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

Region I

Report No. 70-124/80-01

Docket No. 70-124

License No. SNM-107 Priority 2 Category A

Licensee: Teledyne Isotopes, Incorporated

50 Van Buren Avenue

Westwood, New Jersey 07675

Facility Name: Teledyne Isotopes, Incorporated

Inspection at: Westwood, New Jersey

Inspection conducted: February 14-15, 1980

Inspectors: J. Roth
J. Roth, Fuel Facility Inspector — 3/20/80 date signed

_____ — _____ date signed

_____ — _____ date signed

Approved by: H. W. Crocker — 3/28/80 date signed
H. W. Crocker, Chief, Fuel Facility Projects Section, FF&MS Branch

Inspection Summary:
Inspection on February 14-15, 1980 (Report No. 70-124/80-01)
Areas Inspected: Routine, unannounced inspection by a region based inspector of the licensed program including: 10 CFR Part 21; organization; internal review and audit; safety committees; training; procedure control; review of operations; nuclear criticality safety; emergency planning-facilities, equipment, procedures; transportation program; followup on previously identified noncompliance items: followup on IE Bulletin 79-19. The inspection was initiated during the day shift and involved 13 inspector-hours onsite by one NRC region based inspector.
Results: Of the 12 areas inspected, no apparent items of noncompliance were identified in 9 areas; 4 items of noncompliance and one unresolved item were identified in four areas (Deficiency - Failure to label laboratory containers with Caution, Radioactive Materials signs as required by 20.203(f) (80-01-02), Paragraph 4.b; Deficiency - Failure to maintain a list of contents of radioactive

materials in waste drums in the Sample Preparation Laboratory (80-01-03), Paragraph 4.d; Infraction - Failure to prepare the procedures and post the documents required by 10 CFR 21 (80-01-05), Paragraph 10; Deficiency - Failure to properly complete NRC-741 forms (80-01-06), Paragraph 12.a).

DETAILS

1. Persons Contacted

*D. F. Schutz, President, Teledyne Isotopes
L. Casabona, Manager, Mass Spectrometry Services
*E. O'Brien, Vice President, Administration and Finance
*J. D. Martin, Vice President, Environmental Analysis
*J. Pasinosky, Supervisor, Health Physics
D. Rieman, Manager, Metal Prccessing
J. Ross, Manager, Plum Brook Operations

The inspector also interviewed other licensee employees during the course of the inspection.

*denotes those present at the exit interview.

2. Licensee Action on Previously Identified Enforcement Items

(Closed) Infraction (124/77-04-01): Two instances of failure to follow procedures: (1) wear lab coats in the hot lab, (2) check alpha survey instrument for operability. The inspector noted that the hot laboratory area was closed and locked. This laboratory was undergoing cleanout and decontamination. Licensee representatives indicated that when personnel was required to enter and work in this area, the area would be unlocked by Health Physics personnel and lab coats and alpha survey instruments would be provided for use. The inspector verified that persons entering a newly established potentially contaminated area (the Precious Metals Reclamation Area) were issued lab coats as required. The inspector also verified that the licensee has provided check sources for checking the operability of survey instruments near or on each instrument and licensee personnel were checking each instrument for operability prior to each use. Corrective actions have been completed on this item of noncompliance.

(Closed) Infraction (124/77-04-02): Failure to maintain an operable alpna survey instrument at the entrance to the hot lab. As indicated above, the hot lab area has been shut down since the last inspection. However, the inspector noted that alpha survey instruments located throughout the facility appeared to be operating properly and had been calibrated within the past three months as required. Corrective actions have been completed on this item of noncompliance.

