



NEWSLETTER

DECONTAMINATION DECOMMISSIONING AND REUTILIZATION DIVISION MAY 2004

NEWSLETTER CONTENTS

INTRODUCTORY INFORMATION

Chair's Message	Page 1
Meetings and Conferences	Page 2

GENERAL DD&R INFORMATION

Division Committee Meetings	Page 4
Membership Recruitment	Page 4
Membership Questionnaire	Page 4
Division Scholarship	Page 6
Awards and Honors	Page 6
Decommissioning Standards	Page 7
Site Cleanup and Restoration Standards	Page 8

DECOMMISSIONING PROJECTS

Saxton	Page 8
Rancho Seco	Page 10
Connecticut Yankee	Page 13
Yankee Rowe	Page 16
Maine Yankee	Page 18
Rocky Flats	Page 20
SONGS Unit 1	Page 23
Big Rock Point	Page 25
West Valley	Page 27
Trojan	Page 30
Fermi 1	Page 31
Hanford Decommissioning Projects Update	Page 32
Decommissioning in France	Page 36
Decommissioning in the United Kingdom	Page 38
RADWASTE SOLUTIONS Magazine	Page 40

CHAIR'S MESSAGE

Welcome to the American Nuclear Society's Decommissioning, Decontamination and Reutilization (DD&R) Division's Spring Newsletter.

We have an interesting agenda planned for the ANS Annual Meeting in Pittsburgh, Pa (June 13 –17, 2004). Our session on Monday afternoon will be look at how we are continuing to apply the lessons learned from the accident at TMI-2 25 years ago. This session is co-sponsored by the Operations & Power and Education & Training Divisions and will be chaired by Dr. Robert Long, past President of ANS and past Vice-President of TMI-2 during the TMI-2 Clean-up program. On Tuesday morning we will provide an update on the clearance of solid materials and Wednesday we will have sessions on Regulatory Interfaces in decommissioning, focusing on non-NRC interfaces, and a session on Hot Topics and Emerging Issues which will include an update on decommissioning activities in the United Kingdom. Details on this meeting are at <http://www.ans.org/meetings/annual/>.

CHAIR'S MESSAGE (Continued)

Over the next year, in addition to the 2004 ANS Annual Meeting in Pittsburgh, PA (June 13-17), DD&R will be sponsoring five sessions at the Winter Meeting in Washington, DC (November 14 - 18, 2004). Details on this meeting are at <http://www.ans.org/meetings/docs/2004/wm2004-cfp.pdf>. Paper summaries are due by June 11th for those of you interested in submitting a paper. Additionally in conjunction with the Colorado Local Section we are in the midst of planning a Topical Meeting in Denver, Colorado for August 7-11, 2005. The call for papers will be issued shortly. We are still looking for volunteers to help with the meeting. If interested please contact me at jbyrne@gpu.com or come to our planning meeting at the ANS Annual meeting which is scheduled for Tuesday June 15th from 4 to 6 PM in the Parkview West meeting room.

DD&R is also in the process implementing recommendations from our member's questionnaire. A summary of these actions are detailed elsewhere in this newsletter.

If you have any suggestions to improve how DD&R supports its members please e-mail me, jbyrne@gpu.com. We are always looking for input from our members to improve how the Division operates.

Jim Byrne

MEETINGS AND CONFERENCES

ANS 2004 Annual Meeting “ A Golden Anniversary – A Golden Opportunity” in Pittsburgh, PA – June 13-17, 2004

ANS will be celebrating its 50th anniversary at the Annual Meeting. In addition, 2004 is the 25th anniversary of the TMI-2 Accident. DD&R will be supporting the conference theme with several sessions. There are four sessions planned with the organizers noted as follows:

- ✓ TMI-2: 25 Years After the Accident – What Are the Lessons We Need to Remember?
 - Organizer – Jim Byrne
- ✓ Regulatory Interfaces
 - Organizer – Tracy Goble
- ✓ Clearance of Solid Materials: Federal and Industry Update
 - Organizer: Jas Devgun/Art Desrosiers
- ✓ Hot Topics and Emerging Issues
 - Organizer: Joe Carignan

For meeting information, go to the web page for information and registration [ANS Annual Meeting](#)

Spectrum 2004 “Closure of Cold War Legacy Sites” in Atlanta, GA – August 22-26, 2004 – *Canceled*

Spectrum 2004, co-sponsored by DD&R was planned to be an international conference intended to highlight the technical challenge and successes involved in closing cold war legacy sites and reducing public risk. The meeting was canceled due to a low number of abstracts submitted coupled with a lack of support provided to Savannah River, the hosting local section.

MEETINGS AND CONFERENCES (Continued)

ANS 2004 Winter Meeting “ Leadership Toward a Progressive, Integrated Nuclear Community – Going Forward Together”, November 14-18, 2004 Washington, D.C. Omni Shoreham

2005 ANS Topical Meeting on Decommissioning, Decontamination and Reutilization in Denver, Colorado, August 7-11, 2005 –

Co-Sponsored by the DD&R and FCWM. The program will include commercial, government, and international project updates and technology developments in the areas of decommissioning, waste management, site closure and legacy management. In addition to a comprehensive technical program, there will be technical tours and numerous fun activities and opportunities for attendees and guests to enjoy this incredible mountain vacation destination.

PAST MEETINGS

14th Pacific Basin Nuclear Conference and Technology Exhibit “New Technologies for a New Era” March 21-25, 2004, in Honolulu, Hawaii

DD&R organized the Decommissioning of Nuclear Facilities Session. The session organizer was Jim Rang. Session Chairs were Tom LaGuardia and Takeshi Ishikura. A summary of the papers presented follows:

1. “A Brief History of Early Decommissioned Reactors.” Presented by Tom LaGuardia of TLG Services, Inc.
2. “Technology Development for Commercial Nuclear Power Plant Decommissioning,” presented by Takeshi Ishikura of Nuclear Power Engineering Corporation (NUPEC)
3. “EPRI Decommissioning Program Overview,” presented by Chris Wood of EPRI.
4. “Removal of Uranium Compounds from Metallic Wastes Generated by Dismantling a Uranium Conversion Plant,” presented by W. K. Choi of the Korea Atomic Energy Research Institute.

2003 ANS/ENS International Winter Meeting and Nuclear Technology Expo in New Orleans, LA – November 9-13, 2003

DD&R supported the meeting theme of “Nuclear Science and Technology: Meeting the Global Industrial and R&D Challenges of the 21st Century” with 4 panel sessions and 1 paper/panel session in Track 5 “Decommissioning and Reutilization.

- Nuclear Cleanup in the Former Soviet Union – Panel
- Research Reactors and Other Small Nuclear Facility Decommissioning-I: Projects – Papers/Panel
- Research Reactors and Other Small Nuclear Facility Decommissioning-II: Technology – Panel
- Dose Modeling and Final Status Survey for Decommissioning-I – Panel
- Dose Modeling and Final Status Survey for Decommissioning-II – Panel

DIVISION COMMITTEE MEETINGS

DD&R Division meetings are open to all members of the division. If you are in Pittsburgh for the ANS Annual Meeting please stop in, we would like to meet you. The schedule and location of all of the DD&R Division Committee Meeting are provided below.

Sunday June 13, 2004 1:00 – 3:00 PM – Program Committee (Allegheny)

Sunday June 13, 2004 3:00 – 5:30 PM – Executive Committee (Allegheny)

Tuesday June 15, 2004 7:00-8:30 AM- ANS-23 DD&R Standards Subcommittee (Vandergrift)

Tuesday June 15, 2004 4:00 – 6:00 PM - DD&R 2005 Topical Meeting Planning (Parkview West)

MEMBERSHIP RECRUITMENT

Pssst....hey, are you an ANS-DD&R Division member ? WHY NOT!? Let your membership expire huh? It costs too much huh? You don't have the time huh?! Now more than ever you really **can't** afford not to be in ANS-DD&R. The DD&R website visitors get a really great information chocked newsletter, reduced registration fees at ANS meetings, a reduced rate for RadWaste Solutions magazine plus you get over 1000 colleagues to network with and to talk 'decommissioning shop' with at the ANS semi-annual meetings and embedded topical meetings. When you break it all down - it only costs you about \$2 per week – about as inexpensive as your Sunday newspaper. Come on look at the value added by networking in and participating in the leading nuclear technical society that has a full division in the field of Decommissioning. If you don't start learning about what's going on in this important field – your competitor will – or probably already does and is working an angle on leveraging that knowledge already. Join the ANS-DD&R Division today or if you are already a member recruit a colleague or any friend – trust me – you'll like this group. Nobody gets left behind.

