



NASA Glenn
Plum Brook Station

SEVENTH EDITION
APRIL 2003

Decommissioning NEWS

Plum Brook Station

A quarterly
newsletter
to inform the
public about NASA's
Decommissioning
Activities

REACTOR INTERNALS INVESTIGATION REVEALS CRITICAL INFORMATION Planning For Safe Segmentation Continues

(This is second in a series of articles on segmentation and removal of the reactor internals and vessel. See the April 2002 edition for the first installment.)

Segmentation refers to the process of taking apart and reducing a whole into pieces. At the Reactor Facility, the decision to conduct segmentation on the reactor vessel rather than take it out intact was based on several technical, practical and safety considerations. During segmentation the reactor's internal components and vessel walls will be carefully taken apart, then placed inside waste containers and shipped offsite for disposal. But before layers of the reactor can be peeled away, layers of detail evolve through an iterative planning process - setting the course towards safely carrying out segmentation.

Segmentation and removal of the reactor internals and reactor vessel represent some of the most technically challenging and potentially highest radiation dose to workers that will occur during decommissioning. NASA's Decommissioning Team has been working for more than a year to develop a safe and thorough plan specifically for the segmentation phase of decommissioning. Wachs Technical Services of Charlotte, North Carolina was added to the Decommissioning Team as the contractor to support development of the segmentation plan and to perform the actual segmentation work.

Historical records and some early characterization results provided the basis for estimates on the types and quantities of materials that make up the reactor internals and vessel

The Reactor:
9 feet in diameter

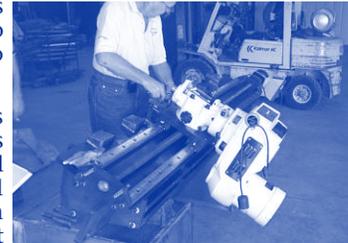
Made of a carbon
steel shell with a
stainless steel
interior coating

Contains
13 internal
components,
primarily
comprised of
stainless steel and
aluminum

A core box
consists of
beryllium and
aluminum plates

Total mass is
roughly equal to
20 tons

Total activity of
44,000 curies,
mostly tritium
(H-3) from the
beryllium plates



Testing a vertical mill tool on mock-up reactor internals.

Decommissioning Tools
Segmentation uses a
customized set of
tools designed for
safety, precision and
efficiency.

Mechanical cutting
including hydraulic shear
for small tubes

Boring bar for pipes

Vertical mill and
horizontal mill for
internals

Plasma-arc &
oxyacetylene cutting for
non-radioactive
components

Abrasive Water Jet for
reactor tank walls



Montgomery Watson Harza Master Electrician Tom Freeman checks new power control panel before building goes "Cold and Dark."

Meanwhile back at the Reactor Facility, work crews installed several systems in preparation for segmentation. They laid track and installed structural supports for the Cask Transfer System, constructed and tested the Containment Ventilation System, and activated the building's new electrical power system (see "Cold and Dark" article, page 3).

WHAT'S INSIDE

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Other ways to receive Decommissioning INFORMATION

FACT SHEETS

Since June 1999, NASA has produced fact sheets dealing with various aspects of decommissioning. Copies are available at public libraries throughout Erie County, at the Community Information Bank at the BGSU Firelands Library, on our Decommissioning Website at www.grc.nasa.gov/WWW/pbrf and by calling our Information Line at 1-800-260-3838.

COMMUNITY INFORMATION BANK

NASA has established a Community Information Bank (CIB) at the BGSU Firelands Library. The CIB serves as a permanent repository of information on the Decommissioning Project which NASA continually updates. All information at the CIB is available to the public upon request.

DECOMMISSIONING WEBSITE

Decommissioning information is available on-line. Visit us at www.grc.nasa.gov/WWW/pbrf

SPEAKERS

NASA will provide speakers upon request to civic, community and school organizations throughout decommissioning. A video or slide presentation may be presented. For further information, contact Sally Harrington through our Information Line at 1-800-260-3838, her direct line at 216-433-2037, or at s.harrington@grc.nasa.gov.