(Open) Infraction (124/77-04-03): Failure to install a criticality alarm system and conduct evacuation drills at the facility. The licensee submitted a license amendment application to NRC-NMSS dated February 8, 1978, in

which it was requested that License No. SNM-107 be amended to decrease the U-235 possession limit from 480 to 440 grams of U-235. Amendment No. 5 dated March 31, 1978, was subsequently issued by NRC-NMSS which reduced the license limits to 440 grams U-235. However, as indicated in Paragraph 5 the licensee obtained an amendment to NRC License No. 29-0055-15 dated January 29, 1980 which allowed an additional 52 grams of SNM to be held by the licensee. 10 CFR 70.24a states that the alarm system is required if the licensee is authorized to posesses SNM in a quantity exceeding 450 grams. The licensee is now authoirized to possess in excess of 490 grams of SNM. Corrective actions have not been completed on this item of non-compliance.

(Closed) Infraction (124/77-04-04): Failure to store SNM as described in the approved license application. In the license amendment application dated February 8, 1978 discussed above, the licensee requested a modification in the storage criteria for SNM. The license requirements for storage of SNM were to be modified from the storage of up to 350 grams of SNM in each of two locked cabinets separated by 8 feet and located in the hot lab to storage of SNM both in the hot lab and the sample preparation room under the supervision of the Special Nuclear Material Management Officer. This modification in SNM storage criteria was also granted by Amendment No. 5 dated March 31, 1978. The licensee has completed corrective actions on this item of noncompliance.

(Open) Deficiency (124/77-04-05): Failure to properly complete NRC-741 "Material Transfer Forms" as required by 10 CFR 70.54. During inspection 124/77-04, it was noted that the licensee had not completed the NRC-741 forms for two shipments made in that the licensee's facility SNM License Number was not inserted in the spaces provided. Review of the licensee's retained NRC-741 forms for shipments made since the last inspection indicated that several of the NRC-741 forms were still not being properly completed. Thus, the institution of a control procedure, by the SS Material Management Officer to insure that Form NRC-741 was properly completed, was not adequate corrective action for this item of noncompliance. This is an uncorrected item of noncompliance. See Paragraph 12.a for additional details.

3. Organization

Following is a list of the current organization at this facility as of January 11, 1980, reporting to D. F. Schutz, Ph.D., President.

J. Ross, Manager, Plum Brook Operations
D. Slane, Manager, Marketing
K. Roach, Manager, Quality Assurance
E. O'Brien, Vice President, Administration and Finance
J. D. Martin, Vice President, Environmental Analysis
L. Casabona, Manager, Mass Spectrometry Services

S. Black, Acting Manager, Radiological Services, RSO
J. Pasinosky, Supervisor, Health Physics, Alternate RSO
D. Slane, Manager, TLD Research and Development
D. Rieman, Manager, Metal Processing
L. Sine, Manager, Nuclear Instrumentation

On November 2, 1979, Mr. D. R. Fuhrman resigned from his position as Manager, Radiological Services and Company Radiation Safety Officer (RSO). In answer to an inquiry from NRC-NMSS, Mr. S. A. Black was appointed Radiation Safety Officer and Mr. J. P. Pasinosky was appointed Alternate Radiation Safety Officer on November 20, 1979. Since Mr. Black was not available during this inspection and since the facility SNM license does not spell out the required qualifications for the RSO and/or Alternate RSO, an assessment of the qualifications of the new RSO and Alternate RSO was not conducted by the inspector. This will be examined further during a subsequent inspection (80-01-01).

4. Review of Operations

The inspector examined those areas of the facility where special nuclear material is handled, to observe operations and activities in progress; to examine the general state of cleanliness, housekeeping and adherence to fire protection rules; and, to inspect the nuclear safety aspects of the facility.

a. Precious Metal Reclamation System

The inspector examined the new glovebox and ventilation system installed to conduct reclamation of precious metals contaminated with radioactive materials. The construction of the gloveboxes and the ventilation system appeared to be adequate. The inlet filters were fabricated from material which afforded 75 to 80 percent filtration and the air flow through the system was designed to be approximately 150 lfpm if 3 gloves were lost off the glovebox. The inspector also noted that there appeared to be an excessive fire load (25 to 30 large cardboard boxes filled with plastic, etc.) in the penthouse area for this facility which held the ventilation system blowers and absolute filter system. The licensee immediately removed those boxes containing flammable materials.

