



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD
ARLINGTON TX 76011-4511

March 3, 2016

MEMO TO: Docket File 030-28641

FROM: Robert Evans, Senior Health Physicist **/RA/**
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR PROPOSED DECOMMISSIONING
PLAN, LITTLE MOUNTAIN TEST ANNEX, HILL AIR FORCE BASE, UTAH

The Department of the Air Force submitted a proposed Decommissioning Plan (DP) to the U.S. Nuclear Regulatory Commission (NRC) by Memorandum dated May 12, 2014 (ADAMS Accession No. ML14197A685). The licensee planned to use the instructions provided in the DP to remediate a magnesium-thorium burial trench located at the Little Mountain Test Annex, Hill Air Force Base, Utah.

The NRC staff developed the enclosed Environmental Assessment (EA) using the guidance provided in NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs. Based on the analysis contained in this EA, the staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the staff has determined that preparation of an environmental impact statement is not warranted. This conclusion will be documented in the *Federal Register* as required by 10 CFR 51.35.

Docket: 030-28641
License 42-23539-01AF

Enclosure: Environmental Assessment

MEMO TO: Docket File 030-28641

FROM: Robert Evans, Senior Health Physicist **/RA/**
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

SUBJECT: ENVIRONMENTAL ASSESSEMENT FOR PROPOSED DECOMMISSIONING
PLAN, LITTLE MOUNTAIN TEST ANNEX, HILL AIR FORCE BASE, UTAH

The Department of the Air Force submitted a proposed Decommissioning Plan (DP) to the U.S. Nuclear Regulatory Commission (NRC) by Memorandum dated May 12, 2014 (ADAMS Accession No. ML14197A685). The licensee planned to use the instructions provided in the DP to remediate a magnesium-thorium burial trench located at the Little Mountain Test Annex, Hill Air Force Base, Utah.

The NRC staff developed the enclosed Environmental Assessment (EA) using the guidance provided in NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs. Based on the analysis contained in this EA, the staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the staff has determined that preparation of an environmental impact statement is not warranted. This conclusion will be documented in the *Federal Register* as required by 10 CFR 51.35.

Docket: 030-28641
License 42-23539-01AF

Enclosure: Environmental Assessment

DISTRIBUTION:

M. Dapas, RA
K. Kennedy, DRA
M. Shaffer, D:DNMS
L. Howell, DD:DNMS
R. Kellar, C:FCDB
R. Evans, FCDB
J. Whitten, C:NMSB-B
M. Simmons, NMSB-B
J. Cook, NMSB-B

FILENAME: S:\DNMS\FCDB\RJE\Hill AFB Environmental Assessment-Memo.docx

ADAMS ACCESSION NUMBER: **ML16013A246**

<input checked="" type="checkbox"/> SUNSI Review By: RJE	ADAMS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	<input checked="" type="checkbox"/> Non- Sensitive <input type="checkbox"/> Sensitive	Keyword:
OFFICE	RIV:DNMS:FCDB	C:FCDB		
NAME	RJEvans	RLKellar		
SIGNATURE	/RA/	/RA/		
DATE	03/03/16	03/03/16		

OFFICIAL RECORD COPY

ENVIRONMENTAL ASSESSMENT
FOR THE
MAGNESIUM-THORIUM DISPOSAL TRENCH DECOMMISSIONING PLAN
LITTLE MOUNTAIN TEST ANNEX, HILL AIR FORCE BASE, UTAH
MATERIALS LICENSE 42-23539-01AF, DOCKET NO. 030-28641

Introduction:

A. Summary

The U.S. Nuclear Regulatory Commission (NRC) received a proposed license amendment request for Master Materials License 42-23539-01AF from the Department of the Air Force (the licensee). The licensee requested approval of a proposed Decommissioning Plan (DP) for remediation of a magnesium-thorium alloy disposal trench at Hill Air Force Base, Utah. As stipulated in part 51 of title 10 of the *Code of Federal Regulations* (10 CFR), the NRC is required to perform an environmental assessment of the proposed decommissioning activity.

