

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 70-25/85-03

Docket No. 70-25 License No. SNM-21 Safeguards Group I

Licensee: Rockwell International Corporation
Rocketdyne Division
Atomics International
6633 Canoga Avenue
Canoga Park, California 91204

Facility Name: Headquarters Site and Santa Susana Field Laboratory

Inspection at: Headquarters Site and Santa Susana Field Laboratory

Inspection conducted: April 22-26 and May 8, 1985

Inspectors: B. L. Brock 5/21/85
B. L. Brock, Fuel Facilities Inspector Date Signed
P. R. Zurakowski 5/21/85
P. R. Zurakowski, Radiation Specialist Date Signed

Approved By: R. D. Thomas 5/24/85
R. D. Thomas, Chief Date Signed
Nuclear Materials Safety Section

Summary:

Inspection on April 22-26 and May 8, 1985 (Report No. 70-25/85-03)

Areas Inspected: A routine announced safety inspection was conducted of management organization and controls, operator training and retraining, criticality safety, operations review, radiation protection, radioactive waste management/transportation, environmental protection, and emergency preparedness.

The inspection involved a total of 66 hours onsite by two regionally based inspectors.

Results: No violations or deviations were identified in the eight areas inspected.

DETAILS

1. Persons Contacted

*G. W. Meyers, Vice President, Atomics International, Rocketdyne
*M. E. Remley, Director, Nuclear Safety and Licensing
*C. J. Rozas, Director, Health, Safety and Environment
*R. D. Barto, Director, Security
*R. J. Tuttle, Manager, Radiation and Nuclear Safety
*C. A. Parker, Manager, Technical Training
I. N. Stein, M.D., Medical Director
V. J. Schaubert, Manager, Nuclear Safety and Licensing
W. R. McCurmin, Manager, Nuclear Operations
F. H. Badger, Health and Safety Engineer
J. D. Moore, Health and Safety Engineer
Q. Koon, Lead Engineer, Calibration Quality Assurance
L. E. Rodman, Senior Fire Protection Engineer (Emergency Coordinator)
J. A. Gump, Fire Protection Engineer
R. M. Michlich, Senior Staff Engineer for Training
D. Harrison, Staff Chemical Engineer
E. L. Babcock, Assistant Manager, Rockwell International Hot Laboratory
S. M. Bradbury, Senior Engineer
D. Allen, Staff Assistant
R. Cutting, Shift Leader
R. S. Frazier, Member Technical Staff
W. I. Greenwall, Captain, Security Department
C. M. Bower, Captain, Security Department
J. C. Bliss, Sergeant, Security Department
R. F. Hanabrey, Electronics Technician

*Denotes those attending the exit meeting.

2. Management Organization and Controls

Section 9 of NRC License SNM-21 incorporates Part 1 of the licensee's application and supplements dated October 29 and December 17, 1982, and March 2, 7, May 29 and June 12, 1984 as license conditions.

A. Organizational Structure

Section 11.3 of the license application requires certain organizational divisions of responsibility to provide a check and balance system in the important areas of plant safety.

The inspector's review of the licensee's organizational structure found it unchanged. Safety functions remain organizationally independent of operations.

B. Procedure Controls

Section 11.3.4 of the license application requires that changes in established procedures must be authorized in advance by appropriate management.

The licensee handles Information Notices without a specific procedure or record for followup. The Information Notices are reviewed on receipt by the Director, Nuclear Safety and Licensing. They are appropriately distributed for action as necessary. The adequacy of followup on the Information Notices will be reviewed during the next inspection (85-01-01).

C. Internal Reviews and Audits

Section 2.8 of the license application requires internal inspections and reviews.

The Criticality Safeguards Advisor is conducting the weekly inspections normally done by the Criticality Safeguards Coordinator. The Health and Safety Specialist is being trained to perform this function. The criticality Safety Coordinator also performs the required monthly inspections.

The Fuels Committee conducted its annual inspection on January 29, 1985. The findings were minor and appropriate corrective action was taken.

The Isotopes Committee conducted an inspection of the Santa Susana Field Laboratory on January 22, 1985. They noted the significant (50 percent) reduction in the mrem/hour at six feet statistic. On January 23, 1985, the committee inspected the DeSoto Facility and no problems of consequence were identified.