b. Container Labeling

The inspector noted that none of the bottles containing radioactive sample solutions contaminated labware, or 55 gallon drums containing radioactive materials in the Sample Preparation Laboratory were labeled with Caution, Radioactive Materials signs as required by 10 CFR 20.203(f). This was identified as an item of noncompliance (80-01-02). It was observed that the radioactive material samples and sample vials received for analysis from customers were labeled as required.

c. Hot Laboratory

The inspector observed that the Hot Laboratory had been shut down and the licensee was in the process of dismantling the installed equipment. The ventilation ductwork for the hoods in the laboratory had been removed. The hood doors were closed and all openings to the hoods had been sealed. The ventilation system for one glovebox located in the laboratory which had previously been used for plutonium work was still operational. The licensee stated that decommissioning of the equipment in this laboratory was expected to be completed by the end of March, 1980. The inspector noted that lab coats, shoe covers, and alpha survey personnel monitoring equipment were not available for use by employees when working in this laboratory. Licensee representatives indicated that the laboratory was kept locked and that Health Physics personnel maintained the only key for the area. Whenever operations personnel were to work in this laboratory, Health Physics personnel unlocked the laboratory and provided lab coats, shoe covers, and alpha survey instruments.

d. Waste Disposal

The approved license application dated November 18, 1968, under "Waste Disposal," requires that, "When material is added to the waste drum, make a notation of the isotope, estimate amount and date on the form attached to the drum." The inspector noted that the required forms were not attached to or available for 3 of 4 waste drums located in the Sample Preparation Laboratory. Licensee representatives indicated that byproduct material was placed in one of the drums and there was no way to identify all of the isotopes being placed into the drum since analysis was conducted normally for specific isotopes and not for complete characterization. Special Nuclear Material was placed in the other two drums and there was no way of determining how much SNM was placed in the drums without first inventorying the entire facility.

Even then, without maintaining a running list of contents for each drum, there would be no way for the licensee to determine how much SNM was in each drum. This was identified as an item of noncompliance (80-01-03).

5. Nuclear Criticality Safety

During inspection 70-124/77-04, the inspector noted that this facility had not been equipped with a nuclear criticality monitoring system which will energize clearly audible alarm signals if accidental criticality occurs. This alarm system is required if the licensee is authorized to possess special nuclear material in a quantity exceeding 450 grams of any combination of Uranium-235, Uranium-233, and plutonium. This licensee is currently authorized to possess a maximum of 444 grams of a combination of Uranium-235, Uranium-233, and plutonium by Amendment No. 5 to NRC License No. SNM-107, dated March 31, 1978. In addition, the licensee is authorized to possess a maximum of 52 grams of Uranium-235 and plutonium by Amendment No. 2 to NRC License No. 29-0055-15, dated January 29, 1980. Thus, the licensee is currently authorized to possess a maximum of 496 grams of Uranium-235, Uranium-233, and plutonium. The inspector noted that this licensee had an exemption to the requirements of 10 CFR 70.24 as a condition of facility License No. SNM-107, issued on December 27, 1968; however, upon renewal of the license as issued on December 31, 1973, this license condition was omitted. The inspector noted through a review of facility inventory records that the licensee currently maintained an inventory of less than 350 grams of SNM. In addition, the licensee maintained control of SNM to limit quantities in any one laboratory at one time to less than 350 grams of SNM. Even though no safety problem appeared to be evident, the inspector stated that the licensee must install a criticality monitoring and alarm system or obtain an exemption to this requirement. (80-01-04).

6. Internal Review and Audit

Because of the recent resignation of the facility Radiation Safety Officer, the licensee has started conducting periodic internal reviews and audits of the licensed programs. These reviews and audits are conducted by the Manager, Plum Brook Operation, who is a certified Health Physicist. This individual has started a review of facility operations by license (byproduct and SNM). The reviews have been informal in nature but reports will be written in the future to indicate areas covered and the results of the reviews. Site visits by this individual are expected to continue at a frequency of about one each month.

