ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Report Number: 40-2377/96-01

License: STB-472 (Terminated)

Former Licensee: Kaiser Aluminum Specialty Products

Site Visit Location: Kaiser Aluminum Facility, Tulsa, Oklahoma

Site Visit Conducted: March 5, 1996

Inspector: Louis C. Carson II, Health Physicist
Nuclear Materials Licensing Branch

Accompanied By: Richard H. Turtil, Project Manager
Low Level Waste and Decommissioning Projects Branch
Office of Nuclear Material Safety and Safeguards

Approved: _____ 5/6/96
Dr. D. Blair Spitzberg, Chief — Date
Nuclear Materials Licensing Branch

Site Visit Summary

Areas Reviewed: Special, announced site visit to the Kaiser Aluminum Specialty Products facility, formerly occupied by the Standard Magnesium Company. The visit was performed using the general guidance of NRC Inspection Procedure 83895, "Followup on Expired Licenses," Temporary Instruction 2800/026, "Followup Inspection of Formerly-Licensed Sites Identified as Potentially Contaminated," and Procedure 83890, "Closeout Inspection and Survey."

Results:

- Radioactive material signs were conspicuously posted around the site as required by 10 CFR Part 20.1902.
- All water samples from the Fulton Creek outflow from the Kaiser property measured less than limits specified in 10 CFR Part 20.
- The on-site soil characterization report provided useful information for Kaiser's reclamation planning, but more soil characterization is needed off-site.
- Kaiser Aluminum was making adequate progress in developing a comprehensive reclamation program for the Tulsa, Oklahoma, site.

- No immediate health hazard currently exists at the Kaiser Aluminum facility.

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 SITE TOUR

On March 5, 1996, NRC staff visited the Kaiser Aluminum facility, met with the Health and Safety Coordinator and the Plant Manager, discussed the reasons for the visit, and conducted a site tour. This site visit was performed to assess the scope of residual radioactive contamination at the Tulsa, Oklahoma, Kaiser Aluminum Facility, and to gain an understanding of Kaiser's plans regarding the reclamation of the site. The inspector toured the old Standard Magnesium scrap magnesium-thorium alloy burial pit, the three site ponds, Fulton Creek, and the property fenceline.

During the site tour, the inspector observed that radioactive material signs were conspicuously posted around the site as required by 10 CFR Part 20.1902. Inspector observed that the Kaiser property fenceline was in adequate condition, however, the inspector found indications that property erosion extended beyond the property fenceline. Also, it seemed that access under the fence by members of the public would not be precluded by the fence in the eroded areas and around the Fulton Creek drainage area. This was discussed with Kaiser personnel for any action they deem appropriate. The inspector observed evidence of animal habitants, particularly beavers and large birds, around the creek and ponds.

2 RECORDS REVIEW

The inspector's visit included a records review of the former licensee's files and discussions with the Health and Safety Coordinator. The inspector reviewed Kaiser letters on file regarding licensed material found at Kaiser, radiochemical analysis of water samples, and the final "Field Characterization Report" on soil contamination at Kaiser.

2.1 Kaiser Letter

A letter dated June 21, 1995, informed the area business community that Kaiser was working with the NRC to address the thorium residue issue. The letter explained that the hazard was radioactive metallic thorium, Kaiser would be posting "Caution Radiation" signs around the property, and the issue posed no immediate health or safety hazard. According to the Safety and Health Coordinator, the business community had a positive response to their efforts.

The inspector reviewed an NRC letter dated August 5, 1995, which identified that the Kaiser facility was formerly licensed by the Atomic Energy Commission and needed to be remediated before it could be released for unrestricted use. The NRC letter also stated that the Kaiser facility presented "No imminent health and safety risk" to the public.

2.2 Radiochemical Water Analysis

The inspector reviewed 1994 and 1995 radiochemical analysis of water samples that were collected from Fulton Creek outfall which flows through the Kaiser facility and from monitoring wells around the site ponds. Kaiser does not have requirements to perform such radiochemical analysis, however, they analyzed for gross alpha, gross beta radiation, and measured the amount of thorium-228 and thorium-232 radioactivity suspended in water. The inspector noted that the amount of thorium-228 and thorium-232 detected in the pond monitoring well was 163 and 185 picoCuries/liter, respectively. Fulton Creek outfall water samples measured less than 1 picoCuries/liter thorium-228 and thorium-232. Gross alpha and gross beta from the Fulton Creek outfall measured 6 and 30 picoCuries/liter, respectively.

