



NEWSLETTER

DECONTAMINATION DECOMMISSIONING AND REUTILIZATION DIVISION

May 2005

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CHAIR'S MESSAGE

Awards for Excellence in DD&R – Call for Nominations

In this issue of the DD&R newsletter we continue to see the progress of commercial and DOE related decontamination and decommissioning (D&D). Many of the commercial projects that were not even on the horizon ten years ago are not far from completion. Great strides have been made in the last five to seven years towards the completion of several large DOE decommissioning projects. While each of these projects has built on the experience of its decommissioning predecessors, I believe they have one major asset in common – the creative, safety oriented and innovative people who conceive, plan, and implement these projects. The DD&R Executive Committee, in its November 2004 meeting, acknowledged that people are at the core of the success of D&D by establishing two division awards. They are the ANS-DD&R Division Award of Excellence and the ANS-DD&R Division Lifetime Achievement Award.

[CHAIR'S MESSAGE \(Continued\)](#)

The Award of Excellence honors accomplishments of our colleagues who have made outstanding contributions to the field of decommissioning, decontamination and site reutilization. The award honors an individual or group of individuals making a significant contribution to the state of the art, an important publication, a major technical achievement, or a sustained record of significant achievement, accomplishment and technical excellence. The Lifetime Achievement Award is not envisioned as being awarded for specific project work – that would probably be more appropriate for “Award of Excellence” – but this would be much more of an all encompassing type of award based on the efforts and involvement of the individual over a significant period of time.

The DD&R Division is seeking nominations for both of these awards. Nomination forms for each award and additional award details may be found at the DD&R division website (www.ddrd.ans.org). All nominations will be evaluated by a subcommittee of the DD&R Division. The Division reserves the right to not award either or both of the awards if, in the collective opinion of the subcommittee, deserving candidates are not nominated. The Division wishes to present the Award of Excellence at our DD&R Topical meeting at Denver, Colorado, August 7-11, 2005 and the Lifetime Achievement Award at the Washington, DC meeting in November.

The ability of the nuclear utility industry to convincingly demonstrate the decommissioning of their facilities is a critical aspect of the nuclear power life cycle. Likewise, the ability to clean up the wartime and cold war nuclear waste legacy is important to the future of all Americans. In both cases, people are the asset that truly makes a difference. Please take the time to learn about the awards and provide the DD&R Division with your nomination(s).

Russ Mellor

MEETINGS AND CONFERENCES

2005 ANS Annual Meeting “The Next 50 Years: Creating Opportunities” in San Diego, CA, June 5-9, 2005

DD&R is sponsoring a Paper/Panel Session on Monday afternoon. The Paper topics include “Improving the U.S. Nuclear Regulatory Commission’s Decommissioning Program”; Review of Fire Response Procedures for Defense Nuclear Facilities in Transition to Decommissioning or in Decommissioning”; and “Decommissioning the Next Generation of Nuclear Plants”. The panelists are:

- J. Mark Price (SCE)
- Thomas LaGuardia (TLG Services)
- J. B. Buckley (Duratek)

There will be an embedded topical meeting, “Space Nuclear Conference 2005”, held in conjunction with the 2005 ANS Annual Meeting. Also held in conjunction are four Professional Development Workshops: Preparing for the Professional Engineering Nuclear Engineering Exam”; “Introduction to the Thermal Hydraulic RELAP5-3D Code”; “RADTRAN5: Estimating Risks of Transporting Radioactive Materials”; and “Advanced Gas Reactor Technology Course”.

For more information, check the ANS website at <http://www.ans.org/meetings/annual/>

MEETINGS AND CONFERENCES (Continued)

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

This DD&R meeting is an international gathering of approximately 300 technical professionals engaged in decommissioning and related disciplines such as waste management, legacy management, and long-term stewardship with over 150 Papers and 3 panel discussions. The meeting will focus on lessons learned from site closure as well as worldwide government and commercial decommissioning experiences including the nearby Rocky Flats Environmental Technology Site. Details of technical advancements and regulatory changes in which decommissioning is performed worldwide will also be presented.

For more information, check the ANS website at <http://www.ans.org/meetings/docs/2005/ddr05-prelim.pdf>

ANS 2005 Winter Meeting “Talk About Nuclear Differently: A Good Story Untold” in Washington, D.C. – November 13-17, 2005

DD&R has four sessions planned under Track 6 – “Fuel Cycles, Materials, and Decommissioning”. These Sessions and Chairs are as follows:

- Hot Topics and Emerging Issues – John Parkyn
- Regulatory Update – Tracy Goble
- Lessons Learned from Near-Complete Commercial Decommissionings – Joe Carignan
- U.S. Department of Energy Cleanup Program Update – Mark Morton/Bill Franz

PAST MEETINGS

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

ANS celebrated its 50th year. The meeting included two Embedded Topical Meetings: BE 2004 – Best Estimate (Methods in Nuclear Installations Safety Analysis) Twenty-0-Four; and ONFS – Operating Nuclear Facility Safety. DD&R supported the conference in Track 6: “Life Extension, Future Reactors, Reutilization, and Decommissioning”. The Sessions were as follows:

- Life After Decommissioning, Site/Facility Reutilization – Panel
- Regulatory Framework in Commercial and Government Decommissioning: Initiating Decontamination and Decommissioning Activities – Papers/Panel
- Regulatory Framework in Commercial and Government Decommissioning: Closure Activities – Papers/Panel
- Decommissioning: General Topics – Papers/Panel
- Decommissioning: Hot Topics and Emerging Issues – Papers/Panel

DENVER TOPICAL MEETING ON DD&R

Final arrangements for the 2005 DD&R Topical Meeting are near completion. The reviews of the one hundred thirty technical papers have started and we expect an exciting conference. There will be a very good turnout of folks from across the country in both government and commercial arenas. A Plenary Session will be held Monday morning, August 8, 2005 and will feature introductory speakers from the Legacy Management, Waste Management and D&D tracks. At the close of the Plenary Session, Mr. Preston Rahe, President, Energy and Environment, Washington Group International will be the Opening Banquet Luncheon Speaker. Mr. Rahe will provide insights from his vantage point on the winning teams for the Department of Energy's Idaho Closure Project and Hanford River Corridor proposals.

There will be a host of social events during the conference including hosted professional receptions on Sunday and Monday evenings, dinner at the Denver Museum Tuesday evening, a Rockies baseball game Wednesday evening, and a tour to the now-dismantled Rocky Flats Site Thursday afternoon. Registration includes the receptions and tickets are available for the other events. Detailed information and registration are available on the ANS website under Meetings.

Colorado is home to fabulous mountain and sporting adventures and you are cordially invited to bring you family and extend your stay at the conference for summer fun in the Rockies. Conference rates at the Grand Hyatt will be extended for three days either side of the conference.

DIVISION COMMITTEE MEETINGS

Change of Time and Venue - DD&R Executive Committee Meeting - Summer 2005

The Decontamination, Decommissioning, and Re-Utilization Division of the ANS has decided to change the time and location of the summer 2005 Executive Committee meeting. The meeting was scheduled for the June, 2005 ANS Annual meeting in San Diego, CA. The Executive Committee recently determined that a change of time and location would be appropriate and is consistent with the DD&R Division by-laws. The change is being made to minimize Executive Committee members' time away from work and cost of travel impacts. The Executive Committee summer meeting will be held during the DD&R Topical meeting in Denver, CO, August 7-11, 2005. The exact arrangements for the Executive Committee meeting are being made and will be conveyed separately to the Executive Committee members, to include newly elected members, as well as the DD&R Division members.

