

ANNUAL STATUS REPORT

Reporting Period: January 1, 1982 - December 31, 1982

NASA, Plum Brook Reactor
License No. TR-3
Docket No. 50-30

NASA, Plum Brook Mockup Reactor
License No. R-93
Docket No. 50-185

February 3, 1983

NASA, Lewis Research Center
Plum Brook Station
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ANNUAL STATUS REPORT
FOR THE
NASA, PLUM BROOK REACTOR AND PLUM BROOK MOCK-UP REACTOR

1. Introduction:

The following Annual Status Report for the period January 1, 1982, through December 31, 1982, has been prepared pursuant to Section IV.5.15 of the Dismantling Plan, Plum Brook Reactor Dismantling, dated February 1980, which supported the NASA request for issuance of a USNRC Dismantling Order.

2. Status of Reactor Facility Dismantling:

By letters dated March 17, 1980 and enclosures, as revised by letters dated November 7, 1980, and February 23, 1981, NASA requested USNRC authorization to dismantle the Plum Brook Reactor and Plum Brook Mock-Up Reactor, to dispose of radiological component parts and terminate Licenses TR-3 and R-93. In addition, NASA requested authorization to decontaminate the Hot Laboratory and Radiochemistry Laboratory located at the same site.

USNRC authorization to decontaminate these laboratories was issued on May 28, 1980, by Amendment No. 2 to Byproduct Materials License No. 34-06706-03. USNRC authorization to dismantle the two reactor facilities was issued by way of Dismantling Order dated May 26, 1981. NASA dismantling plans approved by USNRC under this Order replaced the previous Technical Specifications for each facility in their entirety.

At the time NASA requested a Dismantling Order, and during the USNRC review of documentation supporting this request, funding of the reactor dismantling project was anticipated and an active dismantling effort was planned and scheduled. However, because of initiated and continuing federal budget restrictions, NASA has continued to find it necessary to defer funding of this project. As a result, no dismantling activities, as permitted under the Dismantling Order, have been performed to date. It is not known when NASA funding will permit execution of dismantling activities. Until such time, the facilities continue to be maintained in a safe protective storage mode.

Since NASA maintained these reactor facilities in the standby mode for several years pending a decision to either restart or decommission, much equipment and instrumentation which supports facility operations and in-pile experiments has been stored in place. In 1982, NASA began to review these items and has commenced removal of items not deemed necessary to support either the current safe protective storage mode, or the future dismantling mode. This removal activity is being performed under the criteria of the Dismantling Order and is expected to continue in 1983 and beyond.

3. Organizational Changes:

Because of continuing project funding deferral, the Reactor Decommissioning Project Office was disbanded effective September 21, 1981. It is the intent of NASA to re-establish this Project Office in accordance with dismantling plans, when funding is adequate to support significant dismantling activities.

Until such time, Mr. Earl C. Boitel, Jr., former Deputy Manager, Reactor Decommissioning Project Office, and currently Chief, Construction Management Branch, continues to serve as the NASA point of contact for information relating to the dismantling project. In addition, Mr. Boitel continues in his additional assignment as Manager, Plum Brook Reactor Facility (PBRF), responsible for maintaining the safe protective storage mode of the reactors. Daily security, surveillance, and maintenance activities continue to be performed by an on-site service contractor. Assigned as first alternate to this position is Mr. Michael W. Sudsina replacing Mr. Ervin J. Minderman, who elected to retire from federal service on September 17, 1982. Mr. Thomas L. Junod continues his duties as Radiation Safety Officer and serves as second alternate Manager, PBRF. Mr. Raphael J. Koch continues as Manager of the Plum Brook Station where the reactors are located.

In accordance with dismantling plans, review and approval of PBRF safety aspects were transferred from the NASA Area 8 Safety Committee, to the PBRF Dismantling Safety Committee (DSC), Mr. Richard M. Schuh, Chairman, effective upon receipt of the USNRC Dismantling Order. Full DSC meetings were held on May 14 and November 19, 1982.

4. Condition of Systems and Components:

The condition of all systems and components vital to maintaining safe protective storage has been carefully reviewed. They are performing satisfactorily. As reported in previous years, the Containment Vessel cathodic protection system remains energized, but is providing less than the recommended level of cathodic protection for a portion of the Containment Vessel wall. NASA is currently evaluating the need for maintaining this system which was installed during the reactor operation phase.

5. Assessment of Security and Surveillance Measures:

Security inspections are conducted at the PBRF once per shift; i.e., three times per day, and each of the major buildings is inspected by a guard once each day. In addition, other security checks such as checks of fences and locks are conducted monthly. Surveillance of operating systems and components, absolute filters, and radiological surveys are performed as specified in the PBRF Procedures Manual. In addition, surveillance inspections are being performed for some non-operating systems and components to assure that the safe protective storage conditions are maintained.

All of the security and surveillance inspections are accomplished by use of Inspection and Test Report (ITR) checksheets to insure that they are completed properly and in a timely manner. Completed ITRs are reviewed and approved by the Manager, PBRF and/or alternates and filed in the PBRF Vital

Records. Any ITRs requiring corrective action are reviewed as well by Plum Brook Station Management. Equipment Maintenance Records (EMRs) are utilized to document maintenance on vital components, equipment, systems and facilities which are not otherwise covered under the routine ITR system.

The security and surveillance program in effect at the PBRF is more than adequate to maintain the facilities in a safe protective storage mode.

6. Facility Changes:

During this reporting period there were no major changes to the Reactor Facility.

