March 11, 1996

FOR: The Commissioners

FROM: James M. Taylor /s/
Executive Director for Operations

SUBJECT: ALUMINUM COMPANY OF AMERICA REMOVAL FROM THE SITE DECOMMISSIONING MANAGEMENT PLAN

PURPOSE:

To inform the Commission that remedial action has been completed at the Aluminum Company of America (ALCOA) facility near Cleveland, Ohio, and that the staff plans to release the site for unrestricted use and remove the site from the Site Decommissioning Management Plan (SDMP).

SUMMARY:

In SECY-90-121, the original SDMP, and in subsequent revisions to the SDMP (SECY-91-096, SECY-92-200, SECY-93-179, and SECY-95-209), the staff identified approximately 50 sites where remedial action was warranted because of the presence of residual radioactive material in excess of the Nuclear Regulatory Commission's current unrestricted use criteria. One of these sites is the ALCOA facility near Cleveland, Ohio. Thorium was used at the site for alloying with magnesium since 1900, and was used under an Atomic Energy Commission (AEC) license from 1954 to 1961.

Surveys performed for ALCOA in 1989 and 1990 showed thorium-232 contamination in several locations in the facility. Fugitive depleted uranium (DU) from Chemetron Corporation (Chemetron), an adjoining facility to the east, was also found on the site. ALCOA began decommissioning the site in 1991 and performed several final radiological surveys, with the last survey completed in August 1995. NRC staff also investigated the possibility that thorium waste could have been disposed of in a landfill at the site. Based on remedial actions by ALCOA, remedial actions by Chemetron for the DU, staff reviews of termination surveys by ALCOA and Chemetron, staff review of ALCOA information on thorium waste disposal practices, and on the results of NRC surveys, the staff concludes that decommissioning activities are complete and the site is suitable to be released for unrestricted use.

BACKGROUND:

The ALCOA Cleveland Works is an aluminum refining, casting, and finishing facility at 1600 Harvard Avenue in the villages of Newburgh Heights and Cuyahoga Heights, which are suburbs of Cleveland, Ohio. The entire site occupies approximately 152 acres. The permanent mold castings facility division area comprises some 5665 square meters (m^2) (14 acres).

Contamination found on site consisted of thorium, derived from the production of magnesium-thorium alloys by ALCOA and related companies, and of DU, attributable to Chemetron, adjoining the Cleveland Works on the east. At Chemetron depleted UF_6 had been converted to U_3O_8 in the production of a chemical catalyst for the plastics industry, from 1965 to 1972.

According to ALCOA personnel, thorium was used at the Cleveland Works Plant since 1900 by American Magnesium Company, which was a wholly owned subsidiary. There is little information on the quantities and form of thorium used at this site before 1954. Activities with thorium were licensed from 1954 to 1961.

In 1954, ALCOA obtained an AEC license for possession and use of 726 kilograms (kg) (1600 pounds) of refined thorium for experimental purposes and the production of magnesium-thorium alloys in the Permanent Mold Casting Facility Division at the Cleveland Works. AEC licensing records indicate that thorium was received in both powder and pellet forms, processed to make roller rings out of HM21XA ingot (a magnesium-thorium alloy), and then shipped to the Bendix Corporation in Kansas City, Kansas. Before license expiration on February 28, 1961, all excess thorium was shipped back to the Dow Chemical Company, the supplier. AEC licensing records also indicate that thorium wastes may have been buried in accordance with 10 CFR 20.304.

The Permanent Mold Castings Facility Division area is located at the southeast corner of the Cleveland Works. Nearby buildings to the north at the northeastern corner of the site were used to provide laboratory support for roller ring processing. Thorium contamination was found in both of these locations, along with DU contamination attributable to adjacent property owner Chemetron. The eastern area of the site is currently idle and being prepared for possible sale or reconstruction. The former AEC licensee does not intend to reactivate the production and processing of magnesium-thorium alloys.

On January 12, 1981, NRC received a Certificate of Disposition of Materials (NRC Form 314) dated January 8, 1981, which certified disposal of all licensed material. Limited radiological surveys were performed at the site by NRC in 1980; by Oak Ridge Associated Universities (ORAU) in 1985; by NUS Corporation in 1989; and by Remcor Corporation in 1990. Survey results reported by the latter two firms identified thorium-232 contamination in several locations of the facility.

