

ORNL SITES - SUMMARY

License No.: SNM-00098 ORNL Score: 384,855
Docket No.: 070-00090
Licensee: Engelhard Industries, Inc. Review Status: Complete
(Formerly Baker and Company, Inc.)
Site Address(es): 113 Astor Street 149 Murray Street
Newark, NJ Newark, NJ
Site Contact: Tom Brown, Manager Environmental Affairs
101 Wood Avenue
Iselin, NJ 08830-00770
Telephone No.: 908-205-7265
SDMP Site: no
Related License(s): C-03387, SNM-00892, [NOT ON LIST: 29-04181-01, C-04149, C-04229, R-00121, S-04938, SNM-00715]
NRC Reviewer: Andrew Schwartz, John H. Lusher
Review Abstract: License No. SNM-00098 was issued June 26, 1957 for the possession and use of 170 kg of enriched uranium in the recovery of U-235 from cold scrap, 2 g of enriched uranium for spectrographic analysis, and 0.002 g of byproduct material and plutonium as byproduct material from the processing of used fuel elements. There were no termination or confirmatory surveys in the file. The license was terminated on April 20, 1964. Also, noted in file was information that radioactive materials had been transferred to a licensed waste contractor for burial at sea.

The Astor street and Murray Street facilities were labs that were setup to do precious metal recovery, forming and alloying. Also, it has been determined that the Astor street buildings were sold in 1984 have been torn down and replaced with new buildings which house the Kremenz & Co.. The Murray Street Buildings were demolished during the 1975 to 1977 time period and the building materials were subjected to precious metal recovery operations and the grounds were mined to an approximate depth of 27 feet before being back filled. There are other buildings on this site which house J. Cappriglione & Sons. Based on this information, the facility is suitable for unrestricted use.

Recommendations: None

Summary: License No. SNM-00098 was issued June 26, 1957 for the possession and use of 170 kg of enriched uranium in the recovery of U-235 from cold scrap, 2 g of enriched uranium for spectrographic analysis, and 0.002 g of byproduct material and plutonium as byproduct material from the processing of used fuel elements.

The licensee's primary location of use was the uranium refinery located in Building T of the Irvington-Baker Refining Division at 149 Murray Street, Newark, New Jersey. The spectrographic analysis laboratory was located at 113 Astor Street,

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Newark, New Jersey. However, the file was unclear concerning the extent of recovery operations conducted at 113 Astor Street. An inspection report dated April 3, 1959 listed the following licenses as having locations of use in Newark, New Jersey: License No. C-04229 authorized possession of 300 g of uranium contained in 2 kg of solution; License No. C-04149 authorized possession and use of up to 150 lbs of source material; License No. C-03387 authorized up to 500 lbs of refined source material for research and development; S-04938 authorized 2 kg of natural uranium solution for export; 29-04181-01 authorized the possession and use of byproduct material, including C-14, for laboratory studies. The inspection report stated that a new research and development laboratory existed at 149 Delancy Street, Newark, New Jersey. However, the file was unclear concerning the activities conducted at 149 Delancy Street. According to licensee applications and AEC inspection reports, the licensee made discharges of liquid waste to the sanitary sewer and had transferred waste to a disposal company for ocean disposal. A letter from the licensee dated June 8, 1962 stated that they were withdrawing from scrap recovery. A materials disposition document dated November 30, 1962 stated that all special nuclear material has been or will be disposed of in compliance with 10 CFR 20 prior to license expiration. A letter from the licensee dated March 20, 1963 stated that all equipment had been removed, decontaminated, and placed in storage. The operating area was repainted and the flooring was replaced indicating that these areas may have been contaminated. A letter from Radiological Service Company, Incorporated to the licensee dated September 23, 1963 stated that all equipment was properly disposed of in accordance with AEC regulations and that a survey was conducted at Building T and at the stone building on Wulberry Street. The letter concluded that the buildings were free from contamination. However, the survey was not included in the file and the purpose of the stone building was not mentioned. There was no evidence of a confirmatory survey in the file. The license was terminated on April 20, 1964. An internal NRC letter dated May 26, 1992 stated that the file contained evidence of dumping. However, the file did indicate that material had been transferred to a licensed waste disposal company for burial at sea.

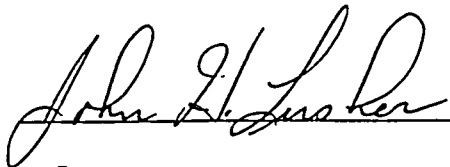
Information was received from the Department Of energy that Englehard Industries, Inc. was removed from the FUSRAP program because the facilities used had been torn down and replaced with a new building and therefore was inaccessible for surveys.