MEMBERSHIP QUESTIONNAIRE

You may recall that the DD&R division developed a questionnaire for the division members and solicited their input via various avenues in 2003. The Executive Board has reviewed the results and the comments and suggestions from our members to improve and further develop the division and further build upon the value added in division membership. We had responses from over 230 members (about 20% of DD&R members) and based upon the results have developed several action items. We are pleased to report that we have already made significant progress in implementing many of these improvements. Check out the expanded DDR website <http://ddrd.ans.org> to get a great overview of what the DD&R is all about. The survey results are posted there too. Below is a brief summary of some of the action items from the survey:

1. Aggressively Market 'Value Added' Aspects of DD&R – It was noted from the results of the survey that, as a division, we really were not as visible nor did ANS members really understand or appreciate the value of the division. Therefore, we are undertaking a number of actions to address this concern:

MEMBERSHIP QUESTIONNAIRE (Continued)

- DD&R will do some advertising to broaden its membership base and draw in additional members.
 - Encourage companies to participate in the on-going ANL Decommissioning Training Course held about two times a year. TLG, Duratek, Bartlett Services, FENOC, Scientech/NES and others have been or are providing this support.
 - We have developed flyers describing the DD&R Division and are providing them to conferences with possible candidates for DD&R membership. Conferences include: Waste Management Conference (Tucson), ICONE, ANL D&D Training Course and the Health Physics Society conferences among others.
 - In the future, the DD&R newsletter will be available in its entirety to only DD&R members and only in a very limited form to all others. This will strongly encourage those in the DD&R field to join and actively support our division. This newsletter is an ‘information packed’ update of the status of on-going D&D activities and is valuable to members.
 - DD&R is in the process of establishing and implementing an awards program beginning in 2005 intended to recognize companies and individuals who have made a significant contribution to the DD&R topical area.
2. Opportunity for Additional Involvement in DD&R Activities - A number of personnel who completed the questionnaire were interested in becoming more involved in the DD&R Division of ANS. This is an on-going activity and already, a number of these individuals have already been contacted and are now actively involved in DD&R activities including organizing meeting sessions, chairing meeting sessions and actively participating in committee activities. Typically - while these activities do involve time and effort – they are also very rewarding, offering a great way to get involved and allowing for good networking as well.
 3. Opportunity for an Interactive Forum for DD&R Topics - A ‘members only’ DD&R area / interactive directory is in development and will be available for use by those DD&R members wishing to be included in the directory and who wish to use the forum. This will facilitate networking and sharing of information between projects and personnel. Again - this area would be available to only DD&R members.
 4. Expand the International Coverage in our Newsletter - Plans are underway to expand the newsletter by including more in our international section describing projects other than those in the U.S. as part of future DD&R newsletters. We have had some activities in the UK and IAEA reported in the past newsletters – but we would really like to add still more from these areas and other countries.

These are the areas we have identified for action from the survey. The Division Chair encourages those with an interest in getting involved to contact him directly or any member of the Executive Committee for that matter.

DIVISION SCHOLARSHIP

The 2004 winner of the DD&R Undergraduate Scholarship is Jennifer Michelle Cole who is currently (Spring, 2004) completing her junior year in the Nuclear and Radiological Engineering program at the University of Tennessee at Knoxville.

Among her many honors and achievements, Jennifer was chosen to attend the Washington Internships for Students of Engineering for the summer of 2003. In that program she was sponsored by the American Nuclear Society and worked for 10 weeks at the Nuclear Energy Institute where she developed a research paper on “The Logistics and Transportation of Spent Fuel.”

Jennifer has also participated in the North American-Young Generation in Nuclear program; is a member of the Society of Women Engineers; is a member of Women in Nuclear; and serves as a Student Ambassador for the U of Tennessee’s Office of Cooperative Engineering and Professional Practice.

Other honors she has received include the Pasqua Nuclear Engineering Scholarship, the Hughes Hall Memorial Scholarship, and a National Academy for Nuclear Training Scholarship.

As a cooperative engineering education student, Jennifer has spent 3 semesters with Southern Nuclear Company working at Plant Vogtle with the reactor engineers in plant testing, monitoring, and trending.

Concerning her future, Jennifer says, “I feel very excited about my future plans, as I see many prospects to work as a nuclear engineer in various job positions and locations. I see nuclear technology continuing to expand, and I am eager to be an active part of its job force in the near future.” We in the DD & R Division extend our best wishes to Jennifer as she completes her final year at the University of Tennessee.

Details on the DD&R Scholarship, as well as other ANS scholarships, can be found on the scholarship link to the ANS web site. The address is <http://www.ans.org/honors/scholarships/>. The DD&R Scholarship provides a stipend of \$2,000. In addition, the Division provides travel support (transportation, lodging, and per diem) for the student scholar to attend both the annual and the winter meetings of the ANS.

AWARDS AND HONORS

During the June 2004 Executive Committee meeting, the DD & R Division Honors & Awards Committee, chaired by Carl Mazzola of Shaw Environmental Inc., will be awarding **Eric Schmieman** a Best Panel award and **Ralph Royce** a Best Paper award for their excellent contributions at the DD & R Division-sponsored November 2003 Winter Meeting in New Orleans, LA. Eric was a panelist in the Nuclear Clean-Up in the Former Soviet Union session, while Ralph presented his paper in the Research Reactor and Other Small Nuclear Facility Decommissioning – Technology session. These best panel and best paper selections were based on the evaluation of numerical feedback received from the audiences at all of the DD & R Division-sponsored sessions at the Winter Meeting. We extend an invitation to Eric and Ralph to attend the upcoming DD & R Division Executive Committee meeting on Sunday, June 13, 2004 at 3:00 p.m. in Pittsburgh, PA, so that we can present their awards to them.

AWARDS AND HONORS (Continued)

For the second consecutive year, the DD & R Honors & Awards Committee presented best paper and best panel awards at DD & R-related sessions of Waste Management 2004 in Tucson, AZ. **Dr. Friedrich-Wilhelm Bach** was the recipient of the Best Poster award, while **Thomas Kluth** received the Best Paper award. The basis for these selections was through a 3-member Subcommittee of the DD & R Division Honors & Awards Committee that attended the DD & R-related sessions at the Waste Management conference and performed the paper and poster evaluations. The DD & R Division is committed to continue this practice for all future annual Waste Management conferences.

DECOMMISSIONING STANDARDS

The following provides information about the latest on the ANS Decommissioning and Site Remediation Standards.

3.12.1 - Defueled Security Plan – The Department of Homeland Security (DHS) and the NRC have earmarked this "postponed" standard to combine it with Emergency Planning and involve ANS to work with DHS and the NRC to elevate the focus of security on decommissioned sites. Special attention will be given to onsite spent fuel storage. The end product of such a standard may be different from the originally intended focus.

3.12.2 - Decommissioning of Nuclear Production and Utilization Facilities: Defueled Safety Analysis and Emergency Plan - A second draft is earmarked for May 2004. This version will then be sent to reviewers for another round of comments.

3.12.3 - Decommissioning of Nuclear Production and Utilization Facilities: Operator Training. A final draft is earmarked for May 2004. This version will then be sent to the ANS Standards Administrator for issuance to the NFSC for review and approval.

41.5 - Validation of Data from Radiological Analyses for Use in Environmental Remediation: A final draft is still projected for the end of April 2004. This version will then be sent to the ANS Standards Administrator for issuance to the NFSC for review and approval.

41.6 & 41.7 - These standards are nearly complete. The NRC is still considering converting these two standards from prescriptive standards to performance-based standards. Discussions continue on this decision. An answer is expected by the ANS Nov meeting

Standards that provide a "dose approach" to site remediation standards including the consideration of developing a standard on Automated Survey Scanning Technology for Site Characterization still appears to be needed. In conjunction, new topics with identified Working Group Chairs are still earmarked with topics of consideration in legacy management. The DD&R Division's input is needed.

The ANS NFSC is still looking for ways to expand the development of ANS standards as joint US/International standards. The US Nuclear Technical Advisory Group (NTAG) still needs volunteer experts to develop and maintain international standards on nuclear fuel technology, radiation protection, and radiation processing. Efforts to identify additional technical experts in support of this effort are ongoing.

SITE CLEANUP AND RESTORATION STANDARDS

SCRS Activities - ANS Special Committee on Site Cleanup and Restoration Standards (SCRS) is currently working on a draft ANS Position Statement related to cleanup following a potential Radiological Dispersion Device (RDD) event. In the post 9/11 era, a significant effort in various organizations is directed on prevention, response and recovery issues related to Radiological Dispersion Devices (RDD). This ANS Position Statement will focus on the site cleanup issues.

Upcoming - A special panel session will be held on clearance issues at the 2004 ANS Annual Meeting in Pittsburgh (June 14-17, 2004). The session is sponsored by the DD&R Division and is entitled "Clearance of Solid Materials: Federal and Industry Update". It is scheduled for Tuesday, June 15, 2004 at 8:30 AM. The panel will have representatives from Federal agencies, nuclear industry and the CRCPD.

