PADUCAH GASEOUS DIFFUSION PLANT
SITE SPECIFIC ADVISORY BOARD

Chartered under the Federal Advisory Committee Act

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Rev. Gregory Waldrop
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MEMORANDUM
SITE SPECIFIC ADVISORY BOARD

TO: SSAB Members
Ex Officio Members

FROM: Mark Donham
Vicki Jones

DATE: August 10, 1998

SUBJECT: **MEETING REMINDER**

The next meeting will be held August 20, 1998, at the Information Age Park at 5:30 p.m. The meeting was adjourned.

Tentative agenda for the August 20, 1998, meeting:

- Minutes
- Information (Handouts)
- EMEF Project Updates
- WAG 22, SWMUs 2, 7, and 30 (30 minutes)
- Accelerating Cleanup Plan, Paths to Closure (30 minutes)
- Depleted Uranium Hexafluoride PEIS, review of budget (30 minutes)
- Training Options for SSAB (15 minutes)
- DOE Response to SSAB Recommendations (15 minutes)
- Administrative Plans for the Board
  - Review of the SSAB Draft Work Plan (10 minutes)
  - Financial Update (10 minutes)

Action Items

- Provide SSAB members with the issue date of the final environmental impact statement on depleted uranium hexafluoride.
- Contact DOE Headquarters to see if the SSAB can be provided with a complete list of comments and responses on the Oak Ridge Operations Accelerating Cleanup Plan.
- Provide a financial spreadsheet and update to SSAB members in the August mailing.
- Provide SSAB members with a copy of the executive summary for the WAG 6 RI Report.

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Meeting Minutes

August 20, 1998

The August 20, 1998, Site Specific Advisory Board (SSAB) meeting took place at the Information Age Park Resource Center in Paducah at 5:30 p.m.

The following board members were present: Nola Courtney, Mark Donham, Edward Duff, Vicki Jones, Linda Long, and Bill Tanner. The ex officio members present were Jimmie Hodges, Tuss Taylor, and John Volpe. The facilitator present was Steve Kay. The United States Department of Energy (DOE) federal coordinator present was John Sheppard. Also present were the following members of the public and employees, contractors, and subcontractors of the DOE: Jeannie Brandstetter, Dave Dollins, Shelley Hawkins, Dennis Hill, Debora Jolly, Jimmy Massey, Ross Miller, John Morgan, and Myrna Redfield.

Agenda

Steve Kay called the meeting to order and asked if there were any modifications to the agenda. Dennis Hill proposed adding a discussion on the Northeast Plume and the interaction of the Northwest Plume with the Ohio River under information handouts. John Sheppard proposed adding a discussion on the national SSAB meeting in Colorado. This discussion was placed in administrative plans. The modified agenda was not formally adopted since a quorum was not present; however, it was used as a working agenda.

Information — Northwest Plume

Ross Miller, Bechtel Jacobs Company LLC senior hydrogeologist, gave members a fact sheet of frequently asked questions on the Northwest Plume along with maps of sampled wells and the hydrogeologic profile of the Paducah Gaseous Diffusion Plant to the Ohio River. Miller said assessment and evaluation reports of the plume are done annually. He said the Oak Ridge National Laboratory report on the Northwest Plume concludes that the plume discharge to the Ohio River will not have any detectable effects on river quality. He said all the evidence collected shows the plume is at

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steady state. As the plume moves downgradient toward the river, it begins to diffuse and becomes diluted by surrounding groundwater. Miller said the pump and treat operation is continued because the plume is subject to regulatory agreements since it has migrated off the DOE site.

Information — Northeast Plume

Debora Jolly, Bechtel Jacobs Company facility operator, gave members a fact sheet on a unique situation this summer concerning the Northeast Plume. Due to the extreme heat this summer, the plant has encountered high power costs and had to cut the power levels back. There was a potential that the building associated with the Northeast Plume cooling tower would have to be shut down. Jolly said the power levels are now coming back up as the costs go down, so the potential no longer exists. Jolly said if the situation did occur, however, the cooling tower would continue to operate in recirculating mode through an 11,000-gallon pump. In the case of this situation, Jolly said extra samples would be taken to confirm that everything is operating as it should.

Environmental Management and Enrichment Facilities (EMEF) Project Updates

Members received a handout on the updates and there were no questions or comments.

Waste Area Group (WAG) 22, Solid Waste Management Units (SWMUs) 2, 7, and 30

Nola Courtney said the comment resolution meeting between the DOE and the regulators on SWMU 2 took place today. She said there were several issues between the DOE and regulators on characterization and sampling techniques. Courtney said she did not think the regulators were comfortable with the Groundwater Integrator Unit issue and modeling techniques. Miller said the regulators had suggested that additional sampling needed to be done. He said the regulators were correct and the additional sampling has been done and will be included as an addendum to the document. Courtney asked if vertical sampling had been addressed in the comment resolution meeting. Miller said that drilling straight down to the burial grounds is not a preferred alternative from a risk standpoint. He said there are monitoring wells on the sides of the burial grounds that would detect contaminated water. John Volpe said the DOE did go back and do more sampling and used the method the regulators preferred. He said the DOE did what the regulators asked in some regards. Tuss Taylor said the regulators and the DOE agreed to disagree on this subject. Courtney said the modeling issue was not clear. Miller said modeling is a qualitative tool and sampling is quantitative. He said the monitoring wells indicate exactly where the plume is located. Miller said modeling always is controversial; however, the models used by the DOE are recommended by the United States Environmental Protection Agency and are used industry wide. Courtney asked if there were some chemicals of concern (COCs) the DOE had not addressed. Taylor said there were a few risk comments from the regulators. Dave Dollins said that uranium and trichloroethene are on record as being placed in the burial grounds. He said the DOE is in the process of looking at every SWMU and seeing what is there besides common COCs. He said a new strategy is being put together to make sure nothing is being ignored. Courtney asked when

the next draft of the Feasibility Study (FS) would be released. Dollins said the D2 version is due to the regulators September 21 and the Proposed Plan (PP) will be submitted October 21. Jimmie Hodges said the issue of disagreement between the regulators and the DOE is probably one of timing or risk factor concerning excavation of the burial grounds. Volpe said he is not sure the cost and the risk of digging up the burial grounds would be justified if they are not creating an immediate risk. Hodges said excavation would be expensive. Dollins said the current estimate is $36 to $40 million. Hodges said the DOE is on the path of issuing an FS. He said the PP would lay out the DOE's preferred alternative. Although the DOE does not see an immediate risk with the burial grounds, Hodges said excavation at this point seems to be the better alternative because there is a long-term risk. He said if the site is to become reindustrialized later, it does not make sense to leave the burial grounds. Taylor said the longer the waste is left in the ground, the harder it will be to take it out. Courtney asked if it was likely that the DOE would come up with alternatives other than the four presented in the FS. Hodges said there might be better technology later that would be more cost effective. Volpe said his concern was that once the waste was excavated, something would have to be done with the waste. Hodges said the DOE has considered disposal options and there is a place available to take the waste. Mark Donham said the decision has already been made to cap the burial grounds and asked if this was in the Accelerating Cleanup Plan. Dollins said the whole intent of the cap was to prevent infiltration and leaching, but he does not see capping as an alternative in what is being done now. Volpe said there is probably more soluble uranium in Burial Ground 404. He asked if 404 would be excavated. Hodges said this has been considered and would be addressed later in this meeting. Donham said the DOE should consider preparing a place for waste storage that is environmentally sound. Donham said transportation has to be weighed and we may be responsible for taking care of some of our own material here. Volpe said Paducah is acceptable for storage, but not for in-ground disposal because there is groundwater.

Accelerating Cleanup Plan

A fact sheet on the proposed Accelerating Cleanup Plan revision was distributed. Hodges said the DOE has looked at the total paths to closure program pursuant to SSAB and regulator comments. With a new contractor in place, Hodges said he asked the contractor to look at the strategy to see if any revisions need to be made. The contractor did an independent assessment and is doing a major revision to the proposed strategy. Hodges said there are excavation options in the new plan for burial grounds that contain large volumes of radioactive wastes. Hodges said the new plan will be shared with the SSAB once it has received regulatory acceptance. Myrna Redfield said the Accelerating Cleanup Plan came out before the revisions were considered necessary and that the DOE is considering all comments and trying to make changes accordingly. Donham referred to a map of the current state of environmental remediation in the plan and asked if it was possible for all remediation to be completed by 2006. John Morgan said the maps were under revision in the new plan and did not think the maps were a good depiction of Paducah. Hodges said decontamination and decommissioning was not included in this particular plan. He said the site would not be remediated by the year 2006. Sheppard said that in many cases, the plan indicates remedial action that will be in place, but maybe not completed, by 2006. Donham asked if the prioritization table would change. Hodges said the priority list for the site will change. He said the new schedule has not been rolled up yet and that how Paducah rates against Oak Ridge on the

list probably would still be a concern for Donham. Hodges said that when looking for ways to cut the budget, it is often easier to target a smaller project. He said in the new plan, some of the projects in Paducah are being rolled together to make them more significant according to the budget. Jimmy Massey, Bechtel Jacobs Company manager of projects, said this strategy has proved successful so far for the projects at Paducah. Donham asked if he could have a list of the projects for which funding was requested. Massey said the list is due to the DOE September 1, 1998. Hill said he would provide this list for Donham. Donham said he was curious that Portsmouth ranked number one for groundwater protection and asked if there was a serious groundwater problem at Portsmouth. Sheppard said Portsmouth does not have an off-site plume like Paducah and has installed containment mechanisms for the on-site plumes. He said Portsmouth does have a significant dense nonaqueous phase liquid plume with known quantities that can be pumped from wells. Subsequently, the key is to take action so the plume does not get worse. Miller said the Portsmouth groundwater protection plan includes pump and treat and numerous things that Paducah does not categorize together.

Depleted Uranium Hexafluoride (UF_6) Programmatic Environmental Impact Statement (PEIS) Budget

Hill said that this item under the agenda referred to the Senate bill the SSAB was going to address concerning the budget for cylinders at Paducah. Since then, the bill has been passed requiring the DOE to submit to Congress a plan to ensure all amounts accrued on the books of the United States Enrichment Corporation (USEC) for the disposition of depleted uranium hexafluoride will be used to treat and recycle depleted UF_6. Hodges said the DOE also must present a facility plan no later than March 1999 to be built by 2004. Hill said the PEIS meeting tentatively is scheduled for October 3, 1998, in Lexington at the Sheraton Suites. The regulator's meeting is scheduled for October 4, 1998. The release date for the PEIS is March 1999 and the Record of Decision is scheduled for May or June. Donham asked if a factory would have to be built to defluorinate the uranium and if new tanks for the hydrogen fluoride would have to be brought in. Hodges said, yes, and that there would have to be something available to contain the oxygen hydrochloride. Donham asked if there would be any discharges associated with this process. Hodges said all the processes have not been reviewed, but it will be done before construction begins. Hodges said the facility must be in compliance with the National Environmental Policy Act. He said he was sure there would be some emission, but he is not familiar with all the processes available. Donham asked if waste-water treatment would be needed. Hodges said, yes, and that a cylinder wash treatment facility is on site, but it is probably not capable of handling this load. Donham said he was curious about how much of the $385 million would be left after building all the facilities. Hodges said several options still need to be considered; however, the money would probably not cover the cost of two facilities. Hodges said the USEC still will be generating depleted UF_6, but whether it will be converted in the DOE facilities is open for discussion. Donham asked if mixed oxide fuel would be created or used in the conversion process. Hodges and Volpe said they did not think so. Hodges said the DOE would like to see some public input in the planning of this project. He suggested this issue be kept as an agenda item for the next few months to provide members with an update.

Training Options

Vicki Jones checked into training options for the SSAB members through the Government Institutes' Environmental, Health & Safety Training Opportunities Catalog. Jones said a one-day course would cost about $6,000 if the meeting room was provided by the SSAB. Jones said the SSAB also has the option to purchase some videos to put in the SSAB office. Donham asked if the instructors were college professors. Jones said she thought most were people who worked in industries. Sheppard said there are government institutes that have training options available on the budget process. Donham asked how much it would cost to get someone from the program to come and explain the options of the program. Jones said she was not sure but would check. Kay asked that members who are not present receive a copy of the training catalog to review before the next meeting.

DOE Responses to SSAB Recommendations

Hodges said the only comments without responses are on the status of the Environmental Assessment for Vortec and it is still being reviewed by Headquarters and the Oak Ridge legal staff. He said some of the other things recommended included the DOE adopting the polychlorinated biphenyl cleanup levels the states has proposed. He said some of these comments have been addressed in the fact sheet on the proposed Accelerating Cleanup Plan revision.

Administrative Issues

The SSAB Work Plan was updated. Donham said he would like to discuss what the Federal Facility Agreement holds for next year. Hodges said a meeting was held today to tie down baselines and October might be a good timeframe for this discussion. Bill Tanner said he was interested in the topic of groundwater and the impact of pump and treat. He said he would like to hear a presentation by people who are affected by the Water Policy. Tanner said it would be interesting to hear opposing views on the subject. Tanner agreed to check on who might want to discuss the Water Policy and said he would discuss this with the board next month. Courtney suggested SSAB membership be discussed at the next meeting.

Financial Update

Hill distributed a detailed spreadsheet that provided a complete breakdown of costs. He said the total spent in Fiscal Year 1998 has been a little more than $28,000. Hill said the money in parentheses for July is money which was projected, but not spent. In addition, money was subtracted from the month of June under Roberts & Kay, Inc., due to a bookkeeping error in allocation. The $15,000 under Jacobs Engineering Group in June is an amount which was accrued over several months.

