UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 11, 2022

EA-22-007
NMED No. 200311

SUBJECT: NRC INSPECTION REPORT 030-28641/2021-004; 030-28641/2021-005; and 030-28641/2021-006

Dear Col. Gogate:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) biennial team inspection conducted on October 26–28, 2021, at the Air Force Medical Readiness Agency's (AFMRA's) facility in Falls Church, Virginia and the NRC inspection conducted on September 27–30 and October 22, 2021, at Kirtland Air Force Base (KAFB) in Albuquerque, New Mexico. The purpose of these inspections was to review the activities authorized under the Department of the Air Force's Master Materials License (MML) 42-23539-01AF.

These inspections examined activities conducted under your license as they relate to public health and safety and common defense and security, and to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspections consisted of selected examination of procedures and representative records, observation of activities, independent radiation measurements, and interviews with personnel. Enclosures 1 and 2 present the results of the inspections. Enclosure 1 is publicly available, but Enclosure 2 contains Security-Related Information and is not publicly available.

The preliminary inspection findings from the biennial team inspection were discussed with Maj. Gen. (Dr.) Sharon R. Bannister, yourself, and other AFMRA staff at the conclusion of the onsite inspection. The preliminary inspection findings from KAFB were discussed with Col. Jason F. Vattioni and permittee staff at the conclusion of the onsite inspection as well as with Lt. Col. Christina Peace on October 6, 2021. A final exit briefing was conducted via videoconference with you and representatives of the Radioisotope Committee, the Department of the Air Force Inspection Agency, and the KAFB permittees on May 5, 2022.

Based on the results of this inspection, 14 apparent violations were identified, which are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy.

Enclosure 2 contains Sensitive Unclassified Non-Safeguards Information. When separated from Enclosure 2, this cover letter and Enclosure 1 are decontrolled.

The current Enforcement Policy is included at the NRC public website at https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations involved: (1) four failures related to the implementation of the MML in accordance with the regulations and conditions of your license; (2) seven failures related to the environmental use of thorium-232 source material at KAFB; and (3) three failures related to NRC's security requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 37.

The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action were discussed with you during the videoconference exit meeting on May 5, 2022.

Before the NRC makes its enforcement decision, we are providing you an opportunity to: (1) request a predecisional enforcement conference (PEC), or (2) request alternative dispute resolution (ADR) mediation. If a PEC is held, it will be open for public observation and the NRC may issue a press release to announce the time and date of the conference. However, a portion of the PEC will be closed from public observation to discuss Security-Related Information. Please contact Mr. Neil O'Keefe at 817-200-1156 within 10 days of the date of this letter to notify the NRC of your intended response to either participate in a PEC or pursue ADR. A PEC should be held within 30 days and an ADR session within 45 days of the date of this letter.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned. In presenting your corrective action, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful in preparing your response. You can find the Information Notice using the NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML061240509.

In lieu of a PEC, you may request ADR with the NRC in an attempt to resolve this issue. Alternate Dispute Resolution is a general term encompassing various techniques for resolving conflicts using a third-party neutral. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained third-party neutral mediator works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's program can be obtained at http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral third-party. Please contact ICR at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection reports may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter and Enclosure 1, will be made available electronically for public inspection in the NRC Public Document Room or from the ADAMS, accessible from the NRC public website at http://www.nrc.gov/reading-rm/adams.html. However, Enclosure 2 contains Security-Related Information in accordance with 10 CFR 2.390(d)(1), and its disclosure to unauthorized individuals could present a security vulnerability. Therefore, Enclosure 2 will not be made available electronically for public inspection in the NRC Public Document Room or from the NRC's ADAMS.

Should you have any questions concerning this matter, please contact Mr. Neil O'Keefe of my staff at 817-200-1156.

Sincerely,

Signed by Muessle, Mary
on 05/11/22

Mary C. Muessle, Director
Division of Radiological Safety and Security

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

Enclosure:
NRC Inspection Report 030-28641/2021-004
and 030-28641/2021-005 (public)

cc:
Lt. Col. Peace, Radioisotope Committee Secretariat

Santiago Rodriguez, Chief
New Mexico Environment Department
Radiation Control Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469

NRC INSPECTION REPORT 030-28641/2021-004, 030-28641/2021-005, and 030-28641/2021-006 - DATED MAY 11, 2022

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ADAMS ACCESSION NUMBER – PUBLIC: LETTER AND ENCLOSURE 1: ML22132A148

