

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 70-25/80-04

Docket No. 70-25 License No. SNM-21 Safeguards Group 1

Licensee: Energy Systems Group

Rockwell International Corporation

Canoga Park, California 91304

Facility Name: Headquarters Site and Santa Suzanna Field Laboratory

Inspection at: Headquarters Site and Santa Suzanna Field Laboratory

Inspection Conducted: January 14-17, 1980

Inspectors: *William J. Cooley* *4/30/80*
W. J. Cooley, Fuel Facilities Inspector Date Signed

Other Accompanying Personnel: *W. J. Cooley for*
Norman Ketzlach, NMSS, NRC Headquarters Date Signed

RCW Approved by: *F. Henslawski* *5/2/80*
H. E. Book, Chief, Fuel Facility and Date Signed
Materials Safety Branch

Summary:

Inspection on January 14-17, 1980 (Report No. 70-25/80-04)

Areas Inspected: Safety committee activities; operations review; criticality safety; environmental program; emergency plans and procedures; radiation protection; radioactive waste management; confirmatory measurements; and NRC IE Bulletin 79-19 followup.

The inspection involved 28 inspector hours on site by one NRC inspector.

Results: No apparent items of noncompliance or deviations were identified within the subject areas inspected.

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DETAILS

1. Persons Contacted

- *M. E. Remley, Manager, Health, Safety and Radiation Services Department (HSRS)
- *R. J. Tuttle, Manager, Radiation and Nuclear Safety, HSRS
- J. D. Moore, Engineer, Radiation and Nuclear Safety, HSRS
- J. H. Wallace, HSRS Representative, Building 001, HSRS
- S. M. Bradbury, HSRS Representative, Building 055, HSRS
- W. R. McCurnin, Manager, Remote Technology, Building 020
- F. F. Couture, Fire Protection Engineer and Emergency Coordinator

*Denotes those attending the exit interview.

2. Safety Committee Activities

This inspection included a review of internal correspondence and meeting minutes regarding activities of the Fuels Committee of the Nuclear Safeguards Review Panel dating from approximately June, 1979, to the present. Over that period of time the Fuels Committee addressed itself to the criticality study and the nuclear safety analysis for the Fermi decladding studies. The committee also reviewed a change in Fermi fuel storage and the establishment of a new work station for that study. Fuels Committee members also reviewed a criticality analysis for the handling of ATR raw stock and a development test in which low enriched uranium fuel plates were used.

3. Operations Review

This inspection included visits to the DeSoto Avenue storage vault, powder preparation area, and plate rolling room. Visits were also made to the hot cell facility, Building 20, and the plutonium facility, Building 55, located at the Santa Suzanna Field Laboratory.

The production of ATR fuel elements was continuing at the DeSoto Avenue Plant. The Fermi fuel decladding study had been nearly completed and no activities with radioactive materials were being carried out at the Building 20 hot cell facilities. Only depleted uranium was being used at Building 55.

4. Criticality Safety

The Region V inspector requested the NRC Headquarters Representative to review again the modified Building 001 storage vault arrangement. That system has been reviewed and reported in Inspection Report No. 70-25/79-03 dated May 10, 1979 and 70-25/79-06 dated October 1, 1979. The review of the array calculations indicated that the analogy of

a sub-critical water concentration of enriched uranium had been used to calculate the storage limit for solidified laboratory waste. The actual H/X of the solidified material had not been determined and it was, therefore, deemed that the calculated criticality index for that type of material had not really been justified in the calculation. It was agreed that no unsafe condition existed because of the very low fuel density in that type of material. It was agreed that an accurate justification was lacking. An additional calculation was proposed by a licensee representative to provide that justification. One proposal was to determine the actual H/X of the solidified material and to proceed to calculate the criticality index from that point.

In all other respects the modified fuel arrangement in the DeSoto Avenue vault met with the approval of the NRC representatives.

5. Environmental Program

Condition 39 of license SNM-21 requires semi-annual collection of soil samples and their analysis for plutonium as part of licensee's environmental program. Five samples of that type were collected on June 8, 1978, and 6 samples of that type were collected on December 13, 1978, June 23, 1979, and December 17, 1979. One of the samples is obtained approximately 500 feet upwind (prevailing winds) from Buildings 020 and 055 at Santa Suzanna. Four additional samples are obtained to a distance of approximately 2,000 feet downwind (prevailing winds) from those two buildings. The sixth sample is obtained offsite approximately 4 miles to the north in the Simi Valley.

