors.

Chesnut, of Paducah, who worked in production at the plant from its opening in 1952 to his retirement in 1993, said physicians will focus on liver and kidney damage linked with exposure to uranium hexafluoride (UF6), which is enriched by the plant for use in nuclear fuel.

"Normally, UF6 would be flushed out through the kidneys in most people," he said. "But some of it might be retained in the body for months."

Few precautions were taken in the 1950s, Chesnut said. Today workers wear protective clothing and have stringent restrictions in handling UF6.

"If we operated the place in the early days the way it is operated now, we never would've opened," he said, explaining that production was paramount to safety then.

Health tests also will screen people for asbestosis, a lung disease associated with breathing asbestos; hearing loss linked to equipment noise, and liver and kidney problems that may have stemmed from exposure to solvents and metals. Similar to a routine physical, screening involves X-rays, blood tests and breathing tests.

Although DOE is sponsoring health studies at other sites, this study is unique because former plant workers are coordinating the testing, Chesnut said. The study covers union and non-union employees.

"I'm really proud of the response the Paducah plant and community have given," he said. "We want to be sure we reach all the people who worked there because they are the history of the Paducah plant."

The study also involves former workers at gaseous diffusion plants in Oak Ridge, Tenn., and Portsmouth, Ohio. Although employees at those plants have been studied before, this is the first extensive look at past employees of the Paducah plant.

Chesnut is contacting newspapers in four states this week to publicize the study. One of the hardest tasks is reaching 2,000 people, many of whom have moved several times since working at the plant, he said.

Worker information and test results will be coded and kept confidential. Markcowitz, an occupational health specialist, and his team will contact people to discuss findings privately.

"I'm of the opinion that if we can help one person with a health problem, then it's worth what we're doing," Chesnut said. "After the screening, I'll talk to each person to see how the testing went and if there were any problems."

For information on the project, call toll free 888-241-1199. Callers may request forms and provide information to the person answering or via an answering machine.

Chesnut may be reached at 442-2602.

The Paducah Sun
05/19/99 - P. 4A

FUTURE HOPE

Privatization favors Paducah plant

After experiencing a year filled ith nagging uncertainty and jolting ange, the employees of the aducah Gaseous Diffusion Plant obably paid little attention to their ficial switch to a new employer uesday. Although the plant's future still in doubt, the 1,600 new nployees of USEC Inc. have a umber of reasons to feel hopeful bout the facility's long-term rospects for survival.

On Tuesday USEC replaced ockheed Martin, the private ompany that had run the plant for e past 14 years. Lockheed Martin perated the facility under a ontract with the facility's old wner, the federal government. Last uly USEC made the unusual ansition from federal agency to rivate corporation.

Not surprisingly, that major hange was unsettling to workers ho had become accustomed to the ockheed Martin's efficient anagement of the uranium nrichment operation. The rivatization was quickly followed y a series of cost-cutting moves at resulted in the elimination of a otal of 500 jobs at the USEC aseous diffusion plants in Paducah nd Portsmouth, Ohio.

Worried USEC employees watched as the U.S. government's deal with Russia for the purchase of uranium from the former superpower's nuclear inventory produced a glut of commercial reactor fuel on the world market, driving down prices and threatening the newly privatized company's bottom line. The financial pressure created by the oversupply of enriched uranium made it likely that one of USEC's plants eventually would close, perhaps in the not-too-distant future.

Then word came last fall that USEC officials were preparing to deploy a new and more efficient process for enriching uranium called AVLIS. The opening of the new AVLIS plant almost certainly would result in the closing of either the Paducah or Portsmouth plant, but both cities were on USEC's site selection list for the new facility. With 1,600 existing jobs and 1,500 potential new jobs on the line, the intense national competition for the proposed $2 billion AVLIS plant created both hope and anxiety here in Paducah.

These nerve-wracking changes would be enough to shake even the steadiest company, but USEC and its employees have stayed on course despite the distractions. Of course, uncertainty remains — it's a given now in the uranium enrichment industry. On the whole, though, USEC workers in Paducah face a future that holds more opportunities than threats.

The most important fact about the Paducah Gaseous Diffusion Plant is that it is highly productive. Over the past decade the plant has become a model of efficiency, winning national recognition for its efforts. Labor-management relations also have improved, as a recent remark by David Fuller, president of the plant's atomic workers' union, showed. Commenting on the plant's future, Fuller said that "for union people to be successful, USEC has to be successful and vice versa."

This healthy attitude should help give Paducah an advantage over the Portsmouth plant, which has suffered from serious labor disputes and has lost its edge in productivity.

The biggest question mark for USEC workers is the future of AVLIS. Earlier this month, Nuclear Fuel magazine reported that the latest test run of the laser-based

The biggest question mark for USEC workers is the future of AVLIS. Earlier this month, Nuclear Fuel magazine reported that the latest test run of the laser-based technology produced disappointing results. It now appears likely that USEC will delay the deployment of AVLIS, in an effort to reduce research and development costs.

Officials in the Paducah area are hoping to land the new plant and all the economic benefits it promises, but a delay isn't necessarily bad news for USEC employees. Again, the key point is that the plant's outstanding performance should give it some protection against the downturn in the price of enriched uranium.

Privatization makes productivity more important than politics. The fate of USEC workers no longer depends on the whims of Washington, and that's a good thing for Paducah.

The Advance Yeoman • Wednesday, May 19, 1999

Comment period open for DOE Clean-up plan

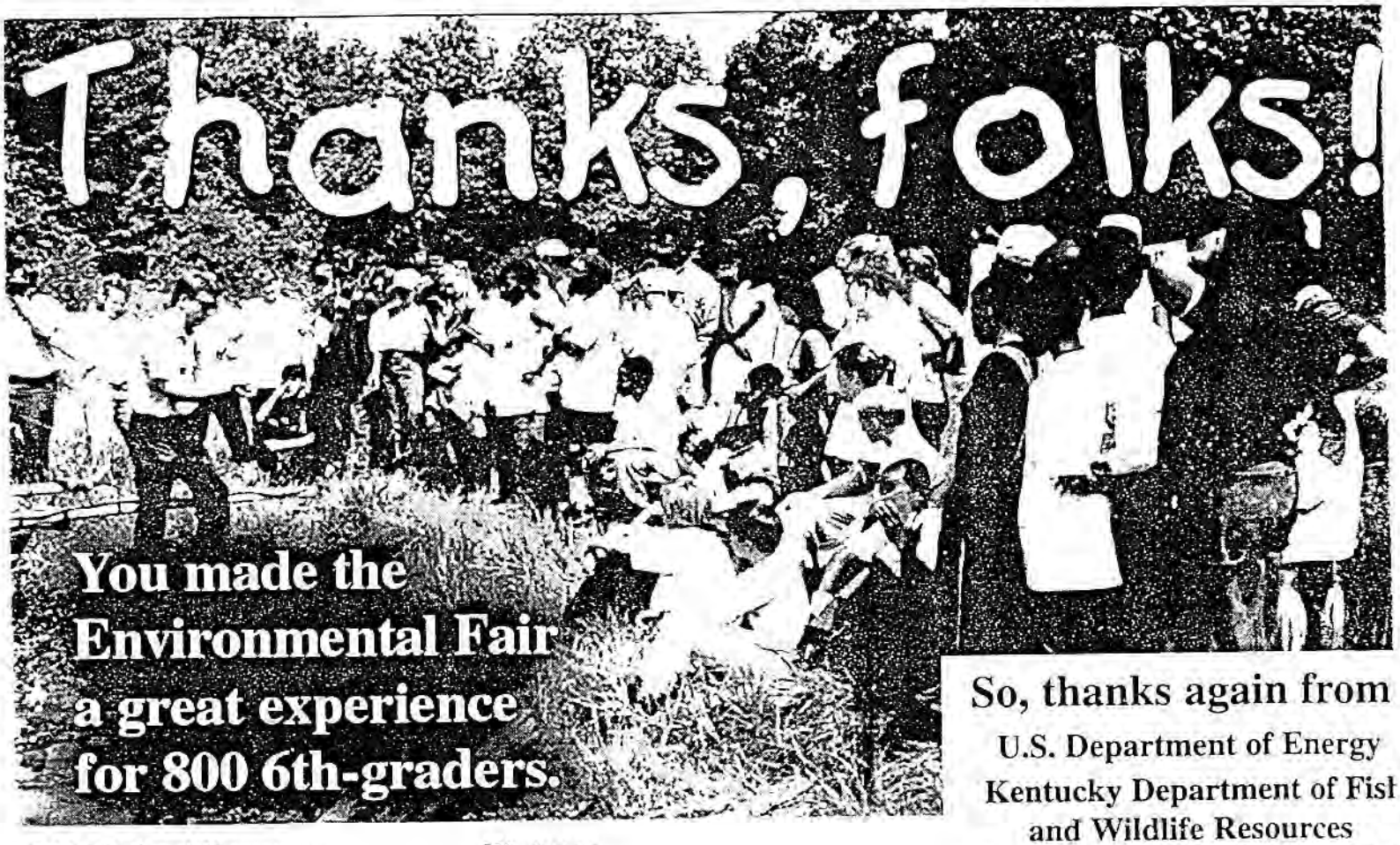
KEVIL-Public comment is being accepted on a draft version of the U.S. Department of Energy's *Paths to Closure* document, which includes current assumptions and plans for environmental cleanup of the Paducah Gaseous Diffusion Plant.

The document also contains information about cleanup work at DOE sites in Portsmouth, Ohio, and Oak Ridge, Tenn. It is available for public review and comment through June 4.

Copies are available for review in the Environmental Information Center-in the West Kentucky Technology Park just off U.S. 60 in Kevil-and the Paducah Public Library.

Comments on the document may be sent to:

Barbara Brower, U.S. Department of Energy, Box 2001, Oak Ridge, TN 37831. For questions about the Paducah portion of the plan, call John Sheppard, Paducah DOE office, (270) 441-6804.



So, thanks again from

U.S. Department of Energy
Kentucky Department of Fish and Wildlife Resources
Bechtel Jacobs Company LLC
Heath Middle School

CDM Federal Programs
CH2M Hill
EnSafe
Murray State University Center for Environmental Education
Tennessee Valley Authority
Western Baptist Hospital
Westvaco
Reidland High School
Lone Oak High School
Heath High School
Paducah Tilghman High School
Jackson Purchase Two-Way Radio
Mountain Valley Water

Participating schools in the May 11-12 Environmental Fair: Lone Oak, Heath and Reidland middle schools; Clark, McNabb, Cooper-Whiteside, Unity, Brookport and Franklin elementary schools.

ENVIRON mental

Annual Environmental Fair Draws 800 6th-Graders From Area Schools

Mark Courtney was having a ball. The Reidland High School senior couldn't think of a better way to spend the school day than traipsing through the woods, teaching hundreds of 6th graders about trees.

"We are literally having the kids go up and hug a tree," Courtney laughed. But he and his fellow student teachers at the annual Paducah Environmental Fair had something in mind besides having their charges grab some bark. Blindfolded students were led to a tree and told to hug it and try to feel identifying characteristics so they could identify 'their' tree when the blindfolds came off.

"We're teaching them that trees are like people, everyone is different," Courtney said. "We're showing them about individuality, we're just showing them through trees."

The Hug-A-Tree lesson by Reidland High School students was one of nine different presentations that was part of the fair at the West Kentucky Wildlife Management Area. About 800 6th graders from McNabb, Cooper-Whiteside and Clark elementaries in the Paducah city school system, Heath, Reidland, and Lone Oak Middle from the McCracken County system and Unity, Brookport and Franklin elementaries from Massac County (Ill.) attended the two-day event (May 11 and 12).

Students learned about topics ranging from water quality to recycling and wildlife habitats. Presenters from government, corporations and schools gave kids some practical knowledge about how the world works.

Wava Grandon created the fair ten years ago as a project for her sixth grade students. For Grandon, who retired from Heath Middle School four years ago, seeing so many kids get a hands-on experience with environmental science was gratifying.

"It gives me a lot of pride that the community pulls together and keeps this growing," she said. "The students get a lot out of this. They come to appreciate the environment more."

Grandon began taking her class on a picnic to Metropolis Lake, a popular recreational spot not far from the Wildlife Management Area. During the picnic, students helped clean up the area around the lake and learned some practical tips on recycling.

"It sounds strange, but I took cloth napkins on that picnic," Grandon said. "But I wanted them to see how to avoid paper litter. And we also made a compost pile from our waste."

From 25 kids the first few years, Grandon's yearly teaching sojourn into the woods began to grow. When sixth grade classes were moved from elementary to middle schools, other classes at Heath Middle joined. Other schools gradually were added. The U.S. Department of Energy and the Kentucky Department of Fish and Wildlife Resources signed on as sponsors and DOE environmental contractor, now Bechtel Jacobs, LLC, too on the role of coordinating the increasingly complicated event. The Department of Energy owns the Paducah Gaseous Diffusion Plant, adjacent to the Wildlife Management Area.

As the event grew, and because of occasional flooding around Metropolis Lake, the fair moved to the sprawling Wildlife Management Area. Grandon continued coordinating the fair until her retirement in 1995. Jim Ethridge, a photographer and community relations specialist for EnSafe, a Bechtel Jacobs Company subcontractor, now directs the annual event.

Grandon came to the 1999 fair strictly as a spectator. As she walked from exhibit to exhibit, she was greeted by presenters and teachers who thanked her for her years of devotion to the project. Some presenters, such as Courtney, were making a return visit after attending the first time as Grandon's student. Another presenter who had a warm welcome for Grandon was Dr. Joe Baust, professor and director of the Environmental Education Center at Murray State University.

Grandon credits him with giving her the idea for the fair when she took his class in 1980; Baust credits Grandon.

"Wava is an exceptional person," Baust said while waiting for another group of students to arrive for a demonstration about life in the wild. "It takes initiative and insight to see what kids can do to learn outside. We just plant a seed and hope it germinates. In her case, it did."

Baust didn't have much time to talk as a boisterous group of students arrived, looking with wonder at the assortment of noisemakers and blindfolds arrayed before them. Baust and his helpers blindfolded each student, giving each a noisemaker and instructions to periodically sound off and use the noise to find their partner, also wandering blindfolded around the field with an identical noisemaker. In a few minutes Baust had created a way for students to understand what it's like to be a small animal trying to make its way around the forest at night. Into this chaos, he introduced a predator, a student whose job was to "eat" those who made too much noise. Students who could not find their partners or who were not quiet enough were eliminated from the game.

It was fun for the kids, but in less than 20 minutes they got a first-hand look at the laws of the jungle: make too much noise and you're lunch; cooperate with your kind or you're lunch; develop listening skills or you're lunch. Even the student predators learned a lesson: eat all your prey and you're extinct. Baust said the game quickly teaches students about natural selection and the food chain and other presentations at the fair will help students make similar scientific connections and give them a boost in all their studies.

"Research shows kids do better in all subjects, not just science, when the outdoors are used in education," Baust said.

Grandon became a believer in using the outdoors to teach when she returned to college after her daughters finished high school. She earned her degree and began teaching what Baust had taught her. Having the fair grow so big is a bonus.

"Different people and organizations just wanted to be involved," she said. Besides the event sponsors, a number of other employers and organizations provided people and materials to make the fair possible. They are: CDM Federal Programs, CH2M Hill, EnSafe, Jackson Purchase Two-Way Radio, Mountain Valley Water, Murray State University Center for Environmental Education, Tennessee Valley Authority, Western Baptist Hospital, and Westvaco. Students from Reidland, Lone Oak, Heath and Paducah Tilghman high schools and Heath Middle School made or assisted with presentations.

Students this year saw a presentation about power generation from TVA, sorted biodegradable materials in a compost pile prepared by Bechtel Jacobs Company, conducted water quality experiments with Heath Middle School, learned about forest resources from Westvaco and toured a wetlands and a beaver pond and learned about fish health with the Kentucky Department of Fish and Wildlife Resources.

Schools systems that have had students attend the fair in the past include, Paducah, McCracken, Massac, Ballard and St. Mary.

Courtney said he enjoyed the fair as a 6th grader and a senior. "I love the outdoors," he said.

"Outside, teaching kids something, that's not too bad a day."