Information on SSAB National Meeting

Sheppard said the meeting is scheduled for all day September 16 and through 11:00 a.m. September 17 in Boulder, Colorado. He said two members, usually the chairs, typically attend the meeting. The travel cost would be around $1,000 for each attendee. Hill said there was designated money for travel in the budget. Jones said she would possibly go and Donham said he would not. Donham said he was not happy with the SSAB chairs committee. He said it was becoming a regular committee itself and does not seem to be accountable. He felt it was not balanced and he was not pleased with the conference calls as far as scheduling and reimbursement. Courtney asked what the topics of the discussions were. Donham said the topics include coordinating transportation plans, planning conferences, etc. Sheppard provided Donham with minutes from the last conference call. Donham said the conference call goes further than the DOE informing the chairs of what is happening and this made him feel uncomfortable with the format of the conference calls. Sheppard asked Donham if he felt the issues were moving beyond organizational into what was happening at the sites. Sheppard said the agenda for the national conference appeared to be informational and a chance for chairs to discuss lessons learned. Donham said in order for the charter to cover all of the boards, the boards should all be meeting together. He said he felt there is an attempt to get a narrower committee of chairs to be utilized as representing all the boards. Kay said it would be helpful for members from Paducah to attend and bring back information on how the board functions and see if these issues would be a concern for the rest of the board. Sheppard said he was also planning on attending the conference if the DOE budget allows his travel. Tanner said he also might be interested in attending the conference. Sheppard said he would need to know who was attending the conference by next week if possible.

The next meeting will be held September 17, 1998, at the Information Age Park Resource Center at 5:30 p.m. The meeting was adjourned.

Tentative agenda for the September 17, 1998, meeting:

- Minutes
- Information (Handouts)
- EMEF Project Updates
- Vortec Update
- Depleted UF_6 PEIS Update
- Northeast and Northwest Plumes Pump and Treat Facilities, Water Policy
- WAG 22, SWMUs 7 and 30
- Training Options for SSAB
- DOE Response to SSAB Recommendations
- Administrative Plans for the Board
  - Review of the SSAB Draft Work Plan
  - Financial Update
  - SSAB Membership

Action Items

- Dennis Hill provide Mark Donham with list of projects in Paducah for which funding has been requested in the Accelerating Cleanup Plan.
- Vicki Jones check on how much it would cost for someone from the Government Institutes' Environmental, Health & Safety training program to come to Paducah to describe training options to the SSAB.
- Send members not present at this meeting a training catalog so they can review training options before the next meeting.
- Bill Tanner check with people who are affected by the Water Policy and see who would like to present information to the SSAB on this topic.

PLEASE SIGN IN

Paducah Gaseous Diffusion Plant
Site Specific Advisory Board

Name	Affiliation
Shelley Hawkins	Jacobs
Linda Long	SSAB
Vicki Jones	SSAB
Jeanne Brandstetter	EnSafe
Ross Miller	BJC, LLC
JOHN SHEPPARD	DOE
DENNIS HILL	BECHTEL JACOBS
Jimmy Massey	Bechtel Jacobs Co
John Volger	KY Rad Control
[illegible]	
Wayne E. Redfield	DOE
[illegible]	SSAB

August 20, 1998

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

ISSUE	EXPECTED ACTIONS	STATUS/APPROACH	March 98	April 98	May 98	June 98	July 98	August 98	Sept. 98	Oct. 98	Nov. 98	Dec. 98	Jan. 99	Feb. 99
Waste Management	Review documents	Monitor & provide suggestions as appropriate									XX			
Waste Minimization/ Pollution Prevention	Review documents	Monitor & provide suggestions as appropriate									XX			
Transportation of wastes/ hazardous materials	Review documents	Monitor & provide suggestions as appropriate									XX			
Decontamination & Decommissioning	Review documents	Monitor & provide suggestions as appropriate	XX						XX					
Economic Impact on Community	Monitor	Monitor & provide suggestions as appropriate												
Protection/Restoration of Natural Resources & Ecological Values	Review documents	Monitor & provide suggestions as appropriate												
Protection of Workers, Public Health and Safety	Monitor Projects	Monitor & provide suggestions as appropriate												
Technology Development and Transfer	Review documents	Monitor & provide suggestions as appropriate												
Strategies for effective and meaningful Public Input	Work 2 DOE/ Community Relations Plan	Monitor & provide suggestions as appropriate												
Cost Effectiveness	Review documents	Monitor & provide suggestions as appropriate	XX											
WAG 6	Review documents	Continue monitoring				XX RI Rpt.				XX RI Rpt.				
WAG 22 (7 & 30)	Comment on D1 RI					XX D1PP	XX	XX						
WAG 22 (2 & 3)	Comment on D1 FS				XX D1PP		XX	XX SWMU 2 only						

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

ISSUE	EXPECTED ACTIONS	STATUS/APPROACH	March 98	April 98	May 98	June 98	July 98	August 98	Sept. 98	Oct. 98	Nov. 98	Dec. 98	Jan. 99	Feb. 99
WAGs 9 & 11 Preliminary Assessment/Site Inspection (PA/SI) process Site Evaluation Report										XX				
WAG 17		Record of Decision (ROD) signed 9/29/97												
LASAGNA														
Drum Mountain (WAG 24)	Review documents	Provide recommendations												
Site Treatment Plan Annual Report			XX STP Annual Update											
Federal Facilities Agreement (FFA)														
Integrated Waste Management Plan (IWMP)		IWMP Yearly Update Completed 12/15/97												
Vortec			XX	XX					XX					
Board Evaluation			XX											
Bechtel/Jacobs M&I Presentation					XX									
NEPA Presentation			XX			XX	XX							
Environmental Report					XX									
Accelerated Cleanup Plan - Paths to Closure				XX				XX						
Cylinder PEIS	Review budget			XX				XX						
Northeast and Northwest Plumes Pump and Treat Facilities									XX					
Training Options for SSAB								XX						
DOE Rulemaking Process														

August 7, 1998

PADUCAH GASEOUS DIFFUSION PLANT SITE SPECIFIC ADVISORY BOARD
U.S. DEPARTMENT OF ENERGY
ENVIRONMENTAL MANAGEMENT & ENRICHMENT FACILITIES
PROJECT UPDATES
AUGUST 20, 1998

Northwest Plume Interim Remedial Action Pilot Plant
More than 292 million gallons of water have been treated at the Northwest Plume Groundwater Treatment Facility since operations began Sept. 1, 1995. The facility operates to contain a high contamination zone of the degreaser trichloroethylene and the man-made radionuclide technetium-99.

A Five-Year Review of the Northwest Plume IRA Record of Decision, signed in July 1993, has been completed and is available in the SSAB office.

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

Routine operations began in March 1997, with more than 134 million gallons of groundwater treated to date. The system experienced about one-and-a-half hours of downtime due to severe weather on Aug. 7 and a little less than that Aug. 8 due to a JPECC power outage.

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

Named for its layered structure of treatment zones, the Lasagna method offers a cost-effective, environmentally-compatible improvement over existing clean-up options. Developed in partnership with DOE by a consortium including Monsanto, DuPont and General Electric, the process works by using buried electrodes to move water through the soil. Applied current drives the water an inch a day from a positive to a negative electrode. Along the way, the water picks up contaminants from the soil. The contaminated water passes through buried treatment zones which trap or degrade the contaminants.

A variety of other organic contaminants may be treated using the process, however the target contaminant of the Lasagna process at Paducah is trichloroethylene.

In early Lasagna tests carbon and iron filings were used to treat small sections of the soil where about 20 years ago, tests were conducted to determine if the cylinders containing depleted uranium would crack under extreme temperatures. About 400 gallons of TCE was used in the cylinder drop experiments. Although most of that TCE was reclaimed, some leached into the ground, where it remains, and potentially contributes to off-site groundwater contamination.

TCE concentrations of 100-500 parts per million in some areas were reduced to an average of less than two parts per million in the first test.

Currently, a procurement package is being compiled to contract design, construction, operations, sampling and associated documents.

Waste Area Groups 1 & 7/C-746-K Landfill, Kentucky Ordnance Works
The Environmental Protection Agency recently signed the final Record of Decision for Waste Area

Groups 1 & 7/C-746-K Landfill and former Kentucky Ordnance Works sites. Controlled access and groundwater monitoring already in place at the site will be combined with deed restrictions to protect human health and the environment at several Solid Waste Management Units.

WAG 1 consists of a fire training area where institutional controls are in place, the plant sewage treatment facility and a known trichloroethylene spill site inside the PGDP security fence which will fall under deed restrictions. WAG 7 consists of five underground storage tanks at the plant water treatment facility which will be closed, and an inactive sanitary landfill outside the security fence which will continue to be monitored. Despite their location on the DOE reservation, three Solid Waste Management Units connected with the former Kentucky Ordnance Works — a sewage treatment facility, a known Toluene spill site and a burn area — are being managed by the Army Corps of Engineers.

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

The Remedial Investigation/Work Plan was issued to regulatory agencies last November, and because significant changes were made following comment resolution meetings between DOE and the regulators, an extension was requested for the June 6 due date for the D2 version.

The D2 RI/FS Work Plan was mailed to EPA and KDEP on July 1. Approval is due the first week of September.

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

The data from this investigation was used to prepare a WAG 6 Remedial Investigation Work Plan which focuses on contaminant distribution and movement. Treatability studies to get data necessary to remediate contaminants expected to be found during the investigation have been completed.

The D1 Remedial Investigation report was submitted Aug. 14. Following completion of the RI/FS, a Proposed Plan and Record of Decision for the preferred remedial action will be developed. The selected action will be designed and implemented following the signing of the ROD.

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

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

The FY 98 scope for this project includes development of a combined D2 Work Plan and initiation of combined procurement activities for the Preliminary Assessment/Site Evaluation and Remedial Investigation activities.

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

A funding shortfall temporarily delayed the project in early June, but that has been resolved and fieldwork has resumed.

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

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

At these locations, shallow soil borings will be conducted to collect soil samples to determine if there have been contaminant releases from the structures. If this information reveals there may have been a release, further investigation to determine the full nature and extent will be required later.

Initial cost estimates for fieldwork and the Site Evaluation are finished, and approval has been granted by KDEP. The Site Evaluation Report is scheduled for December 1998.

Current sampling activities are being conducted as part of the 698 Field Task. (SEE NEW ITEM)

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

FY 98 tasks include development of the Preliminary Assessment/Site Investigation Work Plans and implementation of the fieldwork addressed in the approved work plan. The Site Evaluation Report is currently scheduled for FY 99.

The D1 Work Plan issued to KDEP July 10 is still under review.

Waste Area Group 22/SWMU 2
This project includes the investigation of burial grounds in the west-central portion of the plant. Original plans included installation of a cap at SWMU 2, the C-749 Uranium Burial Ground, but investigation activities have determined that the buried material was saturated in the water table, indicating a cap would have limited effect. In addition, KDEP prefers excavation of the burial ground as the only acceptable alternative addressed in the D1 Feasibility Study.

The SWMU 2 D1/D2 Feasibility Study presents four potential remedial alternatives 1) No Action, 2) In-situ containment with soil cap and subsurface barriers, 3) In-situ containment utilizing low-pressure permeation grouting, and 4) Bulk waste excavation. Current issues between DOE and the regulators are associated with the pre-selection of alternative 4 (excavation) by regulators as the preferred remedial alternative. This issue will be addressed at the Aug. 20 comment resolution meeting.

The D2 FS is due back to the regulators 30 days after this meeting (about 9/20/98). The D1 Proposed Plan is due to the regulators 30 days after issuance of the D2 FS (about 10/20/98).

The Regulatory Agencies have 48 days to issue comments on the D1 PP. Following receipt of the Regulatory comments, the D1 PP will be revised and issued as D2 for approval by the Agencies, which then have 33 days to approve or reject the PP.

Public comment on the PP will be solicited following Regulatory Approval of the D2 PP. The public comment period is now projected to start in February 1999 and run for 45 days.

Waste Area Group 22/SWMU 7&30

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

SWMU 7 & 30 waste pit sampling has been completed and the D0 Proposed Plan is now being developed. DOE has recently received comments from EPA and KDEP on the D1 FS. These comments are currently being addressed by DOE. No comment response meeting has been schedule with EPA or KDEP as of this date. However, DOE would like to have this meeting in early September.

The D2 FS is due back to the Regulators by 10/16/98, and the D1 PP is due to the regulators 30 days after issuance of the D2 FS (about 11/15/98). The Regulatory Agencies have 48 days to issue comments on the D1 PP. Following receipt of the Regulatory comments, the D1 PP will be revised and issued as D2 for approval by the Agencies. The Agencies have 33 days to approve or reject the PP.

Public comment on the PP will be solicited following Regulatory Approval of the D2 PP. The public comment period is now projected to start in March 1999 and run for 45 days.

Waste Area Group 23/Polychlorinated Biphenyls (PCBs) Spill Sites

The DOE recently finished excavation of approximately 175 cubic yards of contaminated soil at several PCB sites. The excavation and temporary on-site storage of the contaminated soil was necessary to eliminate risk to workers from contact with soil.

These sites include eight SWMUs inside the security fence, and one outside the fence, located near the C-611 Water Treatment Facility fence. One of the SWMUs is actually a part of WAG 27, but has been grouped with the WAG 23 SWMUs because it has similar physical characteristics and contamination present.

Past use of PCBs and subsequent accidental spills and leaks of oils that contain PCBs caused the surface soil contamination at the SWMUs.

This action was performed with an Engineering Evaluation/Cost Analysis Summary for the cleanup and an Action Memorandum. This process allows for the non-time critical removal action to be completed with DOE approval. DOE plans to issue a position paper for final action to the state and EPA. The final disposition of the soil will be determined at a later date, consistent with applicable laws and regulations.

A continuing issue is the disagreement between the Commonwealth and DOE on the PCB clean-up level.