7. Radiation Safety Committee

The facility Radiation Safety Committee is responsible to the President of the company. Committee responsibilities include: the formulation of broad company policy in the area of radiation safety; the committee will make decisions on the user(s) of ionizing radiation; and, the committee will approve new facilities for use of ionizing radiation by the company.

The committee will be composed of members from the following divisions, sections, or areas of responsibility; Health Physics, services, and administration. Membership of the committee may be changed as necessary. The present members of the committee include:

D. F. Schutz, President, Chairman
J. E. Ross, Manager, Plum Brook Operations
J. D. Martin, Vice President, Environmental Services
L. F. Casabona, Manager, Mass Spectrometry Services
D. K. Slane, Manager, TLD Products, Marketing
L. Sine, Manager, Crystals
E. O'Brien, Vice President, Administration and Finance
S. A. Black, RSO, Acting Manager, Radiological Services
J. P. Pasinosky, Alternate RSO, Supervisor, Health Physics

The inspector examined the minutes of 6 meetings of the Radiation Safety Committee held between October 12, 1978 and January 16, 1980. Items covered included review of transport and storage of radioactive materials, establishment of procedures concerning the conduct of the Radiation Safety Committee, review of the installation of the Precious Metals Laboratory, review of training programs, review of inspection results, and review of work planned for decommissioning the old Hot Laboratory.

8. Training

The licensee has involved both the Personnel Department and the Health Physics Group in personnel training. Each new employee is given a copy of the current revision of the facility "Radiation Safety Code" to be read upon starting to work in the facility. In addition, each person who will handle radioactive material must be authorized to do so by the company RSO. This authorization is given by means of the completion of a "User Request Form." Additional training to be given, if necessary, is indicated on this form by the RSO and must be completed prior to handling radioactive materials. The training given to radioactive material handlers is described in the facility "Basic Health Physics Training Record - Course Outline," and includes: radiation units and measurement; radiation protection and the

company health physics program including procedures, use, and wearing of TLD badges and health physics signs, tags, and labels; and, emergency procedures. Training records also include the name of the individual taking the course, and the date taken.

The inspector determined through discussions with licensee representatives and examination of records that the licensee had hired approximately twenty new employees between October 1, 1979 and February 15, 1980. Of these individuals, only four were hired as radioactive materials handlers. Available company records included only the completed "User Request Forms," but not signed copies of the "Basic Health Physics Training Record." Licensee representatives assured the inspector that these individuals had received the required training even though the records were not available at the time of this inspection.

The inspector was also informed that the licensee is considering the establishment of a formal ongoing training program for radiation workers.

9. Emergency Planning

The inspector examined facilities, equipment, and emergency procedures maintained by the licensee to handle incidents which may occur. This facility appeared to be prepared to handle emergency incidents involving radiation, fire, and breaches of security.

10. 10 CFR Part 21 Inspection

The inspector noted that the licensee had not posted the notices/documents required by Paragraph 21.6 in a conspicuous position in the facility. The inspector also questioned the licensee representatives about the preparation of procedures required by Paragraph 21.21(a). The licensee representative stated that he was not aware of the 10 CFR 21 posting and procedural requirement. Thus, the notices/documents had not been posted and the required notification/evaluation procedures had not been prepared. This was identified as an item of noncompliance (80-01-05).