(Submitted by Debbie Wattier)

Lone Oak Middle School students sort biodegradable material from non-degradable material for inclusion in a compost pile prepared by Bechtel Jacobs Company LLC during the 1999 Environmental Fair. The annual fair is sponsored by the U.S. Department of Energy and the Kentucky Department of Fish & Wildlife Resources with assistance from Bechtel Jacobs Company LLC and Heath Middle School. *(photo by Jim Ethridge, EnSafe)*

Dr. Joe Baust, professor and director of Murray State University's Center for Environmental Education prepares sixth grade students for a simulation they are about to play at the 1999 Environmental Fair. The presentation calls for students to take on the roll of predator and prey in a nighttime environment so they can learn more about wildlife. The annual fair is sponsored by the U.S. Department of Energy and the Kentucky Department of Fish & Wildlife Resources with assistance from Bechtel Jacobs Company LLC and Heath Middle School. **See article on page 11.**

(photo by Jim Ethridge, EnSafe)

Annual Environmental Fair Draws 800 6th-Graders From Area Schools

Mark Courtney was having a ball. The Reidland High School senior couldn't think of a better way to spend the school day than traipsing through the woods, teaching hundreds of 6th graders about trees.

"We are literally having the kids go up and hug a tree," Courtney laughed. But he and his fellow student teachers at the annual Paducah Environmental Fair had something in mind besides having their charges grab some bark. Blindfolded students were led to a tree and told to hug it and try to feel identifying characteristics so they could identify 'their' tree when the blindfolds came off.

"We're teaching them that trees are like people, everyone is different," Courtney said. "We're showing them about individuality, we're just showing them through trees."

The Hug-A-Tree lesson by Reidland High School students was one of nine different presentations that was part of the fair at the West Kentucky Wildlife Management Area. About 800 6th graders from McNabb, Cooper-Whiteside and Clark elementaries in the Paducah city school system, Heath, Reidland, and Lone Oak Middle from the McCracken County system and Unity, Brookport and Franklin elementaries from Massac County (Ill.) attended the two-day event (May 11 and 12).

Students learned about topics ranging from water quality to recycling and wildlife habitats. Presenters from government, corporations and schools gave kids some practical knowledge about how the world works.

Wava Grandon created the fair ten years ago as a project for her sixth grade students. For Grandon, who retired from Heath Middle School four years ago, seeing so many kids get a hands-on experience with environmental science was gratifying.

"It gives me a lot of pride that the community pulls together and keeps this growing," she said. "The students get a lot out of this. They come to appreciate the environment more."

Grandon began taking her class on a picnic to Metropolis Lake, a popular recreational spot not far from the Wildlife Management Area. During the picnic, students helped clean up the area around the lake and learned some practical tips on recycling.

"It sounds strange, but I took cloth napkins on that picnic," Grandon said. "But I wanted them to see how to avoid paper litter. And we also made a compost pile from our waste."

From 25 kids the first few years, Grandon's yearly teaching sojourn into the woods began to grow. When sixth grade classes were moved from elementary to middle schools, other classes at Heath Middle joined. Other schools gradually were added. The U.S. Department of Energy and the Kentucky Department of Fish and Wildlife Resources signed on as sponsors and DOE environmental contractor, now Bechtel Jacobs, LLC, too on the role of coordinating the increasingly complicated event. The Department of Energy owns the Paducah Gaseous Diffusion Plant, adjacent to the Wildlife Management Area.

As the event grew, and because of occasional flooding around Metropolis Lake, the fair moved to the sprawling Wildlife Management Area. Grandon continued coordinating the fair until her retirement in 1995. Jim Ethridge, a photographer and community relations specialist for EnSafe, a Bechtel Jacobs Company subcontractor, now directs the annual event.

Grandon came to the 1999 fair strictly as a spectator. As she walked from exhibit to exhibit, she was greeted by presenters and teachers who thanked her for her years of devotion to the project. Some presenters, such as Courtney, were making a return visit after attending the first time as Grandon's student. Another presenter who had a warm welcome for Grandon was Dr. Joe Baust, professor and director of the Environmental Education Center at Murray State University.

Grandon credits him with giving her the idea for the fair when she took his class in 1980; Baust credits Grandon.

"Wava is an exceptional person," Baust said while waiting for another group of students to arrive for a demonstration about life in the wild. "It takes initiative and insight to see what kids can do to learn outside. We just plant a seed and hope it germinates. In her case, it did."

Baust didn't have much time to talk as a boisterous group of students arrived, looking with wonder at the assortment of noisemakers and blindfolds arrayed before them. Baust and his helpers blindfolded each student, giving each a noisemaker and instructions to periodically sound off and use the noise to find their partner, also wandering blindfolded around the field with an identical noisemaker. In a few minutes Baust had created a way for students to understand what it's like to be a small animal trying to make its way around the forest at night. Into this chaos, he introduced a predator, a student whose job was to "eat" those who made too much noise. Students who could not find their partners or who were not quiet enough were eliminated from the game.

It was fun for the kids, but in less than 20 minutes they got a first-hand look at the laws of the jungle: make too much noise and you're lunch; cooperate with your kind or you're lunch; develop listening skills or you're lunch. Even the student predators learned a lesson: eat all your prey and you're extinct. Baust said the game quickly teaches students about natural selection and the food chain and other presentations at the fair will help students make similar scientific connections and give them a boost in all their studies.

"Research shows kids do better in all subjects, not just science, when the outdoors are used in education," Baust said.

Grandon became a believer in using the outdoors to teach when she returned to college after her daughters finished high school. She earned her degree and began teaching what Baust had taught her. Having the fair grow so big is a bonus.

"Different people and organizations just wanted to be involved," she said. Besides the event sponsors, a number of other employers and organizations provided people and materials to make the fair possible. They are: CDM Federal Programs, CH2M Hill, EnSafe, Jackson Purchase Two-Way Radio, Mountain Valley Water, Murray State University Center for Environmental Education, Tennessee Valley Authority, Western Baptist Hospital, and Westvaco. Students from Reidland, Lone Oak, Heath and Paducah Tilghman high schools and Heath Middle School made or assisted with presentations.

Students this year saw a presentation about power generation from TVA, sorted biodegradable materials in a compost pile prepared by Bechtel Jacobs Company, conducted water quality experiments with Heath Middle School, learned about forest resources from Westvaco and toured a wetlands and a beaver pond and learned about fish health with the Kentucky Department of Fish and Wildlife Resources.

Schools systems that have had students attend the fair in the past include, Paducah, McCracken, Massac, Ballard and St. Mary.

Courtney said he enjoyed the fair as a 6th grader and a senior. "I love the outdoors," he said.

"Outside, teaching kids something, that's not too bad a day."

(Submitted by Debbie Wattier)

Lone Oak Middle School students sort biodegradable material from non-degradable material for inclusion in a compost pile prepared by Bechtel Jacobs Company LLC during the 1999 Environmental Fair. The annual fair is sponsored by the U.S. Department of Energy and the Kentucky Department of Fish & Wildlife Resources with assistance from Bechtel Jacobs Company LLC and Heath Middle School. *(photo by Jim Ethridge, EnSafe)*

Dr. Joe Baust, professor and director of Murray State University's Center for Environmental Education prepares sixth grade students for a simulation they are about to play at the 1999 Environmental Fair. The presentation calls for students to take on the roll of predator and prey in a nighttime environment so they can learn more about wildlife. The annual fair is sponsored by the U.S. Department of Energy and the Kentucky Department of Fish & Wildlife Resources with assistance from Bechtel Jacobs Company LLC and Heath Middle School. See article on page 11.

(photo by Jim Ethridge, EnSafe)

For your information – Bechtel Jacobs Company LLC made a corporate contribution to this event.

The Paducah Sun Friday, June 4, 1999

Paducah's 'Safe Night' airing to nation Saturday

■ **Paducah's event** *is being shown at 8 p.m. on KET and BET.*

By C.D. Bradley
The Paducah Sun

Allyson Forrest said the Heath High School shooting served as a wake-up call for adults in the community concerning their children.

"They're finally starting to pay attention," said Forrest, who will be a senior at Paducah Tilghman High this fall. "Kids have been crying for attention. There is

Please see **'SAFE NIGHT'** / 3A

Continued from 1A

nothing for us to do here. They (adults) say there are plenty of things to do, but there really aren't.

"After the shooting they're realizing, 'We need to pay attention to these kids.' They're saying, 'Here's something to do, so do it.'"

That "something to do" is Safe Night USA, a national event with more than 1,000 local events scheduled Saturday. Paducah's event for middle and high school students is being showcased on the national broadcast at 8 p.m. on the Public Broadcasting System (including Kentucky Educational Television) and the Black Entertainment Television cable network as one of four "drop-ins" scheduled at events across the country.

Forrest will be interviewed about her organizing role during the two-minute live broadcast from Carson Park in Paducah. So will organizer Nancy Snook, who said the event is part of the community's attempt to heal.

"We're still grieving, and our Safe Night event will help us in the healing process," she said. "We're certainly excited to be included. It will highlight what we're doing here and spotlight some of our young people" like Forrest.

Judy Flavell of KET said Paducah should make its appearance on the broadcast around 8:20 p.m.

"This is live TV," she said. "It could be five or 10 minutes either way."

The Paducah Police Department and the Community Coalition Against Violence and Drugs are sponsoring the event with the McCracken County Extension Service, where Snook works.

Laura Stoffel, who helped organize the nationwide event at Wisconsin Public Television, said the shooting played a role in Paducah's selection, but it was one of several considerations.

"There were demographic and geographic considerations," she said. "We wanted a good mix of locations across country and also diversity. Paducah is a relatively rural community. (The selection) had something to do with the shooting, but the focus is on positives of what young people could do in their communities to prevent violence."

Paducah is one of 39 sites for Safe Night events in Kentucky.

Safe Night began in Milwaukee in 1994. Olu Sijuwade, a public health educator for the city's Health Department, began the program in response to the rising juvenile murder rate. The program has been credited in playing a role in a 60 percent reduction in Milwaukee juvenile homicide in the past five years.

A Safe Night is a party, planned by youth and adults, that includes time to learn how to resolve conflict without violence, according to information provided by Wisconsin Public Television. The parties have only three rules: no weapons, no alcohol or drugs, and no arguments.

Flavell said that while the national broadcast is making drop-ins at Miami, Detroit and the Seattle suburb of Shelton, KET viewers will instead see Cadiz, West Liberty and Lexington. She said the towns are being highlighted for their differences.

"There is a need for Safe Night in small, rural towns," she said. "We are focusing on Cadiz and West Liberty to show what they are doing in those towns. In Lexington, the focus will be diversity."

Janice Boyd of Trigg County Schools, who helped organize the Cadiz event at the school's cafeteria, said all the students in fifth through eighth grades were sent invitations to the event. About 25 door prizes will be given, the last of which — after a dance and karaoke party — is the karaoke machine itself.

Safe Night events in Cairo and Joppa, Ill., are two of 63 statewide on Saturday. For information on the Cairo event, at Cairo Junior High School, call Rosie Quinn at 618-734-4534; for information on the Joppa event, at the Joppa Community Center, call Vickie Taylor at 618-524-2270. Both events are for middle and high school students.

Employees worry about future role of uranium plant

The Courier-Journal
05/10/99 - P. 1A

Complex is vital to Paducah economy

By JAMES MALONE
The Courier-Journal

PADUCAH, Ky. — Visitors to this quiet, secret place may wonder whether they missed a turn somewhere. The giant, Buck Rogers-style buildings seem deserted. Only the clouds of water vapor rising from cooling towers and the full parking lot signal that something big is going on.

Opened in 1952, during the height of Cold War tensions, to produce uranium for nuclear weapons, the Paducah Gaseous Diffusion Plant has remained the lifeblood of far Western Kentucky's economy in good times and bad. Though its mission has changed — it now refines uranium to use as fuel for nuclear energy — it continues to provide prosperity for some 1,750 workers through its $20-an-hour jobs and ample overtime.

But the jobs are threatened — by foreign competition and oversupply, in the short-term, and by an emerging technology that promises to be more efficient, in the long-term. Workers are worried.

"There is a lot of nervousness about the company's intentions and the future," said "Dollar" Bill Cossler Jr., an industrial electrician who signed on six years ago. "I thought there would be steady employment and a good future. I have kids, a mortgage, a car ... Girl Scouts and soccer."

Ironically, what seems to be hurting the plant most is a glut of Russian uranium from warheads. To keep the nuclear material out of the hands of terrorists and unstable countries, the United States bought the weapons to convert to fuel, which in turn has decreased the demand for U.S.-produced uranium.

So the plant founded to counter the threat of Russian nuclear weapons now finds itself competing with a flood of Russian uranium. This year the company will buy the equivalent of one plant's production from Russia.

Workers resent the results.

"That (Russian) deal didn't put politicians or executives at risk," said David Fuller, president of local 3-350 of the Paper, Allied Industrial, Chemical and Energy Workers Union. "We're the only losers."

The company's financial outlook has worsened. U.S. Enrichment's latest quarterly earnings report, released last week, showed its revenue and profits had fallen sharply since the last quarter, but the company said the drop would not lead to layoffs.

The long-term security of jobs at the plant could be dramatically affected by events that unfold this summer. Western Kentucky is watching nervously for United States Enrichment Corp. — the company originally set up by the government that now runs the plant — to announce if and where it will deploy an experimental laser technology to refine uranium. Known as AVLIS — atomic vapor laser isotope separator — the new process is believed to be more efficient and use just 10 percent of the power required for diffusion.

New technology

Kentucky and several other states are vying for the project, which could employ 1,600. Gov. Paul Patton has said the $1.5 billion-to-$2 billion project is one of Kentucky's top economic development priorities. Officials say it would be comparable to the Toyota complex in Georgetown.

The technology is still unproven outside a laboratory, however, and U.S. Enrichment and the government are pumping millions of dollars into a pilot plant in New Mexico to explore whether it will work on a commercial scale.

The testing of AVLIS has not gone smoothly. Last month, Nuclear Fuel, a trade newsletter, reported that it did not complete all of a planned 300-hour test burn at the pilot plant and that a follow-up run was being planned.

If AVLIS does succeed, U.S. Enrichment probably would not need both the Paducah enrichment plant and another 45-year-old plant it operates near Portsmouth, Ohio. (A third plant built at the same time in Oak Ridge, Tenn., has closed.)

U.S. Enrichment already is saddled with excess capacity and debt, and proceeding with AVLIS would force it ultimately to look at curtailing enrichment operations at its plants, experts say.

The plants use huge amounts of electricity to heat uranium into a gas and filter enriched uranium from that for use in nuclear reactors. The Paducah plant uses as much electricity as the city of Memphis, Tenn. U.S. Enrichment's power bill to run both plants has exceeded $500 million in recent years.

Workers set records

Already, U.S. Enrichment has persuaded 500 people at both plants — about 10 percent of its work force — to quit. The Paducah plant now has 1,750 workers, down from 2,000 in 1990 and an estimated 2,500 in 1980.

Still, the mood and worker morale seem upbeat, General Manager Howard Pulley said.

"We have a lot of control over our future," he said.

The plant has set several production records since U.S. Enrichment took over. Output in the six years that it has run the plant is 49 percent higher than in a comparable period before the company took over from the federal government in 1993, and the accident and injury rates have declined dramatically, Pulley said. A national manufacturing magazine named it one of the country's 10 best plants in any industry in 1997.

Pulley said "there are no more planned force reductions" and the plant is making money and operating efficiently.

Meanwhile, Kentucky's congressional delegation is pushing the Department of Energy to build a factory at the enrichment complex to process the uranium waste stored in more than 36,000 large, rusting aquamarine cylinders. Tha could mean an additional few hundred jobs for the area.

But foreign competition i encroaching.

Despite a successful initia public offering of U.S. Enrich ment stock, the price ha lagged and recently hit ne lows. The company faces sev eral competitors in the er riched-uranium market, pr marily foreign consortium which have slowly whittle away at its market share. Th U.S. government's plants onc had up to 90 percent of th world's market; U.S. Enric ment says it held about 40 pe cent of the world's market 1997.

And the company has sa that if the long-term price the uranium it sells falls t low, it may have to take oth steps to control costs, inclu ing layoffs.

Plant changed area

Local antique shops still display yellowed postcards dubbing Paducah "The Atomic City."

Alben Barkley of Paducah, Harry Truman's vice president, helped steer the plant to his hometown when Congress approved it the day after Chinese troops crossed the Yalu River during the Korean War.