The NRC staff developed this Environmental Assessment (EA) to support the review of the proposed DP and associated license amendment request, in accordance with the requirements of 10 CFR Part 51. Based on the NRC staff's evaluation, the conclusion of the EA is a Finding of No Significant Impact (FONSI) on human health and the environment for the proposed licensing action. Accordingly, the NRC staff decided not to prepare an environmental impact statement for this license amendment.

B. Background Information

The U.S. Atomic Energy Commission (AEC) issued Source Material License C-3650 (Docket No. 040-00204) to the Marquardt Aircraft Company of Van Nuys, California, in January 1957 for possession of magnesium-thorium alloy. In June 1961, Marquardt requested AEC approval to burn machine chips and small pieces of magnesium-thorium scrap material in trenches at the Little Mountain Test Annex (LMTA) at Hill Air Force Base, Utah. Docket file records indicate that 500 pounds (226.8 kilograms) of scrap alloy was buried in June 1959, 1500 pounds (680.4 kilograms) was buried in February 1960, and 3600 pounds (1633 kilograms) was incinerated in August 1961. No other records of disposals were provided in the AEC's docket file.

In September 1961, License C-3650 expired and License STB-434 was issued to the licensee. The AEC subsequently terminated License STB-434 in April 1971. During the time frame that the two licenses were active, regulation 10 CFR 20.304 allowed licensees to dispose of certain radioactive wastes by burial. Effective January 28, 1981, NRC regulations in 10 CFR Part 20 were amended (45 FR 71761) to delete Section 20.304. Therefore, the AEC allowed License STB-434 to be terminated in 1971 without consideration of the magnesium-thorium alloy that had been incinerated and buried at LMTA.

In November 1993, an NRC inspector visited the LMTA at Hill Air Force Base to independently ascertain whether the magnesium-thorium alloy burial trench was still present at the facility. The inspector identified what appeared to be two disposal pits in one location at the LMTA, based on changes in surface topography and background exposure rates (ADAMS Accession No. ML16021A132). In response, the licensee and its contractors conducted five separate investigations from 1993-2013 to determine the extent of the radiological contamination at the

Enclosure

site. These investigations confirmed that the surface and subsurface soils were contaminated with thorium-232. The licensee estimated that the volume of soil to be remediated was approximately 2,420 cubic yards (1,850 cubic meters), including swelling and over-excavation factors.

The location of the disposal trenches was designated as Site WR111 by the licensee. The licensee submitted a draft DP to the NRC by Memorandum dated May 12, 2014 (ML14197A685). In addition to instructions for remediating the burial trench, the proposed DP included a final status survey plan and derived concentration guideline level (DCGL) evaluation for Site WR111.

In response to preliminary comments from NRC staff, the licensee provided supplemental information by Memorandum dated September 12, 2014. [The September 12, 2014, submittal contained non-publicly available information. The submittal was redacted by the Air Force and re-released as publicly available on December 18, 2014, ML15030A218]. This supplemental information included a request for a waiver from the environmental impact assessment process.

In support of its request for a waiver, the licensee submitted an EA and FONSI to the NRC dated March 14, 2014 (ML15030A218), as an attachment to the Memorandum dated September 12, 2014. This EA was developed in response to the proposed construction of an emergency power unit overhaul complex at the LMTA. This proposed complex would be used to overhaul emergency power units containing hydrazine removed from fighter jets. This particular EA included the area encompassing the decommissioning project at Site WR111, but this EA did not discuss the proposed decommissioning project itself.