MEMBERSHIP

As is typical we see the DD&R Division membership roles increasing after the purge that occurs of non-renewing members at the end of each calendar year. Here though is an interesting aspect to those figures that should point out to you - as one of the 6 ANS divisions with over 1000 members in our division - we have the lowest raw 'new member recruitment' figures. These figures are as of late April 2005.

MEMBERSHIP (Continued)

*	O&P	232 new members (now at 3686)	1st of 18 divisions
*	FC&WM	149 new members (now at 2151)	2nd of 18 divisions
*	RP	144 new members (now at 1364)	3rd of 18 divisions
*	NIS	93 new members (now at 1484)	4th of 18 divisions
*	RPS	82 new members (now at 1364)	5th of 18 divisions
*	DD&R	67 new members (now at 1036)	10th of 18 divisions

The other two divisions that struggled as we did were RRSB and ESD. The largest spikes in "% of their divisions membership" so far this CY were in the Biology & Medicine Div and Aerospace TG which both jumped a whopping 18%. Reactor Physics and Fusion Energy were both up 12% ! Thermal Hydraulics and Accelerator Applications were each up 10%. The DD&R increase amounted to just 7% from our January 2005 figure. We ranked 2 slots from the bottom tied with FC&WM, I&R, NIS, O&P and RPS, but please remember that O&P and FC&WM do have over 2000 members already and NIS has nearly 1500 members.

We ask that all of us in DD&R talk to our colleagues and advocate others to become members of ANS and select/join us in our division. We are considering conducting a Membership Drive initiative at the Denver meeting to get some of the non-members attending that conference to become DD&R members and ANS members. We might offer a drawing to win a copy of the new Decommissioning Handbook recently issued. In another area of membership - the student area - we rank the lowest in that grouping of all 19 ANS divisions. So anything we can do to recruit some new student members is also appreciated.

Please encourage colleagues and friends in the industry to join us in DDR!

PUBLICITY AND PUBLIC POLICY

The Low Level Radwaste Policy, Position Statement 11, was approved by the ANS Board of Directors in November and is available on the ANS website. This fulfills the DD&R Division's assigned actions. However, this year the other position statements that DD&R is responsible for, or shares responsibility for will be reviewed to see if they need to be update. You may be contacted to help.

DIVISION SCHOLARSHIP

The DD&R Scholarship award for 2005-2006 (\$2000) has gone to Taylor Moulton of the University of Florida.

Taylor Moulton is a junior in nuclear engineering at the University of Florida, in Gainesville. He was recently inducted into the national engineering honorary society of Tau Beta Pi, and he is President of the student chapter of ANS at U of FL. This summer Taylor will be on an internship at the Crystal River Plant of Progress Energy. The one page essay that he wrote for his scholarship application shows that Taylor has an enlightened understanding of the issues facing nuclear power development in the USA, and the long-term effects of our current actions (or inactions). For instance, he states, "I suggest particular focus (on public education) go toward middle and high school science classes as an outlet toward fostering a comfortable relationship between society and the nuclear power industry." And "... we need to reduce the amount of high-level waste by reprocessing and reusing the valuable plutonium that sits unexploited in storage pools across the nation."

AWARDS AND HONORS

A notice of 'Call for Nominations' will be forthcoming shortly from Russ Mellor, Chair of the DDR Division for the first of two **new** DD&R Div awards recently established and approved by the DD&R EB - a "DD&R Lifetime Achievement Award" and a "DD&R Award of Excellence". The Lifetime Achievement Award is just that - an award for an individual in the DD&R field for a significant portion of their career and having made a significant contribution to the industry. The Award of Excellence is an award for a significant accomplishment on a particular decommissioning activity. The DD&R website (<http://ddrd.ans.org>) will have a nomination form placed there shortly for these awards. Awarding of these awards is at the discretion of the DD&R Division Chair based upon nominations from the members. The Lifetime Achievement Award will be inaugurated soon. The hope is to be able to award the initial Award of Excellence at the DD&R 2005 Conference in Denver.

SITE CLEANUP AND RESTORATION STANDARDS

A paper summarizing the activities of the ANS Special Committee on Site Cleanup and Restoration Standards (SCRS) will be presented at the ANS Topical Meeting on DD&R that is scheduled for August 7-11, 2005 in Denver, CO.

SCRS continues to monitor the Federal activities in the area of cleanup standards and release standards. The NRC rulemaking efforts for controlling the disposition of solid materials have been in progress for several years. The latest news in this regard is that the staff has provided the Commission with a draft proposed rule package in SECY-05-0054 on March 31, 2005. This is a massive package (819 pages) that can be viewed on NRC's website under Rulemakings.

At Waste Management 05, held in Tucson, AZ (February 27- March3), Session #70 focused on D&D Perspectives in Clearance of Radioactive Materials for Release. This session, even though scheduled for the last day of the conference, was very well attended and had excellent technical papers. The session included papers from EPRI, Studsvik, Belgium, Japan, Austria, UK and the US. There is clearly significant interest in the issues related to clearance of materials for release from D&D operations.

NRC DECOMMISSIONING PROGRAM STATUS REPORT

On April 20-21, 2005, the Decommissioning Directorate in the Division of Waste Management and Environmental Protection at the Nuclear Regulatory Commission (NRC) conducted a two-day public workshop on decommissioning that was attended by approximately 200 people. Attendees consisted of industry representatives, consultants, representatives from other Federal agencies, and State representatives.

The first day of the workshop consisted of opening presentations on topics such as finality and the NRC/EPA MOU, incentives, alignment of NRC decommissioning program with States, improved communications, and revised decommissioning guidance. Those presentations were followed by breakout sessions on topics related to the License Termination Rule analysis that included restricted release/institutional controls, realistic scenarios, mixing of contaminated soil, financial assurance, operational changes, and onsite burials.

NRC DECOMMISSIONING PROGRAM STATUS REPORT (Continued)

The second day focused on lessons-learned and began with a presentation by Commissioner Merrifield followed by a panel presentation consisting of six presentations, one by NRC staff and five by industry and State representatives that discussed lessons learned from both reactors and materials sites undergoing decommissioning. A facilitated discussion was subsequently conducted on lessons- learned, both technical and programmatic.

The staff plans to post a meeting summary on the meeting website in mid-May. Initial feedback received after the workshop was that it was successful and very well received.

DECOMMISSIONING HANDBOOK

The Decommissioning Handbook can be purchased from the ASME by simply going to the ASME website and searching for “The Decommissioning Handbook”. By just typing in "ASME Decommissioning Handbook" on the search line of the Internet browser, and the ordering page for the Decommissioning Handbook came up.

SAXTON DECOMMISSIONING UPDATE

The soil remediation program at Saxton is complete and Final Status Survey is underway. One of the significant areas remediated was the site of underground storage tanks that were removed in the 1970’s when the plant was shutdown. Some of the soil used to backfill these tank excavations exceeded today’s release standards and the resulting hole, (**see picture below**), is approximately 25 feet deep and due to the shallow water table at Saxton, will present a challenge for Final Status Survey.