It meant an overnight transformation for a community then still recovering from the Depression and the disastrous 1937 flood, said local historian and retired college professor John E.L. Robertson.

"The population here doubled within a couple of weeks," he said. "It brought in outside thinking to what had been a parochial community. It shook things up. It turned (Paducah) on its ear."

People who followed the plant here tended to stay because of the secure employment and brought their families with them, Robertson said. Thousands of workers labored to build the diffusion plant and the two power plants to provide the enormous amounts of electricity it required.

Retiree Dan Garrott, 77, of Mayfield, commuted to work at the plant for 35 years and said it enabled his family to have a better standard of living. He still draws his pension, and his drug prescriptions are paid for by a health-insurance plan for retirees.

"It was a great job, a lifesaver," said Garrott. "It was the best punching-the-clock job there was around here. Where else would you get six weeks' vacation?"

The population influx not only changed the work force, it also altered society, culture, education and business, Robertson said.

It would be hard to find an industry that has had a greater impact on the region's economy over the years, said Steve Zea, director of the West Kentucky Corp., an economic development agency.

"Look at the pay scales and the technical level of its employees," he said, noting that the plant has 193 engineers. "What other operation would have that?"

"People long for a day when they can see the future and can understand."

Union leader David Fuller

Uncertainly is hard

Many workers believe it does no good to fret about a destiny they can't control, said Fuller, the union president.

Tim Cooper, 31, a chemical operator in a decontamination facility, said he was happy when he was hired eight years ago, following his father who worked at the plant for 30 years.

"The idea was, when you came here, that you gave a good day's work for a good day's pay; there was more certainty about day-to-day activities then," said Cooper, who lives nearby.

Managers should tell the workers more about their future, so they could plan accordingly, Fuller said. Workers are willing to go the extra mile to improve, he said.

"People are struggling with all these things," he said. "People long for a day when they can see the future and can understand. Our work force has been put at risk by their own government."

Complex turns uranium into power-plant fuel

By JAMES MALONE
The Courier-Journal

Refining or "enriching" uranium to make it suitable for fuel in nuclear reactors to generate electricity is the day-to-day work of the Paducah Gaseous Diffusion Plant.

Low-grade uranium feedstock called yellowcake arrives in truck-size casks. The vessels are heated and the contents turn to gas.

Massive 12-foot-tall, 3,500-horsepower compressors (there are 1,800 of them there) force the material through a series of screens so precise they allow nuclear molecules of one size to pass through and divert a heavier waste molecule into a byproduct stream.

All this is done on a grand scale in imposing buildings that cover 24 acres. Uranium is enriched there to about a 2.5 percent concentration and then shipped to Portsmouth, Ohio, to be refined further. On average, eight cylinders of yellowcake material are unloaded per day; about 20 to 30 percent ends up as final product and 70 percent is waste, said general manager Howard Pulley.

Since the plant opened in 1952, radioactive waste from uranium processing has been packed into large cylinders for storage because no one knows yet what to do with the highly toxic material. There are more than 36,000 cylinders spread in rows on the plant's grounds. The federal government spends hundreds of thousands of dollars every year to paint and inspect them.

Federal reports estimate that dozens of the aging containers could spring leaks in the next 40 years. Spent uranium tailings react violently with water.

Paducah Community College and the University of Kentucky want to build a research facility in Paducah that would find new uses for depleted uranium and want the government to build a plant to stabilize and reclaim the waste material.

Portsmouth Daily Times
Thursday, April 29, 1999
Page A1

Letter urges DOE: 'No more layoffs'

Local federal lawmakers ask energy secretary to prevent job losses at two uranium plants

By BRIAN HESTER
Times Staff Writer

Congressional lawmakers representing employees of both the Paducah, Ky., and Portsmouth gaseous diffusion uranium enrichment plants recently asked Department of Energy (DOE) Secretary Bill Richardson to prevent further layoffs in either plant.

The letter was signed by both Senators from Ohio and Kentucky and Congressman Ted Strickland, D-Lucasville, and Kentucky Congressman Ed Whitfield, R-1st District. The federal lawmakers urged Richardson to accelerate the decontamination and decommissioning projects at both uranium enrichment plants in hopes that an accelerated cleanup will allow the facilities to be converted to some other industrial use before decommissioning impacts the local economy.

The lawmakers also urged Richardson to prevent further job losses at both facilities. While an agreement, commonly called the Treasury Agreement, was reached when the facilities began to become privatized corporate facilities, the lawmakers believe DOE and United States Enrichment Corp., the company which operates the Portsmouth facility, may be considering cutting 200 more jobs. The Treasury Agreement limited job loss at the Portsmouth facility at 500 layoffs until July 2000. The plant already has reached that number through voluntary early retirements.

According to Elizabeth Stuckle, USEC spokesperson, the company has no such plans for more job cuts yet. "We currently have no plans to ask for more voluntary early retirements," Stuckle said. "We cannot say with absolute certainty

■ See LAWMAKERS on A3

Portsmouth Daily Times
Thursday, April 29, 1999
Page A3

Lawmakers: Letter urges DOE to prevent Portsmouth, Paducah layoffs

■ **Continued from A1**

no jobs will be lost or created from market forces, however."

Strickland considers Stuckle's statement a rather significant loophole. "I can't say I'm surprised they're denying such plans," Strickland said. "We have reason to believe they are planning as much as 200 more layoffs through reducing the guard force there or through subcontracting." Strickland further explained as higher grade uranium is removed from the Portsmouth facility, the need for the current guard staff will be less necessary.

While Strickland is not too concerned guard layoffs may comprise security, he is worried the layoffs will violate the Treasury Agreement. "We did not casually enter into this agreement. We adamantly insisted on minimizing the job loss from privatization," Strickland said. "If they have any intention not to abide by the letter of the agreement, then we will hold them to their obligations to their employees and the community."

U.S. Sen. Mike DeWine shares Strickland's concerns. DeWine spokesperson Charles Boesel said DeWine is using the letter to remind Richardson of the agreement. "The letter is to apply constant pressure to DOE and USEC not to forget these sites," Boesel said. "We want to underscore to Richardson the Senator wants the workers to get what they need and what they want."

The contingent of Kentucky and Ohio lawmakers plan to continue to push Richardson for more funding for the facilities so they can be converted to another industrial use. By July 2000, the Treasury Agreement will expire, and the congressmen won't have the authority over the now-private facilities to renew it. By then, Strickland warns, "you can expect more job losses after the agreement."

USEC: It's sink or swim in private

The Paducah Sun
5/18/99 - P. A1

Paducah plant workers have larger stake

By Joe Walker
Sun Business Editor

For the first time, the Paducah Gaseous Diffusion Plant's 1,600 employees are working directly for a private company that will swim or sink in a shrinking world market for enriched uranium.

At midnight, without fanfare, the workers became employees of USEC Inc., a Bethesda, Md., firm that went public last July through the sale of more than $1.4 billion in stock. USEC has replaced Lockheed Martin, a huge contractor that had run the plant for the past 14 years, including the last five years for USEC.

The change is the latest in a series of cost-cutting moves, notably eliminating 500 jobs at USEC's plants here and in Portsmouth, Ohio. USEC says it can run the plants better without a contractor.

Employees say that except for new signs, the change is virtually transparent. Pleased that their pay and benefits are intact, they have turned their concerns to the business outlook of USEC, which dictates their jobs. USEC is fighting to hold onto a 40 percent share of the global uranium enrichment market that the United States once monopolized.

"The outlook doesn't look really good to me," said David Fuller, president of the plant's atomic workers' union. "But for union people to be successful, USEC has to be successful and vice versa."

USEC's third-quarter report showed it earned about $24 million less than in the same period last year, and its operating margin has slipped dramatically from a few years ago. But it continues paying a healthy $1.10 annual dividend and predicts an excellent fourth quarter. USEC Chief Executive Officer William "Nick" Timbers Jr. said the firm is on pace with 1999 fiscal year expectations of $1.5 billion in revenue and $120 million in income.

Despite little physical evidence of the switch to USEC, the mental change is very apparent, said Jim Lewis, manager of process technology for the Paducah plant. During their long history of working for a contractor — many years of which were spent dominating the world market — many employees had only a passing interest in global business issues.

"Now I see evidence that their day-to-day thoughts are more toward the importance of market share," he said. "They ask questions that show they are very interested in SWU (a unit of enriched uranium) costs and how we're doing business-wise."

Operations Manager Mike Buckner agreed, saying workers are more curious about USEC business than ever. He said his own faith in the longevity of the plant has grown greatly because of two milestones: certification by the Nuclear Regulatory Commission two years ago and the stock sale last year that turned USEC from a government agency to a private corporation.

"I've been here 20 years, have 11 years to go to retire and I plan on retiring from this plant," Buckner said. "I also bought a lot for a new house. I don't think I would have said that two years ago with any confidence."

Elizabeth Stuckle, USEC communications director, said the firm will provide more business information to employees to educate them and give them a sense of empowerment. Workers will be offered a stock option plan later this year, Buckner said.

Buckner's responsibility includes the plant's huge electricity consumption, equal to that of a major city and accounting for about 60 percent of total production costs. Power was a problem last summer when heat elsewhere in the nation forced prices up and enrichment down at the Paducah plant.

Starting in late May, USEC will gradually decrease production in anticipation of rising power costs, Buckner said, which is one way of helping the company compete with foreign enrichment plants. USEC also has tweaked agreements to increase its flexibility with Paducah's main power supplier, Electric Energy Inc. in Joppa, Ill., and move blocks of power this summer from Portsmouth to Paducah if needed.

Operating at its highest production level in four years, the Paducah plant has made tremendous strides in safety and production, which gives the work force a direct say in how well USEC performs globally, General Manager Howard Pulley said.

"I think the employees feel a great sense of ownership," he said.

Workers have less control over developments that have boosted an oversupply of enriched uranium worldwide and dropped prices even further. USEC has booked $1.3 billion in new business for delivery during the next 10 years and has resisted lowering prices.

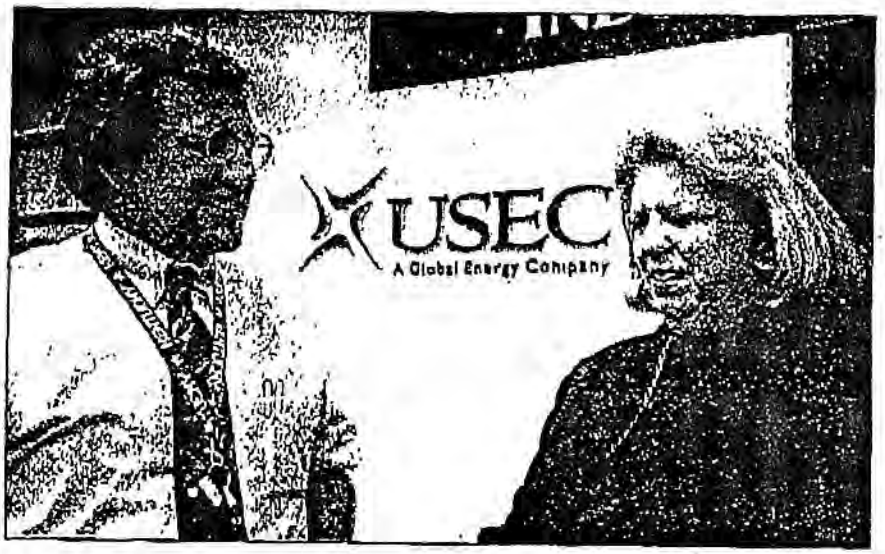
Stuckle said the trends have prompted USEC management to do a strategic review as the fiscal year ends, including a look at a laser-based enrichment process called AVLIS for which Paducah and Portsmouth are competing. She said word on AVLIS and many other issues will come by early summer.

While employees wait for news, they are happy with a continuation of wages and benefits, said John Driskill, president of the plant guard workers' union.

"The biggest concern for us has always been the benefits package, whether USEC was complying with federal law," he said. "Early indications are they're doing that."

About 70 of the job cuts at Paducah involve atomic workers' union personnel. Fuller said he doesn't expect any other reductions before July 1, 2000, because USEC agreed to that plan as a part of privatization.

"The union views that as a sacred promise," he said, "and we'll rely heavily on the commitment USEC made to the U.S. Treasury."



BARKLEY THIGLEMAN/The Sun

A new era: Howard Pulley and Elizabeth Stuckle represent the change of the Paducah Gaseous Diffusion Plant to a USEC facility.

The Paducah Sun

ay 6, 1999
ıducah, Ky., 42002

www.sunsix.com

Since 1896
Vol. 103 • No. 125

HOLD THE THOUGHT: *Fear is the greatest threat to education — Editorial, 4A*

Uncertainties cloud AVLIS future

Some stock *analysts and st results on the new uranium ırichment process indicate a ılay may be in the works.*

Joe Walker
Business Editor

The release of a financial state-ınt drove USEC Inc. stock value arly to a new low Wednesday, ıling speculation that the uranium richment firm soon will end a site ırch for a laser plant for which ducah has high hopes.

But the firm is on target with this year's financial expectations, USEC officials say. They insist that the laser process called AVLIS will be reviewed with many other performance factors and that no decision has been made about its future.

USEC stock closed Wednesday at $11 per share, barely missing a new low. The stock is down nearly 21 percent this year, well below the starting price of $14.25 when USEC became a publicly traded company last July 28. Morgan Stanley and Merrill Lynch, key underwriters for the initial public offering, downgraded their assessment of the stock significantly.

Morgan Stanley's lowering the stock's rating from "strong buy" to "neutral" is like "jumping a spot in the food chain," said John Williams Jr. of Paducah's A.G. Edwards investment firm. "That's a pretty drastic move, a loss-of-confidence type thing."

Wall Street reacted to USEC's release late Tuesday of its latest quarterly financial report. The report showed net income of $16.2 million for the quarter ending March 31, compared with $40.3 million for the same period a year ago. Yet USEC paid a dividend of 27½ cents per share, nearly twice its net income per share of 16 cents.

On April 19, Nuclear Fuel magazine reported that USEC's latest test run of AVLIS — a process seen as the future for enriching uranium — fell seven hours short of the goal of 300 hours needed to show commercial viability and more than 100 hours short of the performance level some had hoped for. The test had problems, the magazine said, and might be repeated early this month.

That happened at a time when many thought USEC would announce a winner or at least finalists in the AVLIS site search. Late last week, local officials and Washington congressional sources said they had heard nothing new about the search. This week, two people who have been closely following USEC's financial picture think AVLIS is in serious jeopardy.

Richard Miller, policy analyst in

Please see **AVLIS** / 18A

Speculation rises of delay in AVLIS

Continued from 1A

Washington for the USEC plants' atomic workers union, said sources he considers reliable tell him the company soon will announce major cuts in AVLIS research and development spending because of doubts about the process.

"Obviously, there are some things that have to get done," Miller said. "USEC must cut its dividend, then decide whether or not AVLIS is for real. Given the fact that there is no third-party validation, you have to question whether this is a commercially viable strategy."

On Wednesday, Miller wrote the U.S. Treasury asking if USEC's financial picture suggests "significant events" that would justify closing the Paducah plant or its sister plant in Portsmouth, Ohio. The events, spelled out in USEC's registration statement, include an operating margin of 10 percent or below for 12 consecutive months.

In a news release, USEC Chief Executive Officer William "Nick" Timbers Jr. said the firm is on pace with 1999 fiscal year expectations of $1.5 billion in revenue and $120 million in earnings. But "recent market and pricing trends" are forcing USEC to take steps to assure long-term success, he said, including "continued evaluation of the best use of our R&D (research and development) dollars."

Thomas Neff, a nuclear energy expert who authored a deal that has USEC receiving uranium from dismantled Russian warheads, agreed with Miller that Timbers meant AVLIS when discussing research and development costs.

"When they refer to trying to get the best return for their R&D dollars, it's a signal that they don't think AVLIS is worth it," Neff said. "My guess is, AVLIS is going to get cut ... I think the only way they can affect their bottom line is to cut back on R&D expenses."

Miller said he thinks USEC has fallen below the 10 percent operating margin since it was privatized July 28, notably a margin of about 6 percent during the last quarter. Asked about Miller's concern, USEC spokesman Steven Wingfield said only that the formula [illegible] very specific.

"We don't provide that information ...," he said. "Our position has been that we're not going to track where we stand on these things on a month-to-month or quarterly basis."