NASA Advances Waste Handling Plans

Classifications for Disposal

The U.S. Nuclear Regulatory Commission (NRC) classifies solid LLRW for disposal at a licensed LLRW facility in the following categories:

Class A - extremely low levels of LLRW

Class B - higher levels of LLRW

Class C - highest levels of LLRW allowed in a LLRW disposal facility

NASA is the licensee to the U.S. Nuclear Regulatory Commission (NRC) and has the ultimate responsibility for radioactive waste generated from the Reactor Facility Decommissioning Project until another NRC-licensed facility takes possession of the waste. In the United States, only two sites are currently licensed to accept radioactive waste for disposal - Envirocare of Utah, Inc., and the Barnwell Disposal Facility in South Carolina. NASA began early in the decommissioning planning process to communicate with officials at each of the sites and is now formalizing these relationships.

NASA Solidifies Disposal Site Permits

Waste generated from decommissioning is dry, solid, low-level radioactive waste (LLRW) - much of it consisting of soil, concrete rubble and metal debris containing very, very low levels of radioactivity. The bulk of the radioactive waste is classified as Class A for disposal (see sidebar for NRC classifications). Class A waste from decommissioning will be sent to Envirocare of Utah, Inc. under an existing permit established by the United States Army Corps of Engineers (USACE, a Decommissioning Team member).

NASA has made significant progress in plans for disposal of higher-level LLRW (a small percentage of the total LLRW volume) that will result primarily from segmentation of the reactor internals and vessel (see page 1 article). NASA recently received a permit from the Barnwell Disposal Facility, which will accept the estimated two shipping casks containing some Class B and much lesser amounts of Class C LLRW. In February, NASA Senior Project Engineer Keith Peecook, along with Decommissioning Team members Adam Mancini (Framatome-ANP Senior Nuclear Engineer) and Bryan Moyers (Montgomery Watson Harza Construction Manager), visited with officials at the South Carolina Department of Health and Environmental Controls (DHEC) - the agency that has oversight control of the Barnwell Disposal Facility. Together, they reached agreements on expected content, form, and timing of planned shipments over the next six to eight months. "DHEC officials appreciated receiving the information in advance and provided us with valuable feedback," said Peecook.

NASA Adds "Turnkey" Waste Contractor to The Decommissioning Team

NASA's Decommissioning Team continues to characterize and profile wastes and will maintain direct oversight of waste handling throughout decommissioning. NASA has decided that hiring a professional waste services company was preferable to building in-house expertise to carry out waste handling operations. After several months of research and careful scrutiny, NASA and Montgomery Watson Harza (the lead Decommissioning Team contractor for this project) issued a formalized Request for Proposals (RFP). They have winnowed the field to a few candidates being considered for the Waste Vendor Services Contract. "We're looking for a 'turnkey contractor' - one that will work closely with the Decommissioning Team but function similar to a general contractor - specifically for waste handling," said Peecook. "Candidates are being judged on their technical expertise, range of safe, reliable technologies, and depth of established programs for handling our particular types and quantities of wastes (with the exception of the reactor tank, internals, and equipment in Hot Dry Storage)." The turnkey contractor will provide expertise on packaging, as well as coordinated selection, scheduling and pricing of containers and transportation methods. "The experience that the waste services contractor brings to the Decommissioning Team will allow us to work in the most efficient manner possible," said Peecook. NASA and Montgomery Watson Harza are in the final stage of the selection process. A profile of the waste contractor will be featured in a future edition of Decommissioning News. ■

Do you want to know what 's happening? Do you have questions or comments on Decommissioning?

CALL OUR INFORMATION LINE AT 1-800-260-3838.