In September 1991, NRC reviewed and approved a remediation plan for contaminated soils located in a 30 m (100 foot) by 12 m (40 foot) area south of Building 71. Decontamination was performed between September and October 1991. Oak Ridge Institute for Science and Education (ORISE) performed a confirmatory survey of the area in November 1991, before disposal of the contaminated soil, and determined that all areas, except one sample location, Grid A,O, satisfied the NRC thorium guideline for release for unrestricted use. This location was subsequently remediated in 1992. NRC performed a confirmatory survey of this location in October 1993, and determined that the area now satisfied the NRC thorium guidelines for release for unrestricted use. In December 1991, approximately 41 m^3 (1450 ft^3) of soil contaminated with greater than 0.37 becquerel (Bq) (10 picocuries per gram (pCi/g)) thorium was shipped to a licensed low-level waste disposal facility. In August 1992, ORISE surveyed the concrete pad where the contaminated soil was stored before disposal and determined that this area was remediated satisfactorily.

ORISE performed additional radiological surveys in November 1991 at locations where former AEC-licensed operations had occurred, as well as other portions of the Cleveland Works facility, to determine if these areas contained residual contamination in excess of NRC's guidelines. Scoping surveys of Buildings 65, 71, 107, 111, 119, and 120 and the existing landfill indicated that thorium and DU radiological contamination exceeded NRC limits in Building 65. In February and March 1992, ALCOA submitted reports characterizing the radiological contamination in Building 65. In January 1993, ALCOA submitted a Building 65 remediation plan for NRC staff review and approval. In February 1993, the NRC staff requested additional information from ALCOA to complete its review of the Building 65 remediation plan submitted to NRC. At that time the contamination was identified as DU. The suspected thorium contamination

was determined to be in error, due to a transcription mistake in a contractor report. In March 1993, the remediation plan was approved. ALCOA submitted a final survey report for Building 65 in July 1993. After a confirmatory survey by ORISE, Building 65 was released for unrestricted use in December 1993. Subsequently, Building 65 has been demolished by ALCOA. In March 1994, thirty-two boxes of low-specific-activity waste, generated during remediation, were shipped from the site to Envirocare of Utah, a licensed low-level radioactive waste disposal facility. At that time, NRC deferred release of the outdoor areas around the Permanent Mold Division area, pending completion of surveys and related remediation to be performed by Chemetron. Following the completion of Chemetron's remediation activities, Region III inspectors performed confirmatory surveys of the outdoor areas on May 9-11, 1995. Based on the confirmatory surveys, NRC staff found the outdoor areas to be acceptable for unrestricted use.

In May 1992, ALCOA asked NRC staff for a written release from further remediation obligations regarding the Permanent Mold Division area of the Cleveland Works facility. Because some of the buildings in this area were not previously surveyed for radiological contamination, NRC requested ORISE to perform scoping surveys of Buildings 21, 22, 24, 25, 26, 29, 70, and 72. The results of the August 1992, ORISE scoping survey indicated that the mezzanine area of Building 25 was contaminated with DU in concentrations that exceeded NRC guidelines. In October 1992, NRC staff reviewed and approved a remediation plan for Building 25. Later that month, remediation of Building 25 was completed and a final radiological survey was sent to NRC for review. Results of an NRC Region III confirmatory survey of the mezzanine area performed in October 1992 indicated that remediation efforts had been successful, with no residual contamination identified above the NRC unrestricted release criteria. In December 1992, ALCOA began demolishing buildings located in the Permanent Mold Division area and continued demolition through Spring 1993.

ALCOA's "Application for Renewal of License C-2887," dated March 24, 1958, indicated that some thorium wastes would be disposed of under 10 CFR 20.304 at their industrial landfill in the southwest portion of the site. NRC staff requested, in May 1992, that ALCOA submit information on whether thorium wastes exist at the landfill. In September and October 1992, ALCOA provided the requested information that was based on interviews with former employees and on past thorium waste disposal practices. Former employees indicated that no disposal actually took place in the ALCOA landfill, and that all wastes were transferred back to DOW Chemical Company, the thorium supplier, to be recycled. ALCOA stated that no site characterization information or records of waste disposal exist. NRC staff considered ALCOA's analyses insufficient to support the conclusion that thorium-contaminated wastes were not present in the landfill. NRC therefore requested an affidavit from a cognizant ALCOA corporate officer certifying that ALCOA had no records that would indicate any prior placement of radioactive materials in the landfill on site. NRC received and accepted this affidavit in March 1994. Based on ALCOA's affidavit, on survey data collected on-site by ORISE in November 1991, and on analyses of groundwater samples collected by ORISE in August 1994, that indicate the absence of detectable radioactivity, NRC concluded that there was no evidence that licensable material was disposed of in the landfill. By letter to ALCOA on February 15, 1995, NRC released the landfill for unrestricted use unless contamination were subsequently found that would indicate a significant threat to public health and safety.