Although last quarter's dividend payout was much more than USEC's earnings per share, Wingfield said the USEC board of directors "in no uncertain terms" intends to keep paying an annual dividend of $1.10 and expects performance to justify a $1.20 dividend.

He said 60 cents of the $1.20 must come in the last quarter, but USEC can "say with confidence that we're going to make $1.20." Spring typically brings peak sales for enriched uranium and should do so again this year, Wingfield said.

Elizabeth Stuckle, another USEC spokesman, said Miller's AVLIS sources "can't know what we don't know yet" — how the laser process will stack up in an overall planning review.

She said no decision has been made about AVLIS or any other part of research and development, but USEC will announce by early summer what will happen with AVLIS.

The company's financial report shows last-quarter revenue of $260.4 million, down $34.4 million from the same period a year ago. Timbers said steps are ongoing to improve efficiency and cut costs.

During the quarter, USEC received regulatory approval of an agreement to increase contract flexibility with Electric Energy Inc., chief provider of power for the Paducah plant. A similar agreement with the Portsmouth plant's chief supplier is pending approval, he said. Power is by far the largest operational cost, and the measures are expected to save about $30 million through next year.

Voluntary layoffs since USEC went public are expected to save about $25 million a year. Last fall, 259 jobs at the plants were cut, and 240 more reductions are anticipated by July 1. USEC also foresees savings starting May 18, when it will take direct control of the plants, now operated by Lockheed

DOE News Release

FOR IMMEDIATE RELEASE
NEWS MEDIA CONTACTS:
Jimmie Hodges, 270-441-6806
or Debbie Wattier, 270-441-5023

MAY 19, 1999

EIGHT APPOINTED TO PADUCAH DOE ADVISORY BOARD

KEVIL, Ky. — The U.S. Department of Energy has appointed eight people to the Paducah Gaseous Diffusion Plant Site Specific Advisory Board. The volunteer board provides public input to DOE decisions regarding the cleanup of the uranium enrichment plant site.

Named to the board were:

Kit Atkinson of Paducah. He is project manager for Wahl's Excavating in Paducah.

Angela Farmer, Metropolis, Ill. She is a school teacher and co-owner of Steak-Out in Paducah.

Judy Ingram, Sharpe. She is project manager for H&G Construction in Kevil.

Merryman Kemp, Paducah. She is owner of Kemp Financial Services.

Douglas Raper, West Paducah. He is a retired U.S. Army officer.

Rosa Scott, Paducah. She is owner of Care Bears, a Paducah child care center.

Jim Smart, Paducah. He is professor of chemical engineering at the University of Kentucky College of Engineering at Paducah Community College.

Pat Stephenson, Paducah. He is solid waste director for McCracken County.

They join 10 others on the board composed of business people, government leaders, plant neighbors and other citizens. Those 10 board members are:Nola Courtney, Paducah; Mark Donham, Brookport, Ill., co-chair; Edward Duff, Paducah; David Fuller, Paducah; Vicki Jones, Kevil, co-chair; Ronald Lamb, Kevil; Linda Long, Kevil; J. Craig Rhodes, Brookport, Ill.; Bill Tanner, Metropolis, Ill.; Rev. Greg Waldrop, Paducah.

—DOE—

Expression of Interest

Paducah Gaseous Diffusion Plant

Site Specific Advisory Board

May 25, 1999

Expression of Interest

The Paducah Gaseous Diffusion Plant's (PGDP's) Site Specific Advisory Board (SSAB) wishes to retain the services of hydrogeologist/geological engineers to review data and advise the Board pertaining to groundwater contamination at the PGDP site.

The Paducah SSAB was formed in 1996 and chartered under the Federal Advisory Committee Act. It is a stakeholder's board that provides advice and recommendations to the United States Department of Energy (DOE), United States Environmental Protection Agency (EPA), and the Commonwealth of Kentucky on Environmental Restoration and Waste Management (EM&EF) programs at the Paducah site. The SSAB receives funding for its activities through the DOE.

The Paducah Gaseous Diffusion Plant is located approximately 10 miles west of Paducah, Kentucky in McCracken County (Figure 1). The site is approximately 3.5 miles south of the Ohio River. The PGDP has been producing enriched uranium for military and commercial use since 1952. Under terms of the National Energy Policy Act, DOE leases the plant production facilities to the United States Enrichment Corporation (USEC). The USEC is a privately held corporation. The mission of the SSAB does not apply to ongoing production activities of USEC.

Groundwater contamination resulting from industrial activities at PGDP was discovered in 1988. Off-site contaminants were determined to be trichlorethylene (TCE), an industrial degreasing solvent, and technetium-99, a fission by product (Figures 2 & 3).

The DOE, through its contractor, has performed an extensive review of the groundwater contamination and, as a result, has installed a pump and treat facility for both the Northwest and Northeast plumes. The investigation has determined that a major source of TCE in the groundwater is from a location within the industrial area identified as Waste Area Group (WAG) 6. The DOE has also formed an Innovative Treatment Remediation Demonstration (ITRD) group

complete a detailed work plan that will better define the anticipated schedule and costs. At that time it is estimated that, in addition to document review at the selectees office, at least four (4) site visits and one or more public presentations will be required. Costs for travel, lodging, and meals will be reimbursed at rates consistent with Federal travel policies. The SSAB may choose to retain the services of the selected individual(s) for consultation on other EM&EF projects at the PGDP site.

Proposal should be mailed to the following address:

PGDP- SSAB

2000 McCRACKEN BLVD.

PADUCAH, KY 42001

attn: Bill Tanner

If you have questions call, Bill Tanner at (270) 442-3337.

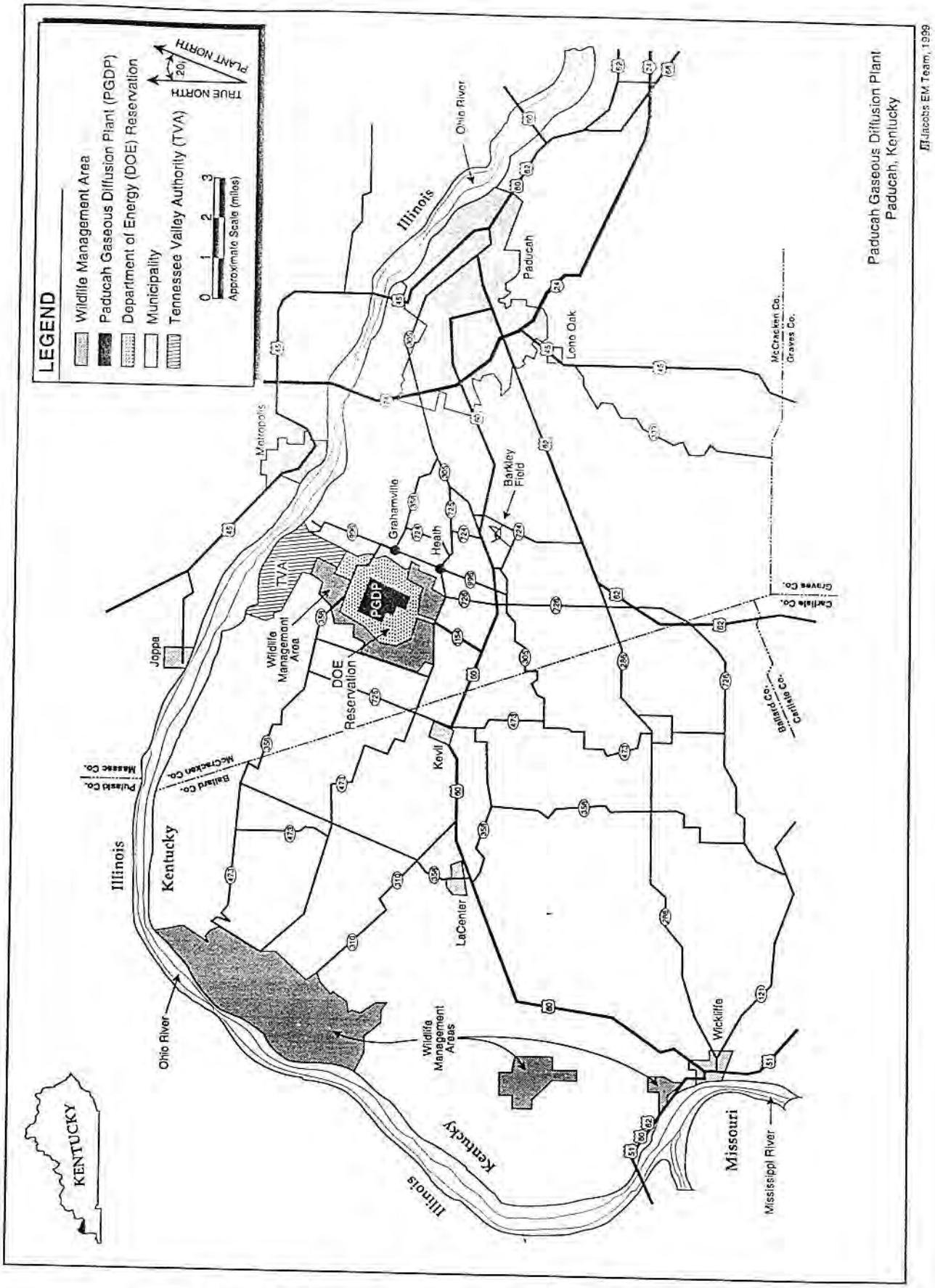


Figure 1. Paducah Gaseous Diffusion Plant Vicinity Map

You're invited to the meeting of the U.S. Department of Energy's

Site Specific Advisory Board

for the

Paducah Gaseous Diffusion Plant

Next Meeting: Thursday, June 17
Time: 5:30 p.m.
Location: Paducah Information Age Park Resource Center

Agenda Highlights:

- Updates on Environmental Management and Enrichment Facilities programs
- Overview of budget preparation process

SSAB meets the third Thursday of every month. For information, please call co-chairs Mark Donham, 618-564-3367, or Vicki Jones, 270-441-5058; or administrative contact Shirley Speer, 270-462-2550.

This is to be published in *The Paducah Sun* Sunday, June 13, 1999, prior to SSAB meeting June 17, 1999.

Handouts forJune 17, 1999, SSAB Meeting

- Final Agenda for June 17, 1999, SSAB Meeting
- Vortec Vitrification Demonstration June 1999 Fact Sheet
- *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride Summary*
- Handout for WAGs 3, 8, 28/Data Gaps Discussion
- Paducah SSAB Update Lifecycle Baseline Overview
- SSAB Budget report
- Draft Agenda for September 1999 EM SSAB Chairs Meeting in Richland, Washington
- SSAB Meeting Schedule
- Ad for *The Paducah Sun*, Sunday, June 13, 1999 (SSAB June 17, 1999, meeting notice)
- *Risk Excellence Notes*
- Articles published in *The Paducah Sun* (June 10, 1999-June 15, 1999)
- Memo to all SSAB Chairs dated June 10, 1999
- International Association for Public Participation, June 1999
- Federal Focus, Tracking System Standardizes DOE Waste Data, June 1999

PADUCAH GASEOUS DIFFUSION PLANT
SITE SPECIFIC ADVISORY BOARD

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

2000 McCracken Boulevard • Paducah, Kentucky 42001 • (502) 744-9010

Co-Chairs

Mark Donham
Vicki Jones

Board Members

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

***Ex Officio* Members**

Carl Froede, Jr.
Environmental Protection Agency

Wayne L. Davis
Fish and Wildlife Resources
(Kentucky)

Tuss Taylor
Division for Waste Management
(Kentucky)

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

Jimmie C. Hodges
Department of Energy

DOE Federal Coordinator

John D. Sheppard

Additional information about contacting board members directly can be obtained from the SSAB web site or by contacting Shirley Speer at (502) 462-2550.

Final agenda for the June 17, 1999, meeting:

- Call to order/Discussions
- Minutes
- Public Comments and Questions
- Information Handouts
- Program Status Updates
  - EM&EF Projects
  - Vortec (new fact sheet)
  - Depleted UF_6
  - DOE Public Workshop
- Sitewide Cummulative Effects
- Programmatic Presentations
  - WAG 6—Gregory Waldrop
  - WAGs 3, 8, 28/ Data Gaps—Bob Pratt
  - Life Cycle Baseline—John Morgan
  - *Paths to Closure* document—Mark Donham
- SSAB Subcommittee Reports
  - Community Relations—Judy Ingram
  - Consultant—Bill Tanner
  - Membership—Nola Courtney
- SSAB Recommendations Status—Jimmie Hodges
- Administrative Issues for the Board
  - Co-chair Status
  - Review of the SSAB Draft Workplan
  - Tours
  - Financial Update
  - SSAB Letterhead
  - Status of Name Change Proposal

Vortec Vitrification Demonstration June 1999 Fact Sheet

What is vitrification?

Vitrification turns dirt, rock and other inorganic materials into glass. The technology has widespread commercial uses, from glass for automobiles and building construction, to television parts and artists' materials.

Vitrification also has waste processing uses. Some applications have been in use for years in the nuclear industry, while newer methods are under evaluation. One of those is the Vortec Corporation's process, which has been chosen by the U.S. Department of Energy (DOE) for testing at its Paducah Gaseous Diffusion Plant.

As with any process, the end product depends on the "recipe" used to mix ingredients. End products can be made into glass logs or, as in the Vortec process, a rock salt-like "frit."

There are a number of vitrification technologies and the government and its contractors have chosen different ones depending on the needs of the individual site.

Vortec Vitrification Demonstration History at Paducah Gaseous Diffusion Plant

FY 95

* DOE's Energy Technology Center (FETC) EM-50 selects PGDP as the site for Vortec demonstration and contracts with Vortec Corporation for facility at PGDP.
* FETC issues National Environmental Protection Act (NEPA) categorical exclusion (CX) for construction and demonstration.
* Resource Conservation and Recovery Act (RCRA) Research Development and Demonstration (RDD) permit application submitted to Kentucky Division of Waste Management (KDWM).

FY 96

* DOE Oak Ridge Operations issues a NEPA CX for continued demonstration of Vortec.
* KDWM acknowledges RDD permit application is complete and holds public hearing.

FY 97

* PGDP and Vortec Corp. begin site preparation work.
* Citizen files complaint in federal court against DOE regarding NEPA issues for Vortec Demo. DOE and citizen agree to a settlement. DOE puts construction on hold until NEPA Environmental Assessment (EA) approved.

FY 98

* KDWM issues draft RDD permit after addressing public comments.
* Demonstration Test Plan submitted to KDWM.
* KDWM issues comments on Demonstration Test Plan.

FY 99 (YTD)

* EA to be issued for comment.

What's the status now?

Work on the Paducah Vortec facility is on hold until a formal Environmental Assessment is completed.

More info?

For additional information on the Vortec project at the PGDP, please call or write John Sheppard, DOE Paducah Site Office, 441-6804, e-mail:*shep - pardjd@ornl.gov.*

There are also many vitrification resources available on the World Wide Web. You can also visit DOE's Environmental Information Center in the West Kentucky Technology Park on U.S. 60 in Kevil.

JUNE 17, 1999
SSAB MEETING

- Waste Area Grouping 3 Remedial Investigation
- Waste Area Grouping 28 Remedial Investigation
- Waste Area Grouping 8 Preliminary Assessment/Site Investigation
- Sampling and Analysis Plan to Support a Sitewide Remedial Evaluation for Source Areas Contribution to Off-Site Groundwater Contamination (Data Gaps)

PADUCAH GASEOUS DIFFUSION PLANT (PGDP)
SITE SPECIFIC ADVISORY BOARD
ENVIRONMENTAL MANAGEMENT PROJECT UPDATES
June 8, 1999

1. PROJECT: Waste Area Groups 3, 8, 28 and Data Gaps

Summary: Current work on Waste Area Groups 3, 8, and 28 has been combined into one project. Remedial Investigations will be done on WAGs 3 and 28. A Site Evaluation will be done on WAG 8. In addition, this project includes a "Data Gaps" investigation to collect groundwater and subsurface soil samples to supplement existing data.

