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Advocate

A publication of the Oak Ridge Site Specific Advisory Board—an independent, nonpartisan, volunteer citizens panel dedicated to providing informed advice and recommendations to the DOE Environmental Management Program

Groundwater Levels at Bear Creek Disposal Facility Prompt DOE to Modify Design

Oak Ridge SSAB, Public Asked to Provide Input on Options to Lower Groundwater Table

The Oak Ridge Site Specific Advisory Board (ORSSAB) and members of the public got an up-to-the-minute briefing on the groundwater

constructing several cells that can be filled and temporarily capped as space becomes needed for cleanup program wastes. Construction of

Cells 1 and 2, which have a capacity of 400,000 yd³, was completed in May 2002. Cell 1 is currently receiving waste from ongoing remediation projects. Construction of Cells 3 and 4, creating an additional 800,000 yd³ of capacity, is proposed to begin in late FY 2004. Three other cells are on the drawing board.

John Michael Japp, DOE Project Manager for the EMWMF, told ORSSAB members that routine monitoring over the past year led to the growing awareness of the high

groundwater levels under the site. Heavy rainfall, particularly in February and April of this year, added to the high groundwater table, compounding the problem. To date, nearly 80 inches of precipitation have been recorded this year in the Oak Ridge area, roughly 60 percent above average.

As a result of activities associated with dealing with the stormwater, groundwater levels at the waste cell were discovered to be higher than anticipated, according to Japp. Computer modeling done prior to construction of the



Workers unload cleanup program wastes at the Environmental Management Waste Management Facility in Bear Creek Valley, where heavy rainfalls the spring have added to an unacceptably high groundwater table, according to state regulatory officials.

challenges DOE is facing at the Environmental Management Waste Management Facility (EMWMF) at the June 11 ORSSAB meeting.

EMWMF is an above-grade waste disposal facility located in East Bear Creek Valley just west of the Y-12 National Security Complex. It is permitted to receive waste generated during cleanup of the Oak Ridge Reservation and nearby sites in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The facility will be completed in phases by

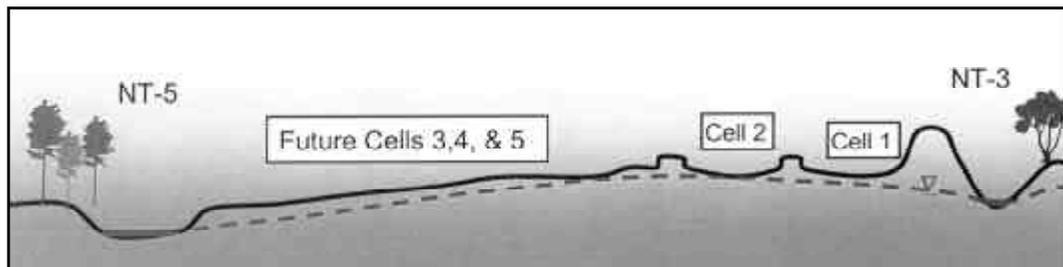
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facility indicated the groundwater would be about 13 feet below the bottom of the facility's clay liner. In some areas, however, groundwater appears to be immediately below the base of the clay liner. The Environmental Protection Agency (EPA) and the state would like to see a minimum of 10 feet of geologic buffer zone between the clay and the groundwater table.

The higher-than-anticipated groundwater levels during an extremely wet year have made unraveling the underlying cause and determining the appropriate response more difficult. "One has to ask himself 'Is this possibly just a freak phenomenon based on a very wet year?' and 'Should we be running out there to fix a problem when it may go away during years with normal rainfall?'" said Japp.



The EMWMF problem. The current water table, shown as a dashed line, is unacceptably close to the finished construction grade of the facility, shown as a solid line. Construction of Cells 1 and 2 have been completed, and Cell 1 is currently being filled. The locations of North Tributary-3 (NT-3) and NT-5 are indicated. NT-4, which originally ran between NT-3 and NT-5 was rerouted to avoid having it flow through the EMWMF site.

An engineering study was initiated in March, and of the seven alternatives studied for lowering groundwater, four have been discarded and three remain under consideration. Of those three, however, the most cost-effective

The core team sought to get the issue before the SSAB and the public as quickly as possible, since construction on Cells 3 and 4 at the facility will have to begin next summer to be finished by the time Cell 1 is filled. Any

and potentially successful path forward is considered to be the placement of an underdrain at Cell 3, at a cost of roughly \$1.5 million, according to Japp. Other alternatives range from zero cost to upwards of \$7 million.