7. Facility and Environmental Radiological Surveys:

The 1982 monitoring data continued to include direct radiation; surface contamination; and airborne, waterborne, stream silt, and precipitation/fallout radioactivity. These parameters do not vary significantly from data obtained during the previous 8-1/2 years of standby or safe protective storage of the PBRF. All data indicates the radioactivity within PBRF is being safely contained.

Effective January 1983, the facility and environmental air samples for radiohalides, using charcoal cartridges, will no longer be obtained. No radiohalides are being generated, and, due to short half-life considerations, none are contained within PBRF. NASA will, however, continue to sample and analyze for alpha and beta-gamma particulate airborne radioactivity.

8. Significant Maintenance Performed:

Thirty maintenance tasks were performed during this reporting period under the Equipment Maintenance Record (EMR) Program described in Section 5. The most significant tasks were as follows:

- a. Re-painted external surfaces of two buildings, the Reactor Security Control Building and the Water Effluent Monitoring System Building.
- b. Re-painted external surface of Containment Vessel dome.
- c. Repaired four "cold" sump pumps located in the Fan House and the Service Equipment Building.
- d. Excavated and repaired footer drain tiles servicing the Fan House (FH) to eliminate groundwater leakage in the FH basement.
- e. Performed operational checkout of fire water lines servicing the PBRF site.
- f. Removed remaining emergency generator diesel fuel from underground storage tank at Service Equipment Building and filled tank with water and corrosion inhibitor.
- g. Installed new roof covering on Reactor Security Control Building and portions of the Reactor Office and Laboratory Building (ROLB). On ROLB roof above the Radiochemistry Laboratory, all standby air-handling equipment was removed which was contributing to frequent roof water leakage problems. This equipment exhibited no detectable radioactive contamination at removal. A thorough radiological grid survey was performed prior to covering.

9. Audits:

Two internal audits of the PBRF were conducted by the assigned Audit Team: Dr. Julian M. Earls, Chairman, on February 5 and December 30, 1982. No items of noncompliance with either USNRC license conditions or facility procedures were identified.

10. Unusual Occurrences:

There were no unusual occurrences at the PBRF during 1982 which were reportable to USNRC under the criteria of 10 CFR 21.3, 10 CFR 21.4 and 10 CFR 50.72.

On September 17, 1982, however, a Plum Brook Station Security Guard noted an unlocked padlock on the personnel entry door to the Containment Vessel (CV). Upon investigation by contractor and NASA personnel, it was concluded that this was attributable to "personnel error" due to entry into the CV the previous day by an authorized individual in performance of a weekly inspection and Test Report. Although the padlock had been fastened to the CV entry door handle, the padlock had not locked properly. Further investigation showed that because of the existence of multiple locked barriers which must be breached to permit CV entry, coupled with the absence of any alarm signaling CV entry, no unauthorized entry to the CV occurred. Thus, no major reduction in the degree of protection provided to public health and safety was experienced. However, personnel entering the PBRF in the performance of their duties have been reminded to check for proper padlock locking when securing PBRF areas of entry.

11. License Changes:

By letter dated April 12, 1982, NASA requested the termination of Byproduct Material License No. 34-06706-03 by simultaneous transfer of all materials and conditions of the byproduct material license to the existing Plum Brook Reactor License No. TR-3.

USNRC-approved dismantling plans and radiation limits of the PBRF licenses and byproduct material license are essentially the same, and the decontamination and dismantling (D&D) of all the areas which are authorized by the byproduct material license is just a part of the operation for D&D of the entire PBRF.

USNRC approved this request and terminated Byproduct Material License No. 34-06706-03 by letter dated May 21, 1982.

12. Other:

- a. Battelle Memorial Institute Study - As reported previously, NASA permitted Battelle Memorial Institute (BMI) - Northwest the use of the PBRF as the reference test reactor in a study, under USNRC contract, to provide information on the available technology, safety considerations, and range of costs for various decommissioning options for research and test reactors at the end of their operating phase. This study was completed and published by BMI as NUREG/CR-1756 in March 1982.

- b. Proposed disposal of PBRF Cooling Tower and Water Storage Tank - In 1982, NASA decided that the 175,000 gallon processed-water storage tank and the adjacent redwood mechanical draft cooling tower were excess to its needs. The General Services Administration has approved the removal of these real property items from the PBRF site. NASA is currently evaluating various disposal options. Controlled burning of the wooden cooling tower is one the options being explored. Local communities have been contacted to determine if any have need of an excessed water storage tank. This evaluation will continue in 1983.
- c. Disposal of Excess Plum Brook Station Property - Due to Federal budgetary cutbacks, the USEPA Noise Enforcement Program was canceled effective October 1, 1981. Consequently, all USEPA Noise Enforcement operations and employees located at the Plum Brook Station have been terminated. Further, the transfer of the 604 acre plot of land which was to be transferred by GSA from NASA to USEPA has been canceled. The GSA is continuing to investigate other possible uses or methods of disposing of this acreage. If subsequent disposition of this land is made to another federal agency, the existing Station perimeter fence line will remain intact. If, however, this acreage is disposed of to other than a federal agency, the Station western fence line will be relocated to the easternmost portion of the excessed parcel. The nearest point of property affected is approximately 5,000 feet from the fenced site of the PBRF. In either case, NASA will continue to control access to the total Station, inspect, maintain and provide security surveillance for the existing or revised Plum Brook Station perimeter fence line. Conditions at the PBRF site will be unaffected.