ICEM 05 - Planning is currently underway for ICEM 05. D&D Track will have a strong program at the meeting since it is a joint ICEM 05/ DECOM 05 conference. The conference is scheduled for September 4-8, 2005 in Glasgow, Scotland.

D&D at Waste Management 04 - Waste Management 04 was held at Tucson, AZ, February 29 – March 4, 2004. This 30th symposium attracted approximately two thousand scientists, engineers, government officials, academic leaders, and corporate managers from the United States and over thirty foreign countries.

The D&D track at WM 04 had an extensive program with seven oral sessions, one poster session, and approximately 70 papers. A panel session very early in the program focused on Common Approaches to Decommissioning – A Very National Issue. With panelists from UK, France, OECD/NEA/Italy, and the United States, the session generated a very lively discussion at the meeting.

Of specific interest to note is the fact that EDF in France is planning to start building new power reactors by 2015 at a rate of one a year to replace the reactors that they plan to retire. The D&D of the retired reactors is planned. It is also worth noting that the Nuclear Decommissioning Authority (NDA) comes into being in 2005 in the UK and all decommissioning projects in UK will be under its authority.

SAXTON DECOMMISSIONING UPDATE

Since publication of the last newsletter Saxton has completed backfilling the Containment Vessel (CV) to about 5 feet below the existing grade. Following completion of the backfill the CV dome was removed as seen in the following photo and the cylindrical shell has been removed to 5 feet below grade. We are now in the process of completing remediation of the CV excavation and will begin backfill shortly.

Remaining work at Saxton includes some soil remediation and completion of the Final Status Survey for the remainder of the site including the footprint of the previously demolished fossil station located next to the nuclear facility.

SAXTON DECOMMISSIONING UPDATE (Continued)



Containment Vessel Dome Removal

SAXTON DECOMMISSIONING UPDATE (Continued)



Saxton was designated an American Nuclear Society Nuclear Historic Landmark and was presented a plaque by ANS President Larry Foulke at an awards ceremony on March 4, 2004. This photo of the awards ceremony also shows the backfilled disc of the CV

RANCHO SECO DECOMMISSIONING UPDATE

Large Components – The cut-up of the vessel head was completed in January. Cut into five pieces, the head was shipped and disposed of for significantly less than an intact shipment in standard SeaLand vans. The pressurizer is packaged for late April shipment to Envirocare. The steam generators should go to Envirocare by rail in 2005 but will require cutting in half. Steam Generator penetration closures are being installed and the necessary transportation exemptions should arrive soon. Preparations are in progress for wire cutting through the middle of the tube bundle and for the caps that will be welded to the shell. Detailed characterization of the vessel and internals is complete. Contract negotiation is in progress with a vendor team for vessel internals segmentation. The current plan calls for vessel segmentation as well.

RANCHO SECO DECOMMISSIONING UPDATE (Continued)

Spent Fuel Pool – Liner removal is near complete by use of a milling apparatus that cuts the welds between panels and wall embeds. The transfer tube liners have been removed. Covers have been welded on the reactor side to allow filling for vessel internals removal. Planning for soil sampling under the pool is in progress.

System Dismantlement - System dismantlement continues in the Auxiliary and Reactor Buildings. Auxiliary Building work includes remaining ventilation systems and electrical systems in contaminated areas and general area preparation for characterization surveys. Planning is in progress for embedded piping decontamination. Structural steel and electrical systems continue to be removed in the Reactor Building.

Outside Components – All contaminated tanks have been removed and preparation has begun for underground piping removal. Surface areas have been marked and surveyed and asphalt removal is in progress. Contaminated soil is being removed in areas where component leakage occurred.

License Termination Plan – Work has begun on the LTP. The initial meeting with the NRC is scheduled for April 28th. Characterization work is ongoing to support the LTP.

Site Re-Powering – Construction is in progress for a 500 MW natural gas fired plant on utility property south of the current security fence. The plant will make use of the switchyard and site water supply and should come on line in the summer of 2005.



Reactor Vessel Head on Vessel after 1st Cut

RANCHO SECO DECOMMISSIONING UPDATE (Continued)



Reactor Head Pieces



Pressurizer Removal

RANCHO SECO DECOMMISSIONING UPDATE (Continued)



Removing the Pressurizer

CONNECTICUT YANKEE DECOMMISSIONING UPDATE

Decommissioning - Connecticut Yankee is making excellent progress in the decommissioning effort at the Haddam Neck Nuclear Power Plant. Physical decommissioning is currently scheduled to be completed by the end of 2006.

The plant's 800-ton reactor pressure vessel (RPV) package was successfully removed from containment in November 2003 and shipped by barge to the Barnwell low-level radioactive disposal facility in South Carolina. The reactor vessel departed the site via the Connecticut River on December 18th after several weather related delays and arrived at the disposal facility on January 6, 2004. The discharge canal and the Connecticut River channel were dredged prior to shipment to support the RPV transport.

CONNECTICUT YANKEE DECOMMISSIONING UPDATE (Continued)



Placing the RPV in the Lower Section of the Shipping Container

CONNECTICUT YANKEE DECOMMISSIONING UPDATE (Continued)



RPV shipment on the Connecticut River

A building demolition RFP was issued on January 13, 2004. Contractor selection is scheduled for May 2004. Equipment and components are being removed from several buildings in preparation for turnover to the demolition contractor to facilitate the commencement of demolition this spring. Equipment is currently being removed from containment in preparation for surveys in this structure later in 2004. Since the fall of 2003, more than 9 million pounds of waste has been shipped (excluding large components, such as the reactor vessel).

CY's site closure team is working with regulators to establish clean-up criteria and develop procedures for performing radiological and chemical characterization of buildings prior to turnover to the demolition contractor. Integrated Site Closure activities continue with focus on groundwater characterization and monitoring, final status survey of miscellaneous land areas, and RCRA Corrective Action Program implementations. Remediation of lead-contaminated soil from the shooting range is planned for the spring of 2004. CY's License Termination Plan was approved by the NRC in October 2003 after a multi-year public process, including a formal hearing. CY is currently drafting the permits needed to remove the intake structure and add a new barge mooring in the discharge canal.

CONNECTICUT YANKEE DECOMMISSIONING UPDATE (Continued)

Dry Fuel Storage - Four dry fuel runs were conducted prior to the start of the first transfer activity in April 2004. The first Vertical Concrete Cask (VCC), containing GTCC waste, was placed on the ISFSI pad on April 20, 2004. The second VCC will contain GTCC waste. The following 40 VCC's will contain spent fuel and the final VCC will contain GTCC waste. A second fuel transfer cask will be added to the fuel loading process this spring to allow simultaneous fuel canister processing. The fuel transfer project is scheduled to be completed in the first quarter of 2005. The NRC has approved an exemption to increase allowed drying times between cool down cycles during fuel loading and to allow the use of stainless steel inserts in the control rod cluster dashpots to remove water.

YANKEE ROWE DECOMMISSIONING UPDATE

Decommissioning - Yankee Rowe is nearing the end of decommissioning with the final stages of dismantlement of all above-grade structures scheduled to be completed by the end of 2004. Demolition of secondary side buildings and structures, including the Turbine Building, was completed in December of 2003. The turbine pedestal was imploded prior to demolition of the Turbine Building. The Vapor Container is in the process of being dismantled and is scheduled to be completed by the end of June 2004. The Horton Sphere is being cut into sections and shipped to Envirocare. Explosive devices will be used to soften the support structure to facilitate demolition.



Turbine Building Demolition

CONNECTICUT YANKEE DECOMMISSIONING UPDATE (Continued)



Vapor Containment Dismantlement

Yankee issued its Site Closure Project Plan (SCPP) for non-radiological site closure efforts in October 2003. The SCPP is integrated with the License Termination Plan, which was submitted to the NRC in November 2003. The two Plans capture the final requirements and processes for releasing the site. Both Plans were provided to Yankee Rowe's public and regulatory stakeholders for review prior to finalization and are available on Yankee's website at www.yankee.com.

Physical dismantlement of the plant is scheduled to be completed in June 2005 and the site ready for reuse by January 2006.

Transfer to Dry Fuel Storage Complete - Yankee Rowe successfully completed the transfer from wet to dry fuel storage in June 2003. The Spent Fuel Pool will be dismantled in 2004.

MAINE YANKEE DECOMMISSIONING UPDATE

Maine Yankee's decommissioning project began in 1997 and is scheduled to be finished by mid-2005. The project is about 86 percent complete and progressing rapidly. Transfer of fuel to the Independent Spent Fuel Storage Installation (ISFSI) was completed in February. Key challenges ahead are to demolish remaining plant structures, complete waste shipments, complete final status surveys, reduce the land under the Nuclear Regulatory Commission license to the ISFSI and complete the transition from a decommissioning project to a stand-alone ISFSI.

Safety on the project remains strong with over 5 million hours worked and no lost time accidents since May 2002. In the area of radiological dose to workers we expect to finish the project for less than half the NRC limit of 1115 person-Rem. There are now fewer than 280 workers on site.