As noted above, based on the results of the March 2014 EA and FONSI, the licensee asked for a waiver from the environmental impact assessment process for the Site WR111 decommissioning project. Citing regulation 32 CFR Part 989, Attachment 2, the licensee requested a categorical exclusion from further analysis those actions that are similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an environmental impact statement or an environmental assessment resulting in a FONSI. In other words, the licensee requested a categorical exclusion from the environmental assessment process for Site WR111 based on the completion of a similar EA and FONSI for the LMTA in March 2014.

The NRC staff acknowledges the licensee's request for a categorical exclusion; however, NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs (ML032450279), Section 1.6.1, states that another agency's environmental impact assessment can be adopted by the NRC, but the NRC is responsible for preparing its own EA in accordance with the requirements of 10 CFR 51.32-35. That is, the NRC must prepare a site-specific EA and FONSI (as appropriate) to ensure that the site-specific aspects have been addressed.

Section 3.2 of NUREG-1748 discusses the differences between simple and complex licensing actions and associated EA documents. The NRC staff concluded that the decommissioning of the WR111 site did not meet the criteria for a complex licensing action, because the approval of the associated DP did not involve major disturbances to the environment. Accordingly, the NRC staff considers the WR111 decommissioning project to be a simple licensing action. Thus, the NRC staff elected to prepare a simple EA.

B. Facility Description

The LMTA is a 740-acre (300-hectare) facility managed by Hill Air Force Base. The LMTA property is owned by the Federal government. The property is located approximately 15 miles (24 kilometers) northwest of Hill Air Force Base, in a remote section of Weber County, Utah. The disposal trench (Site WR111) is located in the southeastern corner of the LMTA. The land situated to the north and west of the site is also owned by the U.S. Government. The land located east of the site is owned by Weber County. Approximately 350 feet (106.7 meters) south of the site is a railroad right-of-way as well as marsh lands and mud flats associated with the Great Salt Lake.

The LMTA is located within the Weber River Watershed, a flat, fertile plain. There are no surface water bodies within or adjacent to the WR111 site. The most predominant water feature, the Great Salt Lake, is located about a mile (1.6 kilometers) west of the site. The terrain is gently sloping, and the site is located at approximately 4,245 feet (1,294 meters) above mean seal level.

The surface area of the trench is estimated to be 170 feet (52 meters) by 170 feet (52 meters), and the majority of the site is enclosed by a chain-link fence. There are no buildings or structures within or immediately adjacent to Site WR111.

The current land use is military and industrial, with extensive rangeland present around the property. Industrial properties are located approximately 1 mile (1.6 kilometers) to the northeast of the site. The nearest residence is situated about 2 miles (3.2 kilometers) east of the site. The land use is not expected to change in the near future, and the Federal government plans to continue to control the LMTA property for research and development activities.

The licensee's contractor conducted a geological assessment of the WR111 site. The surface sediments consist of sand, silt, and clay of varying thicknesses. Bedrock occurs at depths ranging from 2-13 feet (0.6-4.0 meters) below ground surface, and the bedrock is highly fractured. The subsurface consists of slate argillite and tillite.

The groundwater at the site is reported to occur between 34-57 feet (10.4-17.4 meters) below ground surface. The direction of groundwater flow is southerly to southwesterly. Four monitoring wells were installed around the site in 2006, with depths varying from 36-63 feet (11-19.2 meters) below ground surface. Drilling records indicate low permeability of the bedrock, low water yield, limited groundwater flow, and a relatively steep hydraulic gradient.

The licensee installed the four monitoring wells, in part, to determine if the contents of the trench have infiltrated into the groundwater. The licensee's contractor sampled the wells in November 2006. Thorium-232 and thorium-228 were not detected, but naturally occurring uranium progeny products were identified in the water samples. Based on these sample results, the licensee concluded that the buried thorium waste was not leaching into the local groundwater.

The licensee's contractor also sampled the groundwater for volatile and semi-volatile organic compounds. Volatile and semi-volatile compounds were not detected in the groundwater. Metals were identified in the groundwater at levels consistent with background levels. The sample results suggest that thorium metal, as well as any other residual chemical that may

have been buried with the magnesium-thorium alloy, was not leaching into the local groundwater.

