

June 28, 2002

Mr. Donald J. Campbell, Director  
NASA Glenn Research Center at Lewis Field  
21000 Brookpark Road M.S. 3-2  
Cleveland, OH 44135

SUBJECT: NRC ROUTINE, ANNOUNCED INSPECTION REPORTS NO. 50-30/2002-201  
AND NO. 50-185/2002-201

Dear Mr. Campbell:

This refers to the inspection conducted on May 20-25, 2002, at your Plum Brook Reactor Facility. The inspection included a review of decommissioning activities authorized for your facility. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. Based on the results of this inspection, no safety concerns or noncompliances of NRC requirements were identified. No response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning this inspection, please contact Mr. Thomas Dragoun at 610-337-5373.

Sincerely,

/RA/

Patrick M. Madden, Section Chief  
Research and Test Reactors Section  
Operating Reactor Improvements Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos. 50-30 and 50-185  
License Nos. TR-3 and R-93

Enclosure: NRC Inspection Report Nos. 50-30/2002-201 and 50-185/2002-201

cc w/enclosure: Please see next page  
National Aeronautics and  
Space Administration

Docket Nos. 50-30/185

cc:

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U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION

Docket Nos: 50-30 and 50-185

License Nos: TR-3 and R-93

Report Nos: 50-30/2002-201 and 50-185/2002-201

Licensee: National Aeronautics and Space Administration

Facility: Plum Brook Reactor Facility  
Test Reactor and Mockup Reactor

Location: Sandusky, Ohio

Dates: May 20-25, 2002

Inspector: Thomas F. Dragoun

Approved by: Patrick M. Madden, Section Chief  
Research and Test Reactors Section  
Operating Reactor Improvements Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY  
NASA Plum Brook Reactor Facility  
Report Nos: 50-30/2002-201 and 50-185/2002-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects of the decommissioning program including organization and staffing, work controls and coordination, waste disposal and transportation, surveillances, industrial safety, and worker training.

Organization and Staffing

- The licensee's organization and staffing were in compliance with the requirements specified in TS Section 6.1 and DPlan Section 2.4.

Work Controls and Coordination

- Control and coordination of work was accomplished as described in the DPlan.

Waste Disposal and Transportation

- The waste disposal program was in the process of being implemented in accordance the DPlan.

Surveillance

- The surveillance program satisfied Technical Specification requirements.

Industrial Safety

- The roles and responsibilities for the industrial safety program were satisfactory.

Training

- The content of material to be used for worker training was satisfactory.

## REPORT DETAILS

### **Summary of Plant Status**

The licensee was authorized to decommission the reactors on March 20, 2002. Scaffold ladders were erected in the quadrants surrounding the reactor. No remediation work was in progress during this inspection. The major effort underway was the finalization and approvals of project policies and procedures. A radiation protection control point was established in a building at the perimeter fence. A complex of interconnected office trailers was erected in the parking lot to accommodate the supervisors from NASA, Army Corps of Engineers, the prime and sub-tier contractors. Another trailer complex inside the controlled area provided a lunch room, foreman offices, and a personnel decontamination shower for the workers.

### **1. Organization and Staffing**

#### **a. Inspection Scope (Inspection Procedure [IP] 39745)**

The inspector reviewed the following to ensure that the requirements of Technical Specification (TS) Section 6.1 and Decommissioning Plan (DPlan) Section 2.4 were satisfied:

- organizational structure
- management responsibilities
- training and experience of the NASA on-site technical staff
- personnel interviews
- observation of a Project Safety Committee meeting

#### **b. Observations and Findings**

The site organization chart, roles, and responsibilities were as described in the DPlan. All on-site supervisory positions for NASA and U.S. Army Corps of Engineers (USACE) were filled. NASA technical positions were filled by personnel on detail from the Argonne National Laboratory. A review of training and experience resumes indicated that these personnel satisfied the qualification requirements specified in the DPlan and TS.

A meeting of the Project Safety Committee was held on May 22, 2002, with five members present. The committee reviewed and approved quality assurance plan section QA-02, revision 1 and procedure PBRF-EW-003, "Packaging and Shipment of Limited Quantity Radioactive Material Samples", revision 0. These actions were taken in accordance with TS 6.8(4)c.

The licensee has established seven "functional teams" consisting of representatives from NASA, USACE, the prime, and sub-tier contractors to serve as subject matter experts and improve communications between groups. For example, the Design and Construction Team and the Waste Management Team provided an analysis to the Project Safety Committee of a proposal for outside storage of radioactive waste. This was a good licensee initiative.

c. Conclusions

The licensee's organization and staffing were in compliance with the requirements specified in TS Section 6.1 and DPlan Section 2.4.

**2. Work Controls and Coordination**

a. Inspection Scope

The inspector reviewed the following to ensure that planned work was reviewed as required by DPlan Sections 2.3.2, 2.3.3.2, 3.1, and 3.2.4:

- end-of-shift meeting held on May 21, 2002
- interviews with USACE , contractor supervisors, and safety personnel
- NASA Project Manager Policy Note MC-6, "Preparation, Approval, Revision, and Use of Procedures, Work Instructions, and Work Execution Packages", rev. 1, dated February 7, 2002

b. Observations and Findings

Discussions with personnel indicated that the Work Breakdown Structure (WBS) for the control and scheduling of work is routinely used by USACE on other projects. Consequently, the USACE personnel and contractors were familiar with the process. The WBS was broken down into detailed work instructions, Work Execution Package (WEP), which document the job safety analysis, radiation work permit, and industrial safety precautions. It also references standard operating procedures such as crane operation. The WEP was prepared by the prime contractor and reviewed and approved by the USACE. Preparation of the WEP and supporting procedures was underway. No finalized WEP was reviewed by the inspector. Site staff indicated that remediation work was expected to begin on or about June 17, 2002.

c. Conclusions

Control and coordination of work was as described in the DPlan.