Japp said the completion and capping of the remaining cells was studied as a means for stemming the groundwater problems, with no additional cost beyond that which is already planned.

"A normal rainfall year and capping of the broad area will in fact lower the water table, but not enough to give us the kind of certainty we want," he said. "So, we ruled out the no-action alternative. We liked the price tag, but it just didn't deliver the benefits."

Japp is DOE's lead on a core team of EPA, Tennessee Department of Environment and Conservation (TDEC) and DOE personnel who are working to quickly identify a remedy. The parallel involvement of the regulatory agencies allows the project to move ahead with their concurrence, with the intent that accelerated cleanup schedules be maintained.

necessary construction to address the groundwater concerns would need to be completed within the next 6 months or so.

"We've got a schedule basically saying we're going to need these (new) cells in the '05 time frame," said Japp. "That's when we anticipate filling up the existing cells and needing to move into the new capacity. If we start hitting delays of a year to a year and a half, that would definitely translate to a real kink in the accelerated cleanup schedule."

TDEC's John Owsley heartily endorsed the decision to put the issue to the Board.

"It's important to get public comment and acceptance, versus us saying, 'This is what we're doing,'" said Owsley.

The EMWMF core team met again June 17, and Japp met with the SSAB's Waste Management Committee on June 18. The core team plans to present to upper management its recommendation for an alternative by the end of June or early July.

Options for Lowering EMWMF Groundwater Table

Of the following seven options assessed by DOE, the state and EPA, only the last three are still under consideration.

- Take no action: build cells 1–5 as planned, and cap facility
- Install a pumped-well dewatering system
- Employ passive dewatering via horizontal wells
- Raise the floor of Cell 2 and future cells
- Restore NT-4, and divide EMWMF (cost = \$1.1 million)
- Dig a northern cutoff trench (cost = about \$7 million)
- Install an underdrain beneath Cell 3 (cost = \$1.5 million)

ORSSAB Releases Its *Oak Ridge Reservation Educational Resource Guide*

What bridge can take you to a thousand places, yet it doesn't cross any body of water and it cannot be walked on or driven over?

The DOE Information Bridge, of course. It's a great web site for researching environmental issues, and it's just one of dozens of internet sites listed in ORSSAB's new *Oak Ridge Reservation Educational Resource Guide*.

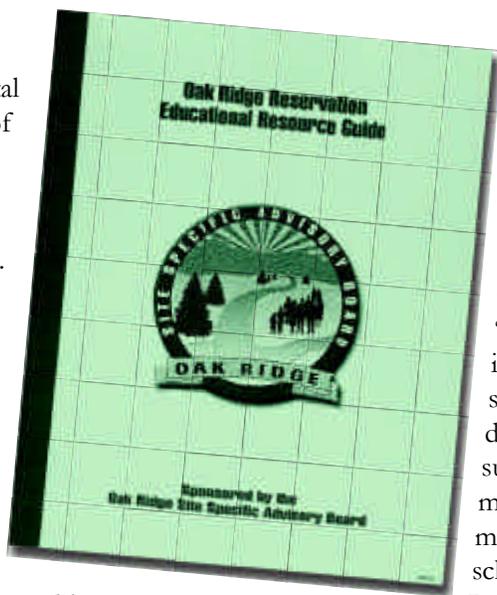
The 40-page *Educational Resource Guide* was designed for middle and high school teachers as a resource for teaching the legacy of waste generated and the scope of the environmental problems resulting from World War II and the Cold War. It's general enough, though, to be an invaluable resource for anyone interested in DOE's environmental cleanup program.

The guide includes:

- Contact information for local agencies and groups, such as DOE and ORSSAB
- A list of national resources, such as EPA and the Center for Environmental Management Information
- Information on local speaker's bureaus
- A list of reference documents
- Several fact sheets on environmental-related topics
- A list of videos in the ORSSAB video lending library (see sidebar)

The guide was published by the Education Subcommittee of the ORSSAB Stewardship Committee, with input from teachers, students, the general public, and ORSSAB

members. According to ORSSAB Secretary Donna Campbell, the two high school student representatives who sit on the board were integral to the production of the guide.



“The ORSSAB student representatives had an active role on the Education Subcommittee,” she said. “They were an invaluable source for determining the suitability of material for middle and high school students. In addition, they

reviewed and wrote summaries for many of the videos and web sites.”

The subcommittee's work isn't done with publication of the guide, though. A teaching resource kit is also in development. The kit, which will be finalized this fall, will contain a host of teaching aids for schools to use in developing environmental curricula.

