

70-133

SEP 14 1993

MEMORANDUM FOR: John Greeves, Director, Division of Low-Level Waste Management and Decommissioning (LLWM)

FROM: Charles E. Norelius, Director, Division of Radiation Safety and Safeguards

SUBJECT: HORIZONS, INC. (LAMOTITE) CLEVELAND, OHIO, TRANSFER OF PROGRAM MANAGEMENT

This refers to a July 27, 1993 conference call with Richard Bangart and your staff regarding NRC program management responsibility for the above former AEC licensee. During this call it was agreed that NMSS/LLWM would assume primary oversight, due to unique legal questions regarding prior ownership and DOE responsibilities.

Review of the criteria for adding a site to the SDMP indicates that this facility meets criterion a., b., c. and d. (the responsible organization may not be financially viable, presence of large amounts of soil contamination, long-term presence of contamination and the license was previously terminated, but residual contamination exceeds NRC release criteria). Based upon our review, we have prepared a "DRAFT" SDMP write up, attached.

Please advise us when a Project Manager has been assigned. We will then transfer all relevant documentation, including docket files. If there are any questions regarding this facility, please contact G. M. McCann, Chief, Fuel Facilities and Decommissioning Section (708) 790-5785.

ORIGINAL SIGNED BY W. L. AXELSON

Charles E. Norelius, Director
Division of Radiation Safety
and Safeguards

Attachment: SDMP sheet

cc w/attachment:
P. Goldberg, NMSS
T. Johnson, LLWM

RIII *yes*
TW
Wiedeman/sd
09/7/93

yes
RIII
AMM

McCann
09/13/93
RIII
probe
09/14/93

yes
RIII
Norelius

090058

8402140226 830914
PDR ALOC 07800133
C PDR

NK16/1

Horizons, Inc. (Lamotite)

1. Site Identification

Horizons, Inc.
Cleveland, Ohio

License No. C-2348 and C-3496 (terminated)
Docket No. 040-000861 (terminated)
License Status: Terminated by AEC in May 1959
Project Manager: _____, LLWM

2. Site and Operations

Around 1948 Horizons Inc. was active in the field of high temperature fused salt electrochemistry, in which most of the research pertained to non-radioactive titanium and zirconium. A contract proposal to study the possible production methods for thorium recovery was prepared by Horizons and submitted to the Atomic Energy Commission (AEC). The first contract in this area was awarded in April 1952 and continued in various forms through June 30, 1956. The first years of the contract concentrated on developing systems for preparation of thorium metal and elimination of systems which were not feasible. During this period of time more than 5 tons (4.5 metric tons) of thorium nitrate tetrahydrate (TNT) were processed under AEC License No. C-2348. Review of historical documents from AEC indicates that final payment for the contract work included reimbursement for decommissioning costs. When the AEC discontinued its contract, Horizons, Inc. submitted a license renewal application dated February 20, 1956 for use, possession and processing of thorium and uranium.

AEC License No. C-3496 was issued to Horizons, Inc. on April 30, 1957 based upon their renewal application dated February 20, 1956 for use and possession of 100 lbs. of uranium and 10,000 Lbs. of thorium at their facility located at 2891-2905 East 79th Street, Cleveland, Ohio. The authorized activities included refining source material for anyone licensed by the AEC and to recover uranium and thorium by way of an electrolytic process. This license expired on May 31, 1959. AEC Byproduct Material License No. 27229 was in effect in 1955 and authorized 20 millicuries (740 MBq) of silver-110 (Ag-110). This license was terminated (superseded) when License No. 34-1947-01 was issued on February 1, 1957. This material was used for determining the coefficient of surface diffusion of metals under various government contracts. In a letter from the licensee dated November 4, 1958, the licensee stated that all materials on hand were shipped back to Oak Ridge National Laboratories on October 31, 1958, on December 9, 1958 the byproduct material license was terminated.