Waste Area Group 27/Potential trichloroethylene sources
Remaining field tasks on WAG 27 (demobilization and waste management) are wrapping up and Data Assessment is continuing. The RI Report is developing on schedule. The final version of the fieldwork and sample analysis report of the SWMU 196 septic tanks and the SWMU 1 oil landfarm test pits will be incorporated into the RI Report as an appendix. The D0 RI Report and Risk Assessment are on schedule for transmittal to DOE for review by November 5, 1998

WAG 27 consists of potential or known sources of TCE on the west side of PGDP suspected of contributing to groundwater contamination. WAG 27 includes the C-747-C Oil Land Farm, SWMU 91 (the cylinder drop test area), SWMU 196 (C-746-A Warehouse septic systems) and the C-720 maintenance facility. SWMU 1 is part of WAG 27, but excavation work was recently completed at this SWMU to remove dioxin contamination as part of the WAG 23 removal actions.

Shallow drilling, sampling and field analytical work began in February 1998, with an approved work plan outlining more than 100 soil borings to be taken, more than 20 of which required deep drilling.

Following the remedial investigation, a Feasibility Study will be completed prior to a Proposed Plan. It is in the Proposed Plan that DOE names the "preferred" alternative for remediation. Following a public comment period on this plan, DOE issues a Record of Decision, first internally, then to the regulatory agencies, then to the public.

698 Field Task
Full approval to proceed with fieldwork was granted July 22 in a Readiness Review for the 698 Multi-Project Field Task. The task consists of sub-projects that are being combined as one project due to logistics — WAGs 9 & 11 field sampling, excavation of contaminated soil at C-750 A&B Underground Storage Tanks and WAG 15 subsurface investigation.

Drilling began Aug. 19.

Vortec Vitrification Project
Argonne National Laboratory is in the process of reviewing comments following a public review of DOE's Environmental Assessment (EA) of the potential impacts from construction and operation of the Vortec Corporation Cyclone Melting System technology at PGDP. The incorporation of those comments into the final EA was due to DOE headquarters at the end of June.

With the draft assessment, DOE evaluated the potential environmental impacts of the system for treating low-level radioactive, Resource Conservation and Recovery Act (RCRA) hazardous and Polychlorinated Biphenyls (PCB) mixed (radioactive, PCB and RCRA-hazardous) waste — primarily contaminated soils — currently stored at PGDP. The Vortec system would use a glass-making technology known as vitrification to melt wastes into a solid product that will meet the land disposal requirements of RCRA. This process destroys organics, such as PCBs, and produces a glass which will bind any metallic or radioactive compounds.

Based on the impacts analysis of the EA, DOE will determine whether to issue a Finding of No Significant Impact (FONSI) for the proposed Vortec project or prepare an Environmental Impact Statement (EIS), which would further study the project's impact to human health and the environment.

Argonne National Laboratory (ANL), which conducted a site visit in August 1997, prepared the EA. DOE chose ANL because ANL had no prior knowledge of the Vortec system or Paducah's waste management program. The EA was done to comply with the requirements of the National Environmental Policy Act (NEPA) of 1969.

Nevada Test Site
Community Advisory Board

US Department of Energy
Site Specific Advisory Board

Low Level Waste Seminar

August 16-19, 1998

Introduction

The Nevada Test Site (NTS) Community Advisory Board (CAB) will host a Low-Level Waste (LLW) Seminar for the Site Specific Advisory Board (SSAB) program of the U.S. Department of Energy (DOE) Environmental Management (EM) program. The LLW Seminar is designed to focus on the interaction between the SSAB site boards over the single issue of DOE LLW disposition.

Objective

The objective of the seminar will include:

- To learn about the present configuration of low-level waste at each of the DOE sites
- To learn the status of DOE's efforts to determine the disposition for low-level waste
- To discuss SSAB member concerns about how the disposition process will proceed
- To establish communication among the various SSABs to enable continued dialogue

Participants

It is expected that the following SSABs will send no more than 4-5 participants each (to be selected from among the Board members and from other stakeholder groups at each SSAB's discretion):

- Albuquerque
- Fernald
- Hanford
- Idaho
- Los Alamos
- Nevada
- Oak Ridge
- Paducah
- Pantex
- Rocky Flats
- Sandia
- Savannah River

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To Sent to Mark Denham, Edward Aff, David Fuller, Ronald Lamb

August 5, 1998

Date _____ From _____

Participation will be limited to 75 persons (based on meeting room capacity and availability of facilitators). A completed registration form for participants planning to attend the LLW Seminar is due by July 10, 1998. **All participants will be expected to pay their own expenses** (the NTS CAB does not have funds). Registrations will be accepted on a first come, first served basis, not to exceed 5 participants per SSAB and not to exceed the pre-determined limit of 75 persons. Each SSAB is requested to bring a poster display of the LLW configuration at their site, and a knowledgeable person to operate the poster display. Each SSAB is requested to provide a person with facilitation skills to assist with small discussion group activities.

The registration form will include a ranking of the issues of concern each participant feels may be of importance as DOE moves forward with decision-making regarding the disposition of low-level waste. The ranking will be used to design small discussion groups that are composed of representatives from a variety of different sites. The topics that participants will be asked to rank include the following:

- Stakeholder Concerns
- Political Considerations
- Economic Concerns
- Equity Considerations
- Regulatory Considerations
- State / Tribal Concerns
- Transporation Considerations
- Technical Concerns

Preparation

SSABs that agree to participate must agree to provide the following:

1. An informational display on low-level waste configuration at their respective site
2. A presenter to staff the display during the opening reception and to provide a presentation during the site specific summaries. The presentation material must follow the prescribed template and must not exceed 10 minutes in length.
3. A trained neutral facilitator to assist small group exercises.

In addition, it is highly advisable that participants become familiar (if not already) with major sources of readily available information such as:

- the Waste Management Programmatic Environmental Impact Statement (WM PEIS, DOE/EIS-0200-F
- the Contractor Complex-Wide EM Integration Report (INEL/EXT-97-0049
- the 2006 Plan Disposition Maps for LLW
- Accelerating Cleanup: Paths to Closure (DOE/EM-0432)
- The Current and Planned Low-Level Waste Disposal Capacity Report (10/96) by the Defense Nuclear Facility Safety Board Report
- any other pertinent information

- Seminar Agenda
- Tour of the Nevada Test Site
- Registration Form
- Lodging / Transportation / Facilities
- Poster Presentations
- Low Level Waste Information
- Comments and Suggestions

Community Advisory Board.

Harry Reid Center - Marjorie Barrick Museum.

University of Nevada, Las Vegas.

If you have comments or suggestions ***web designer***

Nevada Test Site
Community Advisory Board

Site Specific Advisory Board
Low Level Waste Seminar
August 16-19, 1998

Agenda

The workshop agenda is **currently being revised** based on suggestions and comments from registered parties. Consequently, a revised agenda will be included in the packet mailed out to seminar registrants on Monday, August 3.

DRAFT AGENDA, DAY 1 (SUNDAY EVENING)		
Topic	**Process Notes**	**Who / What**
Opening reception with site displays, informal gathering and get acquainted opportunity	All SSABs will bring a display presenting information about their LLW configuration. Presenter for Day 2 should be available at the display during an opening reception for all participants to walk through and learn about each site	All SSABs & participants who are able to attend. This is OPTIONAL. Some folks may not chose to participate, but a strong turnout would help set the expectations-activities for the next couple of days

DRAFT AGENDA, DAY 2 (MONDAY)			
Topic	**Process Notes**	**Who / What**	**Time**
Welcome		Dale Schutte, presentation	8:00 - 8:05 a.m.
Orientation	Provide overall orientation to the objectives and agenda, agree to ground rules	Earle Dixon and facilitators, presentation	8:05 - 8:25 a.m.
Low Level Waste Configuration in the DOE complex	Provide latest status of low-level waste configuration in DOE complex	Ed Bentz & Associates	8:25 - 8:55 a.m.
Site Specific Overview of Their Low Level Waste Configuration	Each SSAB to be given a template for this presentation (to include descriptive information about quantities and characteristics of their LLW, on-site disposal options, historical information as relevant, regulatory considerations, and discrepancies that are known) Each SSAB responsible for selecting an appropriate presenter Questioners to be encouraged to talk with presenters in display room	Fernald Overview	8:55 - 9:05 a.m.
		Hanford Overview	9:05 - 9:15 a.m.
		Idaho Overview	9:15 - 9:25 a.m.
		Los Alamos Overview	9:25 - 9:35 a.m.
		Nevada Test Site Overview	9:35 - 9:45 a.m.
		Oak Ridge Overview	9:45 - 9:55 a.m.
		Paducah Overview	9:55 - 10:05 a.m.
		Pantex Overview	10:05 - 10:15 a.m.
		Rocky Flats Overview	10:15 - 10:25 a.m.
		Sandia Overview	10:25 - 10:35 a.m.
		Savannah Overview	10:35 - 10:45 a.m.
Break 15 minutes			
Options for Consolidation and Commercial Disposal	Overview of the options being considered by DOE for consolidation of disposal including DOE and commercial sites	To Be Determined?	11:00 - 11:30

Commercial Disposal	DOE and commercial sites Discussion should include what is known about waste acceptance criteria for each		11:30 a.m.
Status of DOE decision making process and components	Overview of the disposition decision-making process, including explanation of the relationship between the PEIS and the Focuson 2006 efforts, how treatment needs and capacity will figure into decision	Patty Bubar - DOE/HQ	11:30 - 12:00 noon
Lunch 75 Minutes			
Risk and Transportation Considerations	Overview of transporation modes, responsibility, regulatory considerations	To Be Determined	1:15 - 2:15 p.m.
Overview of LLW Characterization Data	Discussion of problems with data on LLW	Ed Bentz, presentation	2:15 - 3:00 p.m.
Break 5 minutes			
Small Group Discussions on Concerns Related to Disposition Topics to include the following: 1.Stakeholder Concerns 2. Political Considerations 3. Economic Concerns 4. Equity Considerations 5. Regulatory Considerations 6. State/Tribal Concerns 7. Transportation Considerations**8. Technical Concerns**	Break into small groups based on information provided on registration form to ensure all participants address issues of interest yet groups are mingled Facilitators will lead each group through exercises Facilitator should push forward if group comes to impasse on any particular concern Facilitators will be responsible for typing up results in standard format for use as a handout the next day	Small groups, brainstorm concerns in assigned category	3:15 - 3:30 p.m.
		Small groups, rank (using dot polling)	3:30 - 3:45 p.m.
		Small groups, discuss (in order) with a goal of achieving some level of agreement on a statement that the group can agree to that expresses the concern as it relates to disposition	3:45 - 5:15 p.m.
		Small groups, determine what the group wants to preset and who will present to the larger group	5:15 - 5:30 p.m.
Dinner Break 90 minutes			
After dinner activity ?	OPTIONAL		7:30 - 9:30 p.m.

DRAFT AGENDA, DAY 3 (TUESDAY)			
Topic	**Process Notes**	**Who / What**	**Time**
Presentation from Each Group	Presentations not to exceed 10 minutes each, should summarize key issues of agreement	Stakeholder Concerns Group, presentation	8:00 - 8:10 a.m.
		Political Considerations Group presentation	8:10 - 8:20 a.m.
		Economic Concerns presentation	8:20 - 8:30 a.m.
		Equity Considerations Group presentation	8:30 - 8:40 a.m.
		Regulatory Considerations	8:40 - 8:50 a.m.
		State / Tribal Concerns Group presentation	8:50 - 9:00 a.m.
		Transportation Considerations Group presentation	9:00 - 9:10 a.m.
		Technical Concerns Group presentation	9:10 - 9:20 a.m.
		Optional Exercise Group presentation	9:20 - 9:30 a.m.
Break 15 minutes			9:30 - 9:45 a.m.
Site-Specific Reactions / Observations	Convene groups for each site to include participants from each site and one for the representatives of national stakeholder organizations Facilitator to support each group	Each group, discuss reactions and observations	9:45 - 10:15 a.m.
	Presentations to entire group	Albuquerque presentation	10:15 - 10:20 a.m.
		Fernald presentation	10:20 - 10:25 a.m.
		Hanford presentation	10:25 - 10:30 a.m.
		Idaho presentation	10:30 - 10:35 a.m.
		Los Alamos presentation	10:35 - 10:40 a.m.
		Nevada presentation	10:40 - 10:45 a.m.
		Oak Ridge presentation	10:45 - 10:50 a.m.
		Paducah presentation	10:50 - 10:55 a.m.
		Pantex presentation	10:55 - 11:00 a.m.
		Rocky Flats presentation	11:00 - 11:05 a.m.
		Sandia presentation	11:10 - 11:15 a.m.

			a.m.
		Savannah River presentation	11:15 - 11:20 a.m.
		National Stakeholders group presentation	11:20 - 11:30 a.m.
Next Steps	General discussion of what should happen next	Facilitator, lead discussion	11:30 - 11:45 a.m.
Session Evaluation			11:45 - 12:00 noon

DRAFT AGENDA, DAY 4 (WEDNESDAY)	
Tour of the Nevada Test Site - Radioactive Waste Management Facility	7:00 a.m. - 5:00 p.m.
The NTS CAB invites the participants of the LLW Seminar to tour the radioactive waste management facility for LLW at the NTS. The tour would also include a visit to some of the historic above ground and below ground nuclear test sites. THIS TOUR WILL ABSOLUTELY NOT INCLUDE A TOUR OF THE YUCCA MOUNTAIN CHARACTERIZATION PROJECT. The great distance of the NTS from the city of Las Vegas and the further distance to the waste management facility and historic sites makes the tour an all day, 8-hour event. The tour of the NTS is OPTIONAL, but highly recommended if one has not seen the waste management facility and the NTS. The tour of the NTS radioactive waste management facility would make a great introduction activity for the LLW Seminar if is done on Monday, however, we have received more feedback to make the NTS tour optional and to position it at the end of the Seminar rather than at the beginning. We can schedule the NTS tour according to the most common preference of the LLW Seminar participants. The NTS tour takes days if not a week or more to plan and organize because personnel have to be approved, badged, and tour buses with box lunches have to be secured.	

Community Advisory Board.