No violations were identified.

3. Operator Training and Retraining

Condition 14 of the current license requires that prior to unsupervised work with special nuclear material appropriate formal training shall be given in criticality and/or radiation safety.

During this inspection all persons working in Building 020 who received a measurable exposure during the first quarter of 1985 were cross checked against the computerized master training record file maintained by the Training Department for compliance with training requirements. The records indicated that at least 50 percent of the persons had not received the training. The inspector then went to Building 020 and cross checked these same people against the secondary training records maintained by the Administrative Assistant. These records indicated that all required training had been given and those persons requiring yearly medical exams as a prerequisite to using respiratory protective equipment had received the examination. The inspector concluded that the training records maintained at Building 020 were up to date and well maintained. However, the master records are not up to date and do not give complete information about needed training and medical examinations.

At the exit interview the licensee agreed to examine this discrepancy and make appropriate corrections. This item will be reviewed again during the next inspection (85-01-02).

No violations were identified.

4. Criticality Safety

Section 2.7 of the license application requires that prior to initiating a project involving potential hazards, authorization must be obtained from the appropriate Department Director and from designated Safety and/or Criticality Safeguards personnel in the Health, Safety and Environment Department.

A. Nuclear Criticality Safety Analysis

Section 4.1.3 of the license application requires the completion of a Nuclear Safety Analysis (NSA) for projects involving at least 200 grams of uranium of more than 30 percent enrichment.

An NSA is being prepared for the Fermi fuel decladding project. Only cold tests (outside the hot cells) are currently underway on cold zirconium rods. The NSA will be reviewed in a subsequent inspection.

The licensee has continued effective control of the "in process" inventory to less than the license limit of 1.0 kg Pu at the Rockwell International Hot Laboratory.

No violations were identified.

5. Operations Review

Section 2.1 of the license application requires the licensee to comply with all the requirements of law, to operate the facilities in a safe and efficient manner and within the requirements of all license conditions under which the activities are authorized.

A. Conduct of Operations

License Condition 25 requires that the licensee follow the general decommissioning plan submitted in the enclosures to the letter dated March 15, 1978.

- (1) The licensee has continued to cleanup Building 055. The inspectors observed that the low volume ventilation system that served the glove boxes has been entirely removed. The licensee indicated the removal was completed without incident. The tile floor covering was also removed. See Section 6 for additional details.
- (2) The EBR-II decladding operation in the Rockwell International Hot Laboratory (RIHL) was operating normally. The inspectors were able to observe all aspects of the operation including the removal of containers of solidified liquid waste. The waste handling operation appeared to be conducted in accordance with the licensee's procedures, license conditions and regulations. See Section 7 for details.

- (3) The next RIHL project involves decladding Fermi fuel rods. The licensee plans to declad the Fermi fuel rods by centerless grinding. The U-Zr fines resulting from the grinding operation must be handled carefully since the fines will oxidize exothermically under certain conditions. The licensee reviewed the problem, experimented with the zirconium fines, and established conditions for safe handling of the waste as a stable nonpyrophoric monolith.

B. Housekeeping

The RIHL basement was toured by the inspectors. They observed the area to be cleaner and better organized than on previous visits. A basement fire extinguisher was relocated closer to the step-off pad in the event it was needed by someone entering the area in an emergency.

No violations were identified.

6. Radiation Protection

Protection against radiation hazards associated with licensed activities is required by 10 CFR Part 20.

A. Tour of Facilities

During this inspection a tour of Buildings 020, 055 and the sanitary sewer holding station was made by the inspectors. Where applicable, portable monitoring equipment, fixed and portable air supplying equipment, stack monitors and criticality alarms were found to be operational and currently calibrated. The one potential problem found was related to the automatic sewer monitoring device associated with the sanitary sewer holding station near Building 055. Although the sewer monitor was currently calibrated and appeared to be functioning normally, two lights associated with the automatic transfer valve that prevents radioactive waste material from being transferred to the sewage processing plant were not indicating correctly. The lights indicated the transfer valve was both open and closed at the same time (It was obviously closed). The inspectors were assured that each time the monitor is calibrated, the valve is checked for proper opening and closing and the problem is with the circuit associated with the lights and not the valve. At the exit interview, the licensee agreed to operate the valves in the presence of the inspectors to demonstrate that this emergency backup system functions properly. This item will be reviewed during the next inspection (85-03-01).