Cover Letter (w/o Enclosure 2) **X** SUNSI Review by: ABB	ADAMS **X** Yes ☐ No	**X** Publicly Available ☐Non-Publicly Available	**X** Non-Sensitive ☐Sensitive	Keyword: NRC-002

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U.S. Nuclear Regulatory Commission
Region IV

Docket No.:	030-28641
License No.:	42-23539-01AF
Inspection Report Nos.:	030-28641/2021-004 and 030-28641/2021-005
EA No.:	EA-22-007
Licensee:	The Department of the Air Force Air Force Medical Readiness Agency (AFMRA)
Locations Inspected:	Defense Health Headquarters 7700 Arlington Blvd. Falls Church, Virginia Kirtland Air Force Base (KAFB) Albuquerque, New Mexico
Inspection Dates:	Biennial Inspection: October 26–28, 2021 KAFB: September 27–30, 2021, and October 22, 2021
Exit Meeting Date:	May 5, 2022
Biennial Team Inspectors:	Allyce Bolger, Health Physicist and Co-Team Lead Material Inspection Branch Division of Radiological Safety and Security, Region IV Kathy Modes, Health Physicist and Co-Team Lead State Agreements and Liaison Program Branch Division of Materials Safety, Security, State, and Tribal Programs Office of Nuclear Material Safety and Safeguards Stephanie Anderson, Senior Health Physicist Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security, Region IV Bryan Parker, Senior Health Physicist Materials Licensing Branch Division of Nuclear Materials Safety, Region III Steve Shaffer, Senior Health Physicist Commercial, Industrial, R&D, Academic Branch Division of Radiological Safety and Security, Region I
Independent Inspector:	Janine F. Katanic, PhD, CHP, Senior Health Physicist Material Inspection Branch Division of Radiological Safety and Security, Region IV

Approved By: Neil O'Keefe, Chief
Materials Licensing Branch
Division of Radiological Safety and Security

Attachments:
1. Supplemental Inspection Information
2. Inspection Casework Reviews
3. Permit Casework Reviews
4. List of Independent NRC Inspections

EXECUTIVE SUMMARY

Department of the Air Force
NRC Inspection Report 030-28641/2021-004; and 030-28641/2021-005

Program Overview

An announced NRC biennial team inspection was conducted between October 26–28, 2021, to evaluate the Department of the Air Force's implementation and management of activities conducted under the provisions of Master Materials License (MML) 42-23539-01AF. The inspection included an assessment of the licensee's management oversight of radiation safety and regulatory compliance program, review of permitting actions, an evaluation of events or incidents and allegation programs, an evaluation of the adequacy of the technical staffing and training, and a review of the Air Force Inspection Agency's inspections of permitted facilities.

The NRC inspection team reviewed licensed activities conducted by the U.S. Air Force (USAF) Radioisotope Committee (RIC) during the period of October 10, 2019, through October 28, 2021. Through interviews and discussions with Radioisotope Committee Secretariat (RICS) staff, reviews of documents related to MML activities, and observations of staff in the performance of their duties, the NRC inspection team concluded that the licensee's permitting, and inspection programs were implemented in a manner that protected the health and safety of workers and the public and maintained the physical security and control of radioactive materials.

The inspection team identified four apparent violations regarding the licensee's failure to perform annual reviews of the radiation protection program; conduct the inspection program in a manner that was consistent with the NRC's inspection program; secure or maintain surveillance of licensed material; and report to the NRC violations that could be evaluated as Severity Level III in accordance with the NRC's Enforcement Policy.

In addition, during the 2-year review period, the NRC also performed five independent inspections of USAF MML permits. Three of the independent inspections did not identify any violations and are listed in Attachment 4 of this enclosure for reference. The two other independent inspections resulted in apparent violations and the circumstances surrounding these issues are also documented in this report. Specifically, seven apparent violations were associated with the Kirtland Air Force Base (KAFB) Operations/Training-10 (OT-10) Radiation Training Sites (permit no. NM-00602) and three apparent violations were associated with the KAFB irradiators (permit no. NM-30470) (these involved Security-Related Information and are separately documented in the non-public Enclosure 2).

The six focus elements assessed during the biennial team inspection and the independent inspection at the KAFB OT-10 Radiation Training Sites are summarized below.

Management Oversight

The inspection team concluded that the RIC provided adequate oversight of the radiation safety and regulatory compliance programs in a manner that protected the health and safety of licensee staff and the public. However, one apparent violation was identified regarding the failure to perform annual reviews of the radiation protection program.

Technical Staffing and Training

The inspection team concluded that the licensee had enough fully qualified and experienced staff to implement oversight of the day-to-day operations of its program.