Harry Reid Center - Marjorie Barrick Museum.

University of Nevada, Las Vegas.

If you have comments or suggestions ***web designer***

Nevada Test Site
Community Advisory Board

Site Specific Advisory Board
Low Level Waste Seminar
AUGUST 16-19, 1998

Registration Form

Complete and submit the form below or download a MS Word file. Please return the registration form by **July 10, 1998** to: PAI, 2437 Losee Road, North Las Vegas, NV 89030, Telefax (702) 633- 5200

SSAB Name:

Location: **Address:**

City: **State:** AL **Zip:** **Phone:**

Will your SSAB be represented at the Seminar? ◯Yes ◯No

Persons attending from your SSAB or Site:

1. Title:
2. Title:
3. Title:
4. Title:
5. Title:
6. Title:

Draft Poster Title (for opening mixer and Day 1 presentation, e.g., *Fernald Environmental Management Program Low-Level Waste Configuration*:

Special display support requirements (power, easels, lights, tables, etc.)

Person(s) who will be in charge of the display:

Please rank the following LLW discussion issues with the one most important to your SSAB as number 1 and the least important as number 8.

Stakeholder Concerns: 1

Economic Concerns: 1

Regulatory Concerns: 1

Transportation Concerns: 1

Political Considerations: 1

Equity Considerations: 1

State / Tribal Concerns: 1

Technical Concerns: 1

Clear this form

Submit Registration Form

Note: If you have trouble submitting this form, email dixon@lvdi.net

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Nevada Test Site
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Low Level Waste Seminar
August 16-19, 1998

Lodging / Transportation / Facilities

Seminar Location

The NTS CAB has arranged to utilize the **Moyer Student Union (MSU)** meeting room facilities on the campus of the **University of Nevada Las Vegas (UNLV)** for the location of the LLW Seminar. The MSU/UNLV is located just minutes from McCarran International Airport and the south end of the famous Las Vegas Boulevard ("Las Vegas Strip").

The MSU facility is a very accommodating meeting place with a large central meeting room for the LLW site and other informational displays. It also includes smaller meeting rooms with large windows overlooking the UNLV campus.

Food and Beverage Facilities

There is a restaurant-coffee shop located on the first floor of the MSU at UNLV. Other coffee shops and restaurants are located just across the street from the MSU. Breakfast foods and beverages will be provided from 7:30 - 9:00 a.m. each day of the LLW Seminar. At this time lunch and dinner will be the responsibility of the participants, however, depending on the feedback from the site boards on the agenda we could plan a group lunch or dinner if it is in demand.

Lodging & Reservations

A block of 70 rooms are being helf for this seminar at the **AmeriSuites Hotel**, 4520 Paradise Road, until July 31, under "Department of Energy/Low-Level-Waste Seminar." To make reservations under this block of rooms it is necessary to call the hotel directly at (702) 369-3366. Additional rooms are also available at the nearby **Crowne Plaza Hotel**, 4255 Paradise Road at (800) 227-6963. Rooms at both locations are available at the government rate. Beginning Autust 1st, rooms will be available on a space-available basis only, so please make your reservations early. Participants will be able to walk to the seminar at the MSU/UNLV campus from both these hotel locations.

Shuttle Service from McCarran Airport

The Amerisuites Hotel offers free shuttle service to the hotel from the airport (and back) between 6:00 a.m. and 11:00 p.m. The Crowne Plasa hotel provides similar services between 6:00 am and 11:30 p.m. Upon arrival at the airport, please ue the courtesy phones to contact these hotels and arrange for pick-up service. Taxi services located at the airport are also available.

Community Advisory Board.

Harry Reid Center - Marjorie Barrick Museum.

University of Nevada, Las Vegas.

If you have comments or suggestions ***web designer***

Department of Energy
Oak Ridge Operations
Paducah Site Office
P.O. Box 1410
Paducah, KY 42001

July 9, 1998

Mr. Robert H. Daniell, Director
Division of Waste Management
Kentucky Department for Environmental Protecti
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

Mr. Carl R. Froede Jr., P. G.
United States Environmental Protection Agency
Region IV
DOE Remedial Section
Federal Facilities Branch
Waste Management Division
61 Forsyth Street
Atlanta, Georgia 30303

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To Sent to Mark Denham in August mailing

Date _____ From _____

Dear Mr. Daniell and Mr. Froede:

FIVE-YEAR REVIEW (TYPE I) FOR THE NORTHWEST PLUME INTERIM REMEDIAL ACTION RECORD OF DECISION (DOE/OR/07-1740&D1)

Enclosed for your information is the subject document. This review was conducted in compliance with the *Record of Decision for Interim Remedial Action of the Northwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (DOE/OR/06-1143&D4). If you have any questions or require additional information, please call David W. Dollins at (502) 441-6819.

Sincerely,

Jimmie C. Hodges, Site Manager
Paducah Site Office

Enclosure

cc w/enclosure:
J. Stickney, UKFFOU/Frankfort
T. M. Taylor, UKFFOU/Frankfort
R. Thomas, UKFFOU/Frankfort

1/1999

Report: CAP_X	Planning Sheet - Work Package / Data Types / Cost Code	Page: 1

Program: T0148
Description: PGDP SITE SPECIFIC ADVISORY BOARD
Run Date: 07/02/98
Status Date: 05/31/98

Approval:
Program Manager _____ _____
Functional Manager _____ _____
Cost Account Manager _____ _____

Work Package / Data Types / Cost Code		OCT98	NOV98	DEC98	JAN99	FEB99	MAR99	APR99	MAY99	JUN99	JUL99	AUG99	SEP99			CUM TO SEP99
0148.10 120 PGDP SSAB Sppt (FY 1999)																
HOURS																
CLC CLERICAL	TB98	8	8	8	8	8	8	8	8	8	8	8	8			96
CTA CONTRACTS ADMINISTRATION	TB98	1	1	1	1	1	1	1	1	1	1	1	1			12
ISS INFORMATION SYSTEM SPECIALIST	TB98	40	40	40	40	40	40	40	40	40	40	40	40			480
ODC OTHER DIRECT COST	TB98	0	0	0	0	0	0	0	0	0	0	0	0			0
PCT PROJECT CONTROLS	TB98	1	1	1	1	1	1	1	1	1	1	1	1			12
TRV TRAVEL	TB98	0	0	0	0	0	0	0	0	0	0	0	0			0
TSM TASK MANAGEMENT	TB98	1	1	1	1	1	1	1	1	1	1	1	1			12
Data Types Totals	TB98	51	51	51	51	51	51	51	51	51	51	51	51			612
DIRECT																
CLC CLERICAL	TB98	128	129	128	128	128	129	128	128	128	129	128	128			1539
CTA CONTRACTS ADMINISTRATION	TB98	54	55	54	54	54	55	54	54	54	55	54	54			651
ISS INFORMATION SYSTEM SPECIALIST	TB98	907	906	907	907	906	907	907	906	907	907	906	907			10880
ODC OTHER DIRECT COST	TB98	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000			60000
PCT PROJECT CONTROLS	TB98	40	40	41	40	40	40	40	41	40	40	40	40			482
TRV TRAVEL	TB98	417	417	417	417	417	417	417	417	417	417	417	417			5004
TSM TASK MANAGEMENT	TB98	62	62	63	62	62	62	63	62	62	62	63	62			747
Data Types Totals	TB98	6608	6609	6610	6608	6607	6610	6609	6608	6608	6610	6608	6608			79303
Work Package Totals:	TB98	6608	6609	6610	6608	6607	6610	6609	6608	6608	6610	6608	6608			79303
GRAND TOTALS	TB98	6608	6609	6610	6608	6607	6610	6609	6608	6608	6610	6608	6608			79303

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To All SSAB and ex officios in Aug mailing

Date _____ From _____

Bechtel Jacobs Company LLC
Paducah Project

13-Jul-98
2:18 PM

Site Specific Advisory Board
CCADS: 5522

	BJC	Jacobs	Totals
Carryover	0	0	0
New BA	194,969	31	195,000
Total Available Funds	194,969	31	195,000
Actual Costs to Date (June)	35,535	31	35,566
Uncosted	159,434	0	159,434

Participant	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	TOTAL FY 98
Bechtel Jacobs Company LLC	0	0	0	0	681	300	0	1,748	196	2,925
BJC Sub. - Roberts & Kay, Inc.	1,246	1,380	684	423	1,181	1,012	1,177	0	2,880	9,983
BJC Sub. - Jacobs Engineering Group	0	0	0	0	0	0	0	0	15,921	15,921
DOE Prime - Jacobs Engineering Group	0	0	0	0	0	12	0	19	0	31
Overhead	111	123	61	38	730	346	105	706	4,487	6,707
Total Project	1,357	1,503	745	461	2,592	1,670	1,282	2,473	23,484	35,566

RECEIVED MAY & JUNE

Accrual April, May & June

Bechtel Jacobs Company LLC
Paducah Project

Site Specific Advisory Board
CCADS: 5522

	BJC	Jacobs	Totals
Carryover	0	30,000	30,000
New BA	194,969	(29,969)	165,000
Total Available Funds	194,969	31	195,000
Actual Costs to Date (July)	28,199	31	28,230
Uncosted	166,770	0	166,770

Participant	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	Actual JULY	Actual AUG	Actual SEPT	TOTAL FY 98
Bechtel Jacobs Company LLC	0	0	0	0	681	301	0	571	661	189			2,402
BJC Sub. - Roberts & Kay, Inc.	1,246	1,380	0	1,107	1,181	1,012	1,177	0	2,415	1,087			10,605
BJC Sub. - Jacobs Engineering Group	0	0	0	0	0	0	0	0	15,921	(6,480)			9,441
DOE Prime - Jacobs Engineering Group	0	0	0	0	0	12	0	19	0	0			31
Overhead	110	123	0	99	730	346	105	706	4,487	(955)			5,751
Total Project	1,356	1,503	0	1,206	2,592	1,671	1,282	1,296	23,484	(6,159)	0	0	28,230

Bechtel Jacobs Company LLC
Paducah Project

20-Aug-98
2:12 PM

Participant	Description	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	Actual JULY	Actual AUG	Actual SEPT	TOTAL FY 98
BJC Engineering Cost Center	OR - Ron Wells - Task Support										189			189
BJC Procurement	Contract Work					681	301							982
BJC Project Controls	Project Analyst/Finance Officer Support								196	196				392
SSAB - Misc Expenses	Rents, Food, Sound Recording, Public Notice, etc.								375	465				840
Total Project		0	0	0	0	681	301	0	571	661	189	0	0	2,402

Roberts & Kay, Inc.
Paducah Project

20-Aug-98
2:12 PM

Material Charge Number
54 / P / JEC04

Participant	Type of Service	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	Actual JULY	Actual AUG	Actual SEPT	TOTAL FY 98
BJC Sub. - Roberts & Kay, Inc. (Payments)	Subcontractor	1,246	1,380		684	1,181	1,012	975			1,969			8,447
BJC Sub. - Roberts & Kay, Inc. (Travel Payments)	Independent				423			202			446			1,071
BJC Sub. - Roberts & Kay, Inc. (Accruals)	Facilitator to									1,969	863			2,832
BJC Sub. - Roberts & Kay, Inc. (Travel Accruals)	the Site Specific									446	224			670
BJC Sub. - Roberts & Kay, Inc. (Accrual Reversals)	Advisory Board										(2,415)			(2,415)
Total Project		1,246	1,380	0	1,107	1,181	1,012	1,177	0	2,415	1,087	0	0	10,605

Jacobs Engineering Group, Inc.

Paducah Project

TASK NUMBER:

35 - H831 - 48

Participant	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	Actual JULY	Actual AUG	Actual SEPT	TOTAL FY 98
BJC Sub. - Jacobs Engineering (Payments)									107	1,593			1,700
BJC Sub. - Jacobs Engineering (Accruals)									15,814	7,741			23,555
BJC Sub. - Jacobs Engineering (Accrual Reversals)										(15,814)			(15,814)
Total Project	0	0	0	0	0	0	0	0	15,921	(6,480)	0	0	9,441

INVOICES

35-H831-48 Statement of Cost - Voucher Number: N/A

Total Amount Due $ 107.00

35-H831-48 Statement of Cost - Voucher Number: 59

LABOR @ Office	95.63
LABOR @ Site	182.28
Teaming Subcontractors: PAI Corporation	258.07
Other Direct Costs	1,195.00
Amounts Previously Invoiced	(137.76)
Total Amount Due	$1,593.18

Jacobs Engineering Group, Inc.
Paducah Project

20-Aug-98
2:12 PM

DOE PRIME

Participant	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	Actual JULY	Actual AUG	Actual SEPT	TOTAL FY 98
BJC Sub. - Jacobs Engineering (Payments)						12		19					31
Total Project	0	0	0	0	0	12	0	19	0	0	0	0	31

OVERHEAD

20-Aug-98
2:12 PM

Participant	Actual OCT	Actual NOV	Actual DEC	Actual JAN	Actual FEB	Actual MAR	Actual APR	Actual MAY	Actual JUNE	Actual JULY	Actual AUG	Actual SEPT	TOTAL FY 98
OVERHEAD	110	123	0	99	730	346	105	706	4,487	(955)			5,751
Total Project	110	123	0	99	730	346	105	706	4,487	(955)	0	0	5,751

Northeast Plume Containment System
Potential for Temporary Shut-Down
August 20, 1998

BACKGROUND

- The Northeast Plume Containment System (NEPCS) is an Interim Remedial Action designed to contain the high trichloroethylene (TCE) concentration zone of the Northeast Plume.
- The NEPCS consists of two extraction wells, an equalization tank, associated operating equipment, a pipeline, and use of the C-637-2A cooling tower at the Paducah Gaseous Diffusion Plant (PGDP) for air stripping of the TCE.
- On Monday, July 21, 1998, representatives of the PGDP informed Bechtel Jacobs Company that due to extremely high power costs caused by the prolonged heat wave across the U.S., the possibility exists that the C-337 building, and therefore, the associated C-637-2A cooling tower might be shut down.
- If the cooling tower was shut down, it would be left in a recirculating mode for several weeks before restarting.
- As of Monday, July 27, 1998, PGDP was not expecting to have to shut down the tower.
- **UPDATE: As of August 20, 1998, power levels at the PGDP are continuing to be increased to more normal operating levels.**

IMPACT

- Putting the C-637-2A cooling tower in recirculating mode would not significantly change the conditions for stripping of the TCE from the NEPCS groundwater.
- According to PGDP representatives, continued use of the tower for the NEPCS would not significantly impact the cooling tower operation in the recirculating mode.