Major decommissioning milestones since last fall's update include: removal of the neutron shield tank and completion of interior containment demolition; completion of four of nine 75' high rectangles being cut into the exterior of containment in preparation for its demolition; demolition of the 175' tall primary vent stack; and backfill of the plant's former discharge area known as the forebay, where it is hoped a saltwater upland marsh will become established.



Interior Containment Remediation

MAINE YANKEE DECOMMISSIONING UPDATE (Continued)

With fuel stored at the ISFSI, remaining activities include: discharging water and cleaning the fuel pool in preparation for demolition of the fuel building; demolition of the primary auxiliary building; cutting the remaining rectangles in the exterior of containment to prepare for explosive demolition in early fall; soil remediation; final status surveys; and waste shipments, primarily by rail. About 195 million pounds of waste has been shipped from the site, which is about 63 percent of the expected total.



Exterior Containment Demolition

For additional information, please contact Maine Yankee Public and Government Affairs Director Eric Howes at howese@myapc.com or (207) 882-5875.

ROCKY FLATS DECOMMISSIONING UPDATE

Kaiser-Hill made substantial progress in 2003 toward safely closing the Rocky Flats Environmental Technology Site, including eliminating several of the most pressing risks to 2006 closure. Overall the total project is more than 80 percent complete and ahead of schedule and under budget.

The Rocky Flats' skyline changed more than any previous year as the project demolished 135 structures and buildings in 2003. To date 430 of 805 structures have been safely removed.

Building 865, a former metallurgical research laboratory, proved to be a challenging demolition project due to significant amounts of beryllium and uranium permeating cracks in the floors and walls. After decontaminating the walls as much as possible using stringent work controls, remaining contamination was encapsulated with fixative and the building safely demolished.



After decontaminating the building as much as possible, Rocky Flats workers encapsulated contamination trapped within cracks in ceilings and floors with fixative and safely demolished the building.

The Kaiser-Hill team also successfully completed the milestone cleanup of the 903 Pad, the site's largest and most complex environmental cleanup project to date. Drums containing plutonium and uranium-contaminated cutting oils were stored outdoors at the 903 Pad between 1958 and 1967, some of which leaked radioactive solutions into the soil. The cleanup required removing more than 32,000 tons of contaminated soil and asphalt.

ROCKY FLATS DECOMMISSIONING UPDATE (Continued)



More than 32,000 tons of contaminated soil and asphalt were removed during the 903 Pad Cleanup

Building 771, dubbed the “most dangerous building in America” by *ABC Nightline* in 1994, is scheduled for demolition this summer. The decommissioning effort for this 175,000-square-foot plutonium recovery facility involved draining thousands of liters of plutonium liquids and removing hundreds of highly contaminated tanks and gloveboxes and miles of pipe and ducting. Workers are currently completing the final decontamination in preparation for demolition.



Once home to thousands of liters of plutonium liquids, gloveboxes, tanks, and processing systems, B771 decontamination is nearly complete and demolition is scheduled for this summer.

ROCKY FLATS DECOMMISSIONING UPDATE (Continued)

Rocky Flats continued to ship more radioactive waste for disposal than any other cleanup site in the country. During 2003 Kaiser-Hill disposed of 94,000 cubic meters of radioactive waste, an increase of 230 percent compared to 2002 and more than the total shipped from 1995 through 2002. More than 9,000 waste shipments left the site, or one every 15 minutes. Those numbers are expected to increase dramatically in 2004 as more major facilities are demolished.



The 150 Ton Sutton press removed from B865 is the largest single waste shipment Rocky Flats has sent for disposal. The press was originally used for machining operations in the former metallurgical research lab.

SAN ONOFRE UNIT 1 DECOMMISSIONING UPDATE

The following update describes the San Onofre Nuclear Generating Station Unit 1 (SONGS 1) Decommissioning Project activities since the last Newsletter in October 2003. After the successful commencement of transfer of fuel from the Unit 3 spent fuel building to the ISFSI, the project focused its attention on three specific areas:

- Completing fuel movement from Unit 3,
- Modifying the Unit 1 spent fuel building and gantry crane to support the movement of SONGS 1 fuel to the ISFSI, and
- Demolishing the Sphere Enclosure Building (block removal), the concrete structure built around the SONGS 1 containment sphere.

Fuel Movement to the Independent Spent Fuel Storage Installation (ISFSI) - The fifth and final SCE-fabricated dry shielded canister of Unit 1 fuel from the Unit 3 spent fuel pool was successfully inserted into an Advanced Horizontal Storage Module on the SONGS Independent Spent Fuel Storage Installation on January 3, 2004. Each filled fuel canister contains 24 fuel assemblies and weighs approximately 80,000 lbs.



Fuel movement of Unit 1 spent fuel from Unit 1 to the ISFSI

SAN ONOFRE UNIT 1 DECOMMISSIONING UPDATE (Continued)

Preparations for SONGS 1 Fuel Movement to the ISFSI - Unit 1 spent fuel continues to be stored in both the Unit 1 and Unit 2 spent fuel pools as the Unit 1 spent fuel pool was not large enough to store all the unit's fuel. The sequence will be to transfer the Unit 1 spent fuel assemblies (9 canisters) first from the Unit 1 Spent Fuel Pool scheduled to begin in early May 2004 followed by the Unit 1 fuel stored in Unit 2 (2 canisters).

Sphere Enclosure Building (SEB) Demolition - The SEB is the 105 feet tall, 145 feet diameter, 36-inch thick steel reinforced concrete building that was built around the Unit 1 containment sphere to provide additional shielding in the event of an accident and is referred to as the Sphere Enclosure Building. The roof of this structure had been previously removed for the Large Component Removal project. On February 3, 2004, the project completed the Sphere Enclosure Building wall block cutting and interference removal work that was in close proximity to the SONGS 1 fuel storage building. The work consisted of diamond wire cutting 251 blocks each weighing approximately 18,000 pounds and crane lowering them to the ground. This represented about 18% of the SEB by weight. The remaining SEB will be removed by more traditional demolition techniques in the next phase of the project.



Demolition/Removal of Sphere Enclosure Bldg
By Conventional Means



Containment Sphere Demolition

Looking Ahead - During the next twelve months, the project will focus on completing the following decommissioning activities:

- Fuel movement of Unit 1 spent fuel from Unit 1 to the ISFSI
- Demolishing and removing the Sphere Enclosure Building by conventional means
- Containment Sphere demolition

BIG ROCK POINT DECOMMISSIONING UPDATE

The safe shipment and disposal of the steam drum and reactor vessel to Utah and South Carolina, respectively, marked major milestones completed at Big Rock Point in 2003.



BNFL, Consumers Energy, and train employees pose in front of the reactor vessel shipping container after its arrival in Barnwell, SC.



The Steam Drum at the start of its journey from Michigan to Utah.

BIG ROCK POINT DECOMMISSIONING UPDATE (Continued)

While the above events received intense media coverage, many less obvious, but equally important projects were also completed last year.

“While 2003 was a year filled with significant accomplishments, 2004 contains important milestones that will literally change the landscape of our property,” said Kurt Haas, site general manager. “When we accomplish these goals we will be within months of meeting our mission of returning the site to a green field.”

In addition to the reactor vessel and steam drum shipments, other major 2003 accomplishments were:

Completion of the dry fuel storage project. A total of 441 fuel bundles and other equipment were safely loaded into 8 storage canisters that now reside at the plant’s dry fuel storage facility. This accomplishment basically transformed the majority of the plant site from a nuclear power facility into an industrial deconstruction site.

The 49,600-pound reactor head was packaged and safely shipped to a disposal site in Utah.

The spent fuel pool was emptied of equipment, storage racks, and then the 120,000 gallons of water that was once used to cool spent fuel.

The former maintenance building was demolished.

The plant’s License Termination Plan, which describes how the site will be returned to green field status, was submitted to the U.S. Nuclear Regulatory Commission.

More than \$100,000 worth of decommissioning equipment was sold to other plants, helping keep a plant commitment to manage funds wisely.

Views along the U.S. 31 corridor outside the plant were preserved through a cooperative effort with the Little Traverse Conservancy.

Big Rock Point’s world-class decommissioning effort continued to be recognized as nuclear experts from Spain, the United Kingdom, Italy, and the Yucca Mountain project, as well as the chairman of Michigan’s Senate Technology and Energy committee visited the plant last year.

Among the major projects scheduled for 2004 are:

Administration Building demolition – This building was part of the original construction of the plant and contained the control room, office space, and the chemical and instrument laboratories.

Service Building demolition – This building was added in the 1970’s when additional office space was needed as the Big Rock Point workforce grew. It is attached to the front of the Administration Building and once held the offices for senior plant management.

BIG ROCK POINT DECOMMISSIONING UPDATE (Continued)

Turbine Building demolition – This building once housed the plant’s 75-megawatt General Electric turbine, condenser, reactor feed pumps and other equipment. All of the equipment has been removed over the past few years.