- WAG 3 includes three burial grounds within the plant security fence, in the western section: C-747 Contaminated Burial Yard (Solid Waste Management Unit/SWMU 4), C-746-F Classified Burial Yard (SWMU 5) and C-747-B Burial Yard (SWMU 6).
- The concern at WAG 3 is potential contributions to groundwater contamination from the content of the burial grounds: natural and slightly depleted uranium, technetium-99 (Tc-99), magnesium fluoride, uranium-contaminated solid waste, security-classified weapons components, radionuclide-contaminated scrap metal, and slag from nickel and aluminum smelters.
- WAG 8 includes: SWMUs 82-85, which are the C-531, C-533, C-535, and C-537 Electrical Switchyards, as well as the C-340 Reduction and Metals Facility, which is inactive and is part of the Decontamination and Decommissioning program.
- The concern at WAG 8 is similar to WAG 28, but the Site Evaluation will first determine whether contaminants have been released.
- WAG 28 includes SWMUs 99, 183, 193, 194, which are locations related to the 1950s construction of the plant, including the C-745 Kellogg Building Site, the McGraw Underground Storage Tank, McGraw Construction Facilities, as well as Area of Concern 204 (potential construction debris area).
- The concern being addressed at WAG 28 is potential contributions to groundwater contamination.

Status:

- Remedial Investigation and Site Evaluation field work for WAGs 8 and 28 continued in May 1999, and is on schedule for completion in mid- to late-summer 1999. Limited field work for WAG 3 was initiated in April 1999, with most of the WAG 3 field work projected to begin in the early fall.
- Upcoming regulatory documents will be: the Draft (D1) Remedial Investigation Report for WAG 28, scheduled to be issued to regulatory agencies in January 2000; the D1 Site Evaluation Report for WAG 8, June 2000; and D1 Remedial Investigation Report for WAG 3, August 2000.

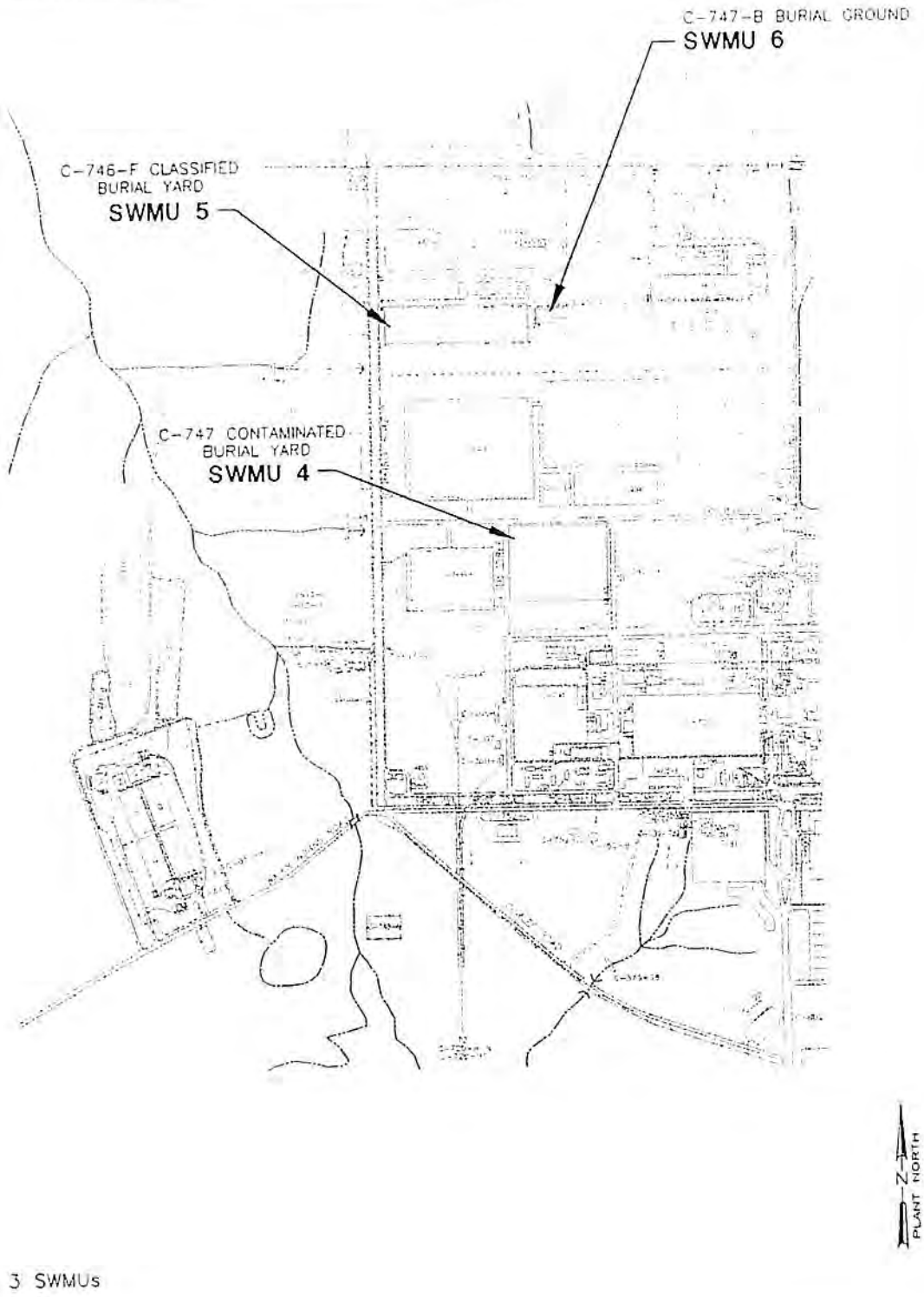


Fig. 1.1. SWMUs included in the WAG 3 RI/FS

SCALE IN FEET

g:\5115-001\WAG3-A\8-20-97\1=1175

The three SWMUs shown in Fig. 1.1 are slated for investigation under this RI/FS work plan for Waste Area Grouping (WAG) 3. These SWMUs are described below.

1. **C-747 Contaminated Burial Yard (SWMU 4).** The C-747 Contaminated Burial Yard is located in the western section of the plant area. SWMU 4 is bounded on the north by Virginia Avenue, on the east by 6th Street and on the west by 4th Street. The C-747 Burial Yard was in operation from 1951 to 1958 for the disposal of radiologically contaminated and uncontaminated debris originating from the C-410 UF_6 feed plant. SWMU 4 may have also received sludges designated for disposal at the C-404 burial grounds. The total volume of material disposed of at this site is unknown. Potential contaminants associated with this SWMU include uranium, ^{99}Tc, metals, and, possibly, trichloroethene (TCE).

2. **C-746-F Classified Burial Yard (SWMU 5).** The C-746-F Burial Yard is also located in the western section of the plant area. SWMU 5 is located adjacent to the C-746-P Clean Scrap Yard to the north, Ditch 001 on the south, the C-747-B Burial Ground to the east, and Patrol Road 1 to the west. SWMU 5 was in operation from 1965 to 1987. Disposal pits were located on a grid system consisting of 10- by 10-ft cells excavated to a depth of 6 to 15 ft below ground surface (bgs). The burial pits were used for the burial of security-classified weapons components, some radionuclide-contaminated scrap metal, and slag from the nickel and aluminum smelters.

3. **C-747-B Burial Ground (SWMU 6).** The C-747-B Burial Ground is located in the western section of the plant area east of SWMU 5. SWMU 6 was in operation from 1960 to 1976. The entire burial area covers an area of approximately 5200 ft^2, which is divided into five separate burial cells (Areas H, I, J, K, and L). The excavated depth of the cells are reported to be 6 to 8 ft bgs. Each of the burial cells was used for the disposal of a different waste:

   - Area H: magnesium scrap
   - Area I: 8 exhaust fans contaminated with perchloric acid
   - Area J: aluminum scrap
   - Area K: magnesium scrap
   - Area L: UF_6 condenser

The goals of the remedial investigation (RI)/feasibility study (FS) for Waste Area Grouping (WAG) 3 are

1. to determine if the investigated solid waste management units (SWMUs) pose an unacceptable risk to the environment or human health and

2. to identify the best technology in terms of effectiveness and cost if remediation is required.

To achieve these goals this project will collect sufficient information on each SWMU to determine the nature and extent of contamination, evaluate the risk-based impact to human health and the environment, and perform an FS to identify the best remediation methods. A sampling strategy has been developed for each SWMU to focus sampling toward the efficient and cost-effective collection of data necessary to meet the objectives of the investigation.

WAG 3 is comprised of three SWMUs that will be evaluated under this integrated RI/FS work plan. These SWMUs are

- C-747 Contaminated Burial Yard (SWMU 4),
- C-746-F Classified Burial Yard (SWMU 5), and
- C-747-B Burial Yard (SWMU 6).

The WAG 3 SWMUs are all burial yards situated in the same general geographic location at the PGDP. Sampling strategies are generally very similar for each SWMU. Sampling will be conducted in the shallow soils (to 60 ft below ground surface) and the RGA soils, the Upper Continental Recharge System (UCRS) groundwater, and the Regional Groundwater Aquifer (RGA) and McNairy formation to determine if releases have occurred. In addition, samples of the waste will be collected at SWMUs 4 and 6 to characterize the nature of the potential source zones. Angled soil borings will be advanced below each disposal area to collect soil and UCRS groundwater below the waste cells to further determine if a release has occurred. Contingency sampling is proposed for all SWMUs to allow for additional characterization in all zones if elevated levels of target screening analytes are found.

After all fieldwork is completed, the RI report will be prepared. This report will present the results of the investigation with supporting maps, charts, and tables of the individual SWMUs. The report will also provide insight on the relationship of these SWMUs to the larger area of the plant. A baseline risk assessment will be prepared to determine if risk is sufficient to require remediation of a SWMU. Finally, an FS report will be completed to identify which technologies should be used to remediate the SWMUs with recommendations for actions at each SWMU, if remediation is required.

The overall sampling strategy for all WAG 3 SWMUs will focus on surface soils, subsurface soils, sediments (where applicable), and groundwater (UCRS, RGA, and McNairy) to identify sources of groundwater contamination. Sampling at these SWMUs will also investigate known or suspected release mechanisms and will define the migration routes of contaminants and the methods of migration. Of particular interest will be the determination if the SWMUs and potentially related secondary sources are contributing to contamination of the RGA. Wastes will be sampled in SWMUs 4 and 6 to characterize the nature of the potential source zones.

	SWMU 4	SWMU 5	SWMU 6
Wetland Flagging	√	√	√
Geophysical Survey	√	√	√
Infiltrometer Test	-	√	√
Sodium Iodide	√	√	√
Cone Penetrometer Technology	√	√	√

	SWMU 4	SWMU 5	SWMU 6
Sample Type	**Analytical Requirements (in the order of collection)**	**Analytical Requirements (in the order of collection)**	**Analytical Requirements (in the order of collection)**
Waste/soils from waste disposal cells	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]		TCL Extractable & Purgeable Organics; TAL metals; PCBs; Ra dionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]
Surface Soils	Radionuclides[1]; TAL metals; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]	Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]	PCBs; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]
Surface sediments	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; FS and risk assessment parameters	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]	TCL Extractable & Purgeable Organics; TAL metals; PCBs; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]

Sample Type	SWMU 4 Analytical Requirements (in the order of collection)	SWMU 5 Analytical Requirements (in the order of collection)	SWMU 6 Analytical Requirements (in the order of collection)
UCRS soils	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; FS and risk assessment parameters (2 locations)	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; FS and risk assessment parameters (2 locations)	TCL Extractable & Purgeable Organics; TAL metals; PCBs; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; FS and risk assessment parameters (2 locations)
RGA soils	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; FS and risk assessment parameters	TCL Extractable & Purgeable Organics; TAL metals; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; FS and risk assessment parameters	TCL Extractable & Purgeable Organics; TAL metals; PCBs; Radionuclides[1]; ^{99}Tc[3]; Gross Alpha and Gross Beta[2] FS and risk assessment parameters
Leachate within waste disposal cells (if present)	TCL Extractable & Purgeable Organics; TAL metals (unfiltered); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; TAL metals (5 and 0.45 micron filters) Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters);		TCL Extractable & Purgeable Organics; TAL metals (unfiltered); PCBs; Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; TAL metals (5 and 0.45 micron filters) Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters);

Sample Type	SWMU 4 Analytical Requirements (in the order of collection)	SWMU 5 Analytical Requirements (in the order of collection)	SWMU 6 Analytical Requirements (in the order of collection)
UCRS GW	TCL Extractable & Purgeable Organics; TAL metals[4] (unfiltered); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; Major & minor ions[5]; FS and risk assessment parameters; TAL metals[4] (5 and 0.45 micron filters); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters)	TCL Extractable & Purgeable Organics; TAL metals (unfiltered); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; Major & minor ions[5]; FS and risk assessment parameters; TAL metals[4] (5 and 0.45 micron filters); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters)	TCL Extractable & Purgeable Organics; TAL metals (unfiltered); PCBs; Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; Major & minor ions[5]; FS and risk assessment parameters; TAL metals[4] (5 and 0.45 micron filters); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters)
RGAand McNairy GW	TCL Extractable & Purgeable Organics; TAL metals[4] (unfiltered); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; Major & minor ions[5]; FS and risk assessment parameters; TAL metals[4] (5 and 0.45 micron filters); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters)	TCL Extractable & Purgeable Organics; TAL metals[4] (unfiltered); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; Major & minor ions[5]; FS and risk assessment parameters; TAL metals[4] (5 and 0.45 micron filters); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters)	TCL Extractable & Purgeable Organics; TAL metals[4] (unfiltered); PCBs; Radionuclides[1] (unfiltered); ^{99}Tc[3]; Gross Alpha and Gross Beta[2]; Major & minor ions[5]; FS and risk assessment parameters; TAL metals[4] (5 and 0.45 micron filters); Total uranium, ^{234}U, ^{235}U, ^{238}U, and selected radionuclides[1] (5 and 0.45 micron filters)

[1]In accordance with the *Environmental Radiological Screening* Procedure (PTSA-2006, Rev. 0) and, for filtered samples, the Kentucky Department for Public Health Radiation Health and Toxic Agents Branch *Filtering Protocol, May 5, 1998*. Selected radionuclides are dependent on gamma spectroscopy and gross alpha/beta results.
[2]If gross alpha (in dpm) is three times greater than gross beta, analyze for ^{239}Pu, ^{237}Np, and ^{230}Th (for SWMU 5 add ^{241}Am, ^{226}Ra, and ^{222}Rn). For SWMU 5, if the gross beta/alpha ratio exceeds 2:1, analyze for tritium
[3]Analyzed at Field Laboratory with 10% confirmation at Fixed-Base Laboratory.
[4]Includes Ba, Fe, Mg, Na, K
[5]Includes chloride, phosphate, bicarbonate alkalinity, fluoride, dissolved silica, pH, and Eh