During a license file review in 1992-93 by an NRC contractor, Oak Ridge National Laboratories (ORNL), the NRC contractor concluded that due to the lack of decontamination and decommissioning documentation in the terminated license file the possibility exists that the former licensee may have inappropriately disposed of their contaminated wastes or abandoned the material.

Further investigation by the NRC staff showed that in the mid 1970s the Department of Energy (DOE) was considering this site as a candidate for their Formerly Utilized Sites Remedial Action Program (FUSRAP) and a site characterization/assessment was conducted during February-March 1977. The DOE concluded in their report dated February 1979 that the facility did not meet the NRC release criteria. In 1985 the DOE concluded that although residual radioactive material attributable to AEC sponsored operations was identified, further review of historical documentation resulted in a determination that DOE does not have authority under the Atomic Energy Act of 1954, as amended, to perform remedial action at the site. This decision was relayed to the U. S. EPA and the State of Ohio.

3. Radioactive Wastes

During the 1940s to the late 1950s, the two buildings at the Horizons Inc. facility that were used for the production of granular thorium and uranium metal became extensively contaminated. Two of the three original buildings (buildings B and C) were used for work with radioactive materials. Building C was originally used for receiving and processing radioactive materials. Building B was used for bulk storage and final processing of the radioactive materials. The feed material was brought into the wet plant known as building C, weighed into batches, then placed in a dissolving tank. The thorium nitrate was converted to ammonium thorium chloride, blended with sodium chloride, and then transferred as a calcined salt to the dry plant (building B) where thorium metal was produced by an electrolytic process. The metal was chipped from the cathode, crushed, washed, dried, and then packaged in building B for final shipment from the plant. Building B is currently used by Lamotite for storage of surplus (nonradioactive) process equipment. The DOE report dated February 1979 indicates that concentrations of thorium-232 (up to 4,890 picocuries/gram (pCi/g) (181 Bq/g)) were found in dirt and other materials taken from the floor drains and surfaces inside buildings B and C. The soil beneath building C was found contaminated to a depth of six feet in places. Results of direct alpha measurements suggest that most of the roof surfaces of the two buildings contain alpha contamination in excess of 100 dpm/100 cm².

The approximate size of the entire site is 146,000 ft² (13,563 m²) and building C (including offices) is approximately 24,500 ft² (2,276 m²), the former final processing area (building B) where contamination was found is approximately 5,185 ft² (481 m²). The surrounding neighborhood is a mixture of commercial buildings and single/multi-family residences. Based upon the radiological survey data by DOE's contractor, it is estimated that about 300 yd³ of soil and 500 yd³ of building materials may require disposal.

4. Description of Radiological Hazard

This access-controlled site poses no immediate threat to the public health and safety. Thorium contamination currently exists only in on-site soils and buildings. Building C is currently posted "Caution Radioactive Materials" and the current property has restricted access to the building. The floor drains in building C have been plugged for approximately the last 10 years.

5. Financial Assurance/Viable Responsible Organization

At the time of the NRC Region III inspection of the site on June 25, 1993, it was the staff's understanding that Horizons, Inc. sold the buildings to a company known as Clecon during the 1966-1967 time frame, Clecon then sold all assets of the company to Tilling of England in 1981. Tilling of England then sold all assets of the company to an unknown individual in 1982. This unknown individual sold the business to three of the managers that ran the company at that time, in 1983. These three owners then sold the business and all assets to Lamotite in 1986. There are no current financial assurance documents in place to cover the costs of decontamination and decommissioning.

6. Status of Decommissioning Activities

None

7. Other Involved Parties

The State of Ohio and the U. S. EPA were provided information regarding the radiological status of this site in December 1985; however, no specific actions to ensure prompt decommissioning were taken.

8. NRC/Licensee Actions and Schedule

- Issuance of NRC inspection report (99990003/9315(DRSS))- August 1993
- Determine further action based upon response to inspection report.