PATH FORWARD

- If the C-637-2A cooling tower is shut down, NEPCS will continue to operate.
- A series of special samples would be taken to confirm continued stripping of the TCE.

DOE/OR/07-1727/V1&D1
PRIMARY DOCUMENT

Remedial Investigation Report for the Waste Area Grouping 6 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Volume 1. Sections 1 through 8

August 1998

CLEARED FOR PUBLIC RELEASE

EXECUTIVE SUMMARY

In 1997, the U.S. Department of Energy conducted a Remedial Investigation (RI) at five solid waste management units (SWMUs) and the C-400 area in Waste Area Grouping (WAG) 6 at the Paducah Gaseous Diffusion Plant (PGDP) in Paducah, Kentucky. The purpose of this activity was to assess the presence, nature, and extent of contaminants at each of the units. The investigation focused on source characterization of the surrounding soils and the potential impacts of contaminants on groundwater. Investigative activities included sampling and analysis of surface and subsurface soils and groundwater.

This report contains information about the regulatory framework under which the fieldwork was conducted (Sect. 1); describes the investigative methods used to sample the various media and analytical sampling parameters (Sect. 2); presents a physical description of each unit investigated, including topography, surface-water hydrology, geology, and hydrogeology (Sect. 3); defines the nature and extent of contamination at each unit as concluded from analyses of the collected data (Sect. 4); discusses the fate and transport of the contamination identified at each unit (Sect. 5); and provides estimates of the baseline risks to human health and the environment associated with the detected contaminants (Sect. 6). Conclusions are presented in Sect. 7.

The conclusions of the WAG 6 RI are presented using geographically related sectors. The sectors and their definitions are as follows:

- Sector 1–the area under the C-400 Building
- Sector 2–the area to the northeast of the C-400 Building. This sector contains the Neutralization Tank (SWMU 40).
- Sector 3–the area to the east of the C-400 Building. This sector does not contain a SWMU.
- Sector 4–the area to the southeast of the C-400 Building. This sector contains the Trichloroethene Leak Site (SWMU 11) and a trichloroethene (TCE) off-loading pump station.
- Sector 5–the area to the southwest of the C-400 Building. This sector does not contain a SWMU.
- Sector 6–the area to the west of the C-400 Building. This sector contains the Technetium Storage Tank (SWMU 47).
- Sector 7–the area to the northwest of the C-400 Building. This sector contains the Waste Discard Sump (SWMU 203).
- Sector 8–the area to the far north and far northwest of the C-400 Building. This sector contains the C-401 Transfer Line (SWMU 26).
- Sector 9–the area to the far east and far northeast of the C-400 Building. This sector does not contain a SWMU.

Contamination of the soil and groundwater at WAG 6 was found to be extensive. High concentrations of TCE that occur over large areas in the vadose zone, especially in Sectors 4 and 5, indicate that multiple releases of TCE have occurred around the C-400 Building. Concentrations above 225,000 micrograms per kilogram (µg/kg) in the shallow soils indicate that a dense, nonaqueous-phase liquid (DNAPL) of TCE exists at the southeast corner of the C-400 Building. The primary sources of contaminants have been identified as the Trichloroethene Leak Site (SWMU 11) and a TCE off-loading pump station located in Sector 4. Smaller areas of soil contaminated by volatile organic analytes (VOAs), semivolatile organic analytes (SVOAs), metals, polychlorinated biphenyls (PCBs), and radionuclides have also been impacted by releases from other identified SWMUs and associated utility lines.

Groundwater contaminant transport near the C-400 facility occurs by dissolution of sources present in the Upper Continental Recharge System (UCRS) soils and transport to the Regional Gravel Aquifer (RGA). This occurs as rainwater infiltrates from the surface and percolates through the source of contamination and its surrounding soil into the saturated zone. Lateral transport pathways follow groundwater flow paths established by the regional groundwater gradient. Due to the chemical's greater density and low solubility in water, DNAPL movement is gravity-driven, largely independent of groundwater flow, and often directed by subtle textural changes in the soils. Where spill volumes are sufficiently large, DNAPL has penetrated to significant depths. The C-400 Building is the source of a large DNAPL zone in the RGA. A large dissolved-phase plume of TCE, known as the Northwest Plume, results from this DNAPL zone. A smaller TCE plume, known as the Northeast Plume, may also be related to the presence of DNAPL at WAG 6.

The current and most plausible future use for the WAG 6 area is the industrial use scenario. For this scenario, the dermal contact with soil exposure route poses considerable risk from contact with metals (chiefly beryllium) and polycyclic aromatic hydrocarbons (PAHs). Vinyl chloride is the driver for inhalation of VOAs and particulates emitted from the soil exposure route for excavation workers at WAG 6.

The addition of groundwater drawn from the RGA and McNairy Formation as a medium of exposure adds significantly to the risk for the future industrial land use scenario. Contaminants driving risk under this scenario are TCE, vinyl chloride, beryllium, iron, arsenic, and lead-210 (excluding lead as a metal).

Contaminants of Concern (COCs) for future off-site residential groundwater users are: 1,1-dichloroethene; 1,2-dichloroethene; 2,4-dinitrotoluene; carbon tetrachloride; n-nitroso-di-n-propylamine; tetrachloroethene; *trans*-1,2-dichloroethene; TCE; vinyl chloride; antimony; copper; iron; and manganese. There are no radionuclide COCs migrating from the WAG 6 area based upon risk estimates derived from the fate and transport modeling. However, technetium-99 was not modeled and was assumed (without quantitation) to be a COC.

FACT SHEET

How much groundwater data has been collected relating to off-site plumes at Paducah Gaseous Diffusion Plant (PGDP)?

- Current database has over 300,000 entries relating directly and indirectly to source contaminants and dissolved concentrations of off-site dissolved plumes.
- 137 monitoring wells currently are being sampled, resulting in 457 sampling events per year.
- 21 residential wells currently are being sampled, resulting in 72 sampling events per year.
- Water levels are periodically taken on 11 Tennessee Valley Authority wells and 14 piezometers.
- USGS reports (i.e., water year reports, precipitation, etc.).

How is this data used in evaluating plume relationships with the Ohio River?

- Groundwater data is used to track the dissolved plume(s); contaminant concentration, velocity, and direction of flow.
- Groundwater data is used directly in computer modeling of plumes (i.e., solute transport, risk assessment, etc.).

With the plumes apparently heading toward the Ohio River, are there any ongoing or completed studies and/or reports?

- Yes, the PGDP Annual Environment Report. In addition, all sampling events go through an assessment, validation, verification, etc.
- The Groundwater Program Office personnel at the Oak Ridge National Laboratory completed the most recent report addressing the issue in 1994. *"Estimate of Groundwater contaminant leading from the Northwest Plume to the Ohio River, PGDP Oak Ridge National Laboratory*, (unpublished internal report, A. F. Diefendorf, May 10, 1994).
- Dr. Alan Fryar, Department of Geological Sciences, University of Kentucky, currently is doing a groundwater/surface water study along watersheds of Bayou and Little Bayou creeks, tributaries to the Ohio River. The report is due out the latter part of 1998. Although not focused on the Ohio River, it will contribute to a better understanding of the interrelationship of the discharge into the Ohio River from adjacent groundwater/surface water sources.

What were the salient conclusion(s) of the Oak Ridge National Laboratory report?

- Plume discharge to the Ohio River will not have any detectable effects on river quality.
  - Strong evidence suggests the plumes are at steady rate (i.e., the contaminant plume has stabilized in growth) and will not discharge contaminants of any significant quantities into the river.
    - The DNAPL source at the head of the plume continues to feed the groundwater with high concentrations of contamination. As the contaminated groundwater (now a plume) moves downgradient toward the Ohio River, it begins to diffuse into the host formations and more importantly, begins to be diluted by surrounding groundwater. In time, this diffusion and dilution process reaches zero contamination, the plume then is considered at steady state (no more growth). However, the transporting groundwater continues to the river with very little or no contaminants in solution.
  - A worst-case scenario indicated TCE concentration within the one-foot-thick discharge zone at the bottom of the river would be less than 1 ng/l (1 ppb grams/liter) based on current conditions (1994) and less than 4 ng/l (4 ppb grams/liter) based on 10-year worst case scenarios.
  - Other organic chemicals of concern are estimated to be at concentrations less than .02 ng/l. Additional loadings of organic chemicals from the site could be less than 1 µg/L with loadings from heavy metals being less than 1 ng/L.

If the plume is at steady state (no growth in time) why continue the pump and treat operations?

- The plume has migrated off the DOE site and subject to regulatory agreements (i.e., CERCLA, FFA, etc.).

How was the risk assessment for the Northwest Plume evaluated?

- The risk assessment assumed the worst case (discharge into the river scenario).

Is it possible for the contaminated plume to go under the Ohio River and contaminate the groundwater in Illinois?

- No, groundwater in the Regional Gravel Aquifer and extreme upper part of the McNairy Formation unload into the Ohio River. Hydrogeologically, the Ohio River is an "effluent stream" (it gains water from the subsurface system).

PROPOSED ACCELERATED CLEANUP PLAN REVISION
AUGUST 20, 1998

BACKGROUND

- Various DOE activities to enhance program strategies:
  - Re-baseline as part of implementing M&I contract
  - Assess stakeholder comments on the "Paths to Closure" strategy for consideration during the next revision
  - Recently completed an internal assessment of our RA strategy

- Major stakeholder comments--SSAB and KDWM concerns
  - Baseline assumption to cap all burial grounds (i.e., C-749 Burial Ground)
  - Assume RI/FSs for all SWMUs subject to a Site Evaluation
  - Existing assumptions may not provide for adequate budget planning
  - Initiate scrap removal to allow RI/FS for WAG 24
  - Coordinate remedial action at WAG 22 (7&30) with removal of scrap, to prevent recontamination of surface soils
  - Disagree with TSCA cleanup level of 25 ppm for PCBs
  - Need to accelerate surface water
  - Cleanup of radionuclides should be based on a dose of 25 mrem, as opposed to the DOE standard of 100 mrem

- Observations from internal assessment of RA strategy--June 2-3, 1998
  - Reduces opportunity to benefit from regional approaches for co-mingled releases from multiple SWMUs
  - Remedial decisions for DNAPL sources (WAGs 6, 27, and 28) and the off-site plumes (WAG 26) should be integrated due to their interdependent nature
  - Significant amount of resources being consumed by development of paperwork as opposed to fieldwork
  - Easier to defer Paducah work during budget resequencing, as opposed to larger projects at Oak Ridge and Portsmouth
  - Current strategy emphasizes a SWMU-by-SWMU approach with multiple projects, as opposed to accomplishing site-wide remediation goals

- Key elements of the proposed strategy include:
  - Direct resources toward fieldwork, as opposed to documentation
  - Accelerate overall cleanup beyond current FFA schedule
  - Conduct site-wide RI/FS for all SWMUs, as opposed to Site Evaluations
  - Increase scope of RI/FS characterization to address PCBs and uranium in non-SWMU areas
  - Include more aggressive baseline assumptions for cleanup standards and remedial actions
  - Integrate D&D process into the site remediation strategy
  - Focus efforts on accomplishing site-wide remedial objectives, as opposed to SWMU-by-SWMU remediation

KEY BASELINE ASSUMPTIONS

- PGDP continues to operate based on existing lease agreements, privatization of USEC, and stakeholders' desire to maintain the local economy

- Future land use will remain mixed industrial/recreational, with the following remedial objectives:
  - protect industrial workers inside security fence exposed through direct contact with contaminated- soils and wastes at depths from 0-10'
  - protect recreational users outside security fence exposed through direct contact (0-1') with soils, sediment/surface water, and consumption of contaminated fish and wildlife
  - protect off-site residents consuming GW beyond the DOE property boundary
  - protect sensitive ecosystems outside security fence

- Deed restrictions will be imposed on DOE property to prevent future residential development and use of contaminated GW

- Final actions for GW will include the following:
  - an alternate water supply to potentially-affected residents–Water Policy
  - regional containment of DNAPL sources contributing to off-site GW contamination
  - DNAPL source reduction at the C-400 area to reduce DNAPL mass
  - maintain off-site well and surface water sampling to monitor the migration of the plumes

- Cap all burial grounds and implement access restrictions/long-term monitoring, with the exception of burial grounds containing large volumes of concentrated radiological wastes that present an increased risk to off-site receptors which, in such cases, are assumed to be excavated

- Excavate PCB-contaminated soils, sediments, and flood plains from 0-1' to reflect the following goals:
  - an average PCB concentration of 10 mg/Kg for surface soils inside the security fence
  - an average PCB concentration of 10 mg/Kg for sediments and flood plain soils outside the security fence, as an interim remedial action
  - an average PCB concentration of .1 mg/Kg for sediments and flood plain soils outside the security fence, as a final remedial action during facility D&D

- Excavate radiological-contaminated surface soils from 0-1' to achieve an average dose of 25 mrem

- Two-phased field investigations will be eliminated through better use of existing data, enhancing the Data Quality Objective process with regulators, and developing flexible work plans that maximize field-screening

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OBJECTIVE: This course offers a basic understanding of the major environmental laws and how to comply with their requirements cost-effectively. **TOPICS:** Environmental Laws & Regulations System; Environmental Liabilities; Water Pollution Control; Clean Air Act Compliance; RCRA/Hazardous Waste; CERCLA/Superfund; EPCRA/SARA Title III; NEPA; TSCA; OSHA*; Inspections* and Audits*; Underground Storage Tanks; and Management Strategies. Designed for those who are either new to the environmental field or who need a comprehensive review of the major laws and regulations. This course has trained thousands of environmental professionals since 1973. As an added bonus you will receive the acclaimed *Environmental Law Handbook*, published by Government Institutes. **15 GI Credits, Level 1 • $999 •** 📼 📖 **SELF-STUDY** (**3-day program only*)

The Environmental Compliance Bootcamp
September 14-18, 1998 • Scottsdale, AZ
December 7-11, 1998 • Orlando, FL
*March 1999 • Salt Lake City, UT
40 GI Credits, Level 1• $1,899 📼 📖

OBJECTIVE: Designed for new environmental professionals or those who need a refresher. Instructors explain the law — then guide you through what the law means in day-to-day operations. **TOPICS:** What environmental laws really require; tips on managing your tanks, lead, asbestos, PCBs and spill prevention programs; pollution prevention strategies; no-nonsense solutions to common environmental problems.