Project Goes "Cold and Dark" to Keep Workers Safe and Sound

Going "Cold and Dark" sounds anything but comforting to most of us. But in early March, decommissioning workers welcomed it as another sign that their safety is NASA's top priority. The Decommissioning Team identified the potential for electrical hazards in the safety review of the Reactor Facility. "We don't rely on the building's blueprints and plans to identify where power is and isn't," said Keith Peecook, NASA Senior Project Engineer. The Reactor Facility's existing electrical substation (which had been in place since the facility was built in the early 60s) was taken completely out of service. Switching to a new, visible, clearly identifiable electrical wiring system provides additional safeguards against accidental electric shock. "The last thing we want is for workers to encounter 'live wires' hidden within the floors, ceilings or walls," Peecook explained. Going "Cold and Dark" is an important milestone in preparation for the start of a safe segmentation process. ■



After "Cold and Dark" a new system lights the way for decommissioning workers.

REACTOR INTERNALS INVESTIGATION (CONTINUED FROM PAGE 1)



A video camera is lowered into the reactor - opened in November for the first time in 29 years.

Reactor Internals Investigation

Since day one of the project, NASA Decommissioning Project Manager Tim Polich has known how important it would be to "take a look inside" the reactor vessel. That pivotal moment came last November when the reactor vessel was opened for the first time in 29 years. The roughly three hours of video taken during the reactor internals investigation may not be Academy Award-winning material but the video clearly deserves credit for providing the

Decommissioning Team with a look at the current condition and actual location of the internal components and interior vessel walls. Workers shot the video by attaching a camera to a long pole and lowering it 25 feet into the reactor vessel (see photo). They also used remote tools to take direct radiation readings and to take a physical sample (a length of aluminum pipe was sheared off within the tank) for analysis at an off-site laboratory.

Seeing is believing. Reactor Internals Investigation results provided important information that was incorporated into the ALARA (As Low as Reasonably Achievable) analysis. The ALARA analysis is done in advance of the start of work and determines the levels of exposure to radiation that can be expected while workers are on a particular job. "Once NASA received these results, it was clear that we needed to re-engineer the initial approach to segmentation to further reduce the radiation dose to workers who will be doing the segmentation work," said Polich. NASA has delayed the start of segmentation (originally slated for February 2003) to refine its approach to the process. A group of NASA retirees has been tapped to provide important historical detail (see related article, page 4). Other on-site activities such as removing fixed equipment, investigating the Hot Dry Storage area, and conducting further facility-wide characterization have been advanced in the schedule to keep decommissioning moving forward. ■

COMMUNITY WORKGROUP MEMBER PROFILE



Steve Casali

For Steve Casali, the Community Workgroup is "all about the questions." The Sandusky native, who has been Erie County's Board of Health Director since 1993, explains that the Workgroup "is a good forum for asking questions" about the Decommissioning Project. "People ask good questions," he adds. "I feel everybody is comfortable asking them." So far, he is also pleased with NASA's responses, observing, "I've never felt NASA was being evasive...NASA is being forthright, putting out a lot of information that is honest, straightforward and factual."

A University of Cincinnati graduate with a degree in X-Ray Technology, Steve joined the Erie County Health Department in 1976. His radiological background was significantly enhanced when he joined the state's Emergency Response Team for nuclear power plants. He spent two weeks at the U.S. Department of Energy's Nuclear Test Site facility in Nevada, receiving training in areas including transportation and accident response. Given his experience, Steve also serves as Radiation Officer for Erie County's Emergency Operations Center.

The Health Department Director was one of the first people NASA sought out when Decommissioning Outreach began in 1999, and he provided considerable input and perspective. Today, he believes that decommissioning is safe, "based on what I've heard" during his Workgroup experience. A founding Workgroup member, Steve says his background "absolutely helps" him understand decommissioning issues and that he's impressed with the knowledge and background of his fellow members.