Status and Technical Quality of the Materials Inspection Program

The inspection team concluded that the inspection program was providing adequate oversight of the permits and identifying technically sound violations. As an MML, the licensee has unique authority to develop its own regulatory program and therefore they have the responsibility to develop and implement a program consistent with the NRC's program. The inspection team identified the licensee's failure to fully incorporate the NRC's inspection program policies into its program as an apparent violation. The inspection team also identified an apparent violation based on the licensee's failure to secure or maintain surveillance of licensed material. The inspection team further determined that the licensee failed to implement an enforcement program consistent with the current NRC Enforcement Policy when it evaluated the failure to secure or maintain surveillance of licensed material, resulting in the additional failure to notify the NRC of a potentially escalated violation.

Status and Technical Quality of Materials Permitting Program

The inspection team concluded that licensee staff processed technical permitting reviews in a manner consistent with NRC licensing policies, procedures, and guidance. In addition, the team determined that the technical permitting reviews performed by licensee staff addressed health and safety issues.

The inspection team concluded that the licensee processed permitting actions in accordance with its NRC-approved timeliness goals. The team determined that the process for reviewing and issuing permitting actions by the licensee was adequate.

Decommissioning Oversight Program

The inspection team concluded that the licensee's decommissioning licensing and inspection program was adequate to ensure that a thorough assessment of the sites was performed, and findings were appropriately documented.

Allegations and Incident Handling

The NRC inspection team concluded that the licensee's incident and allegation reporting was conducted in accordance with regulatory requirements. The team concluded that events were reported, and corrective actions were appropriate.

Independent Inspection - KAFB OT-10 Radiation Training Sites

During September 27–30, 2021, and October 22, 2021, the NRC conducted an independent inspection of the licensee's activities under the permit (permit no. NM-00602) for the OT-10 Radiation Training Sites at KAFB. The permit authorized the use of thorium-232 to train personnel in the detection of dispersed radiological contamination from nuclear weapons accidents or incidents. The inspector identified seven apparent violations during the NRC's independent inspection. In June 2020, the USAF removed approximately 120 tons of soils

contaminated with thorium-232 from an area that was outside of the fenced perimeter of one of the OT-10 sites to mitigate the migration of radioactive materials. The RIC did not authorize this soils removal activity, and as a result, it was not authorized under the USAF's NRC license. The thorium-232 contaminated soils removal activities failed to use, to the extent practical, procedures and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA). Although the licensee performed personnel contamination surveys of individuals and release surveys of equipment used during the soils removal activities, they failed to maintain records of those surveys.

Over the course of several years, there were multiple indications that thorium-232 had migrated beyond the fenced perimeters of the OT-10 sites. However, the licensee failed to make or cause to be made, surveys of areas, including the subsurface that may be necessary for compliance with NRC regulations and are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, the concentrations or quantities of residual radioactivity, and the potential radiological hazards of the radiation levels and residual radioactivity detected. *Residual radioactivity* includes radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from licensee activities.

Additionally, the licensee released a building at KAFB for unrestricted use although the building remained contaminated above the NRC's radiological release criteria. The licensee failed to maintain records important to decommissioning, including records related to a baseline radiological survey performed by the licensee.

The licensee failed to develop, document, and implement a radiation protection program that was commensurate with the scope and extent of environmental use of thorium-232 oxide in soil, and for the control of a radiologically contaminated building at KAFB.

REPORT DETAILS

1 Program Overview (Inspection Procedure (IP) 87129)

The Department of the Air Force, Air Force Medical Readiness Agency (AFMRA) was authorized under NRC Master Materials License (MML) No. 42-23539-01AF to issue byproduct, source, and special nuclear material permits throughout the U.S. The licensee maintained oversight for approximately 31 permittees, an approximately 25 percent reduction in permits since the previous biennial inspection. The permits covered a wide range of program activities including research and development, irradiator, waste disposal and decontamination, and other activities required to support the mission of the Department of the Air Force. All medical permits were transferred to the Defense Health Agency (NRC License No. 45-35423-01) on November 26, 2019.

The licensee had centralized control over its radioactive materials program through the U.S. Air Force (USAF) Radioisotope Committee (RIC). The RIC was responsible for providing oversight of the USAF's implementation of its licensed activities. The RIC delegated authority to manage the day-to-day operations of the radioactive materials program to the Radioisotope Committee Secretariat (RICS) and inspection oversight to the Department of the Air Force Inspection Agency (DAFIA).