During the tour of Building 020 packaging and transfer of solidified EBR-II liquid waste was observed by the inspectors. This item will be discussed further in Section 7, entitled Radioactive Waste Management.

During the tour of Building 055 it was learned that the attempt to clean the two spots on the floor which were discussed in report

70-25/84-05 was partially successful. One spot was decontaminated to background while the second spot of approximately 2 ft², reading 14,000 D/M, was found to be fixed in the cement of the floor. As a temporary safety measure, the spot has been painted over and sealed. In the near future the spot will be scabbled in order to remove all contamination.

Prior to the removal of the Building 055 ventilation ducts the inside surface was wiped and surveyed where accessible by the Senior Staff Health Physicist. It was found that almost all of the duct was at background with a high reading in one place of 425 DPM. However, the entire duct was removed as contaminated and packaged for disposal as radioactive waste.

It appears that the decontamination effort has proceeded in a careful and orderly manner under the constant surveillance of a Senior Health Physicist. It is anticipated that the building will be ready for an NRC over check sometime after January 1986.

The vacuum spectrometer discussed in Report 70-25/85-01 which was formerly used in Building 055 has been resurveyed by the licensee and found again to be uncontaminated. The history of its use was thoroughly researched by the Manager, Radiation and Nuclear Safety. It was found that plutonium never made contact with the instrument. The spark source for excitation of the Pu samples was contained in a glove box and was isolated from the spectrometer by a quartz window through which the Pu spectrum was measured. This additional effort by the licensee has been appropriately documented. This closes item (85-01-04).

B. External Exposures

The external exposure records for the first quarter of 1985 were examined by the inspector. The high quarterly exposure was noted to be 850 mrem. The downward trend in exposures appears to be continuing with a few elevated exposures caused by necessary cell re-entries to survey and repair equipment. None of the exposures noted during this inspection exceeded regulatory limits.

C. Bioassay Results

The inspector examined routine urinalysis results for the fourth quarter of 1984 and those available for the first quarter of 1985. Of the 51 specimens submitted for the fourth quarter of 1984 two positive results for plutonium were reported. These were slightly above the minimum level of detection. However, followup bioassays disclosed that both individuals were at the minimum level of detection. During the first quarter of 1985 a special bioassay was performed for an individual who cut his finger while repairing a gear associated with cell number four. The bioassay result was at the minimum level of detection. Immediately after the incident a 1000 second count of the finger using a Canberra Series 85 Multichannel analyzer equipped with a Ge-Li detector disclosed no activity in the wound.

No violations were identified.

7. Radioactive Waste Management/Transportation

Annex "B" of the current license incorporates guidelines for release of equipment and facilities for unrestricted use. 10 CFR Part 20.301 to Part 20.401 regulates the disposal of waste. 10 CFR Part 61 requires that all radioactive waste prepared for disposal is classified in accordance with Section 61.55 and meets the waste characteristics requirements in Section 61.56. Part 71 regulates the packaging and transportation of radioactive material.

During this inspection the written procedure for the safe disposal of liquid waste generated in the decladding and processing of EBR-II fuel was again reviewed and the recent changes, which incorporate the ALARA concept during actual handling and packaging in the hot cell area, were discussed with the Staff Chemical Engineer. It was learned that "to date" approximately 100 drums have been packaged leaving approximately 140 yet to be done.

The handling and packaging operation was observed by the inspectors. It was found that the written procedure was followed exactly as the operation proceeded in a smooth and efficient manner. Each worker seemed fully aware of the ALARA concepts written into the procedure as the packaging operation moved from the hot cell into the decontamination room and then into the service gallery. Discussions with the Manager, Radiation and Nuclear Safety disclosed that this well written procedure has significantly reduced exposures to persons involved in this kind of work.

Discussions with the Manager, Nuclear Safety and licensing disclosed that since the last inspection 57 drums of this solidified waste have been shipped to the DOE Disposal Facility near Richland, Washington. Although these shipments are not under NRC jurisdiction, the inspector learned that the drums arrived at their destination without incident and were accepted by DOE Disposal Facility Personnel.