SAXTON DECOMMISSIONING STATUS UPDATE (Continued)

With the exception of the tank excavation Final Status Survey of the remainder of the site is expected to proceed expeditiously and if there are no new surprises it should complete in late June 2005. The Final Status Survey Report should be finalized by the end of July 2005 and we are hopeful of having License Termination this year.

RANCHO SECO DECOMMISSIONING UPDATE

Vessel Internals - Mechanical cutting and milling will be used to remove internals underwater. Core baffles and formers (>Class C) will be placed in a fuel-type canister for storage in the ISFSI. Class B and C internals will be stored in liners onsite until disposal is arranged. Class A waste will be shipped to Envirocare. Work has been delayed for cutting equipment design issues but flood-up is in progress and actual cutting should begin soon.

Large Components – Due to the size of the B&W steam generators it was necessary to cut them to allow shipment by rail to Envirocare. DOT exemptions for shipment of the steam generator halves, unpackaged, with welded caps were received in May of 2004. At that point, due to the delay in vessel internals work, it was decided to accelerate the steam generator shipment to 2004/5 instead of 2005/6. Diamond wire cutting was used to cut the tube bundles through holes cut in the steam generator shell. Lifting jacks were placed to lift the generator pieces. Once the jacks were in place the remaining segments of shell were cut, the top half lifted, capped and placed on a rail car. The lower half was then capped and removed. Due to the size of the pieces, they could be removed through the equipment hatch and travel on a fairly standard railcar. Two shipments were made, each with a top and bottom piece of generator. The last shipment completed in February.

Planning is in progress for vessel segmentation. No DOT exemptions are expected to be needed for shipment to Envirocare. Various cutting methods and shipping configurations are being considered. The most likely method to be used is high-pressure water/grit cutting with large boxes to be shipped by rail to EOU.

Embedded Pipe – Work has begun on flushing the embedded pipe in the Turbine Building prior to survey. No cleaning beyond this flushing is expected due to sample activity levels. Work will then move to the Auxiliary Building where much higher activity levels are expected.

Outside Components – Once soil is dry enough to support a crane, work will begin on removal of the plant ventilation stacks. A stack is no longer required for the Auxiliary Building but a small temporary Reactor Building stack was added to allow removal of the original Reactor Building stack. Much of the contaminated underground pipe has been removed with the remainder to be removed this year. Work is ongoing to remove temporary (non concrete) buildings and structures.

License Termination Plan – Work on the LTP is in progress. Meetings with the NRC have been held to discuss dose modeling and groundwater sampling. A May meeting at the site will discuss characterization. Characterization work is ongoing to support the LTP. DCGLs have been determined using the industrial worker scenario due to the ongoing use planned for the site.

RANCHO SECO DECOMMISSIONING UPDATE (Continued)



B Steam Generator on rail car prior to shipment

CONNECTICUT YANKEE DECOMMISSIONING UPDATE

Decommissioning & Demolition - Connecticut Yankee continues to make excellent progress in the decommissioning effort at the Haddam Neck Nuclear Power Plant. Demolition activities are ongoing in conjunction with decommissioning and site closure work. Physical decommissioning is scheduled to be completed by the end of 2006. The plant site has accumulated more than 5 million work hours and gone nearly five years since its last lost time accident.

The demolition of the former administration, primary auxiliary and auxiliary boiler buildings is complete. Demolition of the turbine and service building and the ion exchange system are nearing completion. Equipment and component removal from the containment building is complete and work is in progress for decontamination of the interior of containment. The removal of contaminated soil in the ion exchange system area continues.

CONNECTICUT YANKEE DECOMMISSIONING UPDATE (Continued)

Integrated site closure activities continue to focus on groundwater characterization and monitoring, final status survey of miscellaneous land areas, and RCRA Corrective Action Program implementations. Characterization of the soil removal is in progress to allow backfill activities to begin.

As of April 2005, approximately 125 million pounds of the expected 266 million pounds of decommissioning waste had been shipped to licensed disposal facilities.

Dry Fuel Storage - CY's wet to dry fuel transfer campaign was successfully completed ahead of schedule on March 30, 2005. All 43 Vertical Concrete Casks (VCCs) have been transferred to an Independent Spent Fuel Storage Installation (ISFSI) on CY's property approximately three-quarters of a mile from the plant site. Three of the VCCs contain GTCC waste. With the completion of the fuel transfer project, procedures and security changes have been implemented to reflect the ISFSI-only status of the plant site. The clean-up of the spent fuel pool and the removal of the fuel racks is in progress.



Connecticut Yankee Fuel Rack Removal

CONNECTICUT YANKEE DECOMMISSIONING UPDATE (Continued)



Connecticut Yankee Final Spent Fuel Storage – 43 Casks

YANKEE ROWE DECOMMISSIONING UPDATE

Yankee Rowe is nearing the completion of physical decommissioning. All above- and below- grade physical decommissioning work is scheduled to be completed by June of 2005. Site grading and contouring will follow with final status surveys and preparation for property transfer scheduled to be completed by the end of 2005.

Above-grade demolition of the spent fuel pool building was completed in April 2005. Demolition of the Reactor Support Structure (RSS) will be completed in May 2005. An excavator with a hoe-ram attachment is being used to demolish the 32-million pound RSS.

Remediation of PCB-containing paint chips in Sherman Pond and removal of the intake pipe was completed in the fall of 2004. Final status survey work, which began in October 2004 in the outer areas of the site, is continuing. NRC approval of Yankee's LTP is expected in May 2005. Yankee's LTP was submitted to the NRC in November 2003 with supplemental information submitted in early 2004. Citizens Awareness Network requested a public hearing and filed LTP contentions. An ASLB has been established.

YANKEE ROWE DECOMMISSIONING UPDATE (Continued)



Lancing (Cutting) Rebar in the Lower Section of the Reactor Support Structure



The Reactor Support Structure as it remains in April 2005

YANKEE ROWE DECOMMISSIONING UPDATE (Continued)

In the fall of 2004, Yankee began exploring options for the future use of its 1800-acre property. A public outreach campaign was conducted to develop a better understanding of local stakeholders' vision for the undeveloped and forested property outside of the former 12-acre plant site. Yankee is targeting the property for future use as public open space and this end-state scenario was supported by stakeholders. In deciding the future of the property, Yankee will continue to satisfy all state and federal standards regarding clean up and remediation of the former plant site and safe spent fuel storage.

Elected officials in the town of Rowe, Massachusetts, where the Yankee Rowe site is located, have indicated a strong desire to acquire Yankee's property for future recreational use. Yankee and the town are currently exploring the possibility of the town leasing the majority of Yankee's 1800 acres with an option to purchase the entire property when the spent fuel is permanently removed. Approximately 90 acres surrounding the two-acre ISFSI would be reserved for fuel storage activities and not available for lease or public use until the fuel is removed.

MAINE YANKEE DECOMMISSIONING UPDATE

Maine Yankee's decommissioning is in the final phase with site restoration expected to be complete in the end of May timeframe. The project, which began in 1997, is being accomplished safely, on budget, and essentially on schedule.

Maine Yankee expects to complete decommissioning for less than half the U.S. NRC limit of 1115 person-REM. Also earlier this winter the project team celebrated 2 million hours without a lost time injury. The last lost time injury was in May 2002.