2 Management Oversight (IP 87129)

1.1 Inspection Scope

The inspection team evaluated the RIC's organization and management oversight activities to determine if the licensee adequately controlled the use of licensed radioactive material as required by NRC requirements and the conditions of the license. The evaluation included observations of the RIC quarterly meetings, discussions with licensee representatives, reviews of program documentation, and an assessment of the licensee's methods and effectiveness of communications with its permittees.

1.2 Observations and Findings

The USAF Surgeon General established policy and guidance for controlling ionizing and non-ionizing radiation hazards in the USAF. The USAF RIC oversees the implementation of the MML. Organizationally, the RIC is under the USAF Assistant Surgeon General, Director of Medical Operations, who delegated responsibility for the Chair of the RIC to the Chief, Aerospace and Operational Medicine.

The RIC was responsible for providing regulatory oversight for the use of radioactive material (RAM) by USAF organizations except weapons related materials falling under Atomic Energy Act Section 91. The RIC approved controls for acquiring, receiving, storing, distributing, using, transferring, and disposing of RAM to ensure compliance with the USAF MML, NRC policy and guidance, other applicable regulatory requirements, and Department of Defense (DOD) and USAF directives, instructions, and manuals. The RIC was responsible for implementing the Letter of Understanding (LOU) (ML14262A340) between the Air Force and the NRC.

Air Force Manual (AFMAN) 40-201, “Radioactive Materials (RAM) Management,” described the policy and guidance that the USAF implemented for the management and control of RAM authorized under the USAF MML. It also established policies and procedures for the acquisition, possession, use, storage, security, and disposal of RAM by USAF permittees under the MML.

The RIC members represented USAF offices and organizations that oversee or directly use RAM permitted by the RIC. Voting and alternate representatives were appointed to the RIC as specified in AFMAN 40-201. The RIC convened on a quarterly basis during the review period. The meetings met the minimum number of participants required for a quorum during the review period. The quarterly meetings covered a wide range of topics that included, but were not limited to, discussion of inspection results, permitting actions, enforcement, personnel exposure results, decommissioning activities, and training.

The NRC’s USAF MML project manager typically attended the quarterly RIC meetings and noted that members were actively engaged and involved with meeting discussions. The RIC staff members routinely participated in one-on-one discussions with the NRC project manager following each quarterly meeting, providing the RIC staff with an open forum to address and discuss specific issues or concerns, ask specific questions of the NRC representative(s), request support for unique licensing issues, and discuss ongoing decommissioning activities.

Staff from the DAFIA, which is an organization under the purview of the Air Force Inspector General, were responsible for performing inspections of the USAF MML permittees. The separation of the USAF MML’s management and inspection functions ensured that the licensee’s regulatory oversight had an additional level of independence from the permittees. However, this bifurcation limited the RIC’s ability to have oversight of the inspection function and to ensure that DAFIA expended adequate resources in the inspection program. Specifically, only one DAFIA staff member is qualified to perform RAM inspections, which is an auxiliary duty due to the current RAM inspection workload. The RAM inspector training and qualifications for this position are discussed further in Section 3.

The licensee had not developed an extensive knowledge management program to ensure that future inspectors have the resources available to achieve the expertise to successfully perform in this role. Additionally, functions performed by the RIC are performed based on the institutional knowledge and expertise of the staff and not fully elaborated in licensee procedures and policies.

The inspection team identified that since the last biennial inspection, conducted in October 2019, the licensee failed to conduct annual program reviews of the radiation protection program, which is an annual requirement.

2.2.1 Apparent Violation of 10 CFR 20.1101(c)

Title 10 CFR 20.1101(c) requires the licensee to periodically (at least annually) review the radiation protection program content and implementation.

Contrary to the above, from October 1, 2019, to October 28, 2021, the licensee failed to periodically (at least annually) review the radiation protection program content and

implementation. Specifically, the licensee's last annual audit review was conducted on September 30, 2019, exceeding the annual requirement.

The licensee's failure to annually review the radiation protection program is an apparent violation of 10 CFR 20.1101(c). (030-28641/2021-004-01)

1.3 Conclusion

The inspection team concluded that the RIC had maintained centralized control over the RAM program and that it executed its responsibilities and provided adequate oversight of the radiation safety and regulatory compliance programs in a manner that protected the health and safety of licensee staff and the public.

One apparent violation was identified in this focus element regarding the failure to perform annual reviews of the radiation protection program. Additionally, the other three apparent violations identified by the inspection team (which are discussed in Section 4) may be indicative of programmatic issues, that if left uncorrected, could affect the licensee's implementation, and conduct of its regulatory program.