Screenhouse demolition – Water used to provide cooling to various equipment during plant operation was drawn from Lake Michigan using pumps located in this structure. The plant’s emergency diesel generator was also once located here. The warm water discharge canal located next to this building was a prime fishing location for many years for area residents.

Stack demolition – The plant’s trademark red and white stack will come down this year. The 240-foot tall structure will no longer be available for area boaters to use as a navigational tool as has been done for the past 42 years.

WEST VALLEY DEMONSTRATION PROJECT UPDATE

The West Valley Demonstration Project (WVDP) is a U.S. Department of Energy-led radioactive waste management and environmental cleanup project located in Western New York State. It was the location of the nation’s only operational commercial spent nuclear fuel reprocessing facility. The Project is managed by West Valley Nuclear Services Company (WVNSCO), a member of Washington Group International’s Energy & Environment division, and is owned by New York State. The Project’s current focus is decontamination activities.

West Valley Receives Safety Award - Employees of the West Valley Demonstration Project achieved one year without a lost-time work accident and 1 million consecutive safe work hours in late 2003. Parent company Washington Group International awarded WVNSCO a President’s Award for Safety for exemplary performance. This was the second time the WVNSCO received the award from the corporation.

First Dismantlement of a Vitrification Cell – The WVDP was the first in the nation to successfully complete a high-level waste vitrification program in 2002. It is also the first Project to begin dismantling a vitrification cell containing the process’ major components, including the vitrification melter. WVNSCO has deployed state-of-the-art equipment to size reduce the many components contained in the cell for packaging and disposal. The Mega-Tech[®] shear, a pipe cutting tool, was modified to facilitate remote use with the addition of an enlarged lift bail for crane engagement and a centering device to aid operators in alignment. The Brokk[®] remote-controlled demolition machine is being used to cut jumpers removed from the vessels and service walls, and will also size reduce larger components for packaging and disposal. In addition to the melter, the components that will be removed from the cell include a concentrator feed tank, a feed holding tank, and a canister turntable. This project began in late 2003 and is expected to be completed in 2004. More than 70 boxes of waste have been removed from the cell.

Progress on Cleanup of Extraction Cell-2 – Decontamination of Extraction Cell 2, a cell that was formerly used to extract uranium and plutonium from reprocessed spent nuclear fuel, is ongoing. The cell is tall and narrow, but allows for hands-on decontamination. The first and largest of six tanks contained in the cell was removed in April 2004 through the cell’s ceiling hatch. Removal of the tank created a flow path for the other five tanks and vessels to be removed. Constraints of the tank removal project included a 6-inch clearance, the

WEST VALLEY DEMONSTRATION PROJECT UPDATE (Continued)

tank's weight of 2 tons, operators working in bubble suits, and the required use of a spider basket to raise and lower workers inside the cell. The tank had to be simultaneously lifted and sleeved as it was being drawn through the cell's ceiling hatch into the Extraction Cell Chemical Room (XCR) containment structure to contain radioactive contamination. Once inside the XCR containment structure, the wrapped tank was decontaminated externally and prepared for removal through a roof hatch in the XCR. The tank was again sleeved, lifted by a 200-ton mobile crane and lowered into a waste box for on-site storage. Additionally, approximately 6,800' of an estimated 9,000' of piping has been removed from the cell. Decontamination of Extraction Cell 2 will be completed by November 2004.

Progress on Cleanup of the Head End Cells – The decontamination effort in the two Head End Cells (HECs) at the WVDP is progressing well and will remove leftover and heavily contaminated spent fuel and mixed-fission/activation products. Cleanup of the HECs is a fully remote operation that began in late 1999. Major infrastructure upgrades were completed first and included refurbishment of shield windows, construction of new enclosures, removal of cell hatches and old cranes, installation of new cranes, repair of a 50-ton shield door, and reestablishing a flow path to facilitate drum removal. The current focus of work is removing wastes inside the cell and packaging them into containers for eventual disposal.

Thirty-gallon containers are being used to package debris based on size constraints of the HECs and to allow for flexibility of packaging the waste into final disposal containers. Operators are using bench-top band saws and hand-held saws to cut up broken manipulators left inside the cell and other equipment. WVNSCO remotized impact wrenches by attaching manipulator-friendly handles on the base of the wrenches and attaching telerobotic manipulator quick-disconnects for the air lines. An off-the-shelf saw with counter rotating cutoff saw blades was also adapted for remote use, as was a battery-operated automobile rescue shear. The rescue shear was used to quickly cut through various loose piping and cabling. When larger items required size reduction, the project team developed more aggressive remote cutting methods using generic cutoff saws with 9-inch and 14-inch blades, as well as hand-held circular saws.

Remote visual access and lighting to the cells required development of a technique to install cameras that were not radiation-hardened, but inexpensive to insert in cell penetrations. The cameras were pushed into the cells to get the required view, and then drawn back into the walls when not in use to shield them from high cell radiation fields. Inexpensive "spy cameras," which provided sharp pictures, also were used to view areas being worked by robotic arms, as well as very difficult-to-see (e.g., corners) portions of the cell.

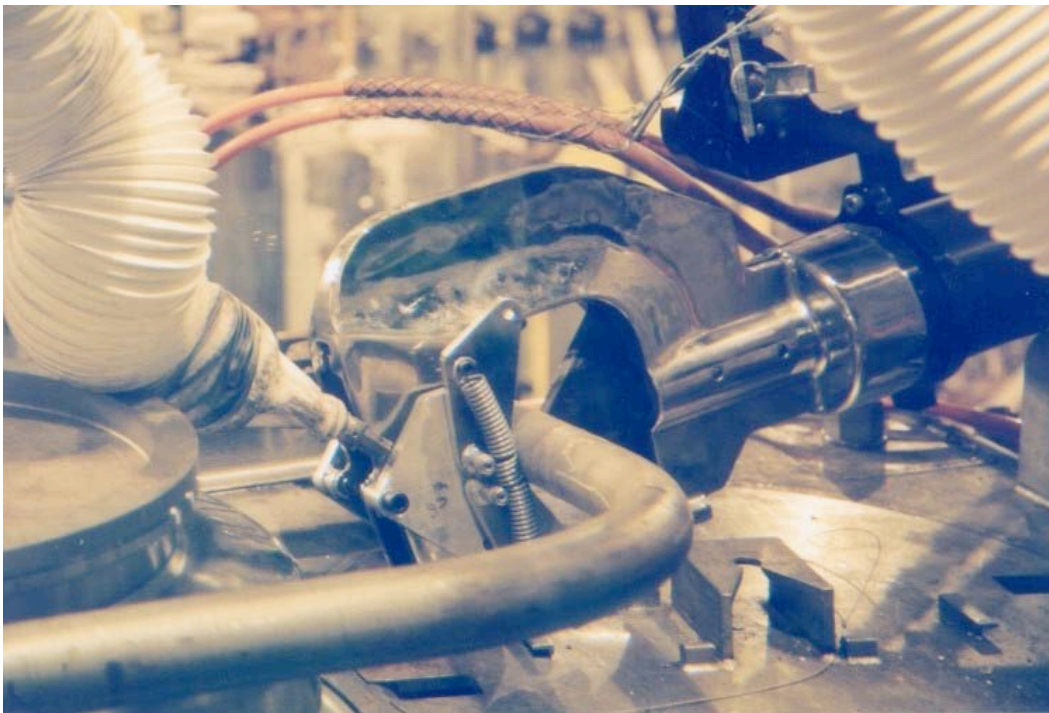
Radiation dose reduction efforts were implemented in the Scrap Removal Room (SRR) adjacent to the HECs. The SRR was redesigned to permit drums to be brought out of the HECs into a lower background radiation. The engineering team developed a method to remotely weigh and take dose readings on inner waste drums and then place them into shielded containers. This was accomplished by using a 55-gallon drum with prepositioned radiation probes on it mounted on a standard floor scale. Protective sleeves placed on the waste drums to minimize contamination spread were first removed from the drums and they were lifted from one of the cells through a hatchway to the SRR. The waste drums were then placed in the drum counter; weight and exposure readings were transmitted to an indicator panel outside the cell. The drum was transferred to a shielded container without exposing operators to radiation. In the final step, workers entered a low-exposure, low-contamination zone to bolt the outer lids on drums to permit their removal from the area.

A total of 234 drums and four boxes of waste from both cells have been packaged for disposal. Decontamination of the HECs will be completed in November 2004.

WEST VALLEY DEMONSTRATION PROJECT UPDATE (Continued)



Washington Group International presented the President's Award for Safety to WVNSCO a second time. (L to r) Doug Steffen (WVNSCO Executive Vice President); Russ Mellor (WVNSCO President); Ken Jenkins (WVNSCO Industrial Safety Manager); Brad Giles (Washington's Group Vice President, Environmental Safety & Health); and Greg Meyer (Washington's Director of Environmental Safety, Health and Quality Assurance).