With all the buildings and other plant structures now demolished and removed from the site, remaining key activities are completing soil excavations and final status radiological surveys. Stockpiled waste soil is also being shipped from the site by rail. As final status survey packages are finished they are sent to the NRC for review and approval. Following approval of the last survey package the NRC will reduce the area under Maine Yankee's license to the Independent Spent Fuel Storage Installation. That is expected to occur early this summer.

Severe weather this past winter, heavy spring rains and waste soil generated faster than it could be removed from the site by rail have all been a challenge in these final months. As more and more of the site becomes "clean" the area remaining to store waste soil decreases. An analogy is "painting your way out of a room." The soil volume issue is being resolved by moving the excavated soil out of the area being remediated and stockpiling it adjacent to the rail line and Independent Spent Fuel Storage Installation for shipment.

Following decommissioning, Maine Yankee will continue to be a spent nuclear fuel storage company until the federal government fulfills its commitment to remove this material from the site.

For more information on Maine Yankee's decommissioning and spent fuel storage, contact Public and Government Affairs Director Eric Howes at Howese@myapc.com or 207-721-8694.

MAINE YANKEE DECOMMISSIONING UPDATE (Continued)



Remediation and Final Survey Work in Former Spent Fuel Pool Building Area



General View of Yard Area of Former Maine Yankee Power Plant

SAN ONOFRE UNIT 1 DECOMMISSIONING UPDATE

San Onofre Nuclear Generating Station Unit 1 (SONGS 1) decommissioning project, in its fifth year of decommissioning, is over 62 percent complete. To date, all systems and components inside containment, the turbine building, and the spent fuel building have been removed and shipped from site. The project, scheduled to complete in 2008, continues to be executed well. An excellent industrial safety record has been maintained.

Major decommissioning milestones since last fall's update include:

- Demolition of all areas inside containment above 17' elevation
- Draining the Unit 1 Spent Fuel Pool and removal of spent fuel racks
- Remediation of Turbine Building in preparation for demolition
- Unit 2 Fuel Handling Building modifications in support of removing Unit 1 fuel

Fuel Movement to the Independent Spent Fuel Storage Installation (ISFSI) - The project is in the final stages of fuel transfer from wet to dry storage with the only Unit 1 fuel remaining being that stored in the Unit 2 spent fuel pool, which is scheduled to be moved to the ISFSI in May 2005. That fuel will be placed into three SCE-fabricated dry shielded canisters and inserted into an Advanced Horizontal Storage Module on the SONGS ISFSI pad. With the completion of loading and moving the last three canisters into dry storage, a total of eighteen canisters will have been used to store all SONGS 1 fuel and greater than Class C material (reactor vessel internals).

Containment Demolition - An excavator, equipped with a hydraulic impact hammer, was brought into containment for demolition of concrete structures and remaining piping systems. Currently, work is ongoing in the reactor annulus to remove reactor hot and cold leg nozzles. To expedite easier equipment and personnel access into containment, an opening was cut into the containment sphere liner at grade level. This opening will be used to move crushed concrete and steel from containment on a material handling system.

Spent Fuel Pool Draining and Rack Cutup - SONGS 1 Spent Fuel Pool has been drained and the spent fuel racks have been shipped to Envirocare.

Turbine Building Remediation and Demolition Preparation - All the steam and electrical producing systems and components have been removed and shipped off site. Most concrete surfaces have been remediated to remove contaminated material in preparation for building demolition that will begin in May 2005. The gantry crane was dismantled, lowered to the ground, and transported off site in early April culminating months of preparation and planning. Risk analyses based on critical failure modes of the rigging and lifting process, wind, postulated seismic events, and building load factors were all considered in the planning for this evolution.

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

- Dismantling the Unit 1 Spent fuel pool and building
- Moving the Unit 1 spent fuel from Unit 2 to the ISFSI
- Dismantling the sphere
- Dismantling and removing the turbine building
- Removing, packaging, and shipping waste materials from site

SAN ONOFRE UNIT 1 DECOMMISSIONING UPDATE (Continued)



SONGS Unit 1 Gantry Crane - The top girder is slowly and carefully lifted off and lowered to the ground after being cut free.

ROCKY FLATS DECOMMISSIONING UPDATE

Rocky Flats closure and transformation into a national wildlife refuge is rapidly becoming a reality. Current estimated project completion is October 2005, more than 13 months ahead of schedule.

In December 2004, workers demolished Building 707, the workhorse of plutonium weapons component production. Nearly every plutonium “trigger” in the current U.S. nuclear weapons arsenal was manufactured and assembled in Building 707 during its operation from 1970 to 1989. The 230,000 square foot facility required extensive decontamination.

Today, work crews are demolishing Rocky Flats’ last remaining plutonium-contaminated facilities, buildings 776/777 and 371/374. Building 776/777 was extensively decontaminated prior to demolition. But because of a major plutonium fire in 1969, it was impossible to assure decontamination to unrestricted release levels. Plutonium-laden smoke and fire-fighting water permeated nearly every crack, crevice and penetration in the building. To ensure contamination control, the entire interior was sprayed with an encapsulant and demolition is being conducted using rigorous controls. Rocky Flats started shipping by rail to keep pace with the massive quantity of low-level radioactive building debris generated by Building 776/777 demolition. The waste is being shipped to the Envirocare facility in Utah.

ROCKY FLATS DECOMMISSIONING UPDATE (Continued)



Spraying Water for Dust Suppression during demolition of Building 776/777



Building 776/777 Demolition is Approximately 60 Percent Complete

ROCKY FLATS DECOMMISSIONING UPDATE (Continued)

Workers at Building 371/374 reached two notable Rocky Flats milestones. They removed the last of more than 1,450 glove boxes used to handle plutonium at Rocky Flats and generated the last of the site's transuranic waste. Workers demolished Building 374, a radioactive waste water treatment facility attached to Building 371, earlier in the year and approximately 20 percent of Building 371 has been demolished. Building 371 also required extensive decontamination, especially in process canyons and the building's 300-foot-long, 45-foot-high plutonium storage vault where derived air concentration was measured at several hundred thousand DAC. Respiratory protection at Rocky Flats is required at 0.1 DAC.



Workers Prepare to Remove the last of 1,457 Glove Boxes from Building 371

A more recent milestone occurred April 19, 2005, with the last Rocky Flats shipment of transuranic waste to the Waste Isolation Pilot Plant in Carlsbad, NM. Since the first shipment to WIPP left the site on June 15, 1999, Rocky Flats has shipped more than 2,000 trucks containing approximately 15,000 cubic meters of TRU waste. According to WIPP, Rocky Flats' waste accounts for 54 percent of WIPP's inventory, by far the largest volume of any of the eight sites currently shipping to WIPP.

BIG ROCK POINT DECOMMISSIONING UPDATE

Buildings continue to disappear as Big Rock Point moves closer to returning the site to a natural state, free for unrestricted use. Project highlights in the past quarter include demolition of the plant's turbine building and a cooperative agreement reached between the plant, local, state and federal officials to preserve the rich history of Big Rock Point.

Turbine building demolition - Workers at Big Rock Point no longer drive up the tree-lined, curving access road as they have for more than 40 years and see the familiar gray turbine building with "Consumers Power Company" across the top. The missing building has left a void in the landscape that provides a daily reminder that site restoration activities are drawing closer and closer to completion. "If the control room was the brain and the reactor was the heart, the turbine building would have been the muscle of the plant," said Bill Trubilowicz, a 29 – year Big Rock Point employee and current cost, scheduling and project manager. "This was the business end of the plant, where we actually produced electricity for Michigan residents."