The Environmental Compliance Bootcamp II
October 20-23, 1998 • Arlington, VA
*February 1999 • Orlando, FL
32 GI Credits, Level 2• $1,599

OBJECTIVE: Designed as an advanced interactive, problem-solving, strategy-developing environmental workshop to develop and strengthen skills necessary to stay compliant with environmental laws and regulations. **TOPICS:** Actual scenarios of manufacturing and industrial facilities analyzed, including environmental data; solve the daily challenges environmental managers face. The workshop will determine for a particular facility the Clean Air Act requirements, Clean Water Act permits, storm water permits/spill plans, RCRA impacts, and other programs including EPCRA, pollution prevention and training requirements.

The 1998 Washington Environmental Briefing:
Update on the Latest Trends and Developments for Veteran EH&S Specialists
October 28-29, 1998 • Arlington, VA
13 GI Credits, Level 2 • $999

OBJECTIVE: Updates you on the latest legislation and regulations. **TOPICS:** Expected changes in environmental enforcement, legislation and regulation; Safe Drinking Water Act; Clean Water Act; civil environmental enforcement trends; TSCA regulation; Superfund developments; OSHA update; environmental audits; Clean Air Act; air toxics/air permits update; RCRA and corrective actions; EPCRA and pollution prevention; and criminal liability and enforcement developments.

The Advanced Environmental Compliance Course:
Management Strategies and Regulatory Update
August 13-14, 1998 • Hilton Head, SC
*March 1999 • Scottsdale, AZ
14 GI Credits, Level 3 • $999

OBJECTIVE: Analyze legislative developments, advanced issues under major environmental statutes and management strategies to help you stay on the cutting edge of compliance. **TOPICS:** Environmental legislation; criminal liability and enforcement trends; RCRA and corrective actions; OSHA; Superfund; Clean Air Act; air toxics and air permits; Clean Water Act; TSCA; civil environmental enforcement; options for compliance; and trends in the environmental arena.

The Federal Facility Environmental Compliance Bootcamp
August 3-7, 1998 • Williamsburg, VA
*March 1999 • Denver, CO
40 GI Credits, Level 1 • $1,899

OBJECTIVE: Designed as intensive environmental compliance training specifically for federal facility employees/contractors. **TOPICS:** How to comply with the Federal Facility Compliance Act and NEPA; clean water and its NPDES program; clean air regulations, including permits and toxics; how to identify your hazardous wastes and comply with RCRA regulations; EPCRA/SARA Title III; asbestos, lead, PCBs; auditing; and pollution prevention strategies.

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Environmental Management Training

The Environmental Management Development Institute
September 14-18, 1998 • Washington, DC
40 GI Credits, Level 1 📖 **• $1,899 •** ***Annual***

OBJECTIVE: Designed for all new EH&S managers on the fast track. **TOPICS:** EPA and OSHA laws and regulations; environmental management strategies; conducting environmental audits; preparing for inspections; identifying waste reduction opportunities; and organizing and training compliance personnel. *Includes interactive workshops and informative field tours.*

Strategic Environmental Management:
Creating Value and Business Advantage
*April 1999 • Washington, DC
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OBJECTIVE: Teaches you how to add value to your company's bottom line through effective management strategies. **TOPICS:** Putting EH&S into business terms; measuring and monitoring environmental performance; integrating environmental compliance into your daily work environment; developing an Information Management System; pollution prevention; product stewardship; holding contractors/suppliers accountable; achieving continuous improvement; establishing management systems; auditing progress; and communicating the plan.

The Environmental MBA School:
Intensive, practical training for integrating EH&S into core business functions
December 1-4, 1998 • Williamsburg, VA
*April 1999 • Washington, DC
32 GI Credits, Level 2 📖 **• $1,599**

OBJECTIVE: Develops MBA-type skills for the EH&S manager. **TOPICS:** EH&S management and compliance tools; dealing with production and operations; practical accounting techniques for the EH&S manager; interacting with stakeholders; justifying pollution prevention projects; converting wastes into revenue streams; practical exercises and interactive discussions. Interactive training - using the *Harvard Business School case method* as a model.

Controlling Regulatory Compliance Costs:
Practical Cost Accounting Tools for EH&S Managers
October 8-9, 1998 • Rockville, MD
13 GI Credits, Level 2 • $999 • ***Annual***

OBJECTIVE: Learn how to add value to the bottom line using principles and techniques to drive work flows, capital investments and day-to-day management and decision making. **TOPICS:** Look at traditional accounting practices; business process analysis; process mapping; how to use costing metrics in EH&S programs; using technology to justify capital expenditures; using tools for effective decision making and continuous improvement.

Risk-Based Environmental Decision Making:
Risk Assessment & Management Tools for Better Compliance
September 21-24, 1998 • Arlington, VA
*April 1999 • San Antonio, TX
32 GI Credits, Level 2 • $1,599 • ***Annual***

OBJECTIVE: Learn how to use various risk assessment methodologies as tools for better decision making, cost control, and project prioritizing. **TOPICS:** Basics of risk assessment; assessing exposure; characterizing risk; identifying uncertainties; ecological risk assessments; Monte Carlo simulations; effective decision analysis; applications for Superfund sites, permitting, siting/design, and corrective actions. *Includes workshops and exercises.*

ISO 14000 Environmental Management Standards:
How to Develop an EMS that Meets the Standards
July 16-17, 1998 • Hilton Head, SC
October 27-28, 1998 • Scottsdale, AZ
*November 5-6, 1998 • San Juan, PR
*February 1999 • Orlando, FL
11 GI Credits, Level 1 💿 📖 **• $999**

OBJECTIVE: Helps you develop and maintain an Environmental Management System (EMS) that meets ISO standards and focuses on the two most active standards under the ISO umbrella. **TOPICS:** Status of the ISO standards development; key information necessary to begin the implementation process within your company; how to incorporate ISO 14000 requirements into your existing EMS; ISO 14000 EMS requirements; auditing to ISO standards; *workshops and exercises* on developing an EMS that meets ISO 14000 standards.

Environmental Reporting & Recordkeeping Requirements
July 6-7, 1998 • Arlington, VA
13 GI Credits, Level 1 📖 **• $999 •** ***Annual***

OBJECTIVE: Learn what records each major environmental law requires you to keep and what data must be reported. **TOPICS:** Reporting and recordkeeping requirements of RCRA, CERCLA, the Clean Air Act, the Clean Water Act, EPCRA, TSCA and OSHA; practical exercises; use of Internet resources for environmental reporting and recordkeeping; strategies for streamlining your reporting and recordkeeping system; auditing; and document retention and destruction policies.

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Environmental Management Training

Environmental, Health & Safety Training Requirements Workshop:
Requirements and Resources for Environmental Managers & Trainers
November 9-11, 1998 • Denver, CO
17 GI Credits, Level 1 📖 **• $1,199**

OBJECTIVE: Learn your legal requirements for training in the Code of Federal Regulations (CFRs) and the techniques to develop a cost-effective integrated environmental training program. **TOPICS:** Training requirements under OSHA HAZCOM; OSHA HAZWOPER; RCRA; DOT; process safety management and the Clean Water Act; how to design a cost-effective, integrated training program; how to sell your training program to management; system requirements; scope of training and needs assessment; and developing objectives and tests. You'll work in groups to develop your own training plan.

Environmental Audits:
Protecting Your Company and Yourself
July 13-15, 1998 • Hilton Head, SC
October 6-8, 1998 • Las Vegas, NV
*February 1999 • Orlando, FL
15 GI Credits, Level 2 📼 📖 **• $1,199**

OBJECTIVE: Offered more than 50 times, this premiere course is designed to take you through the audit process from beginning to end, giving you practical tips along the way. **TOPICS:** Learn what to look for during an audit; what questions to ask; the legal requirements for environmental audits; how to establish auditor qualifications; ramifications of doing internal audits; checklists you can use during the audit; and how other companies are successfully using environmental audits as a self-protection tool.

How to Evaluate and Audit Your Waste Contractors:
Self-Protection Strategies for Waste Generators
August 6-7, 1998 • Hilton Head, SC
November 2-3, 1998 • Las Vegas, NV
12 GI Credits, Level 2 • $999

OBJECTIVE: Designed to help waste generators identify and minimize the liabilities associated with the off-site treatment, storage and disposal of their wastes. **TOPICS:** How to protect yourself through on-site TSD facility audits; use of risk-ranking models and audit consortiums; reviewing your contractual terms and conditions; evaluating land disposal, incineration, recycling, and storage-only facilities and transporters; and developing audit protocols.

EPCRA Compliance:
Reporting Revisions and Expansions
November 9-10, 1998 • Arlington, VA
*February 1999 • Scottsdale, AZ
11 GI Credits, Level 2 📼 📖 **• $999**

OBJECTIVE: Understand the compliance requirements under the Emergency Planning and Community Right-to-Know Act. **TOPICS:** Conducting and maintaining your chemical inventory; reporting your toxic chemical releases; transferring information to the proper forms; and completing and filing the appropriate reports, including the Form R required under Section 313.

Environmental Risk Assessment
*April 1999 • Arlington, VA
14 GI Credits, Level 2 📖 **• $999**

OBJECTIVE: Focus on various risk assessment methodologies and learn how to use them as tools for better decision making, cost control and project prioritization. **TOPICS:** Basics of risk assessment, assessing exposure; characterizing risk; identifying uncertainties; ecological risk assessments; Monte Carlo simulations; effective decision analysis; applications for Superfund sites, permitting, design and corrective actions.

Environmental Project Management
RCRA/CERCLA
December 3-4, 1998 • Arlington, VA
14 GI Credits, Level 2 • $999

OBJECTIVE: Designed to help you with the complexities of planning and managing environmental projects. Walks you through the various phases of a project, giving you valuable insights into effective project management strategies and the tools needed to run a project smoothly. **TOPICS:** Planning an environmental project; establishing the critical path; essential tools and resources; project management skills; team building; managing change; scheduling and tracking tools; case studies.

GI's U.S. Environmental Laws & Regulations Course
Available as a Convenient Self-Study Package

The Environmental Laws & Regulations Self-Study Course consists of an easy-to-use, 362-page Study Guide coupled with the 14th edition of Government Institutes' information-packed *Environmental Law Handbook*. The Study Guide contains 13 paper-based learning modules. Each includes a chapter overview, learning objectives, topic outline and self-check exercises to reinforce your learning. Complete the master exam successfully and you qualify for continuing education credits from Government Institutes. All this for just a fraction of the cost of traditional classroom learning— and it's backed by Government Institutes' Full Refund Guarantee of Satisfaction. *$295 plus $12 shipping and handling.*

To order, use the registration form on page 15 or call (301) 921-2345 today!

Hazardous Waste/RCRA Training

The Advanced RCRA Institute
Prerequisite—at least 3 years of hazardous waste experience
*November 1998 • Arlington, VA
*February 1999 • Salt Lake City, UT
32 GI Credits, Level 3 • $1,599

OBJECTIVE: Advanced RCRA training for experienced RCRA professionals. TOPICS: Extended sessions on corrective action, land disposal restrictions, air emissions, and hazardous waste identification; permit exemptions; liability; mixed waste generator issues; contaminated media; future direction of RCRA; enforcement, pollution prevention; and several case studies.

The RCRA Compliance Institute
December 7-11, 1998 • Las Vegas, NV
*March 1999 • Orlando, FL
40 GI Credits, Level 1 • **$1,899**

OBJECTIVE: Gives hazardous waste professionals with less than three years of experience a comprehensive view of RCRA. TOPICS: Waste identification; generator and transporter requirements; reportable quantities; land disposal restrictions; shipping, labeling and manifesting; RCRA permits; RCRA corrective action; storage tanks; inspections; pollution prevention; and managing your RCRA program.

The RCRA Regulations Workshop
August 3-5, 1998 • Hilton Head, SC • **$1,199**
November 4-5, 1998 • Charleston, SC • **$999**
14 GI Credits, Level 2

OBJECTIVE: Analyzes the Resource Conservation & Recovery Act. TOPICS: Identification of solid and hazardous wastes; hazardous waste generator issues; transporting hazardous wastes; complying with the TSD requirements; understanding the land disposal restrictions; RCRA corrective action; EPA enforcement; how to manage your RCRA compliance program; and several interactive workshops.

Environmental Sampling & Data Analysis
August 24-25, 1998 • Colorado Springs, CO
November 16-17, 1998 • Arlington, VA
*January 1999 • Scottsdale, AZ
14 GI Credits, Level 2 • **$999**

OBJECTIVE: Designed to strengthen your knowledge of sampling and data collection and teach you the basics of using these tools cost-effectively. TOPICS: Determining your sampling objective; sampling strategies; introduction to field techniques; practical applications for investigating, delineating contamination, demonstrating cleanup or monitoring; choosing the right analytical lab and methods; validating and interpreting the data; and practical exercises.