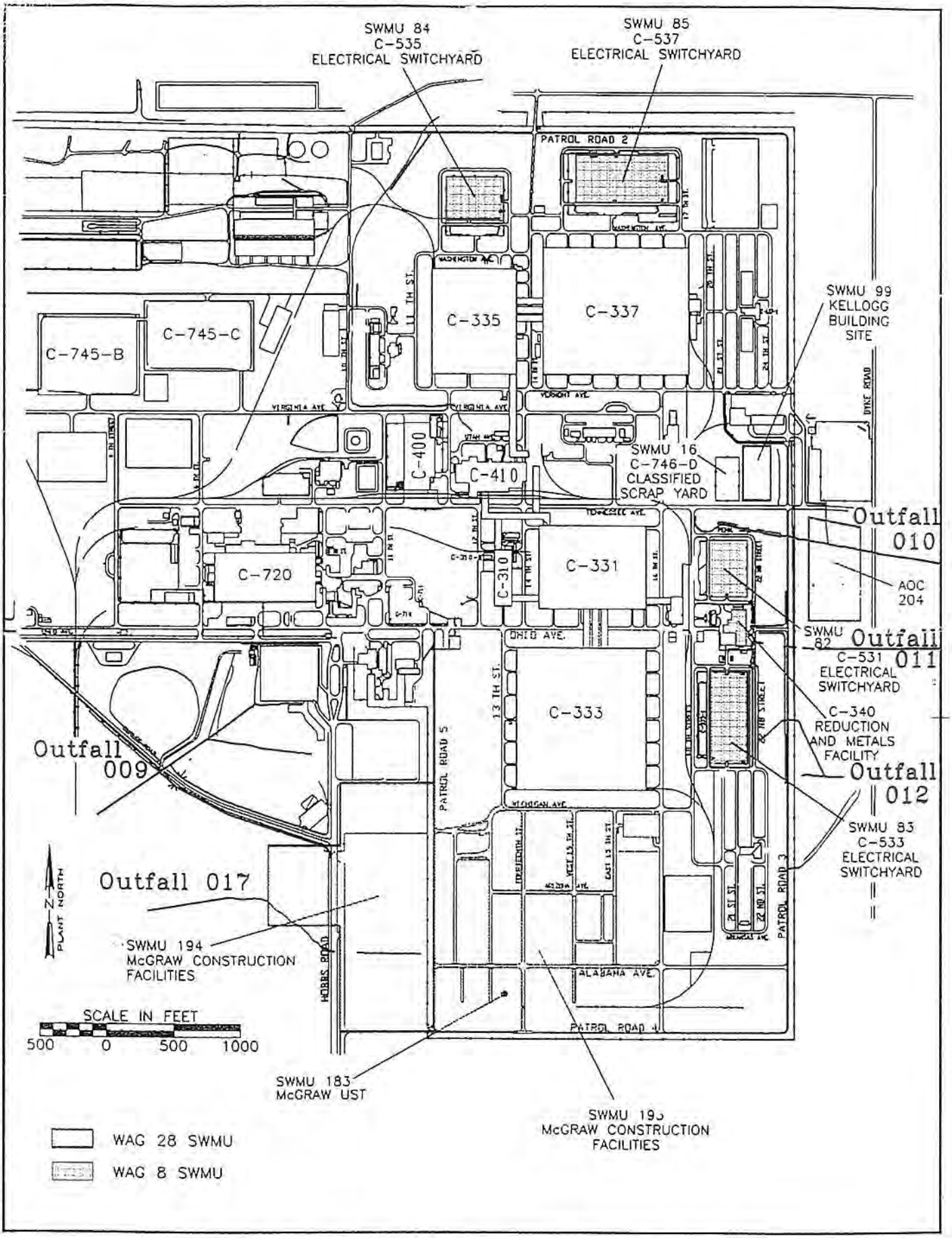


Fig. 1.1 SWMUs included in the WAG 28 RI/FS and WAG 8 PA/SI

C0362/Disk61

1. **C-745 Kellogg Building Site (SWMU 99).** The C-745 Kellogg Buildings were constructed in 1951 as support facilities during the construction of the PGDP cascade facilities. It is possible that degreasing operations using trichloroethene (TCE) were conducted within these facilities that may have resulted in releases to the environment. The former building locations are on the eastern side of PGDP and are now occupied by the C-746-D Classified Scrap Yard and the C-745-E uranium hexafluoride (UF_6) Cylinder Storage Yard. SWMU 99 was identified as a possible source area for groundwater contamination during the Groundwater Phase IV Investigation (DOE 1995a) because of the potential that TCE was used at this site.

2. **McGraw Underground Storage Tank (UST) (SWMU 183).** The McGraw UST is a 400-gal UST located south of the C-745-K Cylinder Storage Yard. The currently inactive McGraw UST was reportedly used to store gasoline or diesel fuel at a temporary filling station that was in service during the construction of PGDP. The tank was installed in 1951 and was possibly in operation until 1954. The UST was discovered and filled with either gravel or concrete in the early 1980s during construction of the cylinder yards.

3. **McGraw Construction Facilities (SWMU 193).** The McGraw Construction Facilities are a series of sites located on the southern side of PGDP, east of Patrol Road 5 and west of 16th Street. The area consists of approximately 12 acres of mostly flat land, equally divided between UF_6 cylinder storage yards and open fields. This area was once covered by buildings, some of which were used for metals fabrication, electrical equipment storage, paint storage, cleaning operations, heavy equipment cleaning, waste disposal, refueling, and concrete production. Two SWMUs as well as the C-745-G, -F, -K, -L, -D, -Q, -M, -N, and -P Cylinder Storage Yards are currently located in this area.

4. **McGraw Construction Facilities (SWMU 194).** SWMU 194 encompasses the area that formerly housed the administrative buildings, cafeteria, hospital, and other support facilities for the McGraw Construction Company. This SWMU covers approximately 22 acres of mostly flat land, encompassing an area from west of Hobbs Road to Patrol Road 5, in the southern portion of PGDP. SWMU 194 is located west of SWMU 193.

5. **Area of Concern (AOC) 204.** AOC 204 consists of approximately 3 acres located between Patrol Road 3 and Dyke Road on the eastern side of PGDP. Very limited historical information is available pertaining to AOC 204, although it is believed that it was used for the disposal of construction debris. AOC 204 was extensively investigated in August 1995, and no imminent threat was found that would warrant action at that time.

A PA/SI will be performed at the five sites that comprise WAG 8. The activities that will be completed in conjunction with the WAG 8 PA/SI are also outlined in this work plan. The five WAG 8 sites are

- the C-531 Electrical Switchyard (SWMU 82),
- the C-533 Electrical Switchyard (SWMU 83),
- the C-535 Electrical Switchyard (SWMU 84),
- the C-537 Electrical Switchyard (SWMU 85), and
- the C-340 Building Area – Reduction and Metals Facility.

The goals of the remedial investigation (RI)/feasibility study (FS) for Waste Area Grouping (WAG) 28 are

1. to determine the nature and extent of contamination for all potentially impacted media at each solid waste management unit (SWMU),

2. to determine if the investigated SWMUs pose an unacceptable risk to human health or the environment, and

3. to identify the best technology in terms of effectiveness and cost if remediation is required.

A sampling strategy has been developed for each SWMU to focus sampling toward the efficient and cost-effective collection of data necessary to meet the objectives of the investigation.

WAG 28 is comprised of five SWMUs that will be evaluated under this integrated RI/FS work plan. These SWMUs are

- the C-745 Kellogg Building Site (SWMU 99),
- the McGraw Underground Storage Tank (SWMU 183),
- the McGraw Construction Facilities (SWMU 193),
- the McGraw Construction Facilities (SWMU 194), and
- the Area of Concern 204.

A preliminary assessment (PA)/site investigation (SI) will be conducted concurrently with the RI for the five sites that comprise WAG 8. The five sites included in WAG 8 are

- the C-531 Electrical Switchyard (SWMU 82),
- the C-533 Electrical Switchyard (SWMU 83),
- the C-535 Electrical Switchyard (SWMU 84),
- the C-537 Electrical Switchyard (SWMU 85), and
- the C-340 Building Area – Reduction and Metals Facility.

The primary objectives of the PA/SI will be to evaluate whether releases resulting in environmental contamination have occurred from any of the sites. Secondary objectives of the PA/SI will include a preliminary evaluation of release mechanisms and migration pathways to determine if these SWMUs are a source of off-site contamination or if they pose an unacceptable risk to on-site receptors that warrants an interim action. A final RI/FS will be conducted when these units cease operation if the results from the PA/SI indicate that additional investigation is warranted. If no contamination is found, LMES will initiate proceeding to delist these sites.

WAGs 28 and 8 are located close to one another and contain many of the same chemicals of concern, so, for the sake of cost efficiency, the decision was made to evaluate WAG 8 as a potential source of trichloroethene (TCE) in the Northeast Plume. Because the WAGs are operating units, however, the goal is to determine if ongoing releases are occurring that are migrating off-site that warrant an interim action in accordance with the PA/SI framework. The PA/SI is intended to answer the question: Are any of the WAG 8 SWMUs a source of off-site polychlorinated biphenyl and TCE contamination? The C-340 Building will be investigated along with WAG 28 for a similar reason—to identify the source of the TCE contamination discovered near the C-340 Building.

After all fieldwork is completed, the RI report will be prepared. This report will present the results of the investigation with supporting maps, charts, and tables of the individual SWMUs. The report will also provide insight on the relationship of these SWMUs to the larger area of the plant. A baseline risk assessment will be prepared to determine if risk is sufficient to require remediation of a SWMU. Finally, after the RI report is prepared, an FS will be completed to identify which technologies should be used to remediate the SWMUs, if remediation is required, followed by completion of the FS report with recommendations for actions at each SWMU.

A separate PA/SI report will be prepared for the WAG 8 sites. This report will summarize the findings from the PA/SI field activities and present the results from the screening risk assessment that will be prepared to evaluate whether any of the sites pose an imminent risk to human health and the environment.

RI/FS SCOPE

The primary focus of the RI/FS will be to collect sufficient information about existing and potential contamination in surface and subsurface soils, the shallow groundwater of the UCRS, and possibly groundwater in the Regional Gravel Aquifer (RGA) and upper McNairy Formation to support an assessment of risks to human health and the environment and the selection of actions to reduce these risks, if required. If chemicals of potential concern (COPCs) are detected in the UCRS beneath a SWMU, the RGA and McNairy Formation will be evaluated as secondary source(s).

Based on the geology of the McNairy Formation, it is expected that migration of contaminants through the formation is impeded by the Levings Member which serves as an aquitard in the PGDP area. Based on this assumption, all of the initial deep soil borings will be terminated at the top of the Levings Member of the McNairy Formation (approximately 150 ft). If the TCE concentration at the top of the Levings Member is greater than 5 µg/L, further evaluation will be required under a separate program. If contaminant migration has occurred and full characterization of the McNairy Formation becomes necessary, discussion among representatives from KDEP, EPA, and DOE will determine the need for monitoring of the Levings and lower members of the McNairy Formation and the Rubble Zone. At a minimum, representatives from the regulatory community and DOE will discuss these data to determine the need and location of monitoring wells in any of the SWMUs or areas of investigation. All data collected during the RI/FS regarding groundwater contamination or DNAPL migration will be evaluated and incorporated into the PGDP groundwater OU investigations.

PA/SI SCOPE

The primary focus of the PA/SI will be to collect sufficient surface water, surface and subsurface soils, and shallow groundwater data to assess whether each of the sites has released contaminants to the environment. Additional objectives will be to determine whether any of the sites are ongoing sources of off-site contamination or whether they pose an unacceptable risk to on-site receptors. The focus of the sampling effort will be along known or suspected migration pathways. The primary difference between the PA/SI and RI/FS is that the PA/SI will not necessarily provide full characterization of the site nor will it fully define the nature and extent of contamination. It should be noted that the scope of the PA/SI activities for WAG 8 is broader than the normal scope of a PA/SI, which generally consists of limited sampling to determine whether contamination is present at a site that would justify further investigation (i.e., an RI/FS) to fully define its nature and extent. Historical information and previous sampling activities have indicated that there have been releases associated with the four electrical switchyards; however, because these facilities are currently active and there are safety concerns associated with working within these areas, it is not possible to complete an RI/FS until operations cease.

The overall sampling strategy for all WAG 28 SWMUs will focus on surface soils, subsurface soils, surface water and sediment (where applicable), and shallow groundwater of the UCRS to identify sources of groundwater contamination. Sampling at these SWMUs will also evaluate known or potential release mechanisms and will define the migration routes of contaminants and the methods of migration. Of particular interest will be the groundwater of the RGA and upper McNairy and sources of contamination that may be contributing to the Northeast Plume. The strategy employed for the WAG 8 PA/SI will closely parallel that of the WAG 28 RI/FS and will help determine whether there have been releases of contaminants from these sites and whether these releases require remedial action to reduce the risk to human health and/or the environment before closure of these facilities.

The review of historical information indicates that the analyte list for media at each SWMU should be targeted to ensure that a cost-effective investigation is developed. The process used to develop the list of preliminary contaminants is discussed in further detail in Sect. 6.1.6.1. Volatile organic compounds (VOCs) consisting primarily of TCE and its degradation products 1,1-dichloroethene (DCE); cis-1,2-DCE; trans-1,2-DCE; and vinyl chloride are analytes of interest at all SWMUs addressed by this work plan. Semivolatile organic compounds (SVOCs): the inorganic chemicals found on the Target Analyte List (TAL); PCBs; dioxin/furans: and the radionuclides ^{234}U, ^{235}U, ^{238}U, ^{239}Pu, ^{137}Cs, ^{230}Th, ^{237}Np, and ^{99}Tc are also addressed on a SWMU–specific basis.

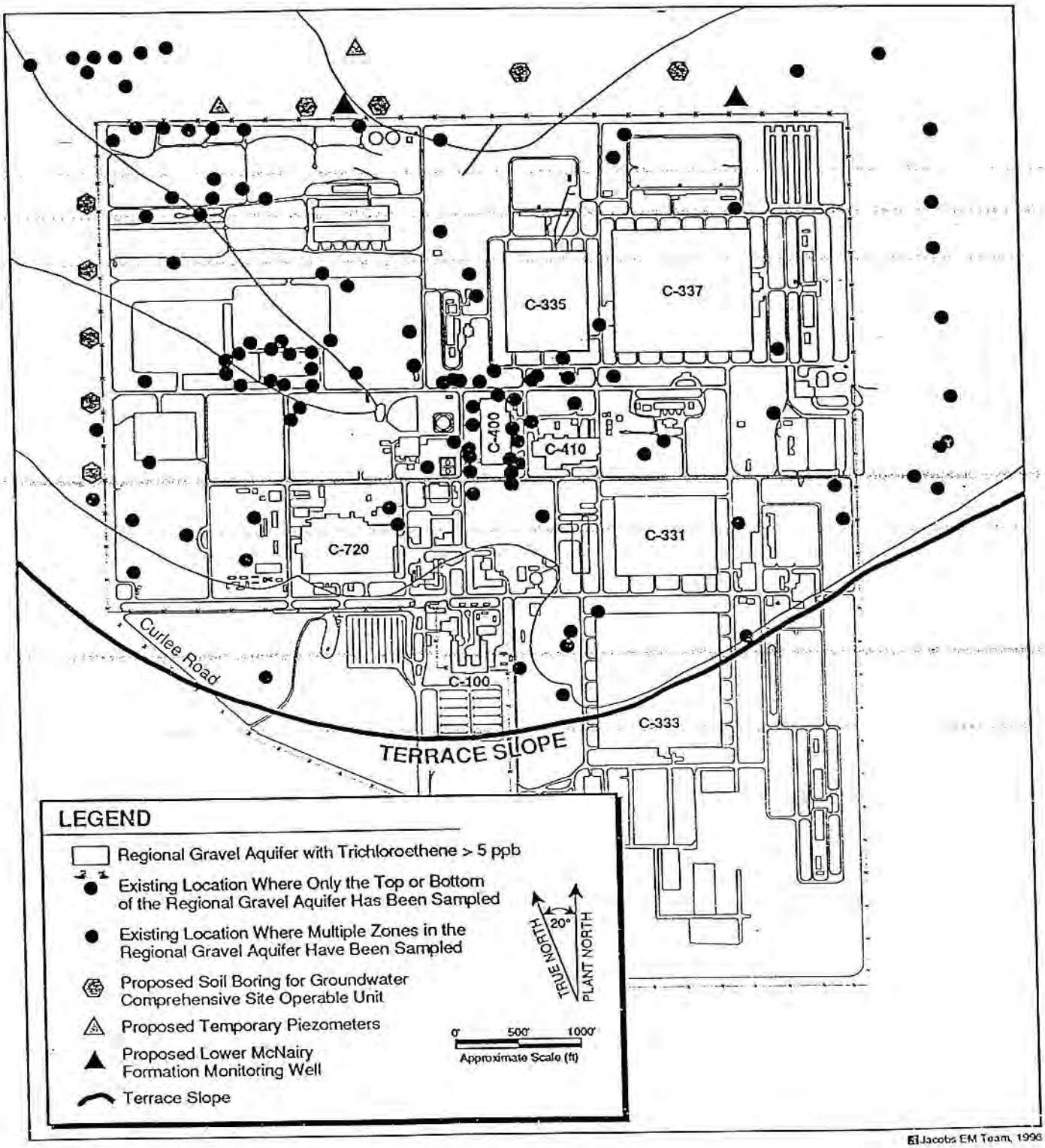


Figure 1. Proposed and Existing Regional Gravel Aquifer Data Locations Along the Paducah Gaseous Diffusion Plant Perimeter

This sampling and analysis plan has been prepared to provide supplemental data on the groundwater comprehensive site operable unit (CSOU). Additional data to support future decisions on the groundwater CSOU currently is being collected during ongoing remedial investigations. The sampling strategy for this plan focuses on collection of groundwater samples and subsurface soil samples from nine locations along the Paducah Gaseous Diffusion Plant (PGDP) perimeter. The objective is to collect data to determine the full width of contaminant plumes exiting the PGDP, to decrease the uncertainty that unknown plumes are exiting the PGDP, and to collect data (geotechnical, geological, and chemical) to support a feasibility study for a sitewide remedial action for source units contributing to off-site groundwater contamination. In addition to data from these soil borings, three monitoring wells will be installed in the lower McNairy Formation or "rubble zone" and two piezometer clusters will be installed near the C-616 Lagoons to address additional groundwater data gaps.