A key element of the kit will be a stewardship map of the Oak Ridge Reservation, which will identify areas where radioactive and hazardous wastes will be left in place, extent of contaminated groundwater plumes, buffer zones and more. This information will aid future generations in maintaining stewardship of these areas.

The resource kit will also contain a variety of other materials, including a radiation resource kit developed by the National Safety Council and summaries of the *Oak Ridge Reservation Stakeholders Guide to Stewardship, Volumes*

1 and 2, which were published by ORSSAB in 1998 and 1999. The summaries were written last year by students from Oak Ridge and Roane County high schools.

Although the teaching resource kit is still some months away from completion, the *Educational Resource Guide* is available now to educators and anyone interested in environmental cleanup. The guide is available on the web at www.oakridge.doe.gov/em/ssab/publications; at the DOE Information Center, 241-4780; or by calling the ORSSAB support office at 576-1590 or 1-800-382-6938.

Check Out the ORSSAB Video Lending Library

A key element of ORSSAB's *Oak Ridge Reservation Educational Resource Guide* is a lending library of videos on environmental management topics. The videos are available at no charge to educators at the DOE Information Center, 475 Oak Ridge Turnpike (241-4780). Titles for each of the over 30 videos are supplied in the *Educational Resource Guide*, along with the run time and a short synopsis of each tape's contents. Videos are grouped into categories: history, environmental management, Oak Ridge facilities, waste management, radiation, environmental laws and regulations, risk, environmental justice, career opportunities, and other DOE facilities. Following is a sampling of titles:

- Building Bombs: The Legacy
- Environmental Management
- The History of K-25
- Bringing Science to Life
- Safety First: Transportation of Radioactive Materials

Recent Recommendations

ORSSAB Endorsement of the City of Oak Ridge's Application for Renewed Annual Assistance Payments Pursuant to the Atomic Energy Communities Act

The following recommendation was made by the Board to help address the ability of local governments to establish sustainable tax bases, implement economic self-sufficiency programs, and balance the socioeconomic inequities that will have to be borne by local governments that host DOE facilities. The recommendation was sent to Steve McCracken, DOE Assistant Manager for Environmental Management, on June 12, 2003.

In its meeting on Monday, April 7, 2003, the Oak Ridge City Council unanimously approved an action to send an application to the United States Secretary of Energy requesting renewed annual assistance payments.

Please be advised that the Oak Ridge Site Specific Advisory Board (ORSSAB) strongly supports this initiative. ORSSAB believes the restored annual assistance payments being requested by the Oak Ridge City Council are justified for the following reasons:

DOE Program Decisions Concerning Oak Ridge Reservation (ORR) Land Resources—Some fifteen years ago, DOE negotiated a lump-sum buy-out with the City of Oak Ridge and the two counties that host the ORR. The agreement suspended the payments in lieu of taxes (PILT) and annual assistance payments that were being made at that time. This agreement was predicated on a commitment from DOE to release a significant amount of ORR land to the City of Oak Ridge over a defined period of time as part of an economic self-sufficiency initiative. Although some parcels were subsequently transferred, much of the previously identified land has been

retained by DOE for its own uses, designated by the Environmental Management (EM) Program to be long-term storage locations for radioactive and/or chemically toxic wastes, or turned over by EM to other government agencies to be managed as wildlife refuge areas. Such actions by DOE limit the ability of local governments to establish a sustainable tax base, and have seriously impaired the implementation of the economic self-sufficiency program.

Equity Issues Associated with EM's Long-Term Storage Location Designations for Radioactive and/or Chemically Toxic Wastes—Ad hoc citizen's working groups, focus groups, and other local citizens have been organized by local DOE officials to formally review and comment on land use and on decision documents for long-term waste storage on the ORR. However, at no time have the citizens

of Oak Ridge been given an opportunity to reflect on the broader socioeconomic impacts associated with all of the DOE EM, Environmental Protection Agency Region IV, and Tennessee Department of Environment and Conservation waste management land-use decisions taken together. As a matter of practical reality, commercially productive uses for land that has been designated for long-term storage of radioactive and hazardous chemical wastes are, and will remain, quite limited.

Reinstatement of annual assistance payments would help balance the socioeconomic inequities that will have to be borne by local governments forced to serve as hosts for such facilities.

We appreciate your consideration of our request and look forward to receiving your written response.