11. Procedure Control

Through discussions with licensee representatives, the inspector determined that there is no established, formal, company policy or procedure which defines the mechanism by which operating procedures are written, reviewed and approved. In general, procedures are written by operations personnel, with review and input supplied by the Radiation Safety Committee and/or the Company Radiation Safety Officer. The finished draft is then once again reviewed by the Radiation Safety Committee. However, no mechanism has been

established to indicate what authority (Radiation Safety Officer, Radiation Safety Committee, Company President, etc.) approves the final document and on what date. The inspector also determined that internal Health Physics Department Operating procedures had not been written. These procedures are normally provided to supply guidance to Health Physics technicians relative to such things as: instrument calibration; contamination survey techniques; radiation survey techniques; liquid effluent sampling techniques; gaseous effluent sampling techniques; sample counting procedures; etc. The inspector was informed that these program weaknesses relative to procedure approval and lack of interal health physics procedures had been identified during a recent audit of the licensed programs by the Company Health Physicist. Corrective actions have been initiated on these identified weaknesses in that detailed written procedures were being prepared and reviewed, but had not been, as yet, approved and issued concerning receiving and storage operations and shipping emergency procedures. Licensee representatives were also in the process of initiating preparation of internal Health Physics Department procedures as suggested as a result of the review conducted by the Company Health Physicist.

12. Shipping of Radioactive Materials

a. NRC-741 Forms

During inspection 70-124/77-04, the inspector noted that the licensee was not completing the NRC-741 material transfer forms as required in that the licensee's facility license number was not inserted in the space provided and the type of shipping containers used were incorrectly identified. This was identified as an item of noncompliance. The licensee's corrective action as stated in the inspection report response letter dated December 13, 1977, included re-instruction of personnel and issuance of a control procedure.

During this inspection (70-124/80-01) the inspector examined several NRC-741 material transfer forms and observed that in at least two instances the form was again not completed as required. Shipment ZKD-VBM-14 did not identify the facility license number and shipment ZKD-KAS-3 did not identify the shipping container used.

The corrective actions completed by the licensee to correct the previously identified items of noncompliance was not adequate to prevent recurrence. Thus, this was identified as an uncorrected item of noncompliance during this inspection (80-01-06).

b. Quality Assurance Program for Shipping

The inspector questioned licensee representatives concerning the shipment of greater than Type A quantities of radioactive materials. Licensee representatives stated that greater than Type A quantities of radioactive materials have been periodically shipped from this facility. An examination of licensee records indicated that no radioactive shipments with greater than Type A quantities of radioactive materials have been shipped from this facility since January 1, 1979.

The inspector informed the licensee that radioactive materials, in excess of Type A quantities, could not be shipped from this facility prior to the submission of a quality assurance program to NRC-NMSS which satisfies the applicable criteria specified in 10 CFR 71, Appendix E, "Quality Assurance Criteria for Shipping Packages for Radioactive Material." This quality assurance program is described in Paragraph 71.51 and is required by Paragraph 71.12. Licensee representatives indicated that a quality assurance program for shipping packages would be written and submitted to NRC-NMSS prior to any shipment of a Type A quantity of radioactive material as defined by Paragraph 10 CFR 71.4(q). This will be further reviewed during a subsequent inspection (80-01-07).

13. Licensee Actions Relative to IE Bulletin 79-19

The inspector reviewed the licensee's response to IE Bulletin 79-19 dated September 25, 1979, to assure that all information required by the Bulletin was included, and, to ascertain that corrective action commitments were also included.

a. Regulatory Documents

The inspector verified that the licensee has a current set of DOT and NRC regulations. The licensee maintains these regulations current through a subscription service operated by Datomation, Inc., which updates them regularly. Copies of these documents are maintained by the Manager, Radiological Services.

b. Burial Site Requirements

According to licensee representatives radioactive waste shipments are made only to the burial sites in South Carolina and the State of Washington.

The inspector verified that the licensee maintained copies of Chem-Nuclear's license issued by the State of South Carolina and Nuclear Engineering Company's Special Nuclear Material (SNM) license issued by NRC and the license issued by the State of Washington. Copies of these licenses were being maintained at the same location as the DOT and NRC Regulations as indicated in Paragraph 13.a.

c. Organization

The facility supervisory and management level employees, responsible for the packaging, transfer and transportation of low level radioactive waste material, were identified in the licensee's letter dated September 25, 1979. No one person was identified as being responsible for the safe transfer, packaging and transport of radioactive waste. However, the Manager, Radiological Services, has been charged with the responsibility to assure that the program as outlined in Bulletin 79-19 has been initiated.

d. Procedures

In response to IE Bulletin 79-19, the licensee stated procedures from 1975 will be updated and redistributed by December 31, 1979. The inspector examined the following procedures and determined that the identified procedures had been updated but had not been redistributed as of the date of this inspection. In addition, the licensee does not have a mechanism for licensee management to review, revise, approve and issue procedures.