The Mega-Tech[®] shear clamps onto a jumper to be cut up in the WVDP vitrification cell.

WEST VALLEY DEMONSTRATION PROJECT UPDATE (Continued)



A Spider basket is used to raise and lower Operators into Extraction Cell-2.



A 200-ton mobile crane is used to move this Extraction Cell-2 tank into a waste box.

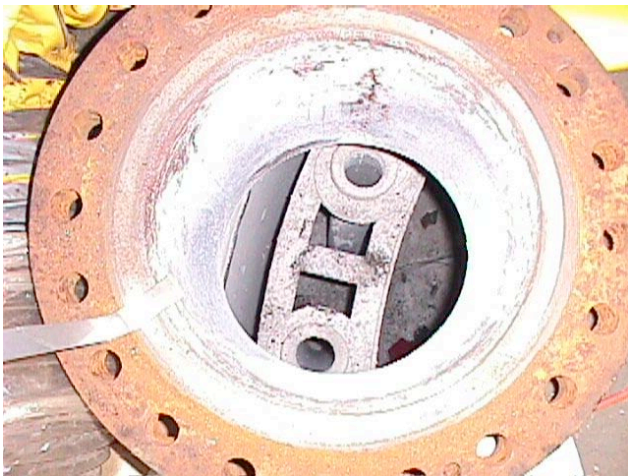
TROJAN DECOMMISSIONING UPDATE

Following the completion of the ISFSI project's successful loading of all 34 Multi-Purpose Canisters on September 3, 2003 and demobilization of the dry storage vendor, work immediately got underway to drain the spent fuel pool, remove the spent fuel pool liner, and remediate the concrete as necessary. The spent fuel liner removal project was completed in December 2003 and the remainder of the spent fuel pool decommissioning work was completed in early 2004. Decommissioning activities in the Fuel Building and Auxiliary Building (e.g., concrete remediation, Fuel Building crane decommissioning, embedded pipe remediation, and operational surveys) are in progress. Final Survey activities are also in progress. Decommissioning activities are scheduled to be completed in September 2004 and the Final Survey is scheduled to be completed in October 2004. Remaining Final Survey reports should be submitted in December 2004.

Other on-going activities include non-radiological decommissioning, dispositioning all items that are currently stored in the warehouse, and preparing the site for license termination.

FERMI 1 DECOMMISSIONING UPDATE

Fermi 1 has had a successful 2004 to date. Our critical path remains sodium cleanup. We completed setting up the fuel transfer tank and its overflow tank for processing residual sodium. The reaction went well in early April and the tanks were then flooded to ensure all sodium residues were reacted. Lines containing liquid NaK (sodium-potassium mixture) were removed from the sodium building this winter and the NaK was reacted in the process vessel. We completed removing the sheathing (guard pipe) from primary sodium piping in the Reactor Building, a multi-month effort. Piping removal from the inert gas tunnels is underway. All efforts were performed safely. The team responded well to unexpected conditions we continue to find as we inspect additional systems and tanks.



Removing the fuel transfer tube from on top of the fuel transfer tank, then looking inside the tank and seeing the fuel pots, and then cutting a fuel pot removed from the tank. This was done to prepare the tank for processing of residual sodium.

HANFORD DECOMMISSIONING PROJECTS UPDATE

Update: Hanford Site D&D Programs Accelerate, Expand

A large, new decontamination and decommissioning organization targeted toward rapid, focused work on aging and highly contaminated structures was formed at the DOE's Hanford Site in southeast Washington state in autumn 2003. Managed by prime contractor Fluor Hanford, the new organization has made significant progress during its first six months.

Under the direction of Mike Lackey, who recently joined Fluor from the Portland General Electric Trojan Plant, the Fluor Hanford D&D organization is tackling the Plutonium Finishing Plant (PFP) complex and the Fast Flux Test Facility (FFTF), and is nearly finished demolishing the 233-S Plutonium Concentration Facility. In addition, the D&D organization is progressing through the development and public comment phases of its required environmental permitting, planning work and procurement services to D&D three other Hanford facilities: 224-T and 224-B Plutonium Concentration Facilities, and the U Plant radiochemical processing facility. It is also planning and beginning to D&D the spent fuel handling areas of the Site's 100-K Reactor Area.

The 586-square mile Hanford Site, the oldest plutonium production center in the world, served as the "workhorse" of the American nuclear defense arsenal from 1944 through 1989. Hanford produced the special nuclear material for the plutonium cores of the Trinity (test) and Nagasaki explosions, and then went on to produce more than half of the weapons plutonium ever manufactured by the United States, and about one-fourth of that manufactured worldwide. As a result, Hanford, the top-secret "Paul Bunyan" in the desert, is one of the most contaminated areas in the world. Its cleanup agreement with state and federal regulators, known as the "Tri-Party Agreement," celebrates its 15th anniversary this spring, at a time when operations dealing with unstable plutonium leftovers, corroded spent fuel, and liquid wastes in single-shelled tanks conclude. As these crucial jobs are coming to an end, D&D has gained traction as a central Site mission.

Plutonium Finishing Plant (PFP) D&D - The PFP complex provided the final step in purifying (or "finishing") plutonium before the material was ready to be fabricated into weapons. Operational from 1949-1989, the PFP handled and finished over 90 percent of the plutonium manufactured at Hanford. Alone, it produced more plutonium core material than any other American facility, yielding the equivalent of the output of the DOE's Rocky Flats and Savannah River sites combined.

In February 2004, Fluor Hanford finished stabilizing and repackaging PFP's 17.8 metric tons of plutonium-bearing leftovers, readying approximately two-thirds for long-term storage as product material and one-third for disposal as transuranic waste. Even before the stabilization and packaging project was complete, Fluor Hanford had made strategic gains on the DOE's other major goal for PFP -- to clean out more than 61 structures inside the 14.8-acre PFP complex, and dismantle them to "slab on grade" status by 2009. Detailed planning was completed to remove equipment and facilities, and accelerate the demolition work nearly three decades ahead of the original planning date of 2038.

"Bringing the PFP complex to clean slab-on-grade status by 2009 will allow us to deactivate the security and criticality alarm systems, reduce risk to the public and the environment of the Pacific Northwest, and achieve a low-cost, long-term surveillance and maintenance state that will benefit everyone," says Lackey. "It's an ambitious job, but it can be done. We're scrutinizing our plans with an eye toward further streamlining."

HANFORD DECOMMISSIONING PROJECTS UPDATE (Continued)

Among the most daunting structures in the PFP complex is the main process building, a 500-foot long, 180-foot wide steel structure that was loaded for most of its lifetime with two 180-foot long, interconnected lines of gloveboxes. Today, parts of the “A” Line, the first remotely operated production line of its kind, and some of the “C” Line, a 1950s addition, remain -- their ventilation lines and internal equipment caked with “hold-up” plutonium residues. Fluor Hanford has already removed the first two (of ten) increments of legacy hold-up material, and expects to reach the 30 percent mark in June. All of the hold-up removal is scheduled to be removed by June 2005.

During its production years, the main PFP building also housed many other components that are now contaminated. These components included three laboratories; recycling gloveboxes wherein plutonium-bearing scraps were dissolved in acids, blended and used to produce plutonium metal; a small incinerator that burned plutonium-bearing rags; multiple plutonium storage areas; and presses to make “briquettes” out of the chips left from plutonium lathing operations. In addition, it contained a radioactive acid “digestion” unit that dissolved plutonium-contaminated combustible items in acids, and then dried them as a volume-reduction operation before they were buried as waste.

There are 138 contaminated gloveboxes today in the main facility alone, along with over 90,000 square feet of floor space; 6,000 feet of contaminated ductwork; and thousands of feet of process and drain lines, vacuum and air ducts, filter boxes, process pumps and tanks. Crews have removed and packaged equipment out of four large and crucial boxes thus far, climbing a steep learning curve and streamlining their processes as they work. There are about 235 contaminated gloveboxes in total in the PFP complex.

Another challenging PFP structure is the Plutonium Reclamation Facility (PRF), a fortress-like, reinforced concrete square six stories tall containing a ring of 17 huge gloveboxes surrounding a nearly 1,800-square-foot process cell. Inside PRF, a hardy and corrosive stew of acids dissolved plutonium-bearing scraps, and concocted them with other chemicals to produce a liquid feed to make plutonium metal. Like the main PFP building, PRF’s piping, tanks, air ducts, and other internal structures are caked with plutonium residues. This past winter, crews retrofitted the old gloveboxes with new gloves, installed new filters, fogged PRF’s main cell, and performed many other tasks to allow them to start actual cleanout this month.

Likewise, Lackey’s teams have retrofitted equipment and begun cleaning out a free-standing plutonium incinerator building, as well as PFP’s liquid waste-handling and storage facility.