Prior to the start of the April 9, 2003, ORSSAB meeting, a memorandum of understanding was signed between Bechtel Jacobs and Oak Ridge National Laboratory to facilitate technical cooperation between the two organizations on environmental management issues. Signing the memorandum are Bechtel Jacobs President Steve Liedle, left, and Laboratory Director Bill Madia. Witnessing, from left, are Gerald Boyd, DOE-Oak Ridge Manager, Donna Campbell, ORSSAB Secretary, and Dave Mosby, ORSSAB Chair.

Recommendation Concerning the DOE Action Memorandum for the Corehole 8 Plume Source (Tank W-1A) Removal Action at Oak Ridge National Laboratory

The ORSSAB Environmental Restoration Committee studied this topic and questioned why the removal action has not been completed since any delay in completing this action is not in keeping with the risk model. The Board agreed that it should send a recommendation to DOE to expedite completion of the removal action. The recommendation was sent to Steve McCracken, DOE Assistant Manager for Environmental Management, on June 12, 2003.

Background

Tank W-1A is in the North Tank Farm in the main plant area of Oak Ridge National Laboratory (ORNL). The tank was commissioned in 1951 and received liquid low-level waste (LLLW) from several buildings in the same vicinity. The tank was removed from service in 1986 due to suspected leaks in a transfer line to some of the buildings being serviced.

In June 1991, rock core drilling at Corehole 8, located southwest of Tank W-1A, revealed radiologically contaminated groundwater in the uppermost portion of the bedrock. Subsequent analysis and research indicated that leaks to backfill surrounding Tank W-1A were likely a contributing source to the contamination.

An engineering evaluation/cost analysis (EE/CA) issued in 1998 recommended that the tank and surrounding contaminated soils be excavated and removed under a non-time-critical removal action in order to address the source of the contaminants being released to groundwater in Central Bethel Valley and to reduce future releases of contaminants to First Creek. The

scope of the recommended action also included removal and transfer of liquid accumulated in Tank W-1A to the LLLW system, cutting and capping of all lines that tied to the tank, removal of the aboveground valve box, and backfilling of the excavated area. The recommended removal action was subsequently approved under an action memorandum.

The tank interior was cleaned and residual material transferred to the ORNL LLLW system in November 2000. During excavation of soil from around the tank, analytical results from grab samples of soil indicated that approximate 100 yd³ of remaining soil around the tank contained very high concentrations of transuranic (TRU) radionuclides. About 125 yd³ of TRU waste were packaged in 190 B-12 boxes and stored in the remotely handled (RH) storage bunkers. A proposed destination is the Nevada Test Site, providing the TRU waste meets the waste acceptance criteria.

The 100 yd³ of remaining soil and the tank were left in place due to the presence of the RH TRU waste, and because movement of the TRU-contaminated soil from around the tank, allowing tank removal, would have resulted in a high dose to workers. At this time, DOE decided to address the soil and tank at a later date. Precise coordinates of the soil were obtained; the area was covered with plastic and backfilled with clean soil. The tank and the TRU-contaminated soil discovered during this removal action are now scheduled to be addressed in a new action memorandum due to be started in December 2004 (Federal Facility Agreement Appendix E, 3 April 2003). A removal action report was written but was not accepted by the regulators [Tennessee Department of Environment and Conservation and Environmental Protection Agency (TDEC), Region 4].

Discussion

The ORSSAB Environmental Restoration Committee studied this remedial action as a regular agenda item. Mr. Charlie Mansfield of Bechtel Jacobs Company LLC presented an overview of the Corehole 8 project at the March 2003 committee meeting.

A number of issues revolve around this project. The original action memorandum mentioned TRU waste as a potential contaminate, but the action plan assumed that TRU would not be found. When TRU was found, work was stopped and the excavation was filled. This action was inconsistent with the approved action memorandum.

There was a scope in the original action memorandum, and we question why the removal action has not been completed. The Life Cycle Baseline needs to be sequenced to properly analyze downtown ORNL concurrently with the east and west ends.

The original regulatory objective for this action memorandum was to reduce contaminants entering First and White Oak creeks and lower health and environmental risks associated with release of contaminants. Any delay in completing this action is not in keeping with the risk model. TDEC has suggested that this removal action is not consistent with other actions in Bethel Valley, as specified in the Record of Decision. We agree because of the data gaps, especially with this project.

Recommendation

We recommend that DOE-Oak Ridge Operations Environmental Management expedite and complete the Action Memorandum for the Corehole 8 Plume Source (Tank W-1A) Removal Action at ORNL.