The inspector concluded that all the Fulton Creek samples analyzed were less than NRC regulatory limits specified in 10 CFR Part 20.

2.3 Field Characterization of Soil Contamination

The inspector reviewed the report on the soil contamination at the Kaiser facility "Field Characterization Report," dated April 18, 1995. The report documented the amount of contaminated soils and sludges found at the facility in Tulsa, Oklahoma. In the report, Kaiser used as reference, the NRC Branch Technical Position (BTP), "Disposal or On-Site Storage of Residual Thorium or Uranium From Past Operations." This NRC-BTP establishes the following criteria for thorium and uranium in soil:

- Option-1 specific activities of 10 picoCuries/gram or less
- Option-2 specific activities of greater than 10 picoCuries/gram but less than 50 picoCuries/gram.

From the investigation, Kaiser determined that the following volumes of Thorium 228, 230, and 232 contaminated soil exists on site:

- 275,616 cubic feet of Option-1
- 1,113,241 cubic feet of Option-2
- 2,035,638 cubic feet of greater than Option-2 (>50 picoCuries/gram)
- A total of 3,447,495 cubic feet of contaminated soil.

The investigation included the following four areas on site:

- Area-1: Land between the Retention Pond and the southern fence boundary
- Area-2: Bermed areas located north and east of the Flux Plant
- Area-3: Backfilled Reserve Pond
- Area-4: Retention Pond

Kaiser estimated that 575,000 cubic feet of the contamination exists in the Area-4 Retention Pond and 500,000 cubic feet exist in the Reserve Pond in

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The inspector noted that the investigation analyzed very few measurements outside the Kaiser property fenceline. Characterization beyond the immediate property of the Kaiser facility has been part of ongoing discussions between the NRC and Kaiser. Kaiser detected radioactivity in soil outside their fenceline that measured 23 picoCuries/gram. Kaiser plans to collect more samples outside their fenceline later in 1996 and will include such information in future characterization data.

The inspector concluded that the on-site soil characterization report provided useful information for Kaiser's reclamation planning, but more soil characterization is needed off-site.

3 CHARACTERIZATION AND REMEDIATION PLANNING

During this site visit, Kaiser management revealed that they were having a meeting on April 11, 1996, to develop a plan of action to supplement the final Field Characterization Report. On April 16, 1996, a telephonic conversation was held between Kaiser representatives (Kaiser Facility Plant Manager and the Kaiser Safety, Health, and Environmental Manager) and NRC staff (Project Manager and Region IV Inspector) to discuss the results of the April 11th planning meeting.

Kaiser management explained that the next phase in the characterization program was to implement a groundwater hydrology study of the Tulsa, Oklahoma, site. Kaiser management explained that contamination mobility, uniformity, and solubility are important factors to know before they can proceed with a Decommissioning Plan submittal. Kaiser management provided the following schedule:

- Develop the Phase-I action strategy for site hydrology by June 1, 1996
- Have a defined hydrology scope and incorporate benchmarking factors from other licensees by July 1, 1996.
- Issue bids for the hydrology characterization by August 15, 1996.
- Start hydrology characterization by November 15, 1996.
- Issue the Hydrology Characterization Report by December 31, 1996.
- Submit a Decommissioning Plan by July 1, 1997.

Kaiser management expressed their desire to meet with the NRC staff several times before submitting the Decommissioning Plan. NRC staff encouraged Kaiser to meet with NRC personnel as they needed.

4 CONCLUSIONS

The NRC inspector concluded that no immediate health hazard currently exists at the Kaiser Aluminum facility and the licensee was making adequate progress in developing a comprehensive reclamation program at the facility.

ATTACHMENT

1 PERSONS CONTACTED

1.1 Kaiser Corporation

F. Ewton, Site Health and Safety Coordinator
B. Holmes, Corporate Safety, Health, and Environmental Manager
S. Romeo, Plant Manager

1.2 Contractor Personnel

M. Scott, Health Physicist (Consultant)

1.3 NRC Personnel

*L. Carson II, Health Physicist, Region IV
*K. Kalman, Project Manager, Low Level Waste and Decommissioning Projects Branch

(*) Denotes the personnel above that attended the exit meeting. In addition to the personnel listed above, the inspector contacted other personnel during the inspection.

2 EXIT MEETING

An exit meeting was conducted on March 7, 1996, at the Kaiser facility in Tulsa, Oklahoma. During this meeting, the inspector reviewed the scope and findings of the site visit. The participants did not identify as proprietary any information provided to, or reviewed by, the inspector.