During 1994, surveys by NRC and by a consultant to Chemetron documented the presence of DU above NRC guideline values on open land at the northeast corner of the ALCOA property adjacent to the Chemetron site. DU was identified in the soil at the northeast corner of Building 65 foundation and at the gate along the east fence line of ALCOA's Permanent Mold Division. This fence is between the ALCOA and Chemetron facilities. Consequently, the areas were remediated and resurveyed, and the results of the survey reported to NRC Region III on January 20, 1995. From May 9-11, 1995, and on May 22, 1995, Region III conducted confirmatory surveys of these areas. Region III informed the remediation contractor that the results of soil analysis indicated that the remediated area along Building 65 foundation met NRC criteria for restricted use. However, the Region III confirmatory survey revealed the presence of soil contamination above the limits for unrestricted use at the gate in the fence between the Chemetron and ALCOA properties. That contamination was remediated by Chemetron and reported to NRC Region III on June 19, 1995. Region III reviewed the report and found it to be acceptable.

CONCLUSIONS:

Based on remedial actions by ALCOA and Chemetron, the staff review of ALCOA and Chemetron radiological survey reports, and results of NRC confirmatory surveys, the staff concludes that decommissioning has been satisfactorily completed. Region III transmitted copies of its confirmatory surveys, ORISE's confirmatory survey, and the final survey reports of ALCOA and Chemetron to the Ohio Department of Health (ODOH). The staff intends to inform EPA of NRC's intent to release the Cleveland Works facility of ALCOA. Unless EPA objects to this action, the staff will proceed to formally notify ALCOA that remediation of the site is complete and that the site is suitable for unrestricted use. Draft letters to EPA and ALCOA are attached (Attachments 1 and 2 respectively).

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

RECOMMENDATION:

That the Commission note that the staff will initiate these actions with the letter to EPA within 10 business days, unless otherwise directed by the Commission.

James M. Taylor
Executive Director for Operations

CONTACTS: K. Lambert, RIII
(708) 829-9853

J. Buckley, NMSS
415-6607

Docket No: 040-00501 (Terminated)
License No: C-5023 (Terminated)

Attachments:
1. Draft letter to U.S. EPA, Reg. V
2. Draft letter to ALCOA

ATTACHMENT 1

Aluminum Company of America

ATTN: Mr. Richard C. King, Jr.
Senior Staff Mechanical Engineer
1600 Harvard Avenue
Cleveland, OH 44105

Dear Mr. King:

Results of radiological surveys and analyses performed at the Aluminum Company of America (ALCOA) Cleveland Works Facility indicate that the residual radioactive material on building and land surfaces and in the soil is less than the criteria found in the U.S. Nuclear Regulatory Commission's "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination for Byproduct, Source, or Special Nuclear Material," August 1987.

After reviewing: (1) reports and surveys of this facility by ALCOA and Chemetron Corporation; (2) NRC Form 314 submitted by ALCOA; (3) radiological surveys by inspectors from NRC Region III and the Oak Ridge Institute for Science and Education; and (4) information from ALCOA on previous thorium waste disposal practices; NRC concludes that remedial action is complete, and that the ALCOA Cleveland Works Facility is suitable for unrestricted use. Therefore, NRC no longer has any regulatory interest with regard to this facility.

As noted in the Action Plan (57 FR 13389), this is the final action with regard to the Cleveland Works Facility. NRC will not require any additional decommissioning, in response to future NRC criteria or standards, unless additional contamination or noncompliance with remediation commitments is found, indicating a significant threat to public health and safety. Noncompliance would occur if ALCOA is found not to have complied with the approved decommissioning plans, or has provided false information.

If you have any questions, please contact me at 301-415-7297, or John T. Buckley at 301-415-6607.

Sincerely,

Michael F. Weber, Chief
Low-Level Waste and Decommissioning Projects Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards

Docket No: 040-00501 (Terminated)
License No: C-5023 (Terminated)

ATTACHMENT 2

Mr. Stephen D. Luftig, Director
Office of Emergency and
Remediation Response
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Mr. Luftig:

This letter is to inform the U.S. Environmental Protection Agency (EPA EXIT) that the U.S. Nuclear Regulatory Commission is preparing to release land and buildings at the Aluminum Company of America, Inc. (ALCOA), Cleveland Works Facility, at 1600 Harvard Avenue, Cleveland, Ohio, for unrestricted use.