On June 20, 1995, Inspectors J. Kinneman and J. Lusher met with T. Brown, Manager, Environmental Affairs, Englehard Industries, at 101 Wood Avenue, Iselin, New Jersey, and discussed the Englehard Industries retired licensees. Mr Brown informed the inspectors of the status of the properties and went with the inspectors to show where the properties were located.

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The 113 Astor Street location was the Englehard Industries, Inc. headquarters during the time period of this license. The Astor street and Murray Street facilities were labs that were setup to do precious metal recovery, forming and alloying. Also, it has been determined that the Astor street buildings were sold in 1984 have been torn down and replaced with new buildings which house the Krementz & Co.. The Murray Street Buildings were demolished during the 1975 to 1977 time period and the building materials were subjected to precious metal recovery operations and the grounds were mined to an approximate depth of 27 feet before being back filled. There are other buildings on this site which house J. Cappriglione & Sons. Based on this information, the facility is suitable for unrestricted use.

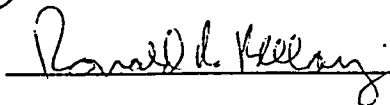
Reviewed by:



Date

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Approved by:



Date

11/27/96

July 11, 1995

**Attachment to ORNL Sites-Summary
Additional Details Concerning License No. SNM-00098**

An application for license dated February 18, 1957 stated that the recovery of the uranium consisted of mixing with acid solutions, weighing, sampling, drying, solvent extraction, evaporation, concentration, precipitation, calcination, hydrofluorination, and fluorination. Acid insoluble material was to be drummed and disposed of in accordance with commission regulations, aqueous raffinate (with an estimated concentration of less than 100 ppm) was to be stored in glass carboys pending analysis and discharged to the sewer system, and the aqueous filtrate (stated to consist of less than 10 gallons/day at less than 10 ppm) was discharged to the sewer system. The licensee operated under AEC Contract AT-30-1-88 from April, 1950 to November 30, 1956 to decontaminate 6,000 troy ounces of platinum belonging to the AEC at the licensee's platinum refinery. The degree of the platinum contamination was calculated by the licensee to be as high as 10,000 Ci/g. However, the file did not state where the platinum refinery operations were conducted. If the uranium and platinum refinery were the same location, the refinery may have been contaminated from the platinum decontamination operation. In addition, due to the high activity, the half-life of the contamination was likely to be short. Therefore, contamination still existing from platinum decontamination operations is unlikely or negligible. A letter from the licensee dated April 22, 1957 stated that the estimated amount of material processed was 2 kg/day of highly enriched uranium and 20-25 kg/day of low enriched uranium. A letter from the licensee dated December 27, 1957 stated that Engelhard Industries, Incorporated was taking over recovery operations. A letter from the licensee dated December 14, 1960 stated that the facility included a 30 gal dissolver and 14 storage tanks with each tank having a capacity of approximately 15 gal. Leakage could have resulted in surface contamination. A letter from the licensee dated January 5, 1961 stated that liquid waste, containing plutonium as a byproduct from the recovery of used fuel elements, was to be disposed of at sea by a licensed disposal company. The activity in solution was estimated to be $2.7 \times 10^{-5} \mu\text{Ci/ml}$.

An AEC inspection conducted February 17, 1959 stated that the licensee had transferred solid waste containing Ru-103 to the Navy at the Earle, New Jersey depot for ocean disposal. If the licensee had made other ocean disposals, this may have been the disposal contractor the licensee used throughout their operational history. The licensee was cited for using and storing material at unauthorized locations of use several times. Therefore, it was difficult to determine at what locations the Newark, New Jersey licenses were actually used. An AEC document dated May 16, 1962 stated that the solid waste residue contained 1.4% uranium from the recovery of the Netherlands fuel elements and that the licensee should recovery more of the uranium contained in the solid waste. If the licensee had conducted on-site

burial of solid waste, the licensee may have contaminated the soil due to the amount of uranium in the solid waste. An inspection report dated July 12, 1966 stated that in the licensee's recovery operation, the concentration of uranium after filtration was, at times, 1.5 times the amount expected. The inspector considered this a concern of recovery operations. Therefore, because the amount of uranium recovery was greater than anticipated, the likelihood of contamination was greater.