This field sampling plan presents the technical approach that will be used to collect the additional samples. The work will be implemented by the Waste Area Group (WAG) 28 remedial investigation subcontractor. All procedures and applicable project plans (quality assurance project plan, waste management plan, and health and safety plan) in the WAG 28 Workplan (DOE, 1998) are incorporated by reference. While the current version of the workplan has not received regulatory approval, all work will be implemented according to the final, regulatory-approved workplan.

SAMPLING STRATEGY AND DESIGN

The collection of groundwater samples is proposed to discern the width of existing contaminant plumes as they exit the site or to discern the presence of previously unidentified plumes. Geotechnical samples also will be collected to support an FS for a sitewide source action. These samples will be collected at nine locations around the perimeter of the PGDP where data is sparse. Figure 1 shows the nine locations in relation to existing site data. The proposed locations shown in Figure 1 should be considered as general locations; the actual locations may vary in the field to avoid any obstacles or drilling hazards.

REFERENCES

DOE/OR/07-1649&D2, Primary Document, Work Plan for Waste Area Grouping 3 Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, July 1998.

DOE/OR/07-1592&D2, Primary, Work Plan for Waste Area Grouping 28 Remedial Investigation/Feasibility Study and Waste Area Grouping 8 Preliminary Assessment/Site Investigation at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, May 1998.

DOE/OR/07-1719&D2, Secondary Document, Sampling and Analysis Plan to Support a Sitewide Remedial Evaluation for Source Areas Contribution to Off-Site Groundwater Contamination at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, September 1998.

SCHEDULE

WAG 3:

- Full scale RI field work is projected to start in early FY 2000.
- Regulatory Milestone D1 Remedial Investigation Report due - August 2000.

WAG 8:

- Field work completion projected in early to mid September 1999.
- Regulatory Milestone D1 Site Evaluation Report due - June 2000.

WAG 28:

- RI field work is projected to be completed - July 1999.
- Regulatory Milestone D1 Remedial Investigation Report due - January 2000.

Sitewide Remedial Evaluation for Source Areas Contribution to Off-Site Groundwater Contamination (Data Gaps):

- Data Gaps is in support of the Groundwater Operable Unit and is not assigned any Regulatory Milestones. Data collected will be reported in the WAG 28 Remedial Investigation Report.

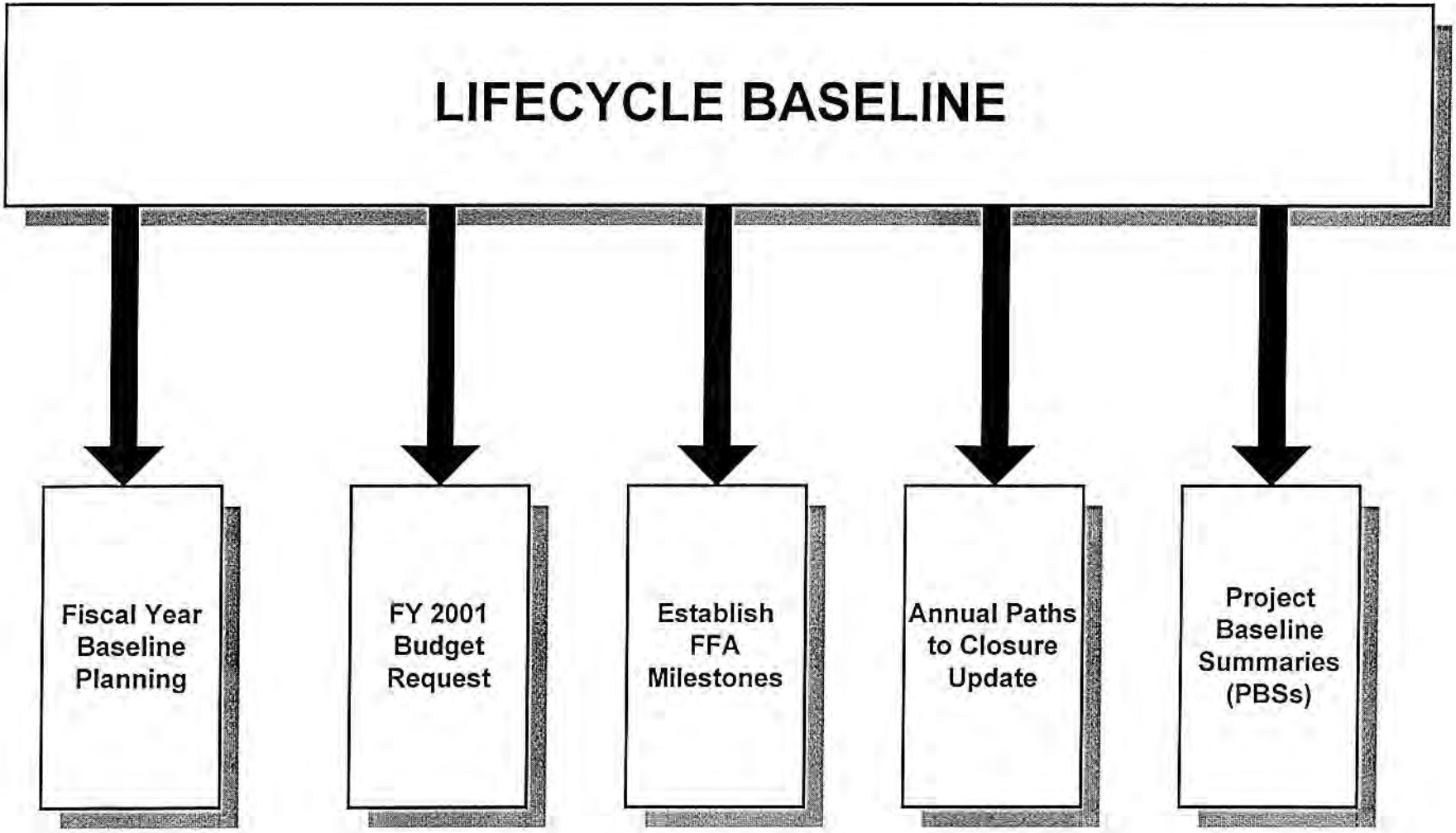
PADUCAH
SSAB UPDATE
LIFECYCLE BASELINE OVERVIEW

June 17, 1999

INTRODUCTION

- DOE Planning Process
  - Fiscal Year Baseline
  - Lifecycle Baseline
- Lifecycle Baseline Overview
- Budget Update
  - Congressional Budget Process
  - FY 2000 Budget
  - Lifecycle Impacts

DOE PLANNING PROCESS



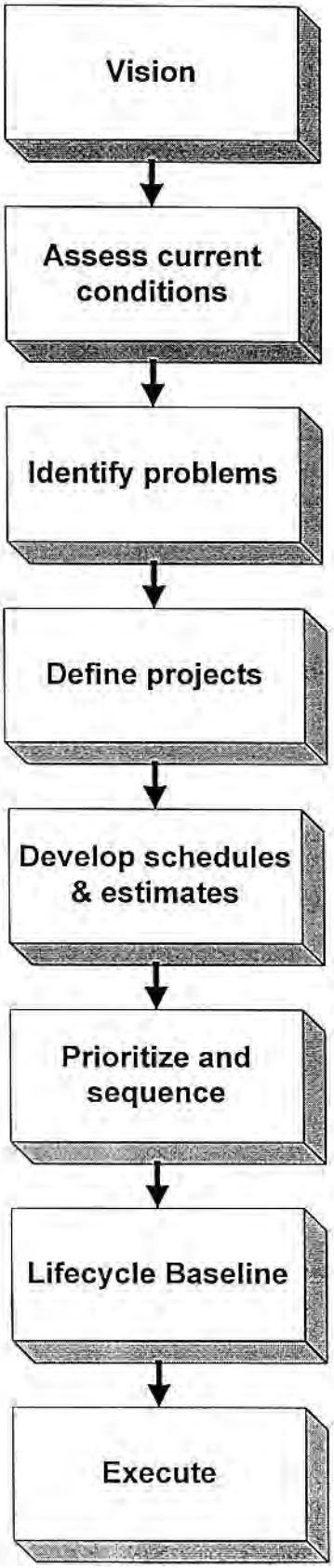
h:home/onz/visio/Lifecyle/DOEplnng

DOE PLANNING PROCESS

- Lifecycle Baseline (LCB)
  - Scope, schedule, and cost from start through program completion
  - Requires development of assumptions for outyear planning purposes

- Fiscal Year Baseline (FYB)
  - Detailed scope, schedule, and cost proposed for a single fiscal year
  - Currently preparing draft FYB for FY 2000 based on the President's Budget Request
  - FYB will be finalized after October FY 2000 to reflect actual budget

LIFECYCLE BASELINE PROCESS

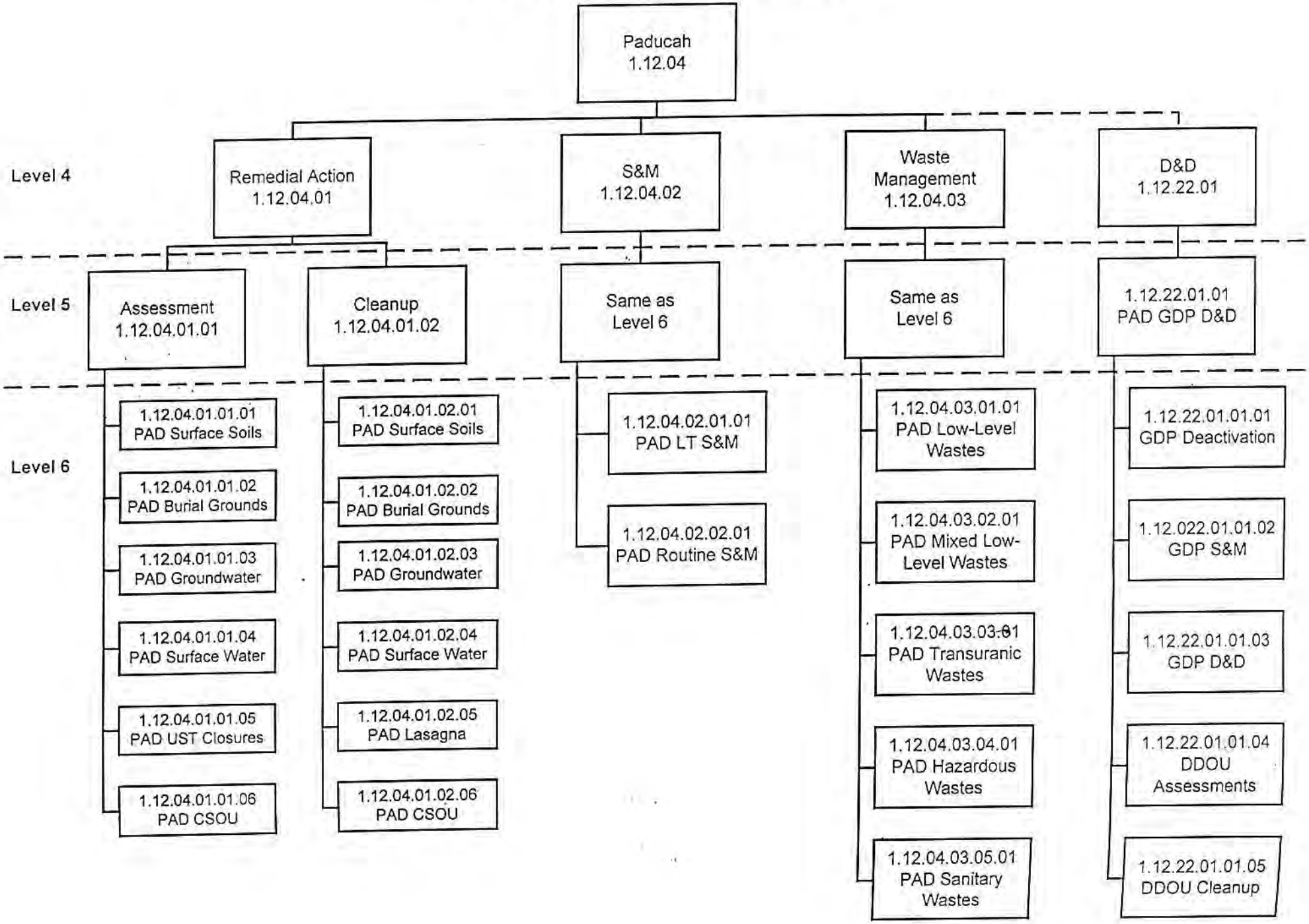


h:home/onz/visio/Lifecyle/Vision

LCB OVERVIEW

h:home\onz\visio\lifecycle\wrkbrkst.

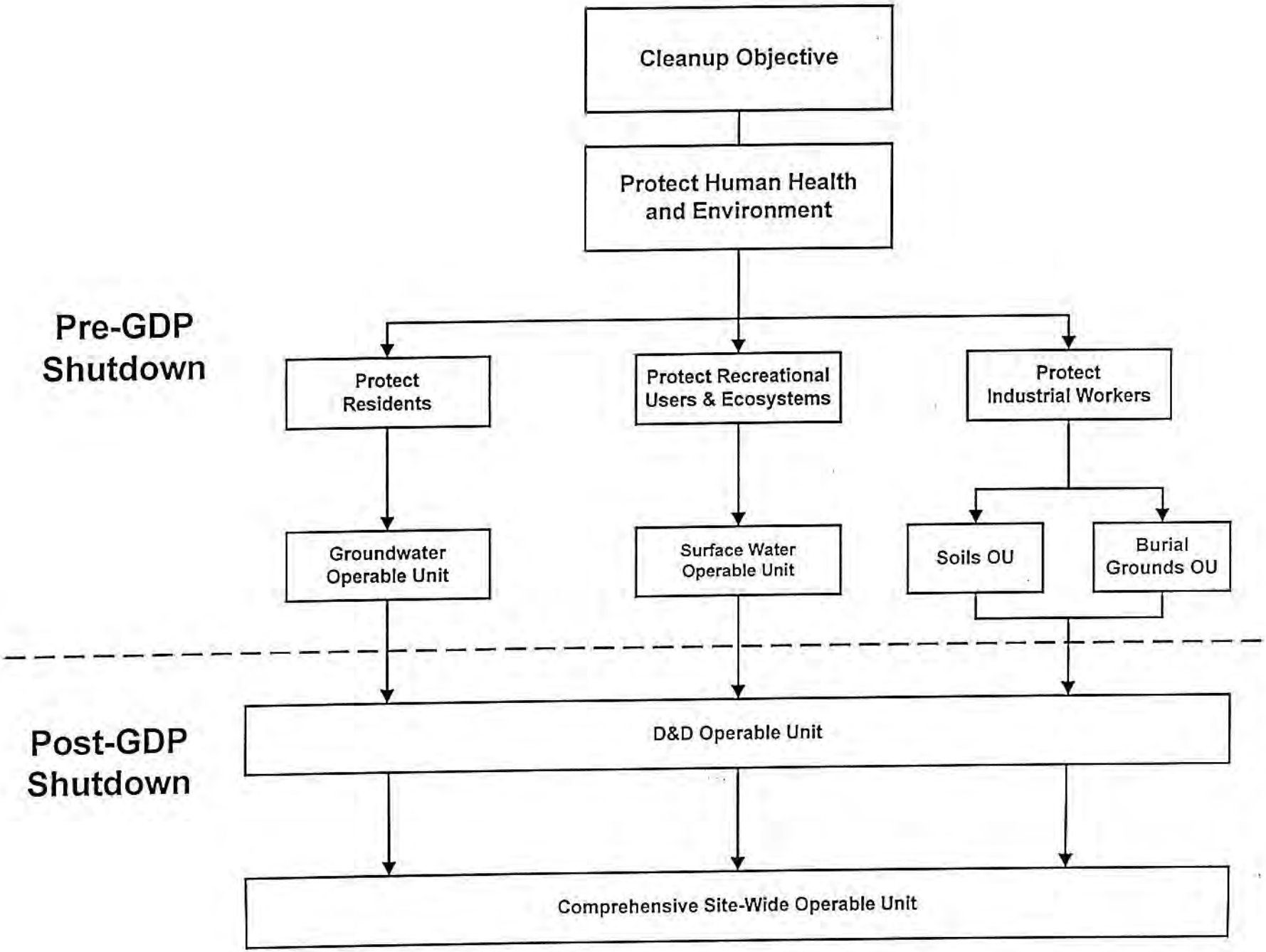
LIFECYCLE BASELINE
WORK BREAKDOWN STRUCTURE