The staff is providing this information to EPA in accordance with NRC policy published in its "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites" (57 FR 13389), which states that the NRC will inform EPA about specific decommissioning actions at Site Decommissioning Management Plan sites.

The ALCOA Cleveland Works Facility is an aluminum refining, casting, and refinishing facility located at 1600 Harvard Avenue, in the villages of Newburgh Heights and Cuyahoga Heights, which are suburbs of Cleveland, Ohio. The entire site comprises approximately 152 acres.

Contamination found on the site consisted of thorium derived from the production of magnesium-thorium alloys by ALCOA and related companies, and of depleted uranium attributable to Chemetron Corporation, adjoining the Cleveland Works Facility on the east. According to ALCOA personnel, thorium was used at the Cleveland Works Facility since 1900 by American Magnesium Company, which was a wholly owned subsidiary. There is little information on the quantities and form of thorium used at this site before 1954. Activities with thorium were licensed by the Atomic Energy Commission from 1954 to 1961.

ALCOA began decommissioning the site in 1991 and completed decommissioning in 1995. Based on (1) remedial actions by ALCOA and Chemetron; (2) NRC staff review of ALCOA and Chemetron radiological survey reports; (3) ALCOA information on previous thorium waste disposal practices; and (4) results of NRC confirmatory surveys; NRC staff concludes that decommissioning has been satisfactorily completed. Therefore, NRC intends to release this site for unrestricted use.

The NRC project manager for this site is Mr. John T. Buckley, in our Rockville, Maryland, office. If you have any questions on this matter, please contact Mr. Buckley at 301-415-6607.

Sincerely,

Carl J. Paperiello, Director
Office of Nuclear Material Safety and Safeguards

Docket No: 040-00501 (Terminated)
License No: C-5023 (Terminated)

cc: ALCOA distribution list

ALCOA distribution list for Memorandum dated _____.

Aluminum Company of America
ATTN: Mr. Richard C. King, Jr.
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1600 Harvard Avenue
Cleveland, OH 44105

Aluminum Company of America
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Ms. E. Ramona Travato
Director, Office of Radiation and Indoor Air
Environmental Protection Agency
401 M. Street N.W.
Washington, DC 20460

MEMORANDUM TO:	David L. Meyer, Chief Regulatory Publications Branch Division of Freedom of Information and Publications Services Office of Administration and Resources Management
FROM:	Michael F. Weber, Chief Low-Level Waste and Decommissioning Projects Branch Division of Waste Management Office of Nuclear Material Safety and Safeguards
SUBJECT:	ALUMINUM COMPANY OF AMERICA (ALCOA) REMOVAL FROM THE SITE DECOMMISSIONING MANAGEMENT PLAN

Enclosed please find one signed original of the subject Federal Register notice for your transmittal to the Office of the Federal Register for publication. Five additional copies of the notice are enclosed for your use.

Enclosure: As stated

Docket No:040-00501 (Terminated)
License No:C-5023 (Terminated)

NUCLEAR REGULATORY COMMISSION

Notice of Removal from the Site Decommissioning Management Plan for the Cleveland Works Facility of the Aluminum Company of America, Inc. (ALCOA)

AGENCY: Nuclear Regulatory Commission
ACTION: Notice of Removal from Site Decommissioning Management Plan

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This notice is to inform the public that the United States Nuclear Regulatory Commission (the Commission) is removing the Cleveland Works Facility of the Aluminum Company of America (ALCOA) in Cleveland, Ohio, from the Site Decommissioning Management Plan (SDMP). ALCOA used thorium at this site from the early 1900's and under license from the Atomic Energy Commission (AEC) from 1954 until 1961. Surveys performed in 1989 and 1990 showed thorium contamination at several locations on the facility. Fugitive depleted uranium from Chemetron, Inc., an adjoining facility to the east, was also found on the site. ALCOA began site remediation/clean-up in 1991 and completed remediation/clean-up in 1995. Based on: (1) remedial actions taken by ALCOA and Chemetron, (2) the NRC staff's review of ALCOA and Chemetron termination surveys, (3) ALCOA information on previous thorium waste disposal practices, and (4) the results of the NRC's confirmatory surveys, the NRC concludes that remediation/clean-up activities are complete and the site is suitable for unrestricted use. Removal from the SDMP will be reopened only

if additional contamination, or noncompliance with remediation commitments is found indicating a significant threat to public health and safety.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael F. Weber, Chief
Low-Level Waste and Decommissioning Projects Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards

Dated at Rockville, Maryland
this day of *MARCH* 1996