

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

Region I

Report No. 80-01  
Docket No. 40-6920  
30-5998  
License No. SUB-868 Priority I Category B  
37-00611-09  
Licensee: Automation Industries, Incorporated  
Kimberton Road  
Phoenixville, Pennsylvania 19460

Facility Name: \_\_\_\_\_

Inspection at: \_\_\_\_\_

Inspection conducted: \_\_\_\_\_

Inspectors: F. Costello  
F. Costello, Radiation Specialist

7/11/80  
date signed

W. W. Crocker  
W. W. Crocker, Chief, Fuel Facility  
Project Section

7-11-80  
date signed

Approved by: J. D. Kinneman  
J. D. Kinneman, Chief, MRPS

date signed

7-11-80  
date signed

Inspection Summary:

Inspection on May 21, 1980 (Report No. 5998/80-01)

Areas Inspected: Routine, unannounced inspection of material inventory, receipt and transfer of material, dosimetry records, radiation and contamination surveys, air sampling records, bioassays, training, posting, radioactive waste, calibration of survey instruments, hot cell operators and liquid effluents. The inspection involved seven inspector hours onsite by two NRC inspectors.

Results: Of the twelve areas inspected, no items of noncompliance were identified in nine areas. Three items of noncompliance were identified in three areas.

(Infraction - possession in excess of license limit, paragraph 2; Infraction - failure to perform monthly contamination survey in hot cell, paragraph 5; Infraction - failure to perform annual bioassay in 1979, paragraph 7).

## DETAILS

### 1. Persons Contacted

M. Santoro, Manufacturing Manager, Nuclear Products  
S. Boyko, Production Manager

### 2. Material Inventory

The inspectors reviewed the licensee inventory records of iridium-192 and cobalt-60. They noted that the licensee, as of April 1, 1980, possessed 17,193 curies of iridium-192 and 619 curies of cobalt-60 at the facility. The inspectors also noted that, on December 1, 1979, the licensee had possessed 21,635 curies of iridium-192.

The finding that the licensee had possessed quantities of iridium-192 in excess of the licensed possession limit of 20,000 curies constitutes noncompliance with condition 8 of license 37-00611-09.

### 3. Receipt and Transfer of Licensed Material

The inspector reviewed records and discussed the procedures for receipt and transfer of licensed material with licensee representatives. It was determined that the licensee has developed a system to verify that he has a valid copy of the customer's license prior to the transfer of any licensed material. The inspector also reviewed the results of surveys made by the licensee upon receipt of materials and prior to shipping sources. It was noted that radiation levels at the surface and at 6" from surfaces were measured and recorded. Records of readings on smears taken to determine removable contamination from outer and inner container surfaces were also reviewed. No excess radiation levels or contamination was reported.

No items of noncompliance were identified.

### 4. Dosimetry Records

The inspector reviewed the licensee's film badge and daily dosimeter records since the last inspection. He noted that no individual received in excess of 3 rem in a quarter. NRC-4 forms are maintained on file for all radiation workers. The highest individual exposure for 1979 was 5.13 rem.

No items of noncompliance were identified.

## 5. Radiation and Contamination Surveys

The inspector reviewed the licensee's routine radiation and contamination survey records. He noted that the records indicated that the weekly radiation surveys and monthly contamination surveys of all areas outside the hot cell were being performed as required. However, no surveys of contamination levels inside the cell had been performed. The inspector expressed his concern that entry into the cell could produce airborne radioactive material if contamination inside the cell were not controlled.

The finding that monthly contamination surveys were not performed inside the hot cell represents noncompliance with condition 15 of license 37-00611-09.

## 6. Air Sampling Records

The inspector reviewed the licensee's records of air sampling since the last inspection. He noted that all personnel exposures to airborne material were well within regulatory limits and that no measurable radioactivity had been detected in the licensee's gaseous effluent. He further noted that the licensee has a continuous air monitor of the hot cell effluent which will alarm at the maximum permissible concentration.

No items of noncompliance were identified.

## 7. Bioassays

The inspector reviewed the licensee's bioassay records. He noted that all radiation workers had received whole body counts in April, 1978 and March-April, 1980. The licensee representative stated that no whole body counting had been performed in 1979 because the contractor who performs this service was too busy at another facility. The inspector stated that this did not relieve the licensee of the requirement to have the required whole body counting performed.

The finding that individuals working in restricted areas failed to receive whole body counts for two years represents noncompliance with condition 15 of license 37-00611-09.

## 8. Training

The inspector questioned licensee representatives regarding the training that is provided. It was stated that periodic training is conducted by management personnel. The training sessions are usually informal. The inspectors questioned the licensee's technicians with respect to then operating procedures and determined that they were familiar with the intention and requirements of these procedures.

No items of noncompliance were identified.

9. Posting

The inspector observed that the licensee had posted the "Notice to Employees". Proper "High Radiation Area" and "Radiation Area" signs were posted.

No items of noncompliance were identified.

10. Radioactive Waste

The inspectors reviewed the licensee's records of disposal of radioactive waste. They noted that 10 drums of waste were shipped in 1979. The licensee's radioactive waste consists of spent radiography sources and various paper wastes, including towels and wipes.

No items of noncompliance were identified.

11. Calibration of Survey Instruments

The licensee calibrates survey meters on a quarterly basis. The inspectors reviewed the survey meter calibration records and observed that the survey meters being used at the facility had been calibrated during the previous three months.

No items of noncompliance were identified.

12. Hot Cell Operations

A licensee representative operated the remote manipulators to load and calibrate a source capsule and clean the pigtail assembly. The assembly is then transferred from the hot cell by way of a cable and tube arrangement to a shipping container. It was noted that the hot cell door was secured with a padlock. There are two gamma alarms outside the hot cell. They are located in the operating and transfer areas. When a source is transferred from the hot cell, a audible signal is heard for one or two seconds. Administrative procedure requires all individuals to leave the area when a source transfer is made.

No items of noncompliance were identified.

13. Liquid Effluents

The inspector examined the records of the surveys performed since the last inspection of the concentrations of radionuclides released via stack discharge. Concentrations released via stack discharge are in the  $1 \times 10^{-15}$  microcuries per milliliter of air range. The Appendix B, Table II, Column I value for insoluble Co-60 is  $3 \times 10^{-10}$  microcuries per milliliter and for insoluble Ir-192 is  $9 \times 10^{-10}$  microcuries per milliliter.



The inspector examined the records since the last inspection of liquids discharged from the facility. The licensee has a 280 gallon stainless steel waste liquid collection sump which is evaluated about once per month. Prior to any discharge the licensee analyzed four grab samples. All of the samples have been less than maximum permissible concentrations.

The inspector questioned whether the licensee's sodium iodide crystal used to evaluate the liquid effluent was calibrated in such a manner to ensure that the efficiency for iridium-192 was accurately determined since it had been several years since the last calibration. Licensee representatives stated that they planned to contact their consultant on this matter.

The inspectors split a holdup tank sample with the licensee. Analyses in the NRC's Mobile Laboratory indicated agreement with the licensee's determination that the holdup tank concentration was within the maximum permissible concentration. However, the inspectors analysis was unable to confirm the licensee's reported finding of  $2 \times 10^{-6}$  microcuries per milliliter in the tank.

No items of noncompliance were identified.

14. Exit Interview

The inspectors met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on May 21, 1980. The inspector summarized the scope and findings of the inspection and the fact that no items of noncompliance were identified during the inspection.