Steve was also impressed with January's Workgroup meeting, when "an engineer (Adam Mancini of NASA subcontractor Framatome-ANP) talked about how to saw apart pipes" during upcoming segmentation activities. NASA "keeps the data coming," he adds, citing as an example the quick agreement of Decommissioning Project Manager Tim Polich to another member's suggestion that a presentation on environmental and worker monitoring be part of the April agenda.

While Steve believes NASA's response to Workgroup and public questions is a key to the public acceptance of decommissioning, he says he has not received many questions. But he's quick to note, "This is not a bad thing," since it shows "NASA is getting the word out...There's the Website, the Information Line and the Workgroup." As the project goes forward, Steve believes "things will become more detailed and technical," and that he can help community members understand these issues. He says NASA's outreach approach should be "This is what we're doing. This is why. This is when we're doing it...(And) this is how." And, he points out, "NASA is doing this. There's no reason to alter the course." ■

VISIT US ON-LINE

You can find our Decommissioning Website at www.grc.nasa.gov/WWW/pbrf



Topics in Upcoming Issue

Project update
More on radiation and radioactivity
Workgroup member profile

Decommissioning Team Goes to the Source NASA Retirees "Back on the Job"



Dean Sheibley
NASA retiree

Several NASA Plum Brook Reactor Facility engineers and mechanics, now retired, remain a tight-knit group - some meeting for breakfast at the Perkins Family Restaurant every first Tuesday of the month. All tolled, their years of experience at the Reactor Facility and as NASA employees number in the hundreds. NASA recognized early on the wealth of institutional memory that these retirees can offer in planning for decommissioning. Some, like Sandusky resident Dean Sheibley - retired from NASA after 35 years as a chemist and a former Reactor Facility Safety Committee Chairperson - keep in touch directly with NASA's Tim Polich and Keith Peacock. Still others, like Huron resident Len Homyak, participate in NASA's quarterly Community Workgroup meetings and annual Community Information Sessions. For much of his 33 years of service to NASA, Homyak was the Project Engineer responsible for all equipment and running experiments on the reactor. Both Sheibley and Homyak were also involved in preparations for the facility's closure in 1973 and in its conversion to Standby Mode after shutdown.

Sheibley remembers being at the Operational Readiness Review (ORR) last November, when NASA "asked the tough questions" to gauge its readiness for segmentation. It was on the heels of this meeting that NASA determined the need to refine the approach to segmentation and called upon the retirees' collective memory to provide insight. (These were the workers who were the last to see the reactor open nearly 30 years ago.)

Sheibley, along with retirees Jack Crooks and Jack Ross, gathered together half a dozen former co-workers to meet with members of the Decommissioning Team. According to Homyak, it was "a well-rounded group of men who had a hand in all the Reactor Facility daily operations." Over a series of four meetings in February, they discussed how to take the core apart, and how to conduct a nitrogen purge test to establish a baseline against which to measure the release of tritium from the irradiated beryllium plates. They reviewed the contents of the Hot Dry Storage and Hot Cells areas, as well as equipment and procedures once used for experiments. "We gave them an idea of what they need to look out for and what not to," said Homyak. They were also able to identify the more pertinent documentation from a sea of historical records. Together they located documents and pored over drawings explaining how red marks (they themselves had made years ago) indicated where changes had been made to the building. They explained meanings behind handwritten notes jotted in margins of experiment manuals. They reviewed logbooks and told of how equipment had been used - lending critical insight to the likelihood of it being activated or not.

Sheibley said of the Decommissioning Team, "They're a good group of people with excellent decommissioning experience. What we've done is expedited their knowledge to the particulars of the Plum Brook Reactor Facility." Sheibley, Homyak and the other retirees remain on call for future questions. ■



NASA Glenn Plum Brook Station

6100 Columbus Avenue
Sandusky, Ohio 44870

Community Workgroup Meeting TUESDAY, APRIL 15, 7 p.m.

Saint John's Lutheran Church
110 Scheid Road, Milan Township
(At the corner of U.S. 250, near Perkins Township)

The meeting is open to the public