Getting to this point has been a lengthy and intense task. Decommissioning work on the building began shortly after the 75-megawatt turbine/generator was rendered silent when the plant was permanently closed on Aug. 29, 1997. The first task was to empty the building of all "hazardous" material no longer needed to generate electricity – items such as 300 batteries that were used to provide emergency power and 4,000 gallons of oil used to lubricate the turbine/generator system. Next came the removal of equipment: Two 1,200 horsepower pumps used to send water back to the reactor after it has passed through the turbine; the condenser; numerous storage tanks; and the turbine itself. Workers literally went room-to-room emptying the facility.

After being emptied, the turbine building still had a key role to play as a staging area for the plant's successful dry fuel storage loading campaign. Echoes of numerous "dry runs" practicing the fuel load sequence reverberated throughout the facility for 18 months as workers prepared the storage systems to receive spent fuel from the fuel pool.

Following completion of the fuel loading campaign, workers began prepping the facility for demolition. Prepping in this case meant separating the entire building – the floor, walls and ceiling - into 6.25 square foot grids and searching for any plant generated radioactivity. In many cases it was necessary to hoist workers in sky lifts and cherry pickers to reach the upper levels of the walls and ceiling. If radioactivity was found, the area was cleaned and scanned again. The process was repeated until the area was proven clean – and then a confirmatory scan was completed by a different set of workers to provide independent assurance. A total of 26 workers spent about 8,000 hours checking and rechecking more than 100,000 square feet of turbine building surfaces. When the turbine building is included with previous demolition projects, more than 25 million pounds of debris has been knocked down, picked up, loaded into 477 containers, scrutinized by detection equipment, and shipped for disposal

The outside steel panel walls were the first to be removed. Day by day, more steel was removed until one could see all the way through the building to the woods behind the plant. The steel structural support beams were the next to go. Giant hydraulic claws reached out and snipped and severed the beams, dropping them to the ground. Finally the real fun began – it was time to use a wrecking ball on the concrete pedestal that once supported the turbine. Using an overhead crane an operator delivered a mighty blow with the 5,000-pound ball and ...nothing happened. Well, not exactly nothing but it was apparent that the ball was not going to be a match for the concrete. A 17,000-pound wrecking ball was soon delivered to measure itself against the stubborn concrete.

BIG ROCK POINT DECOMMISSIONING UPDATE (Continued)

Slowly, grudgingly, the walls gave way to the will of the ball and crane operators. Soon all that was left was the 4.6-foot thick shield wall that once separated the control room from the containment sphere. Trubilowicz watched the fateful blow that toppled a top portion of the wall. It was a moment of reflection for him. “I spent a good portion of my life and lived through several significant events in the control room,” said Trubilowicz, a former shift supervisor. “I was in the control room when I received a call to get to the hospital for the birth of my son and I was part of the crew when Big Rock Point set a world record for consecutive days of operation. “To this day I can vividly recall the sensations of operation – the vibration of the turbine spinning, the distinct smell of steam, oil and heated metal, and the camaraderie of my partners in the control room,” he said, as he turned his gaze upon the containment sphere, the last remaining plant structure.

History preserved - As the physical structures that made up Big Rock Point disappear, efforts involving local, state and federal agencies are intensifying to ensure the history of the plant doesn't vanish.

- In addition to becoming the Michigan's first and the United States' fifth commercial nuclear power plant, Big Rock Point was named a Nuclear Historic Landmark for its many contributions to the nuclear and medical communities. Noting such accomplishments, the Michigan State Historic Preservation Office (SHPO) notified plant personnel to verify efforts are being made to save the history of the plant.
- Big Rock Point Environmental Services Superintendent Tracy Goble is coordinating the effort to ensure the rich and proud history of the plant and property is captured for future generations to review.
- “As one of the first commercial plants Big Rock Point helped demonstrate that nuclear power was a viable way to generate electricity,” said Goble. “All of us at the plant have a great sense of pride in what was accomplished during the operation of the plant and are excited that history will be preserved.”
- A detailed and elaborate process is required by SHPO to ensure history is appropriately captured. The plant has either already completed or committed to performing the following tasks to ensure history is preserved:
 - Complete a recordation of plant documents and photos to the National Park Service's Historic American Engineering Record standards
 - Save and preserve important plant artifacts
 - Provide the Charlevoix Historical Society with important plant memorabilia and assist in the development of a plant exhibit
 - Conduct archaeological and traditional cultural property surveys of the plant property

“It is important that we are one of the main repositories of plant material to help educate future generations to the significance and impact of Big Rock Point in the history and development of our community,” said Dr. John MacKenzie, president of the Charlevoix Historical Society. In addition to the Charlevoix Historical Society, the official record of Big Rock Point is to be stored in the State Archives of Michigan.

Other major work completed in the last quarter includes and accomplishments:

- Big Rock Point hosted a visit and provided a site tour to NRC Commissioner Jeffery Merrifield.
- The Big Rock Point Safety Committee was honored by Consumers Energy with a 2004 Exemplary Local Safety Committee of the Year Award for its numerous proactive safety initiatives.
- More than 25 million pounds of clean debris has been shipped to a local landfill.
- All of the activated concrete has been removed from the containment sphere.

BIG ROCI POINT DECOMMISSIONING UPDATE (Continued)



Final Wall of Former Control Room being demolished with 17,000 Pound Wrecking Ball



Three Story Turbine Building Stripped of Steel Panel Walls Prior to Demolition

HANFORD ENVIRONMENTAL RESTORATION PROJECTS UPDATE

Work to place the fifth of nine retired plutonium production reactors at the U.S. Department of Energy's Hanford Site into interim safe storage is two months ahead of schedule, with only the installation of a new roof and the completion of a long-term surveillance and maintenance plan remaining to be done.

H Reactor will join C, D, DR and F reactors when "cocooning" is completed, which is scheduled for September 2005. The Bechtel-led Environmental Restoration Project has completed cocooning on the Hanford reactors four years ahead of schedule and at a savings of \$14 million. The ER Project team also includes pre-selected subcontractors CH2M Hill Hanford and Eberline Services Hanford. The process involves demolishing the reactor building down to the three-foot-thick concrete shield walls surrounding the reactor core, reducing the footprint by 80 percent. All openings in the remaining structure are sealed, and a new roof is installed. Temperature and moisture sensors are used to remotely monitor conditions inside the sealed reactor building. Once every five years, workers enter the structure to conduct inspections and make any needed repairs. The reactors will stay in this Interim Safe Storage (ISS), commonly referred to as "cocooning," for up to 75 years.

The Gas Ventilation Wing of the H Reactor was explosively demolished in June 2004. The demolition was done in a way that protected the integrity of the adjacent reactor building. The contractor installed a blast screen and test blasted selected interior walls. Production blasts then were performed to significantly fracture the concrete walls and "harmonically delaminate" much of the rebar from the concrete. This separation greatly accelerated demolition of the structure. The Contractor also demolished the below-grade concrete structures of the Gas Ventilation Wing.