Additionally, the inspection team observed that the RIC's ability to adequately maintain oversight has relied heavily on the institutional knowledge of staff rather than having documented procedures and processes for some functions. Since 2018, there has been a significant decline in the scope of the licensee's program and the resources needed to support the program. However, the licensee has not established a knowledge management program (or similar process) to ensure that the institutional knowledge of staff is retained to prevent any gaps in the licensee's ability to continue to provide adequate oversight and maintain regulatory compliance.

3 Technical Staffing and Training (IP 87129)

3.1 Inspection Scope

The NRC inspection team reviewed the licensee's RAM program staffing level and turnover, as well as the technical qualifications and training history of the RIC staff members. To evaluate these elements, the team interviewed program management staff and reviewed the RIC training program and supporting documentation.

3.2 Observations and Findings

The RICS had been granted the authority by the RIC to conduct the day-to-day business of the USAF MML. The RICS was staffed by a Chief, Deputy Chief (also an Action Officer), and three full-time Action Officers. The Action Officers were mainly responsible for the review and issuance of permits. These staff members performed their duties at AFMRA's facility in Falls Church, Virginia.

Three of the four Action Officers were fully qualified and have attended the required the NRC G-108 Inspection Procedures course and the NRC G-109 Licensing Practices course in accordance with an Air Force Memorandum dated May 15, 2017, regarding the *MML Policy – Qualifications for USAF MML Health Physics Reviewer and Health*

Physics Inspector. The newest Action Officer planned to complete qualifications after attending the NRC G-108 and G-109 training courses in March 2022.

DAFIA was responsible for the radioactive material inspection oversight of USAF MML permittees. One DAFIA inspector was responsible for performing inspections of the USAF MML permits and this individual had been qualified since the last NRC inspection of the USAF MML. The new inspector's qualifications had included accompanying the previous inspector on a safety and security irradiator inspection in September 2019, as well as having an installation radiation safety officer (RSO) accompany the inspector on a portable nuclear density gauge inspection in November 2019. The previous inspector observed the new inspector during a safety and security irradiator inspection on February 19–20, 2020. The new inspector was then officially qualified to perform independent inspections of USAF MML permits.

The Air Force Memorandum dated May 15, 2017, provided the following NRC training courses as goals (not requirements) for inspector qualifications:

- G-205 Root Cause Workshop,
- H-308 Transportation of Radioactive Materials,
- H-315 Irradiator Technology, and
- S-201 Materials Control, Security Systems, and Principles.

As of October 27, 2021, the inspector had not yet taken the G-205 or H-308 courses and had just completed the S-201 course in September 2021. The licensee's inspector qualifications are considerably less stringent than those the NRC uses to train new RAM inspectors, as outlined in Inspection Manual Chapter (IMC) 1248 Appendix B, "Materials Health Physics Inspector Qualification Journal." However, no conditions of the USAF license specify that the licensee's inspector qualification process must be consistent with the NRC's inspector qualification journal.

The DAFIA RAM inspector position was filled by a USAF active-duty personnel and therefore the position was subject to turnover on a two-to-three-year cycle. Considering the time that it takes to complete the training courses, which are generally only offered a couple times a year, and that there is only one RAM inspector, the inspection team noted that this arrangement does not offer any defense-in-depth and could limit the proficiency of the inspection function.

RIC-SE-9, "Radioisotope Committee Secretariat (RICS) Action Officer Training" includes a formalized process to conduct and document annual inspector accompaniments of the Air Force Inspection Agency inspector, but annual inspector accompaniments were not completed during this review period, mostly due to travel restrictions associated with the pandemic. Inspector accompaniments are a practice implemented by the NRC but there was no explicit license requirement for the licensee to conduct inspector accompaniments. The licensee agreed that inspector accompaniments were a good practice and would ensure these accompaniments were performed in the future in accordance with its internal procedures.

3.3 Conclusion

The inspection team identified that there were areas within the inspector qualification program with opportunities for improvement but there were no concerns with the licensee's current ability to perform permitting and licensing functions. The team discussed with the RICS the importance of having adequately trained staff and succession planning for continued success of the program.

4 Technical Quality and Status of Inspections (IP 87129)

4.1 Inspection Scope

The inspection team reviewed inspection reports, enforcement documents, and other records and correspondence associated with inspections that were conducted by licensee staff during the review period. The inspection team also interviewed licensee staff and managers associated with the licensee's inspection program. The scope of the inspection team's review included whether: inspection guidance was consistent with NRC guidance; inspection findings were well documented and well founded; inspection reports had appropriate licensee management review; inspections addressed previously identified inspection findings; inspection findings resulted in appropriate and prompt regulatory action and that permittee responses were appropriate. The list of the inspection casework files reviewed is provided in Attachment 2.