Fast Flux Test Facility Deactivation – At Hanford’s FFTF, also managed by Fluor Hanford, crews made important strides in the past year in offloading the reactor’s 12-foot long fuel assemblies into interim storage casks (ISCs), shipping eight of them to the PFP complex. Another 22 casks filled with fuel will be shipped to an interim storage area in central Hanford beginning this month, furthering the goal of consolidating all of Hanford’s spent fuel in a central location. Final offload of FFTF’s fuel into approximately 26 additional casks is planned to resume in July, as soon as more casks become available.

Fuel offloading is a laborious process that involves washing the fuel assemblies one at a time to remove all of the sodium -- first by circulating moist argon through the assembly and then by flushing with water. Next, each assembly is dried with hot argon gas, and packaged into a core component container that holds seven assemblies. Each core component assembly is then placed into an ISC.

HANFORD DECOMMISSIONING PROJECTS UPDATE (Continued)

During the past year, workers drained approximately 66,000 gallons of sodium from the reactor's secondary cooling loops, including the intermediate heat exchangers. They are now preparing for the complex project that will drain approximately 140,000 gallons of sodium coolant from the reactor vessel and primary loops beginning this summer. They will also drain several hundred gallons of sodium-potassium mixture from three small auxiliary cooling loops.

Other deactivation activities recently completed at FFTF include draining and removing the fifth of 19 transformers containing polychlorinated biphenyls, emptying and removing two liquid nitrogen storage tanks and one liquid argon tank, and removing the external portion of an auxiliary cooling system known as the "mobiltherm"™ system.

233-S Plutonium Concentration Facility D&D - Hanford's 233-S Facility began operations in 1955, housing the third and final "decontamination cycle" (or purification cycle) that separated plutonium from fission products and other product streams in dissolved irradiated uranium. Beginning in 1962, 233-S also separated a neptunium 237 stream from the dissolved uranium. That same year, a "greenhouse" was constructed on the building to house a vertically mounted plutonium anion-exchange contactor. In November 1963, a fire that began in the ion-exchange unit swept through the entire building, spreading contamination. At that time, some gross contamination was cleaned off or fixed in place with a thick epoxy paint. The building was then used for four years to evaporate plutonium and neptunium-bearing solutions, and was closed in 1967.

Full-scale D&D of the 233-S Facility recently became a priority, as DOE accelerated cleanup activities in Hanford's "central plateau" (the area that historically housed radiochemical separations activities). Under Lackey, Fluor Hanford has pursued a demonstration project at the 233-S Facility, making it the first "open air" D&D endeavor of a high-hazard nuclear facility in the United States.

D&D teams at the 233-S Facility first applied a new, more effective fixative to secure surface contamination, and then used a high-volume "cannon fogger" that sprayed a fine mist to stop the spread of dust and contamination during demolition activities. They also used specially equipped shears and saws to spray water as facility walls and other components were cut. Using these and other innovative techniques, they satisfied regulatory requirements to confine dust and airborne contamination within carefully established radiological boundaries. Today, they are close to completing demolition of the tall, 3,500-square foot, reinforced concrete and metal building. After physical demolition is complete in late April, site stabilization and demobilization is expected to conclude in June.

Other Fluor Hanford D&D - Hanford's 224-T and 224-B Plutonium Concentration Facilities date from World War II, when they served as the companion facilities to the world's first two full-scale radiochemical plants, T Plant and B Plant. The two compact, three-story, concrete concentration facilities received plutonium nitrate from the much larger T and B Plants, and simply concentrated it using sodium bismuthate, phosphoric, oxalic and nitric acids, potassium permanganate, hydrogen fluoride and lanthanum salts. After these crude methods of radiochemical processing were replaced with more modern methods in the 1950s at Hanford, each facility was converted to other uses. 224-T became a storage facility for plutonium solutions and later for transuranic waste barrels, while 224-B was used for construction offices and a workshop for "regulated" (contaminated) materials. Lackey's D&D organization has begun isolating utilities in the two structures, and will begin demolishing small ancillary facilities around the 224-B building in June.

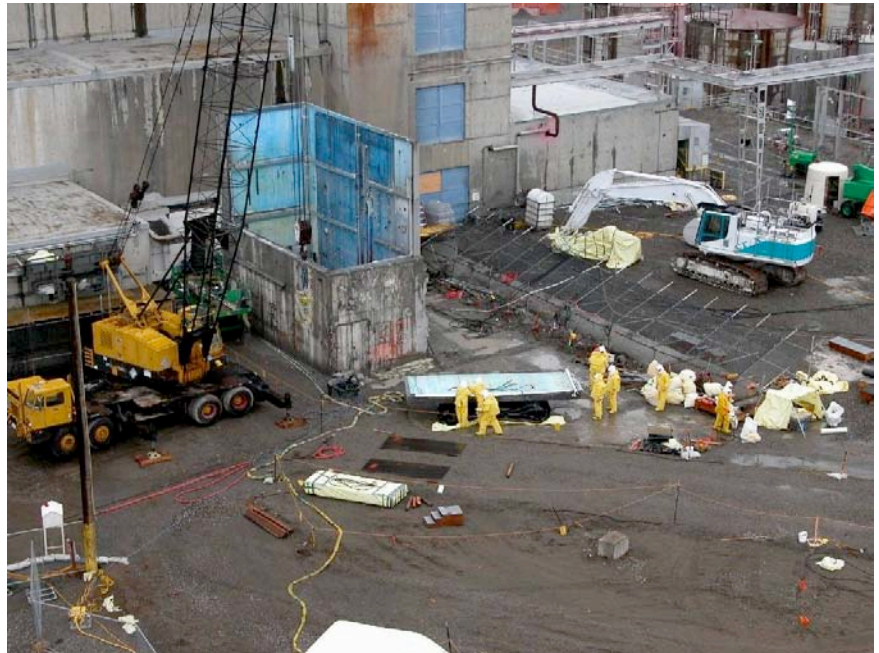
HANFORD DECOMMISSIONING PROJECTS UPDATE (Continued)

At U Plant, a World War II radiochemical plant in Hanford's central plateau that was used in the 1950s to extract uranyl nitrate hexahydrate from high-level radiochemical processing wastes, conceptual design has been completed for a demonstration project to collapse the huge structure and place a permanent engineered cap over the site. At this stage, Fluor Hanford is completing environmental permitting needed to perform the work.

In Hanford's 100-K Area, planning, environmental documentation, and service procurements have begun to implement a "grout and remove" strategy to D&D two basins used to store spent fuel. This innovative approach to deactivation employs a unique high-pressure underwater hydrolazing technology to decontaminate concrete walls, followed by encapsulation of debris left in the basins after the fuel and sludge have been removed. Encapsulation involves placing special grout into each segment of the basins. Then the basins can be cut into sections, removed and disposed to permitted disposal areas at Hanford. This strategy minimizes worker exposure, eliminates costly removal, packaging and transport of individual items of debris, and accelerates basin closure. In December 2003, workers demonstrated underwater hydrolazing, successfully reducing contamination levels in a section of basin concrete wall.



Hydrolazing Equipment to Reduce Contamination on Walls Prior to D&D



223-S Plutonium Concentration Facility during Demolition.

After stunning successes just completed in plutonium stabilization and packaging, Fluor Hanford's new emphasis on D&D work is already yielding important achievements in facilities near the center of the Hanford Site, as well as in the 100-K Area along the Columbia River shoreline. This progression leads the massive, former defense production site toward its new goals of a clean rivershore, and a central plateau dedicated to consolidated waste management.

DECOMMISSIONING IN FRANCE

Background - In France there are four major civilian operators: EDF (Electricité de France), which operates nuclear power plants; COGEMA (Compagnie Générales des Matières Nucléaires), which operates the fuel cycle industry; CEA (Commissariat à l'Énergie Atomique), which operates Research and Development installations; and ANDRA (Agence Nationale pour les Déchets Radioactifs), which is in charge of waste disposal centres. There are 58 operating nuclear power plants, six shutdown gas cooled nuclear power plants, and the shutdown Superphenix fast breeder reactor. There are a very large number of other facilities that are part of the industry which will require decommissioning at some time.

Decommissioning and Regulation - The Basic Nuclear Installations (BNI) involved in deterrent are regulated by a specific body under the authority of the Radioprotection and Nuclear Safety Delegate (decree from July 2001) CEA's High Commissioner.

The obligations that the operator has to implement during decommissioning procedure are described into the article 6ter of the decree of 11th December 1963, which regulates Basic Nuclear Installations.

This decree founds the Safety Authority action, DGSNR (General Directorate for Nuclear Safety and Radiation Protection). The article 6ter, issued on 19th January 1990, modifies the procedure for decommissioning of Basic Nuclear Installations. Before the issuing of this article, there were no requirements specifically applicable for decommissioning of the nuclear installations. The applicable procedures were the general ones relating to major modifications of installations.