New DOE/Regulator Teams Get to the Core of Cleanup Issues

When members of eight core teams gathered at the Garden Plaza Hotel in Oak Ridge June 5 to deliver project updates, DOE management stressed that the meeting wasn't intended as an evaluation.

"This is the first time we've brought the core teams together, and it's important for you to tell us what we need to do," DOE-ORO Manager Gerald Boyd told participants. "Today is about knowing what we're doing and knowing what the problems are. We really do want candid discussion."

The gathering took place on the second day of the DOE-Regulators Environmental Program Council, attended by representatives of the Tennessee Department of Environment and Conservation (TDEC), the U.S. Environmental Protection Agency (EPA) Region 4, DOE's Oak Ridge office and DOE-Headquarters.

A core team is made up of representatives from DOE, TDEC and EPA who are dedicated to a particular project. Because each core team includes members from all three agencies, regulators are made aware of issues related to a project at the same time as DOE. This allows problems to be solved in "real-time," said independent meeting facilitator Gil Judson.

"This is not DOE versus the regulators, and it's not a complaint session," said Judson. "It's not that we don't want to hear the hardest, nastiest issues you're facing... but if we aren't candid, we won't put the issues on the table."

The eight existing core teams cover the East Tennessee Technology Park (ETTP) Accelerated Closure Remedial Action, the ETTP Decontamination and Decommissioning (D&D), Reindustrialization, Melton Valley

Closure Project, Bethel Valley Groundwater Engineering Study, Upper East Fork Poplar Creek Soils Record of Decision, Upper East Fork Poplar Creek Water Treatment Facility, and the Environmental Management Waste Management Facility Project.

Teams meet regularly until a project is closed out, with sub-teams formed to tackle issues on the site.

At the council meeting, members from all three agencies helped identify their team's purpose, objectives, and status of achieving those objectives. The meeting also gave those presenting updates an opportunity to seek support from the Council if needed. The teams, which began meeting regularly in January, had previously met jointly to provide an update at the Federal Facility Agreement managers meeting in March.

"Where we've seen core teams not perform is where the core team really was not made up of key decision-makers," said Rich Daley, DOE-Headquarters. "I'm really pleased to see the start you're making, and I really congratulate you on making this effort."

Bill Cahill, the DOE representative on the core team for D&D at ETTP, said his team has already seen results.

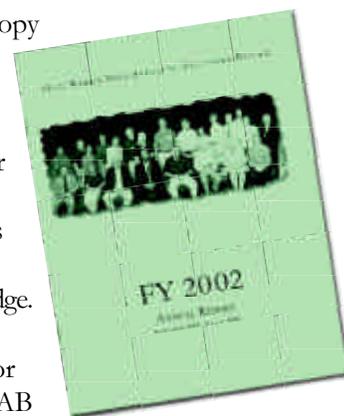
"We are at a point in time where there is some real work getting done in the field," said Cahill. "And the core teams are going to get us in the field with everybody owning a piece of the cleanup."

Steve McCracken, DOE's recently-appointed Assistant Manager for Environmental Management at Oak Ridge, said strides that can be made hinge on the core teams.

"The success of these core teams is going to affect the success of the work," said McCracken.

ORSSAB 2002 Annual Report Now Available

To get a copy of the ORSSAB Annual Report for FY 2002, just visit us online at www.oakridge.doe.gov/em/ssab or call the SSAB support office at (865) 576-1590 or 1-800-382-6938.



DOE Issuing Two Key Decision Documents for Cleanup of the East Tennessee Technology Park

On June 23, the *Action Memorandum for the Remaining Facilities Demolition Project at the East Tennessee Technology Park* (DOE/OR/01-2049&D1) was released to the public for a 30-day comment period, ending July 22.

The *Engineering Evaluation/Cost Analysis for Outdoor Low-Level Waste at the East*

Tennessee Technology Park (DOE/OR/01-2064&D1) is set for release to the public around the second week of July. It will also receive a 30-day public comment review.

For copies of the documents, contact the DOE Information Center, 475 Oak Ridge Turnpike (865-241-4780).

ORSSAB Welcomes New DDFO, Students Representatives



Steve McCracken was appointed to the position of Assistant Manager for Environmental Management at Oak Ridge in April 2003. He will also

serve as the ORSSAB Deputy Designated Federal Officer (DDFO).

Steve has served in numerous leadership positions at DOE, including Director of the Fernald Closure Project, Site Manager for the Formerly Utilized Remedial Action Program, Project Manager for the Weldon Spring Remedial Action Project, Executive Director of Environmental Management in Oak Ridge, and Acting Director of the Office of Site Operations in Washington, D.C.