As a part of this element, one accompaniment of the DAFIA inspector was performed by the Air Force MML project manager during the review period.

4.2 Observations and Findings

During the review period, 14 inspections of MML permits were performed by the DAFIA inspector; some of these inspections were for permits with more than one program code or type of permitted activity to be inspected. Inspections were performed within the appropriate scheduling window established by the permits program code. In the LOU between the NRC and the USAF, the USAF committed to incorporate the current NRC IMC 2800, "Materials Inspection Program," in its inspection program to ensure compatibility with the NRC's program. However, the inspection team identified two areas where the licensee was not compatible with IMC 2800.

The licensee's inspection documentation was comprised of a report that was provided to the permittee. This report contained information regarding any notice of violations (NOVs) and/or non-cited violations (NCVs) that were identified, as well as an executive summary that provided the permittee information (i.e., location inspected, permit number, contact information) and inspection information (i.e., type, date, and report number).

NRC IMC 2800 Section 9.01, *Documentation of Inspection Results,* describes the minimum information to document the results of an inspection, including a description of the scope of the permittee's program, the scope of the inspection, and sufficient information to support any NOVs or NCVs. However, these required elements were not documented in any inspection records maintained by the licensee. The documentation of these specific elements is of particular importance for it provides the licensee with a

basis that its oversight of permittees is adequate to ensure compliance with NRC requirements. Additionally, this also provides the information necessary for the NRC to perform a review of the adequacy of the licensee's performance and compliance with the requirements.

For USAF inspections that resulted in violations, permittees were required to provide written responses to the RIC. For the inspection casework files reviewed, permittee responses were prompt and contained appropriate detail to address the non-compliances and the actions taken to restore compliance and prevent recurrence of the non-compliance. In a few cases, permittees identified the causal factors that led to the non-compliances. Interviews of the DAFIA inspector and RICS staff identified that after the RIC reviewed these responses for appropriateness, the violations would be closed out without any additional onsite verification that corrective actions were adequate to address the non-compliance and prevent reoccurrence. Additionally, Air Force Manual (AFMAN) 40-201, "Radioactive Materials (RAM) Management," states that "upon receipt of a response to the violation from the Permittee, the RICS shall consider the merit of the corrective actions and, if satisfied, close out the deficiency in Inspector General Management Evaluation System."

IMC 2800, Section 5.01 *General Inspection Process*, provides that every inspection includes a review of open items, which is defined as a generic term that can encompass any previous violations that have not been closed, any incidents or events reported since the last inspection requiring review, or any other issues requiring additional review. This review is to determine whether the licensee took appropriate action in response to cited violations identified during the previous inspection and determine whether the licensee took the corrective actions as described in its response to the NOV and addressed safety concerns. The licensee's policy of having the RIC review and approve all corrective actions does not ensure that the corrective actions are fully implemented and are effective to prevent recurrence. The inspections of Permit Nos. OH-30154-04 and CO-12629-04 (Inspection Casework File Nos. 2 and 13) were determined to have had violations identified during the previous inspection. Since the licensee's policy does not require the DAFIA inspector to review previous violations, no associated reviews were performed during these two inspections to determine that the permittee had implemented appropriate corrective actions.

The documentation of inspections involving violations provided limited information and there were several instances where the team needed additional information from the DAFIA inspector to understand the extent and significance of the non-compliances. After interviewing the DAFIA inspector, the inspection team determined that violations identified were well founded, technically sound, and consistent with NRC's Enforcement Policy (Policy). However, there was one notable exception where a violation issued by the licensee was not consistent with the Policy. Specifically, during a routine inspection of a permit number NM-30470-04 (Inspection Casework File No. 14), the door to the room containing a JL Shepherd Model 89 irradiator was not secured, and the room was left unattended. Further, the licensee identified that an individual who was not an authorized user had access to the irradiator during this timeframe.

In accordance with the NRC Enforcement Policy, for radioactive material that is left unsecured and uncontrolled, the significance of the violation is based on the quantity of the material. At the time of the inspection the irradiator contained a quantity of

cesium 137 that exceeded 1000 times the value for cesium-137 in Appendix C to 10 CFR Part 20, “Quantities of Licensed Material Requiring Labeling,” which was an example of a Severity Level III violation. The licensee, however, dispositioned the violation as a Severity Level IV.