Decommissioning has to fulfill the Law of July 15th, 1975 about waste elimination and the Ministerial Order of December 31st, 1999 which set up the obligation to carry on a waste study and the zoning of the facilities.

An administrative note (9th November 1990) was issued to explain the procedure in detail. The new administrative note (17th February 2003) considered two main phases in a facility lifetime, each one corresponding to one license:

- the operational phase,
- the decommissioning phase.

The regulation of decommissioning is the responsibility of the General Directorate for Nuclear Safety and Radiation Protection (DGSNR). In regulatory terms, the decommissioning of nuclear facilities requires several major steps:

1. The decision to stop the normal operation of the facility. The licensee must submit information to DGSNR, including a provisional schedule,
2. The final cessation of operation (FCO) leading to the end of operation of the facility according to normal operating procedures. This first phase of this step includes the removal of all the fuel, removal of the waste produced during the operation phase and still present on site, disposal of fluids, and clean up and evacuation of hazardous material. The operator must inform DGSNR six months prior to starting these operations and submit a safety case. DGSNR formally acknowledges the end of this phase on the basis of a completion report and after a thorough visit.

The second phase of this step leads to the shutdown status of the facility. This phase can be started while the previous one is still going on, and consists of dismantling the equipment outside the nuclear island which are no longer required for surveillance and safety. The containment is reinforced. At the end of this phase, a complete inventory of the remaining radioactivity is conducted.

DECOMMISSIONING IN FRANCE (Continued)

3. The final shutdown which could include preparatory operations for decommissioning that cannot be done under normal operating rules. This step includes additional clean-up and elimination of equipment, using new rules different from normal operations, that allow a progressive decrease of the monitoring of the facility and of its surroundings. An internal authorization organization can be put in place by the licensee, under the control of the safety authority to allow the operator the necessary industrial flexibility during decommissioning, while providing the necessary level of safety.
4. The decommissioning covers all operations undertaken with the objective to reach an end-state enabling license termination.
5. License termination, ideally, results in unconditional site liberation. In most cases, it results in implementation of institutional site use restrictions and a change of the facility's administrative status. The responsibility of the licensee for the site is terminated after the removal of all the radioactive materials. This compliance is checked on the basis of a completion report and a thorough review of the DGSNR.

The Nuclear Safety Authority (DGSNR) considers the dismantling operations currently proceeding as test cases, providing an opportunity for the operators to define and implement, on the one hand, a dismantling strategy (dismantling stage to be reached, detailed operating schedule) and, on the other hand, a management policy for the large amounts of radioactive waste which will be generated (notably the very low level waste). If carried through to their conclusion, they would also constitute examples demonstrating the technical and financial feasibility of an entire dismantling process.

For DGSNR, experience showed that interim situations tend to become permanent; a good balance has to be found between the benefits and the drawbacks of delaying the shutdown and the dismantling phase. In this respect, in 1996, DGSNR requested CEA to produce before the end of year 1999 a joint study with EDF assessing the possibility to shorten the planned 50 years delay for total dismantling for EL4 (HWGCR located in Brittany). In 1999, CEA and EDF answered to the authorities their selection to go to stage 3 straight away after the end of stage 2.

In April 2001 EDF took the decision to go straight away to stage 3 for all the GCR (six nuclear power plants), the first PWR (CHOOZ A), EL4 and Superphenix. This new strategy, more offensive aims:

- to show the feasibility of a total dismantling on an industrial scale,
- to show the capability to manage all the generated material and wastes,
- to take this opportunity to set up and to organize an internal decommissioning body,
- to be able to take in charge, when it occurs, the future decommissioning of the operating PWRs.

CEA has published in 2001 a policy about the dismantling of its obsolete R&D installations (nearly 30 facilities to be dismantled before 2015):

- launch cleaning/cleansing and decommissioning studies before shutdown decisions,
- do Final Cessation of Operations and definitive shutdown operations as quickly as possible when the decision to stop has been taken, and reach stage 3 (green or brown field) as soon as possible.

AREVA/COGEMA has launched on their sites, including all industrial fuel cycle activities from mining to reprocessing, cleaning and decommissioning of unused facilities.

DECOMMISSIONING IN FRANCE (Continued)



AT1 (FBR former reprocessing facility) Removal after using in the decommissioning of high activity cells of the ATENA carrier.



EL4 HWGCR in Brittany, decommissioning under progress, evacuation of concrete blocks (6 to 8 tons) from the irradiated cells examination building using diamond cable wiring.

DECOMMISSIONING IN THE UNITED KINGDOM

British Nuclear Group: the new BNFL

A new strategic direction for BNFL has been set following completion of the joint BNFL/Government review of the business ahead of the creation of the Nuclear Decommissioning Authority (NDA) in April 2005.

The review was announced in July 2003 and was necessary to evaluate future strategies following the Secretary of State's announcement that there will be no flotation of the Company as a whole after the NDA has been formed in April 2005.

The principal focus for the Company will be on clean-up activities at UK sites and their safe and efficient operation.

The NDA is expected to be established in April 2005 and will take on responsibility for BNFL and Magnox nuclear sites (Sellafield, Drigg, Calder Hall, Capenhurst, Wylfa, Oldbury, Sizewell A, Dungeness A, Chapelcross, Hinkley Point A, Bradwell, Hunterston A, Trawsfynydd and Berkeley). As part of this process, the NDA will assume the sites' clean-up liabilities.

DECOMMISSIONING IN THE UNITED KINGDOM (Continued)

The NDA will oversee the strategic management and direction of legacy clean up, but will not carry out clean-up work itself. The NDA will attempt to ensure cost-effective clean up through awarding contracts for each site to nuclear remediation management companies through competitive tendering. Each site will be run and administered by a Site Licensee Company which will retain the site licence and the personnel required to run the site.

It is anticipated that a Site Licensee Company's ownership will be transferred to the successful management company, either directly or through an intermediate holding company, for the duration of the contract.

BNFL has put forward a proposal to establish a new group of subsidiary companies that will focus on the management of clean up at UK sites. These clean-up subsidiaries will be the principal focus of the parent company. This new group will operate in shadow form from May 2004 and will come into being in April 2005, at the same time as the NDA takes on responsibility for sites currently owned by BNFL.

The new clean-up group will have initial responsibility for managing clean up and operations at BNFL's sites under transitional arrangements to be agreed with the NDA. It will own British Nuclear Fuels plc and Magnox Electric plc for the duration of these arrangements.

The new clean-up group will be part of the public sector but will be free to pursue discussions with possible private-sector industrial partners to assist in improving its performance. And it will need to agree with the UK Government its future strategy and any proposals for partnering while the UK Government remains its owner. The Government will want to ensure that the operation of the new group is consistent with the development of a competitive market for nuclear clean up.

The new clean-up group will be branded British Nuclear Group with a strategy of delivering aggressive, safe and profitable nuclear clean-up.

British Nuclear Group will comprise three key businesses:

- Management Services. This will provide site management services for the reactor sites and the Sellafield reprocessing plant.
- Project Services. This will provide specialist nuclear clean-up solutions, subcontracted to the Management Services business but free to seek contracts with other clients.
- BNFL Inc. This will remain as part of the Group continuing to provide nuclear clean-up solutions for the US market.

Management Services will comprise two complementary organisations:

- Reactor Sites, with Mark Morant as its Managing Director
- Sellafield, whose MD will be Brian Watson.

DECOMMISSIONING IN THE UNITED KINGDOM (Continued)

All the 26 Magnox reactors will be licensed to Magnox Electric plc (except for those at Calder Hall that, for historic reasons, are part of the Sellafield site license). Sellafield will remain licensed to BNFL plc.

Project Services will be run by George Beveridge whilst Philip Strawbridge will manage BNFL Inc.

The Springfields fuel fabrication plant will be re-licensed out of BNFL plc by April 2005 to become a separate Site License Company under the management of Westinghouse.

Of the 26 Magnox reactors in the UK, 14 have currently ceased generation and the remainder will have been shutdown by the end of the decade. British Nuclear Group will eventually compete for contracts allowing the Reactor Sites organisation to manage a mixture of generating, defuelling and decommissioning reactors. As a Management Services business, it will invite tenders for the decommissioning of our nuclear power station sites and for the management of operational radioactive waste.

A similar process will take place at Sellafield, for both site management and operations and for the significant number of decommissioning projects required to manage the nuclear legacy.

The changes to BNFL plc, according to the merchant banks advising the Company, form the largest corporate restructuring currently underway anywhere in Europe. License conditions attached to the UK's Nuclear Installations Act mean that none of these management changes can take place until agreement has been reached between the Company and the Nuclear Installations Inspectorate. Agreement on this matter is expected in May 2004. The Company's assets and liabilities cannot be transferred to the NDA until Royal Assent has been granted to new legislation currently being debated in Parliament. It is expected that Queen Elizabeth will approve the required Act of Parliament in the summer of 2004.

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