The Proposed Action:

The NRC's proposed action is to amend License 42-23539-01AF to approve the DP, as supplemented. The licensee would then be authorized to conduct decommissioning work as specified in the NRC-approved DP. Concurrently with the approval of the DP, the NRC plans to approve the licensee's proposed site-specific soil cleanup criteria and final status survey plan.

If approved, the decommissioning will consist of excavating the trench with heavy equipment, onsite packaging of the wastes, transporting the excavated material to an offsite location for permanent disposal, conducting radiological surveys to confirm that the site has been completely remediated, and backfilling the trench with clean material. After completion of decommissioning, the NRC is expected to review the licensee's proposed final status survey results and conduct an independent radiological survey to confirm the licensee's final status survey results.

Need for the Proposed Action:

The purpose of the proposed action is to reduce the residual radioactivity at Site WR111 to levels that permit the release of the property for unrestricted use. If the licensee conducts site remediation in accordance with instructions provided in the DP, the licensee will be in compliance with the radiological criteria for license termination as specified in regulation 10 CFR Part 20, Subpart E. Approval of the DP would allow the NRC to fulfill its responsibilities under the Atomic Energy Act to ensure protection of the public health and safety and environment.

The Environmental Impacts of the Proposed Action:

The LMTA is located within the Great Salt Basin and Wasatch Valley, an area popular for winter sports recreation. At other times of the year, the area is used for camping, fishing, hiking, and similar outdoor recreational activities. Natural resources in the area include mineral extraction and brine shrimping. The commodities produced from the local minerals include salt, deicing materials, fertilizer, and magnesium metals.

In its EA dated March 14, 2014, the Air Force summarized the potential impacts of the proposed construction of four buildings and demolition of two buildings at the LMTA to support the overhaul of emergency power units used in fighter aircraft. The Air Force identified and analyzed four environmental effects—air quality, solid and hazardous wastes, biological resources, and water quality. The NRC staff reviewed the licensee's environmental impact assessment with an emphasis on the potential impacts that may occur while decommissioning Site WR111.

The first environmental impact is air quality. This impact was analyzed by the Air Force in detail, because the location of the project (Weber County, Utah) is not in complete attainment status with federal clean air standards. For this reason, the Air Force attempts to control emissions originating from Hill Air Force Base. The potential air quality impacts from Site WR111 decommissioning would include fugitive dust from ground disturbance and emissions from construction/transportation equipment.

At Site WR111, the primary short-term hazard is airborne radioactivity and its impact on site workers. The licensee's contractor committed to implement engineering controls to suppress dust and to conduct air sampling. If the air samplers indicate the presence of airborne radioactive dust, the work will be suspended until the cause of the radioactive dust is identified and corrected. The contractor also committed to cover soil piles as practical and use silt fencing as needed. Another potential impact on air quality is emissions from equipment and vehicles used to excavate the trenches, ship the radioactive wastes for disposal, and transport workers to and from the jobsite. The NRC staff concluded that the overall air quality impact will be minimal due to the limited duration of the project.

The second environmental impact is solid and hazardous wastes. The licensee plans to manage and dispose of the radioactive wastes in accordance with instructions provided in the DP and associated work plan. Non-radioactive hazardous wastes are not expected to be encountered during decommissioning. In addition, liquid hazardous wastes are not expected to be created. The contractor will sample the radioactive wastes for non-radiological hazardous waste constituents to ensure that the wastes are acceptable for shipment to the chosen disposal site.

The third environmental impact involves biological resources. The analyzed impacts to support the overhaul of the emergency power units include loss of habitat and displacement of some animal species, specifically, mule deer and certain rodents. The Air Force previously concluded that no federal or state-mandated endangered or threatened species would be impacted, and no habitat for any such species is expected to be disturbed by the proposed action. The proposed mitigation measure by the Air Force was to improve an adjacent habitat uphill of the proposed action.