Mixed Waste Management
*June 1999 • Albuquerque, NM
11 GI Credits, Level 2 • $999

OBJECTIVE: Designed to help you understand your disposal requirements and management options when dealing with a waste stream containing both hazardous and radioactive wastes. TOPICS: Regulations of radioactive and hazardous components of mixed waste; determining which wastes are mixed; impact of the Federal Facility Compliance Act (FFCA); treatment, storage and disposal; developing technologies; environmental restoration; waste minimization; management strategies; and what the future holds.

** Dates being finalized.* *for more info call (301) 921-2345.* *for more info call (301) 921-2323.*

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Health & Safety/OSHA Training

OSHA Laws & Regulations
July 28-29, 1998 • Hilton Head, SC
*February 1999 • Las Vegas, NV
13 GI Credits, Level 1 • **$999**

OBJECTIVE: Gain a broad understanding of the major occupational, health and safety laws and standards you must know and comply with. **TOPICS:** Who must comply with OSHA; OSHA Standards and the Employer's General Duty; OSHA inspection and enforcement priorities; the citation process; violations and penalties; HAZCOM and the role of the MSDS; understanding your recordkeeping and reporting obligations; confined space entry regulations; legislative developments and new directions.

OSHA Standards Made Easy
A Workshop for Day-to-Day Compliance
July 30-31, 1998 • Hilton Head, SC
*February 1999 • Las Vegas, NV
14 GI Credits, Level 2 • **$999**

OBJECTIVE: Addresses each health and safety standard to understand how to comply with the regulations in your workplace. **TOPICS:** Inspections, citations, and penalties; illness/injury recordkeeping; walking/working surfaces; machine guarding; lockout/tagout; confined spaces; materials handling and storage; means of egress/fire protection; bloodborne pathogens/first aid; lead and asbestos; HAZWOPER and personal protective equipment; and more.

The OSHA Compliance Institute
October 26-29, 1998 • Washington, DC
32 GI Credits, Level 1 • **$1,599**

OBJECTIVE: Provides a thorough understanding of OSHA's rules and inspections/enforcement priorities affecting business and industry. **TOPICS:** Compliance strategies for major OSHA standards; most-often cited OSHA violations and how to avoid them; reporting and recordkeeping requirements; modifying workplace behavior; conducting H&S audits; update on important new rules to come.

Chemical Management Training

Chemistry for Non-Chemists
August 13-14, 1998 • Hilton Head, SC • **$999**
October 8-9, 1998 • Las Vegas, NV • **$999**
December 7-9, 1998 • Williamsburg, VA • **$1,199**
*February 1999 • Orlando, FL • **$1,199**
GI Credits: 2-day = 13 & 3-day = 15 • Level 1

OBJECTIVE: Designed as a basic course for those who have little or no background in chemistry. **TOPICS:** Basic properties and principles; major elemental groups and their characteristics; atomic structure and bonding; solubility/solvents; understanding pH; volatile and nonvolatile substances; how chemicals react; chemical compatibility; water chemistry; and the science behind MSDSs.

Toxicology for Non-Toxicologists:
How Chemicals Impact Human Health
July 20-21, 1998 • Redondo Beach, CA
*November 18-19, 1998 • Arlington, VA
*February 1998 • Orlando, FL
*April 1999 • Washington, DC
11 GI Credits, Level 1 • **$999**

OBJECTIVE: Designed to help you understand the impact chemicals have on the body. **TOPICS:** General principles of toxicology; how absorption, distribution, metabolism affect toxicity; how chemicals impact the liver, kidneys, blood, immune system, skin, lungs, eyes, nervous and reproductive systems; carcinogens and how they react within the body to form cancers; role of toxicology in risk assessment.

The TSCA Compliance Course
July 22-23, 1998 • Redondo Beach, CA
*November 16-17, 1998 • Arlington, VA
*April 1999 • Washington, DC
14 GI Credits, Level 2 • **$999**

OBJECTIVE: Teaches chemical manufacturers, users, processors, distributors, importers and exporters their obligations under TSCA. **TOPICS:** EPA's regulation of new and existing chemicals; TSCA inventory; Premanufacture Notification (PMN) process; test rules and significant new-use rules; import/export requirements; recordkeeping and data reporting; auditing and enforcement.

The Pesticide Regulations Conference:
EPA's New Initiatives & Landmark Changes – How They Affect You!
*December 1998 • Arlington, VA
13 GI Credits, Level 2 • $999

OBJECTIVE: Gives a practical understanding and various perspectives of the latest pesticide requirements under the Food Quality Protection Act, and furnishes you with EPA updates on the law, science, art, politics and new structure of pesticide regulations. **TOPICS:** Pesticide registration; applications; determining data requirements; tolerances and exemptions; developing and presenting risk assessment; good laboratory practices; labeling; moving your application quickly; enforcement, and how EPA's new Antimicrobial Division & Office of Consumer Protection & Right-To-Know affect the industry.

** Dates being finalized.* *for more info call (301) 921-2345.* *for more info call (301) 921-2323.*

Monthly Summary of Courses

July 1998

6-7	Env'l Reporting & Recordkeeping $999	Arlington, VA
9-10	Fleet Maintenance Centers $799	Atlantic City, NJ
13-15	Environmental Audits $1,199	Hilton Head, SC
16-17	ISO 14000 Standards $999	Hilton Head, SC
14-17	Air Compliance Institute $1,599	Hilton Head, SC
14-17	Site Remediation Institute $1,599	Atlantic City, NJ
20-21	Toxicology for Non-Tox. $999	Redondo Beach, CA
22-23	TSCA Compliance $999	Redondo Beach, CA
21-24	Clean Water Institute $1,599	Hilton Head, SC
28-29	OSHA Laws and Regulations $999	Hilton Head, SC
30-31	OSHA Standards Workshop $999	Hilton Head, SC

August 1998

3-5	RCRA Regulations $1,199	Hilton Head, SC
6-7	Waste Contractors $999	Hilton Head, SC
3-7	Fed. Fac. Env'l Bootcamp $1,899	Williamsburg, VA
10-12	U.S. Environmental Laws $999	Hilton Head, SC
13-14	Advanced Env'l Compliance $999	Hilton Head, SC
13-14	Chemistry for Non-Chemists $999	Hilton Head, SC
24-25	Sampling & Data Analysis $999	Colorado Springs, CO
8/31-9/2	U.S. Environmental Laws $999	Chicago, IL

September 1998

14-15	South Carolina Env'l Law Compliance $799	Columbia, SC
14-18	Env'l Mgmt Development Inst. $1,899	Washington, DC
14-18	Env'l Compliance Bootcamp $1,899	Scottsdale, AZ
21-24	Risk-Based Env'l Decision Making $1,599	Arlington, VA
22	Maryland Env'l Law Compliance $399	Baltimore, MD
22	Pennsylvania Env'l Law Compliance $399	Hershey, PA
22-23	SPCC Plans Made Easy $999	Arlington, VA
24-25	Storm Water Discharge Regulations $999	Arlington, VA
28-29	Georgia Env'l Law Compliance $799	Atlanta, GA

October 1998

5-7	U.S. Environmental Laws $999	Las Vegas, NV
6-8	Environmental Audits $1,199	Las Vegas, NV
7-9	Puerto Rico Env'l Law Compliance $1,199	San Juan, PR
7-9	Underground Storage Tanks $1,199	Atlantic City, NJ
8-9	Controlling Reg. Compliance Costs $999	Rockville, MD
8-9	Chemistry for Non-Chemists $999	Las Vegas, NV
19-21	Clean Air Conference $850	Albany, NY
19-22	Clean Water Institute $1,599	Las Vegas, NV
20-23	Env'l Compliance Bootcamp II $1,599	Arlington, VA
19-20	Idaho Env'l Law Compliance $799	Boise, ID
19-20	New York Env'l Law Compliance $799	Melville, NY

** Dates being finalized.*

Shading designates back-to-back courses to maximize your travel and training dollars.

October 1998 continued

26-29	OSHA Institute $1,599	Washington, DC
27-28	Site Assessments $999	Las Vegas, NV
26-27	U.S. Environmental Laws $999	Arlington, VA
28-29	1998 Washington Env'l Briefing $999	Arlington, VA
27-28	ISO 14000 Standards $999	Scottsdale, AZ
27-28	International Haz. Communication $999	Scottsdale, AZ
29-30	International Env'l Auditing $999	Scottsdale, AZ

November 1998

2-3	Waste Contractors $999	Las Vegas, NV
4-5	RCRA Regulations $999	Charleston, SC
5-6	Texas Env'l Law Compliance $799	Houston, TX
*5-6	ISO 14000 Standards $999	San Juan, PR
*9-10	Latin America Env'l Law $999	Miami, FL
9-10	EPCRA Compliance $999	Arlington, VA
9-10	Wetlands Regulation $999	Orlando, FL
9-10	Rhode Island Env'l Law Compliance $799	Providence, RI
9-11	Environmental Training $1,199	Denver, CO
*9-11	Nat'l Telecom Conference $999	Washington, DC
*12-13	Internet Law $999	Washington, DC
16-18	U.S. Environmental Laws $999	San Francisco, CA
16-17	Sampling and Data Analysis $999	Arlington, VA
*16-17	TSCA Compliance $999	Arlington, VA
*18-19	Toxicology for Non-Toxicologists $999	Arlington, VA
*19-20	Mexico Environmental Laws $999	Houston, TX
*	Missouri Env'l Law Compliance $499	St. Louis, MO
*	Adv. RCRA Institute $1,599	Arlington, VA

December 1998

1-4	Env'l MBA School $1,599	Williamsburg, VA
*1-4	Natural Resources Institute $1,599	Scottsdale, AZ
2-4	U.S. Environmental Laws $999	Williamsburg, VA
3-4	Env'l Project (RCRA/CERCLA) Mgmt $999	Arlington, VA
7-9	Chemistry for Non-Chemists $1,199	Williamsburg, VA
7-11	Env'l Compliance Bootcamp $1,899	Orlando, FL
7-11	RCRA Compliance Institute $1,899	Las Vegas, NV
8-11	Air Compliance Institute $1,599	Las Vegas, NV
28-30	U.S. Environmental Laws $999	Tampa, FL
*	Utah Env'l Law Compliance $799	Salt Lake City, VA
*	Hawaii Env'l Law Compliance $799	Honolulu, HI
*	Virginia Env'l Law Compliance $799	Richmond, VA
*	Connecticut Env'l Law Compliance $499	Hartford, CT
*	Pesticide Regulations Conference $999	Arlington, VA

January 1999

*	U.S. Environmental Laws $999	Salt Lake City, UT
*	Clean Water Institute $1,599	Orlando, FL
*	Sampling and Data Analysis $999	Scottsdale, AZ

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Monthly Summary of Courses

February 1999

*	Adv. RCRA Institute $1,599	Salt Lake City, UT
*	Air Compliance Institute $1,599	Orlando, FL
*	Chemistry for Non-Chemists $1,199	Orlando, FL
*	Environmental Audits $1,199	Orlando, FL
*	Env'l Compliance Bootcamp II $1,599	Orlando, FL
*	U.S. Environmental Laws $999	Orlando, FL
*	Toxicology for Non-Tox. $999	Orlando, FL
*	EPCRA Compliance $999	Scottsdale, AZ
*	International Haz. Communication $999	Orlando, FL
*	ISO 14000 Standards $999	Orlando, FL
*	Massachusetts Env'l Law Compliance $799	Boston, MA
*	OSHA Laws and Regulations $999	Las Vegas, NV
*	OSHA Standards Workshop $999	Las Vegas, NV
*	Site Assessments $999	Santa Monica, CA

March 1999

*	Env'l Compliance Bootcamp $1,899	Salt Lake City, UT
*	U.S. Environmental Laws $999	Scottsdale, AZ
*	Advanced Env'l Compliance $999	Scottsdale, AZ
*	Fed. Fac. Env'l Bootcamp $1,899	Denver, CO
*	Latin America Env'l Law $999	Miami, FL
*	North Carolina Env'l Law Compliance $799	Charlotte, NC

March 1999 continued

*	RCRA Compliance Institute $1,899	Orlando, FL
*	Safe Drinking Water Act Compl. $999	Marina del Rey, CA
*	Mexico Environmental Laws $999	San Antonio, TX
*	International Env'l Auditing $999	Orlando, FL

April 1999

*	U.S. Environmental Laws $999	Nashville, TN
*	International Chemical Control $999	Washington, DC
*	Kentucky Env'l Law Compliance $799	Louisville, KY
*	Natural Resources Institute $1,599	San Antonio, TX
*	Toxicology for Non-Toxicologists $999	Washington, DC
*	TSCA Compliance $999	Washington, DC
*	Risk-Based Env'l Decision Making $1,599	San Antonio, TX
*	Internet Law $999	Washington, DC
*	Far East Env'l Law $999	San Francisco, CA
*	European Env'l Law $999	Washington, DC
*	Canada Env'l Law $999	Washington, DC
*	Nat'l Telecom Conference $999	Washington, DC
*	Env'l MBA School $1,599	Washington, DC
*	Strategic Environmental Mgmt. $999	Washington, DC
*	Environmental Risk Assessment $999	Arlington, VA

** Dates being finalized.*

Shading designates back-to-back courses to maximize your travel and training dollars.

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- Water Pollution Technologies (#0006) $198
- ISO 14000: Positioning Your Company for Success (#0012) $298

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- European Environmental Law (#0003) $498

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Natural & Cultural Resources/NEPA Training

Natural & Cultural Resources Management:
Planning & Management Strategies for Federal Projects
*June 1999 • Breckenridge, CO
12 GI Credits, Level 2 📖 • $999

OBJECTIVE: Designed to teach you how to comply with natural and cultural resource laws to keep federal projects from being delayed or stopped by these issues. **TOPICS:** Biological assessment; impact of NEPA on federal projects; managing endangered/threatened species; federal land management; cultural resources and Native American issues; historic preservation; natural resource laws; wetlands management.