These discussions also disclosed that a Part 61 inspection of such shipments by NRC is not appropriate since the DOE disposal facility is not a commercial operation and the shipment is not under NRC jurisdiction. The shipments and disposal of such material are regulated by DOE because the wastes were generated in DOE sponsored programs.

During this inspection Hallam Canisters containing EBR-II cladding were observed in storage inside hot cell No. 4. The inspectors learned that approximately sixty of these canisters will be transported to DOE's Nevada Test Site during the last week of May for disposal.

It is also anticipated that EBR-II fuel freed in the decladding process will be shipped to Savanna River sometime in June. All of these shipments will be conducted under DOE jurisdiction. However, hot cell operations involving these items and onsite shipments to and from Building 020 remain under NRC jurisdiction. One shipment of EBR-II fuel arriving at Building 020 from the RMDF was observed by the inspectors.

The truck lift driver handled the load with great care. No problems were encountered during this transfer. No violations of the licensee's internal procedure for onsite transfers or improper health physics practices were noted during this operation.

No violations were identified.

8. Environmental Protection

Title 10 of the Code of Federal Regulation, Part 20.106 "Radioactivity in Effluents to Unrestricted Areas" requires that licensees control their operations to preclude releasing radioactive material in concentrations exceeding the limits specified in Appendix B, Table II of Part 20.

The licensee's effluent monitoring reports for 1984 indicated effluent concentrations were within 10 CFR 20 Appendix B limits. The licensee's annual report reflects a change in the standard used for making alpha measurements. The standard now used is better in that it is thick relative to the alpha particles mean free path as in the sample matrix. The plated (thin) standard on which previous measurements were based yielded low sample results. Samples for independent analysis were taken from two of the offsite sampling stations by the NRC inspectors. Measurements will be made by both the Department of Energy (DOE) Radiological and Environmental Sciences Laboratory (RESL) and the NRC-RV Mobile Laboratory. The results will be included in a subsequent report.

No violations were identified.

9. Emergency Preparedness

License Condition 24 requires the licensee to maintain and execute the response measures of his Radiological Contingency Plan submitted to the Commission on August 28, 1981, and revised on March 3, 1982. Additionally, Appendix A to the Radiological Contingency Plan states that the Master Emergency Plan has been approved as part of the license.

A. Emergency Plans, Procedures, Facilities and Equipment

The licensee's Radiological Contingency Plan is unchanged. Telephone numbers on call lists have been updated and the call lists were readily available. The licensee's emergency equipment vehicle was being repaired. A pickup truck was temporarily carrying the emergency equipment. The licensee's medical trailer (currently stationary) was visited. The trailer's equipment and housekeeping had been upgraded. Additional medical supplies are readily available from the Santa Susana Field Laboratory nurse's station which is housed in the Central Security Station within 1000 yards of the medical trailer.

B. Tests and Drills

The licensee schedules and executes drills with a variety of scenarios to assure emergency personnel receive a variety of experiences. A drill was held in the RIHL (Building 020) on

April 17, 1985, at 3:20 p.m. to facilitate the participation of personnel on the second shift. The critique of the drill indicated it had been useful in identifying areas for improvement. The improvements are being implemented. The next drill is scheduled for mid-May and the licensee plans to invite the participation of Humana Hospital West Hills. The drill is still scheduled to include an ambulance trip from the SSFL to Humana Hospital West Hills to establish the time the hospital would have to prepare for receipt of an injured and contaminated patient. The critique of this drill will be reviewed when available (85-01-05).

C. Fire Protection

The inspector verified that the fire extinguisher inspection tags in one area were now being fully dated as in the other areas.

No violations were identified.

10. Exit Meeting

The results of the inspection were discussed with the licensee's staff identified in Section 1.

The topics included:

- ° the continued effective control of the "in process" limit
- ° the apparent consideration given to ALARA in the waste packaging phase of the EBR-II decladding project
- ° the preparation underway for assuring the safe disposal of U-Zr fines
- ° the effectiveness of the plug and crimp tube sealing technique
- ° the status of the Building 055 decontamination effort
- ° the training record discrepancy still exists though training was current

The licensee again expressed an interest in correcting the training record discrepancy. The licensee also indicated that ALARA considerations have been emphasized to employees and they have contributed suggestions that effectively reduced doses in various aspects of current operations.