This issue represents a failure on the part of the licensee to implement an enforcement program based on current NRC Enforcement Policy and that enforcement actions are consistent with the Policy. Additionally, per the LOU, the licensee was required to notify the NRC’s Air Force MML project manager of possible escalated enforcement (i.e., Severity Level III or higher). Since the licensee had improperly dispositioned this violation, no notification was provided to the NRC’s Air Force MML project manager, which prevented the NRC from evaluating the violation, as required.

The NRC’s Air Force MML project manager accompanied the DAFIA inspector during an inspection at Eglin Air Force Base (AFB) performed May 20–21, 2021. This inspection included a review of three permits issued to Eglin AFB. The DAFIA inspector demonstrated satisfactory preparation for the inspection and was very knowledgeable on the permit history. The DAFIA inspector used the appropriate inspection checklist/procedures and performed walk-downs of material storage and use locations verifying material security and facility postings. During interviews of RAM users, the DAFIA inspector demonstrated a professional rapport with permittee personnel and a questioning attitude. The DAFIA inspector demonstrated a performance-based, risk-informed inspection approach of sufficient scope and depth and had appropriate knowledge of health physics and the regulations. No issues regarding the DAFIA inspector’s performance were identified during this accompaniment.

4.2.1 Apparent Violation of NRC Materials License No. 42-23539-01AF – IMC 2800

Materials License No. 42-23539-01AF, License Condition 20.S of Amendment 29 and License Condition 22.S of Amendment 30, require, in part, that the licensee shall adhere to the statements and representations contained in the Understandings between the USAF and the NRC.

Understandings between the USAF and the NRC, Item 17 requires, in part, that the USAF RIC shall incorporate the current NRC Manual Chapter 2800, “Materials Inspection Program,” and applicable NRC inspection procedures in its (permittee) inspection program to ensure compatibility with NRC’s inspection program.

IMC 2800, Section 05.01, “General Inspection Process,” Step b.2 requires, in part, that every inspection determine whether the licensee took appropriate action in response to cited violations identified during the previous inspection.

IMC 2800, Section 09.01, “Required Information to Document Inspections,” requires, in part, that all documented inspection results must contain: a description of the scope of the licensee’s program, a description of the scope of the inspection, and sufficient information to support any cited violations or non-cited violations.

Contrary to the above, from March 2, 2020, to October 28, 2021, the licensee failed to incorporate the current NRC Manual Chapter 2800 in its permittee inspection program to ensure compatibility with NRC's inspection program, as evidenced by the following two examples:

- The licensee failed to incorporate the requirements of Section 05.01, Step b.2 and ensure that every inspection determined whether the licensee took appropriate action in response to cited violations identified during the previous inspection. Specifically, during at least two inspections performed between March 2, 2020, and October 28, 2021, a licensee inspector did not determine whether the permittee took appropriate action in response to cited violations identified during the previous inspection.

- The licensee failed to incorporate the requirements of Section 09.01 and ensure that that all documented inspection results contained: a description of the scope of the licensee's (permittee's) program, a description of the scope of the inspection, and sufficient information to support any cited violations or non-cited violations. Specifically, between March 2, 2020, and October 28, 2021, all 14 inspection reports issued did not contain a description of the scope of the permittee's program, the scope of the inspection, or sufficient information to support any cited violations or non-cited violations.

The licensee's failure to incorporate the current NRC Manual Chapter 2800 is an apparent violation of NRC License No. 42-23539-01AF. (030-28641/2021-004-02)

4.2.2 Apparent Violation of 10 CFR 20.1801 and 20.1802

Title 10 CFR 20.1801 requires that the licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.

Title 10 CFR 20.1802 requires that the licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

Contrary to the above, on February 20, 2020, the licensee failed to secure from unauthorized removal or access or maintain constant surveillance of licensed material. Specifically, USAF permit number NM-30470-04/03AFP failed to secure a self-shielded irradiator, containing a category 3 quantity of cesium-137, from unauthorized removal or access while the irradiator was not under constant surveillance by the permittee.

The licensee's failure to secure or maintain surveillance of licensed material is an apparent violation of 10 CFR 20.1801 and 10 CFR 20.1802. (030-28641/2021-004-03)

4.2.3 Apparent Violation of NRC Materials License No. 42-23539-01AF - Enforcement

Materials License No. 42-23539-01AF, License Condition 20.S of Amendment 29 and License Condition 22.S of Amendment 30, require, in part, that the licensee shall adhere to the statements and representations contained in the Understandings between the United States Air Force (USAF) and the NRC.

