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

Report of Investigation

IE Investigation Report No. 79-01

Licensee: Orian Chemical Company 958 North Industrial Park Drive Orem. Utah 84057

Subject: General License Requirements

Period of Investigation: November 2, 1979

Investigators:

Michael J. Mustain, Radiation Specialist

Charles L. Cain, Radiation Specialist

7/23/80 Date

Reviewed by:

f. / Glen D. Brown, Fuel Facility and Material

Safety Branch

Investigation Summary:

Investigation on November 2, 1979 (Report No. 79-01)

Areas Investigated: Investigation of depleted uranium contamination, disposal, records and possession. The investigation involved eight (8) investigator hours on site by two (2) NRC investigators.

Results: Two (2) items of noncompliance were identified: (infraction-depleted uranium being disposed of by burial and in the sanitary sewer without license condition or regulatory authority; deficiency - no records of receipt, use or transfer of depleted uranium).

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License No. General License (10 CFR 40.22)

REASON FOR INVESTIGATION

NRC Region IV was notified by the State of Utah on November 1, 1979, that Orian Chemical, located in Orem, Utah, was compounding a chemical substance utilizing depleted uranium under the provisions of 10 CFR 40.22. The state's initial investigation of an alligation revealed unauthorized disposal by burial and visible contamination in the facility.

SCOPE OF INVESTIGATION

To investigate State of Utah findings of contamination, unauthorized disposal and possible over-possession of depleted uranium.

SUMMARY OF FACTS

On November 2, 1979, Region IV conducted an investigation at Orian Chemical, Orem, Utah. Orian Chemical utilizies depleted uranium under a general license in 10 CFR 40.22(a).

No records of receipt, use or transfer were being maintained. 10 CFR 40.22(b) exempts a licensee from 10 CFR 20 requirements and therefore does not provide for disposal. Contrary to this requirement, waste chemical by-product containing depleted uranium was being disposed of by burial and in the sanitary sewer. Equipment and surface areas inside and outside the laboratory exhibited a brillant orange dried residue with contamination up to 20,000 dpm alpha per 100 square centimeters (See pictures numbers 1, 2, and 3, Appendix A).

CONCLUSION

Orian Chemical possessed depleted uranium pursuant to 10 CFR 40.22. There are no provisions in 10 CFR 40.22 for disposal of licensed material other than by transfer to an authorized recipient pursuant to 10 CFR 40.51. No records of receipt, use, or transfer were being maintained pursuant to 10 CFR 40.61.

DETAILS

1. Introduction

- A. Following information received from an alleger, the State of Utah Department of Radiological Health performed a preliminary investigation at Orian Chemical, Orem, Utah. Reportedly, Orian Chemical manufactures a catalyst involving depleted uranium. Being brilliant orange in color, the state investigator could easily identify what appeared to be gross contamination on glassware, countertops, and floors. The State was also told that waste material containing approximately 50% depleted uranium was being disposed of by burial in a shallow pit adjacent to Orian Chemical.
- B. The State notified Region IV and on November 2, 1979, two investigators from Region IV in conjunction with a representative of the State Radiological Health conducted an investigation at Orian Chemical.
- c. Orian Chemical possesses depleted uranium pursuant to a general license in 10 CFR 40.22(a). They "manufacture" in a large garage type space rented from an industrial complex.
- D. Depleted uranium for the manufacturing process is purchased from National Lead (NL), Albany, New York. NL records show that Orian Chemical has received only 15 lbs of depleted uranium in any one shipment and NL has allowed only ten shipments in any one (1) calendar year. The provisions of 10 CFR 40.22(a) and (a)(4) have apparently been complied with by Orian Chemical at the insistance of National Lead.

2. Persons Contacted

The following lists the individuals contacted during this investigation. Other individuals were contacted during the investigation but either supplied redundant information or their input was not significant to the findings.

*John Larson - Owner, Chemist, Orian Chemical *Blaine Howard - Section Chief, Utah State Radiological Health **Ken Storr - National Lead

*Management Meeting **Telephone contact

3. Investigation

- A. In conjunction with a State of Utah representative, Region IV conducted an investigation at Orian Chemical on November 2, 1979.
- B. Reportedly, Orian Chemical manufactures a chemical catalyst for DOD that utilizes depleted uranium, acids, alcohols, and benzene. The waste product, a brillant orange, solid, residue, reportedly contains approximately 50% depleted uranium.
- C. This residue was readily visible on glassware, make-shift counter tops, floors, and the driveway immediately in front of the garage door to the facility. (See pictures nos. 1 and 2, appendix A). Contamination monitoring indicated some surface contamination of 20,000 dpm alpha per 100 square centimeters. Reportedly this residue is soluble in dilate acid making it fairly easy to cleanup. The residue on the driveway was there because the garage, compounding area has no provisions for ventilation so all compounding is done outside on the driveway. The state representative indicated the State would further investigate this possible ventilation problem.
- D. The residue waste was being disposed of by release in to the sanitory sewer or by burial in a shallow pit approximately 14 feet across and at depths up to 1 foot on a vacant lot adjacent to the industrial complex housing Orian Chemical. Since 10 CFR 40.22(b) specifically exempts 2 general licensee from the provisions of 10 CFR 20, the inspector indicated that this means of disposal was an apparent item of noncompliance with 10 CFR 20.203 and 20.304 and that disposal should be by transfer of waste to a person authorized to receive this type of material pursuant to 10 CFR 40.51.
- E. Examination of the burial site indicated contamination in the soil to be approximately 60,000 dpm alpha per 100 square centimeters (See picture no. 3, /appendix A).
- F. Orian Chemical reportedly does not maintain any records of receipt, use, or transfer of opproduct material. The inspector identified this as an apparent item of aoncompliance with 10 CFR 40.61. Mr. Larson would not identify a specific recipient of his compound; only DOD. The investigator did observe a mailing label with Lawrence Livermore Laboratories, Livermore CA, as the addressee.

4. Management Discussion

The results of the investigation, findings, and the conclusion reached were discussed with the personnel indicated in paragraph 2 above. The inspector also commented that the use of licensed material outside the facility confines and the unauthorized disposal by burial or release into the sewer system could constitute a public health hazard. In regard to the findings of this investigation, the inspector indicated to Mr. Larson that some type of escalated enforcement action might be considered by Region IV (see enclosure 3).