At the WR111 site, the work will result in temporary loss of habitat and displacement of animal species. However, the footprint of the decommissioning project is small, 1 acre (0.4 hectares), and the contractor and licensee plan to restore the property after completion of work. Thus, the short-term decommissioning of Site WR111 would have a minimal impact on biological resources.

The fourth analyzed environmental impact involves water quality. There are no surface water sources in the vicinity of the proposed work area; therefore, the work should have no impact on surface waters. The work should not have an impact on groundwater because the groundwater table is below the depth of the excavation. There may be a potential impact from storm water during work activities, but the contractor has procedures to respond to potential rainwater runoff during work activities.

The Air Force eliminated several issues from further study such as cultural resources. Cultural resources include archaeological, architectural, and traditional cultural properties. In the Air Force's assessment, it explained that four previous cultural surveys were conducted, and no inventory identified a cultural resource. The NRC staff noted that the location of the disposal trench has already been disturbed; thus, excavation of the radioactive material from the trench will not result in the disturbance of any new area not already disturbed.

Other issues eliminated from further study included impacts on geology and surface soils, occupational safety and health, noise, accident potential, airfield encroachment, and socio-economic resources. The NRC staff reviewed these potential impacts and concluded that none would have a significant impact on the decommissioning of Site WR111. For example,

occupational safety and health was eliminated from consideration because the contractor will use trained individuals and approved procedures to control the work. These procedures include emergency response instructions.

By Memorandum dated August 22, 2014 (ML14274A192), the Air Force conducted a legal interpretation of the differences between the two projects under consideration at LMTA, the proposed emergency power unit overhaul complex and Site WR111 decommissioning. The activity that was noted to be different was the excavation of potentially radioactive contaminated soil at Site WR111. The Air Force concluded that the environmental impacts of radioactive soil excavation would be similar to the type of work planned at the overhaul complex. The Air Force also concluded that the transportation of the radioactive wastes could be classified as a categorical exclusion from the environmental impact assessment process because it is controlled by other regulations and laws. Finally, since the proposed work at Site WR111 included excavation of soil that had already been disturbed, consultations with Native American tribes were not necessary.

Environmental Impacts of the Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the “no-action” alternative). The no-action alternative assumes that the status quo is maintained. With respect to the WR111 site, the no-action alternative means that the licensee would not be allowed to conduct decommissioning work, and the disposal trench will continue to remain onsite at the LMTA.

The no-action alternative is not acceptable because it violates the NRC’s Timeliness Rule regulations specified in 10 CFR Part 30.36. The Timeliness Rule requires licensees to decommission their facilities in a timely manner when licensed activities have permanently ceased. In addition, the radioactive contamination at Site WR111 currently exceeds the radiological criteria for license termination as specified in Subpart E to 10 CFR Part 20. Approval of the no-action alternative will prevent the licensee from conducting decommissioning work as necessary to release the site for unrestricted use under Subpart E requirements. Accordingly, the NRC staff eliminated the no-action alternative from consideration.

Agencies and Persons Consulted:

As part of its environmental assessment process for the overhaul complex, the Air Force consulted with local tribes and the State of Utah. The Air Force provided documentation of their responses as attachments to its EA. By letter dated September 3, 2014 (ML15282A470), the Air Force requested comments from the Utah Deputy State Historic Preservation Officer about its plans to conduct remediation activities including soil excavation in the area of Site WR111. In this letter, the Air Force concluded that the potential for impacting archaeological historic properties was extremely low. The Utah Division of State History responded by letter dated September 18, 2014 (ML15282A470), concurring with the Air Force’s conclusions. Similarly, the Hopi Tribe concurred by signature dated September 15, 2014 (ML15282A476), and the Navajo Nation responded with a no adverse effects letter dated November 5, 2014 (ML15282A476).