KEY ASSUMPTIONS

END USE/END STATE

- PGDP is reindustrialized after GDP shutdown
- Future land use is restricted industrial/recreational use
  - Mitigate future off-site migration of groundwater and surface water contamination
  - Maximize cleanup of surface soils (0'-10') for unrestricted industrial use
  - Restrict DOE property to prohibit groundwater use
  - Restrict DOE property to prohibit residential development
- All legacy wastes removed
- Long-term S&M required



h:home\onz\visio\Clenobj3

REMEDIAL ACTION ASSUMPTIONS

- Burial Grounds will be capped in place with monitoring except for radiological burial grounds presenting long-term threats to off-site receptors which are assumed to be excavated

- Remedial actions for Surface Water and Surface Soils will include "hot spot" excavations to remove PCBs above 10 ppm and radionuclides above 25 mrems

- Remedial actions for groundwater assume replacement of the existing pump and treat system with an in situ passive reactive gate, treatment of DNAPL sources at C-400, and natural attenuation of the off-site plumes

- Transition from the pump and treat system to an in situ passive reactive gate is projected to have significant lifecycle cost savings

WASTE MANAGEMENT ASSUMPTIONS

- Generators will be responsible for costs of newly-generated wastes
- Treatment and disposal of legacy wastes will be based on a Risk-Based Ranking System
- Revenues from resale of scrap metal will remain at Paducah to off-set associated disposal costs
- Scrap metal must be removed by end of FY 2003 to allow access to the underlying burial grounds
- Vortec demonstration will be implemented as planned
- Treatment and disposal of TRU wastes at Paducah will utilize the Oak Ridge contract to WIPP
- No additional WM facilities will be required
- USEC will fund sorting, characterization, and packaging of DMSA materials, and DOE will assume responsibility for storage, with disposal during D&D

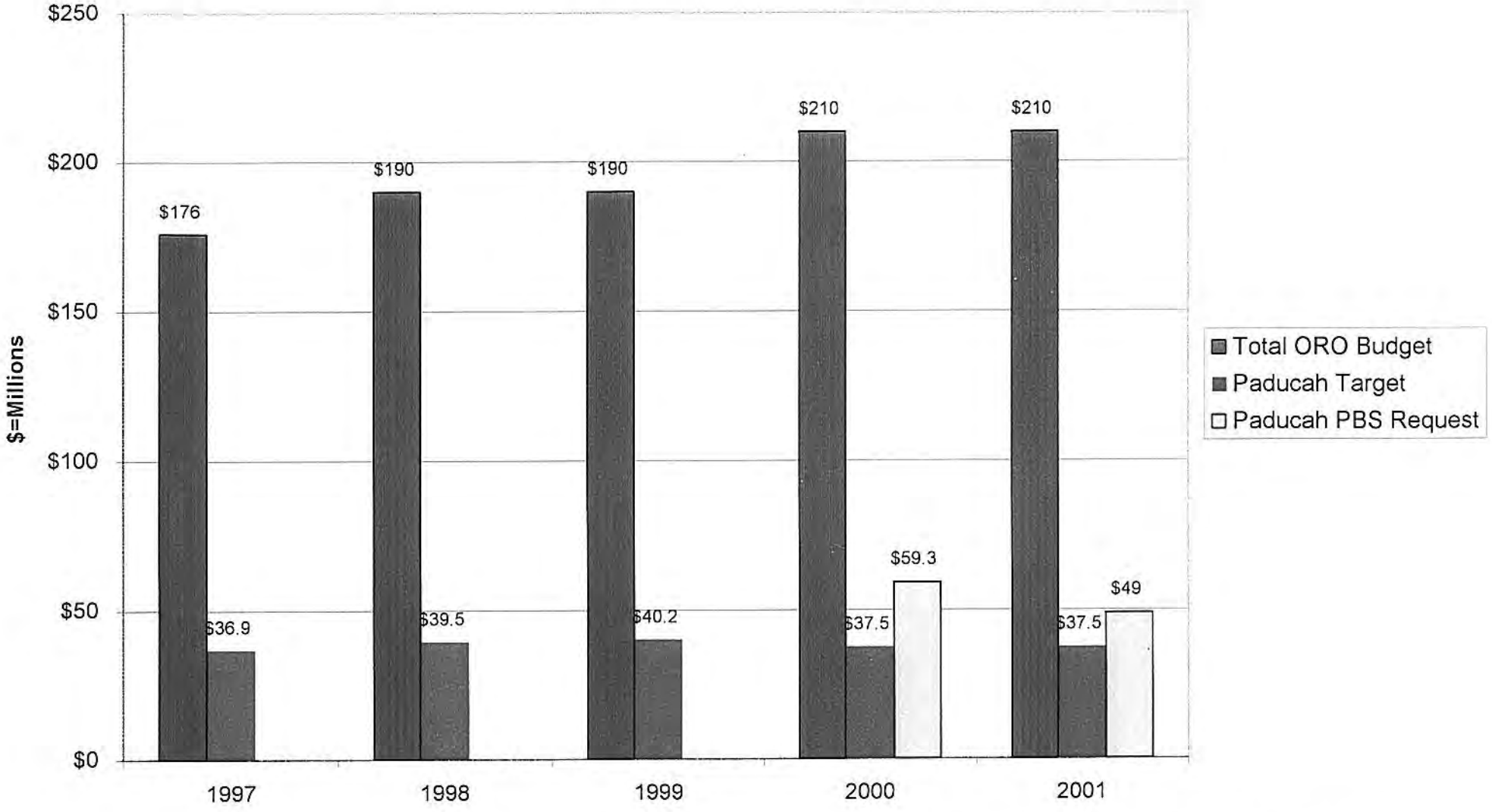
LONG-TERM SURVEILLANCE AND MAINTENANCE

- Steady state achieved in FY 2012

- Post-FY 2012 scope will include:
  - Postclosure groundwater monitoring at permitted landfills
  - Residential well sampling and alternative drinking water
  - KPDES monitoring
  - Post-remediation monitoring and inspections
  - Access control and record keeping
  - D&D-related items

- Assume the groundwater pump and treat system is converted to an in situ passive reactive gate in FY 2005

D&D FUND
PADUCAH BUDGET SUMMARY



Note: Excludes funds for ORO Uranium/Thorium programs.

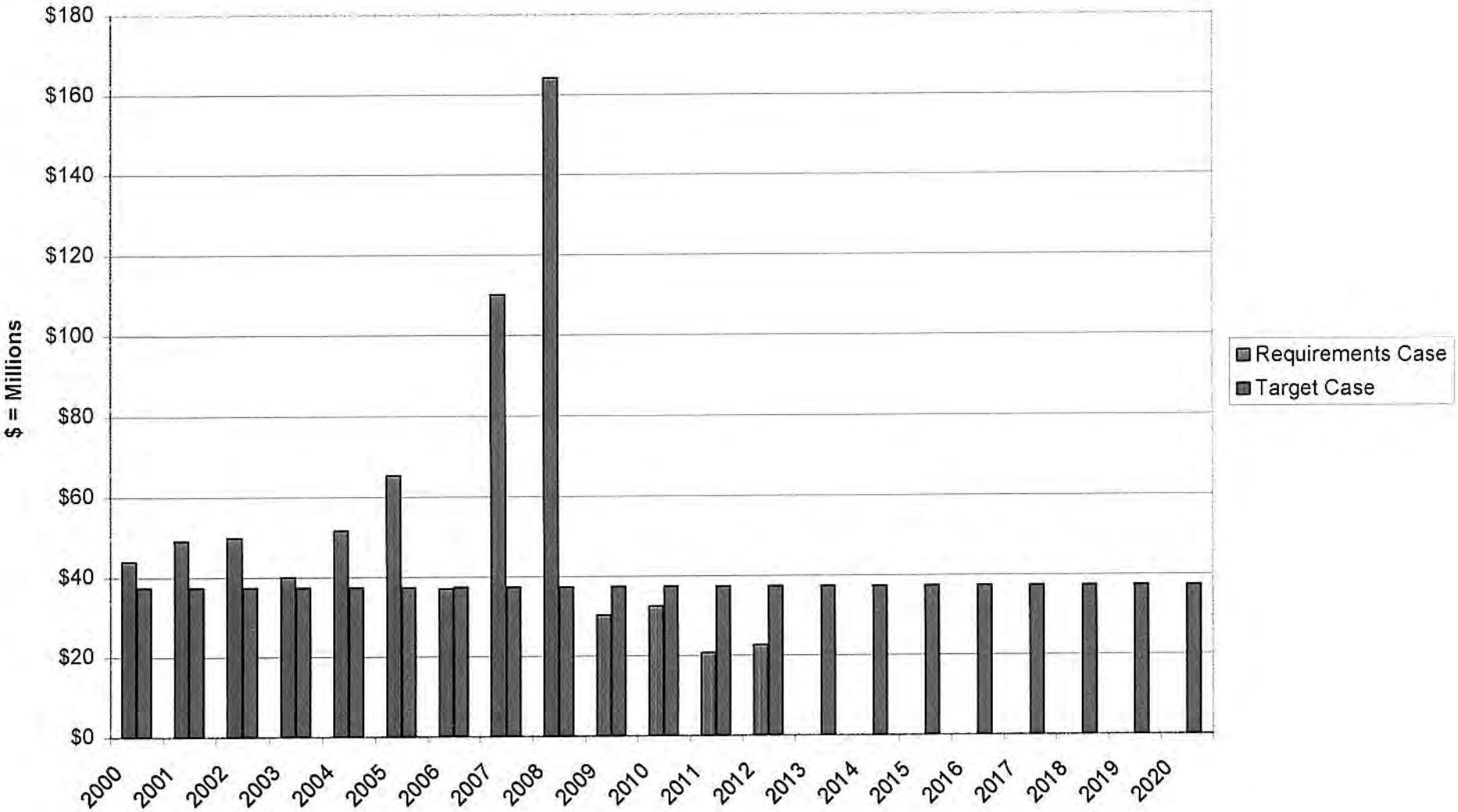
h:home/onz/excel/Budg-sum

DOE PLANNING PROCESS

- Lifecycle Baseline typically includes a "Requirements Case" and Target Case"
  - Requirements Case includes scope, schedule, and estimates necessary to meet all compliance agreements
  - Target Case includes scope and schedule based on anticipated funding levels
  - Requirements Case is incorporated in the Paths to Closure Document

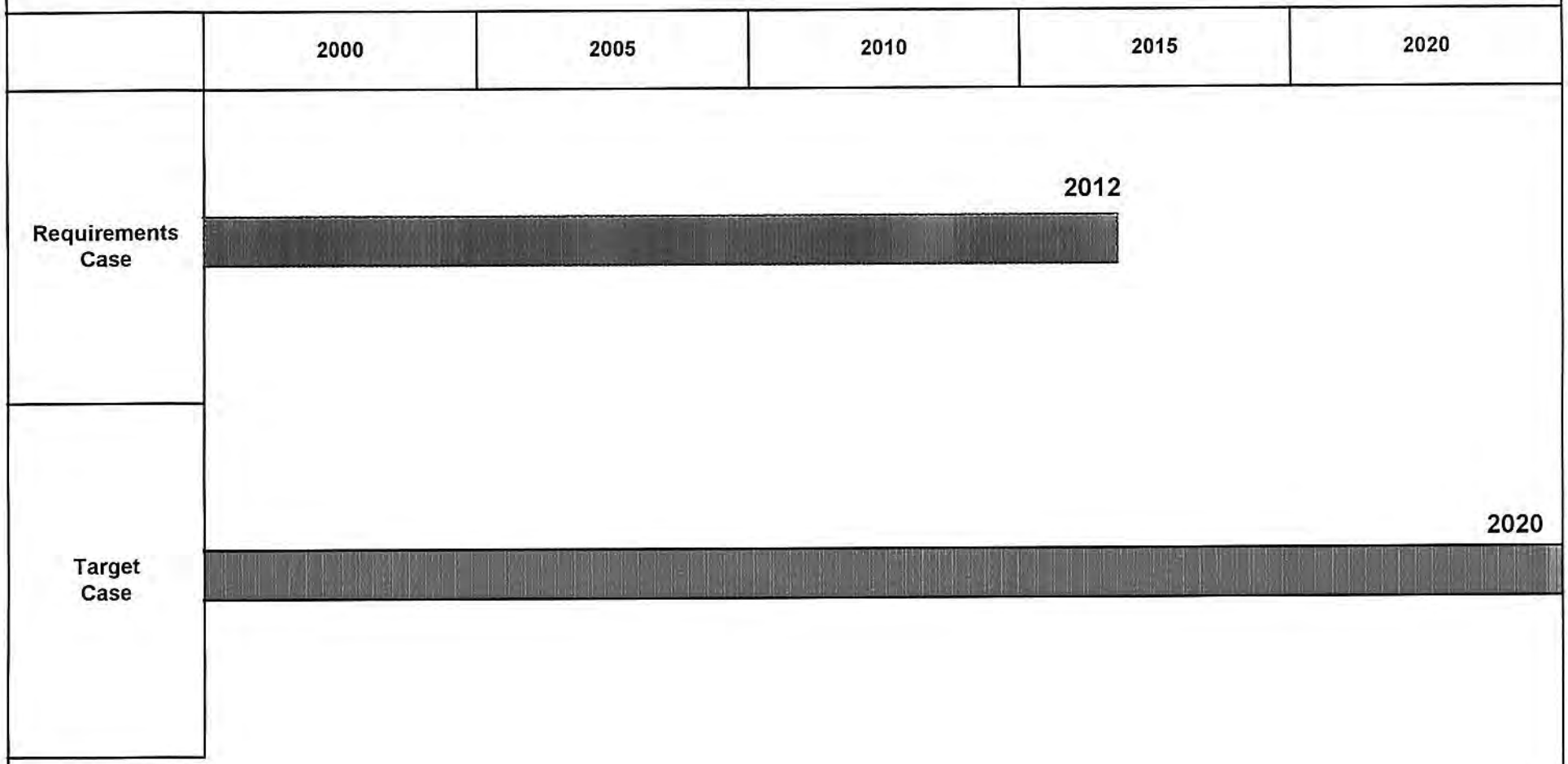
- Both the FYB and LCB are annually revised to reflect congressional funding levels

PADUCAH FUNDING
REQUIREMENTS CASE VS. TARGET CASE



h:home/onz/excel/Lifecyle/lcb-flat

PADUCAH
REQUIREMENTS CASE VS. TARGET CASE



Impacted Projects
Groundwater Cleanup
Burial Grounds

h:home/visio/rqurtrgt

FISCAL YEAR 2000
BUDGET HISTORY

	DOE Budget Request	President's Budget	Bechtel Jacobs Decrement
D&D Fund	**$259.8M**	**$210.2M**	**$175M**
ETTP	$144.3M	$135.2M	$108M
Paducah	$59.3M	$37.5M	$33M
Portsmouth	$56.2M	$37.5M	$34M
Defense/Nondefense	**$377.3M**	**$320.4M**	**$288M**
Oak Ridge	$309.8M	$268.4M	$244.2M
Weldon Springs	$67.5M	$52M	$43.8M
Totals	**$637.1M**	**$530.6M**	**$463M**

SIDE A

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

ISSUE	EXPECTED ACTIONS	STATUS/APPROACH	Jan 99	Feb 99	Mar 99	Apr 99	May 99	Jun 99	Jul 99	Aug 99	Sep 99	Oct 99	Nov 99	Dec 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	Innovative Technology Remediation Demonstration (ITRD) Update	✔		✔	✔								
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														

March 24, 1999

SIDE B

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

ISSUE	EXPECTED ACTIONS	STATUS/APPROACH	Jan 99	Feb 99	Mar 99	Apr 99	May 99	Jun 99	Jul 99	Aug 99	Sep 99	Oct 99	Nov 99	Dec 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 NRDC settlement information		✔	✔	✔								
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			✔									

March 24, 1999