Placing the reactors into ISS gives DOE and Hanford's cleanup regulators up to 75 years to decide when to implement the disposal part of the effort. The Record of Decision calls for transporting the graphite reactor cores to Hanford's central plateau on giant crawlers similar to those used to transport the space shuttle to the launch pad. The cores, 40-foot cubes weighing between 11,000 and 16,000 tons each, would be buried in a common trench lined with an engineered barrier.

In addition to its ISS work, the Environmental Restoration Project faces other decommissioning challenges in the coming months. One of the challenges is the continued decommissioning and demolition of several ancillary facilities at N Reactor, Hanford's last operating plutonium production reactor and the only dual-purpose U.S. reactor.

After the N Reactor was closed in 1989, the ER Project deactivated the reactor, removing 350 pounds of spent fuel elements and more than 4,000 curies of radioactivity from the reactor. In subsequent work, the ER Project demolished and removed the reactor emergency dump tank, emergency dump basin, four radiological and five industrial facilities and removed asbestos from steam piping in N Area.

In addition, the ER Project initiated design and submitted the Engineering Evaluation and Cost Analysis for N Reactor ISS to DOE nearly two years ahead of schedule. This documentation is the first step in the process to cocoon the reactor.

ISS will be completed on the two of the remaining Hanford reactors (KE and KW) once fuel and sludge are removed from their storage basins, which is scheduled for completion in 2007. DOE has not determined the final disposition of B Reactor, the world's first plutonium production reactor and a national historic landmark.

HANFORD ENVIRONMENTAL RESTORATION PROJECTS UPDATE (Continued)

Other Environmental Restoration Project decommissioning work at Hanford

At DOE's request, the ER Project has accelerated its work to demolish the 220 facilities located in Hanford's 300 Area. During Hanford's production years, the 300 Area had two main functions – fuel fabrication for the reactors and research to improve the entire production process. Famed physicist Enrico Fermi briefly had an office and laboratory there.

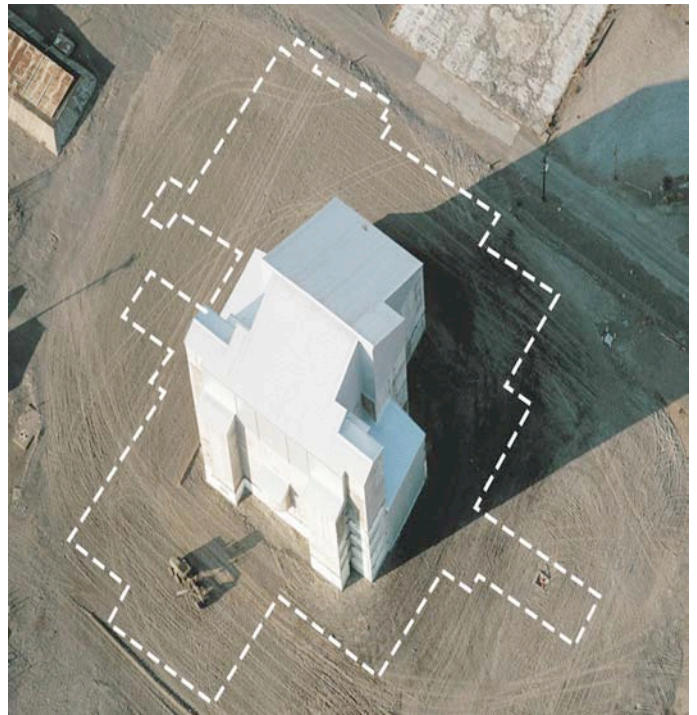
In the fall of 2004, DOE transferred 18 buildings and the Pacific Northwest National Laboratory transferred three buildings to the ER Project as part of the 300 Area Accelerated Closure Project. The facilities include large laboratories, a packaging test facility and several small storage buildings. The purpose of the 300 Area Accelerated Closure Project is to expedite cleanup and reduce costs by integrating facility demolition with Columbia River corridor cleanup. The goal is to be able to release some of the remediated 300 Area to private industry for development by 2009 instead of 2046 as previously planned.

In April, the ER Project began demolishing the 313 Metal Fabrication Building, a 77,000-square-foot high-bay facility that was used to machine and assemble uranium fuel rods for Hanford's plutonium production reactors from the 1950s to 1986. More recently it was used by a private company to manufacture aluminum baseball bats. Demolition is expected to be completed in July 2005. Special precautions are being taken because the facility was contaminated with beryllium during the fuel fabrication process. Beryllium is a naturally occurring metal used in metalworking, electronics, laboratory work and other industries. Beryllium disease can occur when people who have beryllium sensitivity inhale beryllium dust or fumes. It primarily affects the lungs.

A second facility (314 Building) is scheduled for demolition later this year as are several other small buildings.



DR Reactor Before being placed in ISS



DR Reactor After being placed in ISS

HANFORD ENVIRONMENTAL RESTORATION PROJECTS UPDATE (Continued)



Construction of a New Roof on the Hanford H Reactor for Interim Safe Storage

FERMI 1 DECOMMISSIONING UPDATE

The Fermi 1 team continues slowly on sodium cleanup activities. The three loops of the primary system are being separated from the reactor vessel to be reacted individually. The team is currently setting up the system to react Loop 1, cutting sodium system pipe on Loop 2, and building scaffold for Loop 3 work. More sodium is being found than expected per the records. This has caused delays, since additional controls are needed to cut into pipe or components containing sodium, and a system to attempt to melt out sodium or sodium product from the Loop 1 Intermediate Heat Exchanger tube bundle needed to be designed and is being installed. Most of the work is being performed in the Reactor Building basement, a confined space. A stairway was installed last year to improve access and another opening was made to improve material access this year.

Ground water monitoring is continuing, with no activity due to the plant being identified to date. Characterization surveys were performed on some areas during nearby Fermi 2's operation and then during its refueling outage partly to better identify the contribution due to shine from the operating plant.

The Request for Proposal for removal of the reactor vessel, vessel internals and some other large components is expected to be issued this spring.

HANFORD DECOMMISSIONING PROJECTS UPDATE

Hanford's River Corridor -300 Area

In November, Fluor Hanford began moving the last of an estimated 2 million pieces of reactor fuel that were manufactured in Hanford's 300 Area to a disposal facility on Hanford's Central Plateau. The last 825 metric tons of low-enriched uranium fuel are being moved from storage facilities near the Columbia River to a lined, mixed-waste disposal trench in Hanford's 200 West Area. As of late April, the project was 80 percent complete.

Crews are removing the last of the "special case" waste from Hanford's 300 Area. The 327 Facility, or Post-Irradiation Testing Laboratory, was activated in 1953 to examine and test irradiated materials, particularly fuel elements and fuel cladding. In 1996, facility activities transitioned to deactivation. Most of the waste in the facility has already been removed. The remaining special case waste will be packaged for shipment to an interim storage facility on the Hanford Site by mid-summer.

Special-case waste includes a wide variety of material that is defined by its grouping in a regulatory agreement—the Tri-Party Agreement—between the Department of Energy, EPA, and the Washington State Department of Ecology. Fluor Hanford will complete both of these projects well in advance of regulatory milestones in the Tri-Party Agreement, which calls for removing the special case waste by the end of Sept. 2006.