Effective Strategies for NEPA Compliance
*June 1999 • Breckenridge, CO
11 GI Credits, Level 2 📖 • $999 • *Annual*

OBJECTIVE: Learn your requirements under the National Environmental Policy Act (NEPA) and the implementing rules of the Council of Environmental Quality (CEQ). **TOPICS:** Determining actions and alternatives; tools for managing public participation; a case study; how to handle NEPA compliance requirements and practices; tiering concepts; and roles of EA's.

Natural Resources Institute
*December 1-4, 1998 • Scottsdale, AZ
*April 1999 • San Antonio, TX
32 GI Credits, Level 2 📖 • $1,599 • *Annual*

OBJECTIVE: Provides an in-depth look at natural resource laws, principles, and tools land managers need to know and comply with. **TOPICS:** Ecosystem management requirements and tools; NEPA requirements and compliance strategies; Endangered Species Act: requirements and management strategies including biological assessments and the listing process; floodplains/rivers and coastal zones; wetlands; ecosystems management by major resource category.

Clean Air Compliance Training

The Clean Air Compliance Institute
July 14-17, 1998 • Hilton Head, SC
December 8-11, 1998 • Las Vegas, NV
*February 1999 • Orlando, FL
32 GI Credits, Level 1 📖 • $1,599

OBJECTIVE: Focus on effective Clean Air Act compliance strategies, including technologies, management, and engineering. **TOPICS:** The new national air quality standards; how to obtain and manage both operating and construction air permits; air toxics; risk management planning and accident prevention; selecting your control equipment for VOC, acid gas, particulate, and NO_x control; modeling emissions; recordkeeping; and enforcement.

193 new or pending EPA rules!

The Clean Air Toxics and Emissions Conference
*May 1999 • Arlington, VA
11 GI Credits, Level 2 • $999

OBJECTIVE: Gives attendees the latest information on EPA's air toxics programs. **TOPICS:** Estimating and measuring toxic air emissions; determining and selecting your control equipment; developing a toxic pollutant emission inventory; modeling of air emissions; reporting, recordkeeping and monitoring requirements; risk management planning; hazard assessment and accident prevention under section 112; and pollution prevention strategies.

Clean Air:
Understanding Recent Changes that Affect Compliance, Permitting & Management
October 19-21, 1998 • Albany, NY
13 GI Credits, Level 2 • $850

OBJECTIVE: Focuses on the most relevant issues and impact of recent changes for air compliance specialists. **TOPICS:** EPA's Clean Air Act priorities and tools of the trade including; clean air technologies, management and engineering; permit programs; risk management planning and accident prevention; modeling emissions; and enforcement.

** Dates being finalized.* 📼 *for more info call (301) 921-2345.* 📖 *for more info call (301) 921-2323.*

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Clean Water & Tank Management Training

The Clean Water Institute
July 21-24, 1998 • Hilton Head, SC
October 19-22, 1998 • Las Vegas, NV
*January 1999 • Orlando, FL
32 GI Credits, Level 1 📼 📖 **• $1,599**

OBJECTIVE: Provides an in-depth look at the Clean Water Act, its requirements and compliance strategies. **TOPICS:** Clean Water Act laws and regulations; basic water management and compliance strategies; how to negotiate or renew a NPDES permit; strategies for spotting the key permit issues; wastewater treatment processes; and emerging trends in wastewater treatment and control.

Storm Water Discharge Regulations Course:
Compliance Strategies & Techniques
September 24-25, 1998 • Arlington, VA
11 GI Credits, Level 1 📼 📖 **• $999**

OBJECTIVE: Provides the key requirements of the storm water program and gives you cost-effective, timesaving tools to help you stay in compliance. **TOPICS:** Legal requirements and objectives of storm water permits; requirements for storm water pollution prevention plans; a case study, including options for materials handling, transfer and storage activities; how to coordinate your pollution prevention plan with other facility compliance programs.

SPCC Plans Made Easy:
Using Your Spill Plan to Prevent Releases
September 22-23, 1998 • Arlington, VA
13 GI Credits, Level 1 📼 **• $999**

OBJECTIVE: Understand your SPCC requirements and learn how to use your spill plan to prevent releases. **TOPICS:** SPCC plan requirements and how they affect daily operations; how to select, train and focus your spill prevention team; the latest guidance on the Integrated Contingency Plan (ICP)—or what has been called the "One Plan"; and how to effectively manage the SPCC plan.

Underground and Aboveground Storage Tanks:
Smart Management & Engineering Applications
October 7-9, 1998 • Atlantic City, NJ
17 GI Credits, Level 2 📼 📖 **• $1,199**

OBJECTIVE: Designed for those who are responsible for UST/AGST management, operations, maintenance, engineering and/or installation at their facilities. **TOPICS:** EPA regulations and performance standards; how to predict if your tanks are leaking; how to monitor your tanks for leaks; how to buy and install new tanks; tank closure; remedial action; maintenance and upgrade options; and how to manage your existing tanks cost-effectively.

Fleet Maintenance Centers:
Environmental Compliance Workshop
July 9-10, 1998 • Atlantic City, NJ
7 GI Credits, Level 1 • $799 • *Annual*

OBJECTIVE: Provides practical compliance information for those responsible for the operations and maintenance of vehicular fleets, including utilities, delivery services, military motorpools, trucking facilities, school districts, and more. **TOPICS:** Used oil and hazardous waste management; solvent and solid waste recycling rules; storm water management; air compliance issues, spill protection and reporting.

Safe Drinking Water Act Compliance
*March 1999 • Marina del Rey, CA
11 GI Credits, Level 1 • $999

OBJECTIVE: Gives you a comprehensive understanding of the requirements and latest developments in Safe Drinking Water Act regulations. **TOPICS:** Find out what you must do to protect sole source aquifers and wellhead areas and how your underground injection program is affected. Learn how underground injection permits and the well classification program impact your facility.

** Dates being finalized.* 📼 *for more info call (301) 921-2345.* 📖 *for more info call (301) 921-2323.*

State Environmental Law Compliance Courses

Focused State environmental law courses are designed to help business owners, industrial managers, attorneys and other environmental professionals better understand their obligations under the State environmental laws and comply with the latest regulations.

South Carolina	September 14-15, 1998	Columbia, SC	Texas	November 5-6, 1998	Houston, TX
Maryland	September 22, 1998	Baltimore, MD	Rhode Island	November 9-10, 1998	Providence, RI
Pennsylvania	September 22, 1998	Hershey, PA	Missouri	*November 1998	St. Louis, MO
Georgia	September 28-29, 1998	Atlanta, GA	Hawaii	*December 1998	Honolulu, HI
Puerto Rico	October 7-9, 1998	San Juan, PR	Utah	*December 1998	Salt Lake City, UT
Idaho	October 19-20, 1998	Boise, ID	Virginia	*December 1998	Richmond, VA
New York	October 19-20, 1998	Melville, NY	Connecticut	*December 1998	Hartford, CT

Please call (301) 921-2345 for other state course dates.

** Dates being finalized.*

Far East Environmental Laws and Regulations:
Compliance Strategies & Business Opportunities
*April 1999 • San Francisco, CA
14 GI Credits, Level 2 📖 • $999 • *Annual*

OBJECTIVE: Receive a comprehensive update on the environmental laws, regulations, governing bodies, and cultural/economic forces impacting business operations and investments in major Asia Pacific countries. **TOPICS:** Key information and strategies for doing business in Taiwan, China, Thailand, Australia, Indonesia, Singapore, Korea, Japan, Malaysia, the Philippines and India; most promising markets; how to structure your operations and investments for success; where to find useful information.

European Environmental Laws and Regulations:
Ensure Your Compliance and Success in Europe
*April 1999 • Washington, DC
14 GI Credits, Level 2 • $999 • *Annual*

OBJECTIVE: Learn how environmental requirements are developed and enforced overseas, particularly in the European Union. **TOPICS:** Necessary strategies for doing business; labeling and packaging standards; manufacturer take-back obligations; integrated pollution prevention and control; RCRA and Superfund-type liabilities; water and air pollution control; and more.

Canada Environmental Laws and Regulations:
Understanding the Canadian Environmental Regulatory System
*April 1999 • Washington, DC
11 GI Credits, Level 2 • $999 • *Annual*

OBJECTIVE: Receive an overview of the key environmental laws and regulations for conducting business in Canada. **TOPICS:** The environmental regulatory system; import/export compliance; hazardous waste management; water and air pollution control strategies; approvals process; individual liability for contaminated property; new initiatives; and more.

Latin American Environmental Laws and Regulations:
Environmental Compliance & Business Opportunities
*November 9-10, 1998 • Miami, FL
*March 1999 • Miami, FL
13 GI Credits, Level 2 • $999

OBJECTIVE: Learn how major Latin American countries are meeting their environmental challenges and what you must do to comply. **TOPICS:** Environmental, health and safety requirements in Brazil, Argentina, Chile, Peru, Mexico and others; multilateral trade agreements and their impact on environmental activities; managing environmental risks and capturing business opportunities; impact of ISO 14000 on trade and investment; financing of international projects.

International Hazard Communication:
Classification, Labels and MSDSs
October 27-28, 1998 • Scottsdale, AZ
*February 1999 • Orlando, FL
11 GI Credits, Level 2 • $999

OBJECTIVE: Learn about the key rules and regulations for classifying, labeling and transporting toxic chemicals and materials across international borders. **TOPICS:** Overview of U.S. laws affecting labeling, packaging, and transportation; new developments in Europe, Canada, Far East, and Latin America; where to find additional information; integrating your labeling procedures for multi-country compliance; protecting you and your company from liabilities.

Mexico Environmental Laws & Regulations
*November 19-20, 1998 • Houston, TX
*March 1999 • San Antonio, TX
13 GI Credits, Level 2 📖 • $999

OBJECTIVE: Learn how environmental regulation in Mexico is evolving and its impact on your business operations. **TOPICS:** The December 1996 amendments; air pollution regulations; water pollution control; handling and disposal of hazardous waste; environmental laws and maquiladoras; cross-border enforcement issues; ISO 14000; investment opportunities in Mexico's environmental infrastructure.

International Environmental Auditing
October 29-30, 1998 • Scottsdale, AZ
*March 1999 • Orlando, FL
13 GI Credits, Level 2 • $999

OBJECTIVE: Receive practical tips and the latest strategies and techniques for auditing multinational environmental compliance and excellence. **TOPICS:** Common international environmental problems; scope, objectives and criteria of international audits; confidentiality and disclosure issues in an international context; cultural and practical aspects of conducting international audits. EMAS and World Bank guidelines and meeting the auditing requirements of ISO 14000; international site assessments.

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Telecommunication & Internet Training

The National Telecommunications Conference
Your Roadmap to Opportunities, Options and Obstacles in this New Era
*November 9-11, 1998 • Washington, DC
*April 1999 • Washington, DC
14 GI Credits, Level 1 📖 • $999

OBJECTIVE: Focuses on legal requirements and business opportunities in the telecommunications and telephone industry. **TOPICS:** New developments in local exchange and long-distance competition; wireless mobile communications; FCC initiatives and regulatory schedules; financial outlook; global communications; and the future of the telecommunications industry.

The Internet Law Conference:
How to Protect Your Economic and Intellectual Property Assets in Cyberspace
*November 12-13, 1998 • Washington, DC
*April 1999 • Washington, DC
14 GI Credits, Level 1 📖 • $999

OBJECTIVE: Learn the various laws impacting Internet use in order to protect your business. **TOPICS:** Law of Cyberspace; licensing issues and electronic contracts; trademarks, copyrights, and patents; confidentiality and security; liability and jurisdiction on the Internet; employment law and best business practices; international legal issues; domain names; how to get one and protect it; protecting trade secrets; encryption.

Environmental Assessment & Real Estate Training

Wetlands Regulation and Mitigation
November 9-10, 1998 • Orlando, FL
13 GI Credits, Level 1 📖 • $999

OBJECTIVE: Provides a clear understanding of the many changes to the laws and regulations impacting wetland development and protection. **TOPICS:** Wetland identification; major federal and state laws governing wetlands; latest developments in wetland mitigation; wetland banking; other options for restoring and protecting wetlands; liability and enforcement issues.

Environmental Site Assessments: A to Z
Pre-Assessment, Phase I and Phase II Protocols
October 27-28, 1998 • Las Vegas, NV
*February 1999 • Santa Monica, CA
14 GI Credits, Level 2 📼 • $999

OBJECTIVE: Gives you the steps for conducting environmental site assessments in accordance with the latest national standards. **TOPICS:** Determining the scope; anticipating costs; conducting a thorough investigation; conducting Phase I evaluations; developing a Phase II scope of work; accessing public records for information; assessing site hydrology, geology, topography and aquatic factors; pricing environmental liabilities; emphasis on ASTM Phase I and Transaction Screen standards.

The Site Remediation and Restoration Institute
July 14-17, 1998 • Atlantic City, NJ
32 GI Credits, Level 2 • $1,599 • *Annual*

OBJECTIVE: Focuses on the most relevant issues for remediation and restoration specialists. **TOPICS:** Remediation requirements and strategies; site investigation/inspection; characterization; extent of contamination; pros/cons of cleanup options; DNAPLS; ARARS; designing and implementing the remediation; contracting challenges; conventional on-site technologies; in-situ and innovative technologies; demonstration projects for federal facilities; and decommissioning and decontamination.

** Dates being finalized.* 📼 *for more info call (301) 921-2345.* 📖 *for more info call (301) 921-2323.*

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The Environmental Law Classroom Series

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Storm Water Employee Training (0086) $395
Introduction to Water Quality Standards (0145) $149
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The Compliance Auditing Classroom Series

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This course focuses on effective Clean Air Act compliance strategies, including technologies, management, and engineering.

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For more information see page 3

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