The NRC staff consulted with the Utah Department of Environmental Quality, Division of Waste Management and Radiation Control, regarding the environmental assessment and

safety evaluation impacts of the proposed action (ML15338A187). By letter dated January 6, 2016, the State agency stated that it had no additional comments (ML16008B076).

The NRC staff determined that the proposed action will not affect listed species or critical habitats, based on previous consultations provided by the Air Force to the NRC. Therefore, no further consultations are required under Section 7 of the Endangered Species Act. Likewise, the NRC staff determined that the proposed action is not the type of activity that has the potential to cause effects on historic properties, in part, because there are no structures located at or adjacent to the WR111 site. Therefore, no further consultation is required under Section 106 of the National Historic Preservation Act.

Conclusion:

The NRC staff concluded that the proposed decommissioning project at Site WR111 at Hill Air Force Base, Utah, will have a minimal impact on the environment. The NRC staff considered impacts including air quality, solid and hazardous wastes, biological resources, water quality, cultural resources, and worker safety. In addition, the staff have determined that the affected environment and the environmental impacts associated with the decommissioning of Site WR111 are bounded by the impacts evaluated by NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities" (ML042310492).

The staff also finds that the proposed decommissioning complies with 10 CFR Part 20.1402, which provides the radiological criteria for unrestricted use. Further, the licensee will perform the remediation under the NRC license, will provide oversight of the contractor's activities, and will maintain primary responsibility for the work being conducted. The contractor will establish a radiation protection program to protect workers, the public, and the environment. Work activities are not expected to result in worker or public doses in excess of 10 CFR Part 20 limits. Past NRC experiences with decommissioning activities at similar sites suggest that public and worker exposures will be far below the limits specified in 10 CFR Part 20.

Based on the analysis contained in this EA, the NRC staff concludes that the proposed action will not have a significant effect on the quality of the human environment and has determined not to prepare an environmental impact statement for the proposed action. Accordingly, the NRC has determined that a Finding of No Significant Impact (FONSI) is appropriate.

References:

The following references are available for inspection at NRC's Public Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>:

Anderson, Scott T., "Comments on Draft Environmental Assessment and Safety Evaluation Report for Proposed Decommissioning Project at Hill Air Force Base, Utah," January 6, 2016 (ML16008B076)

Bhat, Ramachandra K., "Decommissioning Plan (DP) for Site WR111 of Hill AFB, UT, Radioactive Material Permit # UT-000517-00/03 AFP," December 18, 2014 (ML15030A218)

Collins, Samuel J., "Region IV Review of Terminated Sites; Enclosure 4; Marquardt Corporation, Source Material License STB-434," February 6, 1995 (ML16021A132)

Shaw, Daniel A., "Approval Request: Decontamination Plan and Final Status Survey Plan, WR111, Little Mountain Test Annex, Magnesium-Thorium Disposal Trench, Hill AFB, UT," May 12, 2014 (ML14197A685)

U.S. Department of the Air Force, "Legal Review, 813 No. 24171, Magnesium/Thorium Landfill Removal at Little Mountain Test Annex," August 22, 2014 (ML14274A192)

U.S. Department of the Air Force, Consultation Letter with Native American Tribes, September 3, 2014 (ML15282A476)

U.S. Department of the Air Force, Consultation Letter with Utah Division of State History, September 3, 2014 (ML15282A470)

U.S. Nuclear Regulatory Commission, NUREG-1496, Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities, Volume 1, July 1997 (ML042310492)

U.S. Nuclear Regulatory Commission, NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, July 2003 (ML032450279)

Whitten, Jack E., "Request for Comments on Draft Environmental Assessment and Safety Environmental Report for Proposed Decommissioning Project at Hill Air Force Base, Utah," December 4, 2015 (ML15338A187 and ML15338A188, not publicly available)