Hanford's River Corridor K Basins Closure

In October, Fluor Hanford completed a ten-year effort to move 2,300 tons of spent nuclear fuel, containing 50 million curies—80% of the DOE's spent fuel inventory—out of Hanford's K Basins and into a storage facility on Hanford's Central Plateau. The EPA called this achievement "The largest risk-reducing cleanup work performed near the Columbia River" and "a hallmark in Hanford cleanup progress." Much of the last of the fuel was very highly corroded. Crews broke two 'jaws of life' while processing fuel that had become so badly corroded that it stuck to fuel cladding. The fuel removal work paved the way for retrieving the residual radioactive sludge from the basin floor, as well as removing debris—to prepare for removing the basins themselves.



Spent Fuel in Fair Condition



Very Degraded Fuel Encountered During Removal

HANFORD DECOMMISSIONING PROJECTS (Continued)

The corrosion of fuel over the decades resulted in the buildup of sludge—originally estimated at 65 cubic yards—on the floors of both basins, with most of it in the K East Basin. Fluor Hanford began consolidating the sludge in the K East Basin in October. As of April, crews have consolidated half of the sludge from the K East Basin. Poor water visibility and an unexpectedly large amount of debris have prolonged the work. Improvements in the sludge vacuuming process have been made and a third vacuuming system was brought on line in January. A flocculent system is now operating and improving the visibility of the basin water, which becomes cloudy as large sludge deposits are agitated during vacuuming operations.



Residual Sludge from Corrosion of Spent Fuel is Stirred up During Fuel Retrieval in K Basins

Debris removal from the K West Basin is progressing at a good rate. As of April, crews had removed:

- 6,800 of 7,200 empty fuel canisters
- 2,400 of 7,600 canister lids
- 71 of 138 large, empty fuel racks.

Removing the debris and fuel racks has made room for installing underwater containers in the K West Basin to receive sludge transferred in a hose-in-hose pipeline from the K East Basin and sludge that is vacuumed from the floor of the K West Basin. Over the next two years, the sludge in those containers will be retrieved from the K West Basin and treated for disposal.

Before the K East Basin can be completely drained, the inner walls must be cleaned to take off the top layer of cement that has become very radioactive. Fabrication of underwater equipment to remove the contamination continues, with delivery to Hanford scheduled in May 2005, followed by equipment testing in the basin. To facilitate removal of the basin's water, Fluor is pursuing an approach which will place a specially formulated concrete mixture in parallel with removing the water. As reported in the October 2004 edition of DD&R, this approach was successfully demonstrated in the K East Basin from August to September 2004. About 105,000 gallons of water was removed as 500 cubic yards of cement were poured into a section of the basin known as the discharge chute.

HANFORD DECOMMISSIONING PROJECTS (Continued)

Fast Flux Test Facility (FFTF): Fuel Assembly and Sodium Removal Continues

Fluor Hanford is deactivating the nuclear reactor that was built to develop and test fuel, materials, and equipment for the U.S. breeder-reactor program. Fluor Hanford continues washing and moving fuel assemblies from FFTF into dry storage casks, with 305 of 375 fuel assemblies removed.

Crews completed the second phase of draining sodium coolant from the primary reactor system in November. In August, Fluor removed approximately 75,000 gallons of liquid sodium in the first phase of draining the reactor's primary cooling system. The remainder of the sodium in the primary cooling system will be drained in a final phase, scheduled to be completed by the end of June 2005.

Hanford's Central Plateau

Decommissioning U Plant Structures

Seven of 10 contaminated facilities scheduled for demolition next to U Plant have been dismantled as of the end of March. The project is currently 8 months ahead of schedule and more than \$3.5 million under budget. This brings the total number of facilities demolished at Hanford by Fluor over the last eighteen months to more than 60.

In February, Fluor Hanford and DOE co-hosted a three-day technical exchange on the D&D of U Plant, the first Hanford processing canyon for which a technical and regulatory strategy for disposition has been developed (there are five large processing canyons at Hanford). Regulatory, contractor and DOE personnel attended the workshop, representing Hanford organizations, DOE Headquarters, the Savannah River and Idaho DOE sites, and EPA Region 4 (Atlanta, Ga.). The strategy is being considered by some as a model for D&D of canyon facilities at other sites in the DOE Complex.

Closing the Plutonium Finishing Plant

The scope of work for closing the Plutonium Finishing Plant (PFP) includes decommissioning 63 buildings on 15 acres, including:

- β 250,000 square feet of plutonium processing area
- β 231 glove boxes and laboratory hoods
- β 21 vaults, 4 process cells, and 4 major chemical storage areas
- β Residual plutonium held up in thousands of feet of process equipment, drain lines and underground waste tanks/sites

In November, Fluor Hanford made the last transfer of liquid radioactive waste from the plant to Hanford's large underground tanks, seven months ahead of a regulatory milestone. The Tri-Party Agreement called for ending waste transfers from the Plutonium Finishing Plant, the last facility to send production-related waste to Hanford's tank farms, by June 30, 2005.

HANFORD DECOMMISSIONING PROJECTS (Continued)

As of April, Fluor Hanford crews had removed 80 percent of the plutonium "held up" in aged equipment and had decontaminated 21 of 231 glove boxes in the 15-acre complex to low-level waste status. Ten of the plant's original 63 facilities, including a 150-foot tall water tower constructed in 1949, have been dismantled. Dismantling these support facilities opens up much-needed space in the PFP complex for staging materials for future work and D&D waste as it is removed from the plant's remaining facilities.

Ninety-five percent of the TRU waste that resulted from the four-year effort to stabilize and package approximately 20 tons of plutonium-bearing materials—completed in February 2004—has been shipped to the Waste Isolation Pilot Plant in New Mexico in some 1,800 drums. Special nuclear material resulting from the stabilization and packaging effort is safely and securely stored in 2,135 standard containers awaiting a formal decision on a disposition pathway.

Transuranic Waste Retrieval and Shipments to WIPP

As of the end of March, more than 10,370 drum-equivalents of waste had been retrieved from burial trenches in central Hanford and transferred to a permitted storage facility. The retrieval project began in late 2003, and the next regulatory milestone, in December 2005, calls for retrieving 13,500 drum-equivalents of waste. Fluor Hanford completed 152 shipments of transuranic waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico by April, bringing the total number of drums shipped to 4,549 (since shipments began in 2000). Beginning in March, transuranic waste bound for WIPP was loaded into 10-drum over packs, which are then loaded into transuranic package transporters (TRUPACTs). The change from stacking drums to loading them into over packs promises to help increase Hanford's current average of eight shipments per month.



Retrieving Waste from Hanford Burial Grounds



Loading Ten-Drum Overpacks into TRUPACTS

INEEL DECOMMISSIONING PROJECTS UPDATE

Many exciting changes have occurred at the Idaho National Laboratory (formally the Idaho National Engineering and Environmental Laboratory during the past few months. Not only has its name changed, but also the work scope has been divided into two major parts, now managed by two new operating contractors. In addition, the former Argonne National Laboratory-West has been integrated into the new INL operations contracts.

The Idaho National Laboratory, which is focused on becoming the nuclear energy center for the Department of Energy, looks forward to a long and successful history as a multipurpose national laboratory. It is managed by Battelle Energy Alliance (BEA) under a new 10 year contract. The other focus at the site is in cleaning up contaminated facilities which have resulted from over 50 years of continuous operation of a variety of nuclear programs. During this time 52 reactors have been built and operated at the Idaho site. This effort is known as the Idaho Cleanup Project and this new contract is managed by CH2M-WG Idaho, LLC whose major partners are CH2M Hill and the Washington Group.