**3. Waste Disposal and Transportation**

a. Inspection Scope (IP 86740)

The inspector interviewed USACE, NASA, and contractor personnel to ensure that the commitments in DPlan Section 3.2.3, "Radioactive Waste Disposal were being implemented.

b. Observations and Findings

No waste has been shipped since the DPlan was approved. USACE representatives stated that USACE contracts with the Barnwell and Envirocare burial sites will allow disposal of all wastes identified during the site characterization, including mixed

waste. Waste stream analysis, preparation of the shipping manifest, ordering packaging, staging the load, and compliance with NRC, DOT, and State of Ohio requirements will be performed by an experienced contractor (Duke Engineering/Framatome) subject to NASA approval and oversight. In addition, the contractor stated that an on-site analytical laboratory will be operational on June 21, 2002, for analysis of waste samples.

c. Conclusions

The waste disposal program was in the process of being implemented in accordance with the DPlan.

#### 4. Surveillance

a. Inspection Scope (IP 61745)

The inspector reviewed the following to verify compliance with TS Sections 4.2 and 4.3 Surveillance Requirements:

- Policy Note MC-7, "Revision, Deletion, Retention, and Transfer of PBRF Reactor Procedures" undated, issued by the PSC
- Inspection and Test Report (ITR) #2, "Monthly Alarm Check", dated March 6, 1995
- ITR #6, "HRA Annulus Sump Discharge Monitoring", dated September 24, 1985
- ITR #12, "Diesel Check", dated February 2, 2000
- ITR #22, "Absolute Filter Check", dated January 5, 1983
- ITR #25, "Cold Sump and N2 Purge Inspection", dated February 8, 2000
- ITR #26, "PBRF Bldg and Security Check", dated May 8, 2000
- ITR #30, "Check of CV Dehumidification System", dated November 14, 1996

b. Observations and Findings

The licensee set the initiation date for periodic surveillances as April 1, 2002. The PSC approved the use of selected surveillance procedures (ITRs) that were in effect while the facility was in SAFESTOR mode. Some additional ITRs were retained that are no longer required by the TS. Some new procedures were in draft for surveillances required on a quarterly or annual cycle. Records for the month of April 2002 demonstrated that the weekly and monthly required surveillances were performed and the results were satisfactory.

c. Conclusions

The surveillance program satisfied Technical Specification requirements.



## 5. Industrial Safety Programs

### a. Inspection Scope

The inspector interviewed the industrial safety personnel from the various groups on site to verify that the commitments in the DPlan Sections 2.4.2.2 and 3.2.4 were met. The review included:

- Student Hand out, “General Overview”, Chapter 1. Introduction, undated
- Visual aids, “Lead Hazard Awareness”, undated, by John Heggie, CSP

### b. Observation and Findings

The on site positions for safety and industrial hygiene personnel in NASA, USACE, and Montgomery Watson Associates (MWA -the prime contractor) organizations were filled. The prime contractor was responsible for the implementation of the program with oversight by NASA and USACE. This included supplying safety equipment (hard hats, safety glasses, etc.) and workers training. In addition, MWA was responsible for performing the job safety analysis and conducting the pre-job briefings for the workers. The MWA Health and Safety Manager was the leader of the Safety Team, which is one of the seven “functional teams.” This team will review all accident reports and recommend improvements in the safety program. A licensed subcontractor will be hired to remove the asbestos.

### c. Conclusion

The roles and responsibilities for the industrial safety program met the DPlan requirements.

## 6. Worker Training

### a. Inspection Scope

The inspector reviewed the following to verify compliance with requirements in 10 CFR 19.12 and DPlan Section 2.5:

- Duke Engineering and Services, “General Employee Training Manual”, dated June 2001
- NASA, “Site Specific Safety and Health Plan”, rev. 0, undated
- NASA, “General Employee Training Test”, version B, undated
- NASA, “Radiation Worker Training Manual”, dated June 2001
- NASA, “Radiation Worker Challenge Test”, undated
- NASA, “Radiation Worker Test”, version B, undated

b. Observations and Findings

No worker training was in progress. Training material included the subject matter required by the regulations.

c. Conclusions

The content of material to be used for worker training was satisfactory.

**7. Exit Interview**

The inspection scope and results were summarized on May 23, 2002, with members of licensee management. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

## **PARTIAL LIST OF PERSONS CONTACTED**

### **Licensee**

F. Greco, NASA, Decommissioning Project Management  
K. Peecook, NASA Senior Project Engineer  
P. Kolb, NASA Environmental Manager  
W. Watson, USACE Project Management and Quality Assurance  
E. Carver, USACE Construction Manager  
S. Leeper, USACE Environmental Manager  
S. Neilson, USACE Safety Manager  
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R. Hysong, MWA Radiological Engineer  
D. McGee, Framatome/Duke Engineering & Services Radiological Safety Officer  
R. Posik, Framatome/Duke Engineering & Services Radwaste Manager  
J. Fuerstenberg, PBOSG Administrative Assistant

## **INSPECTION PROCEDURES USED**

IP 86740      Inspection of Transportation Activities

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened      None

Closed      None

## **LIST OF ACRONYMS USED**

CFR	Code of Federal Regulations
DPlan	Decommissioning Plan
IP	Inspection Procedure
ITR	Inspection and Test Results
MWA	Montgomery Watson Associates
NASA	National Aeronautics and Space Administration
NRC	Nuclear Regulatory Commission
PBOSR	Plum Brook Operations Support Group
TS	Technical Specification
USACE	United States Army Corps of Engineers