(1) SOP No. 1, "Receiving and Storage," dated December 5, 1975.

(2) SOP No. 2, "Emergency Procedures," undated.

In addition, the licensee has written and is currently reviewing two new procedures, "Shipment of Radwaste to Washington," and "Radioactive Waste Disposal Receipt."

e. Training

The inspector determined that the licensee had not established a training program for the training and periodic retraining of personnel involved in the transfer, packaging and transport of low level radioactive material. This training program should include a discussion of DOT and NRC regulatory requirements, waste burial site license requirements, and the contents of internal facility instructions and operating procedures.

The inspector also determined that the licensee had not established a training program for the training and periodic retraining of those employees who operate the processes which generate waste. This training should include methods of reducing the volume of low level radioactive waste generated and a discussion of the acceptable chemical and physical forms of low level radioactive waste material which can be shipped to the low level radioactive waste burial facility.

f. Audit Program

(1) Audit Function

This licensee has not established a formal audit function to perform management controlled audits of the facility radioactive waste transfer, packaging and transport activities to provide assurance that personnel, instructions and procedures, and process and transport equipment are functioning to ensure safety and compliance with regulatory requirements. The Manager, Plum Brook Operations, has been visiting the facility on a schedule of about once every three to four weeks, since November, 1979, to review the status of the various programs conducted at this facility. However, these status review visits are informal in nature and review reports are not normally issued to licensee management.

(2) Management Controlled Audit

The inspector verified that an audit of the licensee's low level waste transfer, packaging and transportation program was conducted on September 11, 1979. A report dated October 3, 1979, discussed the areas reviewed.

As a result of this audit, five weaknesses in the licensee's transportation program were identified. These weaknesses concerned identification of licensee personnel, training of licensee personnel, preparation of procedures and instructions, and establishment of a formal audit function associated with the transfer, packaging and transport of low level radioactive waste. The inspector verified that the licensee had identified personnel associated with these activities. However, as previously discussed, the licensee has not taken action to correct the other areas identified.

The inspector obtained a commitment from licensee management to correct the identified areas of weakness by April 11, 1980 (80-01-08). This commitment was obtained during a telephone discussion with the company President on February 25, 1980.

g. Observations

The licensee was not packaging waste in drums or bulk waste in boxes at the time of this inspection. However, the inspector requested the licensee to open a closed waste bearing container which was ready for transfer to a burial site. The shipping container opened was a 55 gallon drum which was not identified by number at the time, but was labeled "Radioactive LSA" and "SVL" (small volume liquid). The container was lined with a 4 mil thick plastic bag which was filled with Grade 4 vermiculite produced by W. R. Grace, Inc. Interspersed throughout the vermiculite were scintilation vials containing low level radioactive scintilation fluids in a ratio of 2 to 3 times the quantity of vermiculite to the quantity of liquid. The radiation level at the surface of the drum was 0 mR/hr. According to licensee representatives, the Grade 4 vermiculite used in this container had been approved for use by NECO-Richland and the State of Washington.

14. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection at 2:45 p.m. on February 15, 1980. The inspector presented the scope and findings of the inspection. Remarks made by licensee representatives during the exit interview have been incorporated into the applicable paragraphs of the inspection report details.

Subsequent to the inspection, on February 25, 1980, the inspector was informed telephonically by the licensee's President that training of personnel, preparation of management approved procedures and instructions and establishment of a formal audit function would be completed by April 11, 1980.