Throughout the transition from the former single contractor (Bechtel BWXT Idaho, LLC) to the two new contractors cleanup work has progressed at a rapid pace and an excellent safety record has been maintained. Decommissioning of the site's many surplus contaminated facilities continues. In recent months work has commenced on the Power Burst Facility (PBF), and decommissioning in general continues on a site-wide basis. At the PBF the reactor in-pile tube has been removed, water removed from the reactor tank and canal, and 232,000 pounds of lead bricks removed.

At the Reactor Technology Complex (formally Test Reactor Area) work has started on decommissioning of the large Engineering Test Reactor (ETR). In addition to general planning, and cleanout of the facility, the reactor exhaust stack has been removed. The accompanying photograph shows this stack being removed with high explosives.



Engineering Test Reactor Exhaust Stack Demolition

DOUNREAY NUCLEAR FACILITY DECOMMISSIONING

Work continues at an accelerated rate in decommissioning of the United Kingdom Atomic Energy Authority (UKAEA) Dounreay site near Thurso, Scotland. The near-term work plans have been completed and decommissioning operations are a major activity at this site.

Emphasis continues to be placed on the handling and destruction of sodium and its potassium alloy (NaK). These materials were used in large quantities for reactor coolant and other purposes at this facility. The safe destruction of these materials presents a significant technical challenge to decommissioning operations at the Dounreay site. An advisory team of international experts on the D&D of liquid metal systems met at the facility this past November and reviewed operations, various documents associated with these activities, and future plans. It was apparent that an extremely high level of knowledge and experience in liquid metals handling exists at the Dounreay facility. The work there is progressing safely and rapidly.

UNITED KINGDOM DECOMMISSIONING STATUS

Over the past year UKAEA has made significant advances in its site restoration programmes, with a series of visible decommissioning achievements and good progress on longer-term objectives. As a safe and responsible operator, we have also continued to improve the treatment and storage of radioactive waste at our sites. Innovative new facilities are providing even higher standards for managing existing wastes and those produced by decommissioning.

To date, UKAEA has completely removed 14 of its 26 reactors together with several major radioactive facilities, a record unmatched in Europe.

Dounreay

In March 2004 full operation began at UKAEA's £15 million Prototype Fast Reactor (PFR) sodium disposal plant - the world's largest facility for the destruction of liquid metal. Following the success of the plant's active commissioning phase which destroyed 280 tonnes of sodium coolant, the NII approved the processing of the remaining 1500 tonnes. This key part of the PFR decommissioning project is planned for completion in 2005.

The past year has seen considerable decommissioning activity inside the landmark Dounreay Fast Reactor dome. Redundant equipment has been stripped out to clear the path for the removal of the remaining breeder fuel from the reactor. We also completed the installation of plants to remove and dispose of sodium-potassium coolant from DFR, and progressed the decommissioning of the reactor's fuel pond.

Scotland's oldest nuclear reactor – the Dounreay Materials Test Reactor – is now one step away from final decommissioning. In May 2003, the project to remove redundant equipment from the reactor containment building was completed, preparing the way for demolition.

UNITED KINGDOM DECOMMISSIONING STATUS UPDATE (Continued)

Harwell

The project to finally dismantle the historic GLEEP reactor was completed in October 2004. GLEEP (Graphite Low Energy Experimental Pile) was Western Europe's first reactor, having been built in 1947. The work involved the removal of 13,500 graphite blocks from the reactor for crushing and eventual disposal. Finally the concrete bioshield was demolished and when the surrounding hangars and other facilities have been removed it will make way for new commercial development at Harwell.

Windscale

The end of the Windscale Advanced Gas-Cooled Reactor dismantling project is now in sight. Removal of the core and associated structures is now expected to finish in 2005, two years ahead of schedule. The famous 'golf-ball' will now be removed much sooner than originally planned. As part of UKAEA's accelerated site programme it is now expected to be completed by 2012.

Camera surveys of the inner core of the Pile One reactor damaged by fire in 1957 reveal that the graphite structure in the fire affected zone is good and a further extensive survey is planned. A technical review of the options for removal of the remaining fuel and isotopes from the Pile and for dismantling the reactor is underway.

Winfrith

Construction of a plant to immobilise low level liquid wastes from the Steam Generating Heavy Water Reactor is on budget and on programme. Under UKAEA's accelerated decommissioning plans all three remaining reactors at Winfrith – ZEBRA, DRAGON and the SGHWR - will be decommissioned and dismantled by 2015. In April 2004, part of the site – the Winfrith Technology Centre – was sold to English Partnerships. The sale highlighted UKAEA's progress in restoring the Winfrith site so that it can be further developed.

Accelerated Decommissioning Plans

In October 2004 UKAEA announced radical plans for accelerating the decommissioning of its nuclear sites resulting in a reduction in the estimated cost of its nuclear liabilities from £6.3 billion (2003/04) to £4.8 billion – representing a £1.5 billion saving to the tax-payer. The details are set out in the Lifecycle Baseline plans for UKAEA's sites submitted to the DTI in preparation for the new Nuclear Decommissioning Authority.

The new cost estimate, together with the progressive elimination of UKAEA's liabilities achieved over the last ten years, represents a 44% reduction since 1994.

UNITED KINGDOM DECOMMISSIONING STATUS UPDATE (Continued)

The site-by-site breakdown of the accelerated site programmes is as follows:

- Winfrith: Completion brought forward from 2050 to 2015
- Harwell: Completion brought forward from 2049 to 2025
- Windscale: Interim work, including removal of fuel and isotopes from Pile One, completed by 2015. Final decommissioning by 2037.
- Dounreay: Completion brought forward from 2063 to 2036
- Culham: JET operations extended to 2008. Current decommissioning completion by 2022.

INTERNATIONAL DECOMMISSIONING PROJECTS

Decommissioning Project Status for Dounreay and the United Kingdom has been provided by Dick Mersurvey and Paul Woollam. However, direct input for the DD&R Newsletter from most International Decommissioning Projects has been difficult to obtain. Some information is available from internet web sites. A few of those sites are listed below:

IAEA links

<http://www-ns.iaea.org/tech-areas/waste-safety/decommissioning.htm>

<http://www-ns.iaea.org/downloads/rw/action-plans/decomm-action-plan.pdf>

http://www.iaea.org/OurWork/ST/NE/NEFW/wts_home.html

OECD links

<http://www.nea.fr/html/rwm/wpdd/welcome.html>

If any of our members have any good contacts that might be willing to periodically contribute status updates to our Newsletter and our Division Members, please contact Vince Likar, Newsletter Chairman, by email at Vincebldr@aol.com.

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Here is a preview of the 2005 Editorial Cover Stories:

January/February: High-Level Waste / Spent Fuel

March/April: Transportation

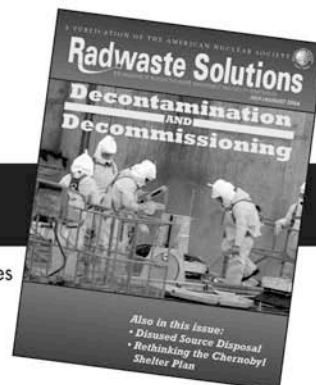
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