Barbara Kosny is the ORSSAB student representative from Oak Ridge High School for the term May 2003–April 2004. She is the

co-founder and president of the Environmental Club in Oak Ridge and has participated in Envirothon—a national environmental science competition. She is also a member of the Technology Student Association, which is associated with Future Business Leaders of America. Barbara intends to study either environmental science or international relations in college.



Atur Sheth is the ORSSAB student representative from Farragut High School for the term May 2003–April 2004. Atur ranked third in his junior

class with a grade point average of

4.14. He is a member of the National Honor Society, Mu Alpha Theta, and the Science Honors Society. He has competed on the math team, the Science Olympiad, and the science bowl. Atur was selected to attend the Tennessee Governor's School for the

Sciences this summer. He has served as a docent at the Knoxville Museum of Art, assisted in the Farragut branch of the public library, and volunteered at the East Tennessee Baptist Hospital. Atur plans to pursue a career in medicine.

Three Retiring Members Recognized

Of the 56 people who have served on ORSSAB since its inception in 1995, only five have remained on the board for the entire 6 years of service allowed by ORSSAB bylaws. June 11 marked the last monthly board meeting for two of those five: Steve Kopp and Charles Washington. Jeanne Bonner also retired in June, having completed her 2-year term.

Steve and Charles have represented the board at many national meetings and conferences through the years. They have also been two of the most active participants in the board's public outreach program, each having given over two dozen presentations and briefings to local organizations, schools and elected officials.



Steve Kopp began his first term in September 1997. Throughout his tenure on the board, he served on numerous committees, often

serving on two or three at a time. He served as chair of the Public Outreach Committee in 1998 and 1999, as ORSSAB chair in 2000, as chair of the Waste Management Committee in 2001, and as vice chair of the Waste Management Committee in 2002. Steve is an attorney with more than 25 years of experience in the environmental, health, and safety regulatory field.



Charles Washington began his first term of service in June 1997. He served as vice chair of the Public Outreach

Committee in FY 2000, as vice chair of the Waste Management Committee in 2001 and 2003, and as chair of the Waste Management Committee in 2002. He was also a member of many other committees, including Executive, Health and Safety, Environmental Restoration, ETTP Reindustrialization and Remediation, and Stewardship.

Charles is a retired environmental engineer who holds B.S. and M.S. degrees in chemistry and has won numerous scientific awards and commendations, including Inventor of the Year and two Presidential Awards.



Jeanne Bonner served on the Waste Management Committee in FYs 2002 and 2003.

Jeanne is employed by UT-Battelle at Oak Ridge National Laboratory. She has a degree in chemical engineering and experience in facility D&D, radiochemical processing, hazardous waste operations, and emergency response.

Members of British Parliament Learn About Public Involvement from ORSSAB Officers

On May 23, ORSSAB officers Dave Mosby, Norman Mulvenon, and Donna Campbell met with two members of the United Kingdom's House of Commons and three representatives from Nirex—a U.K. organization set up by industry and government to examine safety, environmental, and economic aspects of deep geological disposal of radioactive waste.

The meeting took place as part of an all-day visit to the Oak Ridge Reservation by the British group. The purpose of their visit was to learn more about environmental management and how public involvement figures into decision-making.

In addition to the meeting with ORSSAB officers, the visitors toured various reservation sites and met with



ORSSAB officers (seated from left) Donna Campbell, Dave Mosby, and Norman Mulvenon at the May 23 meeting with the British delegation. Standing, from left, are John Mathieson, Nirex; Mark Tami, U.K. House of Commons; David Wild, Nirex; Thomas Watson, U.K. House of Commons; Benjamin Russell, Nirex.

elected officials and representatives of DOE-Oak Ridge.

“What impressed me,” said ORSSAB Secretary Donna Campbell, “was that

they very genuinely wanted to know how to get the public involved in cleanup. They wanted our opinions on how to get all parties involved in decision-making, and they were interested in how we handle controversy.”

One problem for the visitors, added Campbell, is that local governments in Britain tend to serve the same role that an SSAB might in the U.S. This may make establishing a citizens' group there difficult because it might be perceived as trying to usurp local governments' roles.

“It was interesting to me,” Campbell concluded, “to hear about these sort of cultural differences. I learned something from them, and I hope they learned something from us, too.”

**Oak Ridge Site Specific Advisory Board
P.O. Box 2001, EM-91
Oak Ridge, Tennessee 37831**

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