The soil analysis is performed by an independent laboratory using the nitric leach method. The minimum detection level of the analysis is 0.02 pCi/g of soil. The tool used to collect the soil samples measures 4 inches in diameter and 5 centimeters in depth.

Results of the first three plutonium soil analyses were reviewed during this inspection. The results of the fourth soil survey were not available at the time of this inspection. The analysis performed was for plutonium 238 and plutonium 239/40. All results for both isotopes were less than the limit of detection.

6. Emergency Plans and Procedures

Criticality evacuation drills were held most recently in Building 055 on November 20, 1979, and in Building 020 on October 10, 1979. At the time of this inspection criticality drills were due in Buildings 001 and 004 at the DeSoto Avenue facility. This inspection included a review of the written critiques describing the Buildings 055 and 020 drills at Santa Suzanna.

Those critiques indicated that difficulties were experienced with the public address system and with starting the gasoline driven generators used to obtain air samples. The latter difficulty with the air sampling equipment has been experienced in the past and the licensee plans to replace the gas driven generators with battery operated samplers. Three portable radiation detection instruments failed during the Building 055 drill (several additional operable instruments were immediately available). Difficulties were experienced in establishing road blocks at the Santa Suzanna site. The decision was made to extend the criticality siren warning to a three minute duration.

Assignments were made to individuals for corrective action in those matters and others covered in the critiques. At the time of this inspection the emergency coordinator anticipated an additional meeting as a followup to see that the corrective actions had been taken.

7. Radiation Protection

This inspection included a review of in vivo lung count results provided by an independent laboratory. That review covered the year 1978 and through October 1979. During that time 80 lung counts for uranium 235 were performed, 18 of which indicated positive results. The positive results were all equal to or less than 20% of the maximum permissible lung burden. During the same period of time a total of approximately 582 urine bioassay tests were made by the fluorometric method. Twenty-six of those tests indicated positive results. An additional 540 urine bioassay tests were made by the radiometric method, one of which indicated a positive result. None of the urine bioassay samples indicated significant exposure to uranium.

During this inspection a special smear survey was made of floor surfaces in a vicinity of the powder preparation room (Room 199-36) and the DeSoto Avenue vault (Room 11-H-02). The smears were collected by the health physics representative in the presence of the NRC Inspector and counted by the health physics representative at the licensee's facility. The samples were then returned to Region V and recounted on a Nuclear Measurements Corporation, Model PC-55. The smears obtained in the main aisle opposite the entrance to Room 119-36 and in the air lock entry to that room indicated less than 20 dpm/100cm² alpha activity. The smears obtained on the floor of the powder preparation room within the controlled area indicated activities ≥ 90 dpm/100cm². Analyses of the smears performed by Region V personnel were in substantial agreement with the licensee's results.

8. Radioactive Waste Management - Licensee's Response to IE Bulletin 79-19

The licensee replied to NRC IE Bulletin No. 79-19 by letter dated September 21, 1979. In September, 1979, the licensee conducted a

quality assurance audit and a review of the low level radioactive waste disposal program. It was found that some upgrading of the licensee's training program in waste handling was required. The licensee's audit disclosed that independent verification of package contents was generally not being performed by the Quality Assurance Department although that Department was verifying the quality of the completed package. Some errors in the distribution of Form 710-S-1, "Hazardous Materials Shipping Instructions" were also discovered in that audit. That audit report indicated that the quality assurance annual audit would continue and that corrective action would be negotiated.

This inspection included a visit to the low level radioactive material storage area located at the DeSoto Avenue facilities. It was observed that approximately 500 55-gallon drums of low level waste were stored there awaiting shipment to a land burial disposal site. All those drums appeared in good condition. There was no obvious damage or leakage observed. One drum was opened and indicated no residual liquid. That drum contained typical low level laboratory waste contained in an interior plastic bag. A smear survey of the external drum surface indicated no significant external contamination. Those smears were reanalyzed independently by Region V which analysis confirmed that no removal contamination was present.

Four additional wooden boxes of low level waste awaiting shipment were observed at the DeSoto Avenue facility. Those boxes appeared to be sturdy and in good condition.

9. Management Interview

The scope and the results of this inspection were discussed with licensee management at the conclusion of the inspection on January 17, 1980. Those persons were informed that no items of noncompliance or deviations from NRC requirements were observed within the scope of the inspection. Mr. N. Ketzlach attended the management interview meeting.