Understandings between the USAF and the NRC dated September 19, 2014, "Enforcement" requires, in part, the USAF Radioisotope Committee (RIC) shall implement an enforcement program based on the current NRC Enforcement Policy (Policy) to ensure RIC enforcement actions are consistent with the Policy and immediately notify the NRC Region IV project manager when the RIC identifies [permittee] violations of NRC regulations that could result in escalated enforcement.

The NRC Enforcement Policy, dated January 15, 2020, Section 6.7.c.10 states, in part, that the failure to secure, or maintain surveillance over, licensed material in a quantify greater than 1,000 times the quantity specified in Appendix C, "Quantities of Licensed Material Requiring Labeling," to 10 CFR Part 20, "Standards for Protection against Radiation," is an example of a Severity Level III violation (escalated enforcement).

Contrary to the above, on February 20, 2020, the licensee failed to ensure enforcement actions are consistent with the NRC Enforcement Policy and to notify the NRC when violations of NRC regulations, that could result in escalated enforcement, are identified. Specifically, during an inspection of USAF Permit Number NM-30470-04/03AFP, the licensee did not disposition a violation regarding the permittees failure to secure a quantity of cesium-137 greater than 1,000 times the quantity specified in Appendix C to 10 CFR Part 20, in accordance with the Policy. The licensee's failure to ensure enforcement actions are consistent with the Policy, led to the additional failure to notify the NRC of the identification of a violation that could result in escalated enforcement.

The licensee's failure to implement an enforcement program based on the current NRC Policy and notify the NRC of violations that could result in escalated enforcement is an apparent violation of NRC License No. 42-23539-01AF. (030-28641/2021-004-04)

4.3 Conclusion

The inspection team concluded that overall, the inspection program was providing adequate oversight of the permits and identifying technically sound violations. An MML is a unique type of license, and the NRC has authorized significant independence and flexibility to the licensee in developing its own regulatory program. Therefore, they have the responsibility to develop and implement a program consistent with the NRC's program. The licensee's failure to fully incorporated IMC 2800 into its program was identified as an apparent violation. Additionally, the licensee's failure to implement an enforcement program in accordance with the NRC Enforcement Policy and the failure to notify the NRC of a potentially escalated violation were also identified to be apparent violations.

5. Status and Technical Quality of Permitting Program (IP 87129)

5.1 Inspection Scope

The inspection team reviewed the licensee's permitting process to verify that the licensee handled and processed permitting actions as required. In evaluating these elements, the inspection team interviewed licensee staff, reviewed permittee files, and compared licensee permitting action metrics data to determine permitting program status. The inspection team also evaluated the effectiveness of the licensee's system for tracking permitting actions.

The inspection team evaluated the permitting actions to ensure that applicable regulations were met, and guidance documents were used. This evaluation included but was not limited to a review of permit conditions; adherence to sealed source and device registration requirements; appropriate training and experience authorizations; adequacy of facilities and equipment; use of operating and emergency procedures for the radionuclides and quantities used; and consideration of enforcement history for permit renewals. The inspection team evaluated the permitting actions for completeness, consistency, timeliness, and adherence to good health physics practices. The inspection team also reviewed the retention of documents required to support the requested actions. The list of permit casework files reviewed is found in Attachment 3.

5.2 Observations and Findings

The inspection team determined that the licensee was, at the time of the inspection, responsible for 31 industrial and research and development permits. During the last biennial inspection, conducted in October 2019, the USAF had 40 permits. This decrease was mostly due to the transfer of all USAF MML medical permits to the Defense Health Agency on November 26, 2019, which was mandated by Congress.

The RIC staff processed a total of 81 permitting actions during the review period. The inspection team assessed the technical quality of the permitting process by reviewing 31 permitting actions completed by the USAF RIC Action Officers, including 22 amendments, 6 renewals and 3 non-medical terminations. No new permits were granted during the review period.

The inspection team noted that the licensee issued permits with a 5-year expiration date. The inspection team determined that permits were issued in a timely manner in accordance with the license requirements, MML procedures, and NRC guidance documents. The review team determined that the RIC had established goals to complete all permitting amendment actions within 30 days, and new applications and renewals within 90 days.

The licensee peer-reviewed all completed reviews for administrative accuracy and completeness of permitting documents. Also, a technical peer review of each permitting action was conducted. All actions were signed out by the RICS Deputy Chief.

Deficiency documentation was succinct and cited appropriate regulatory requirements and NRC guidance to support the requested action. The team noted that communication between RIC staff and the permittee to resolve permitting deficiencies occurred by telephone or email. The team also noted that communications with permittees were well documented and maintained in the permitting files.

Inconsistencies in the permitting program noted during the 2019 biennial inspection had improved and the inspection team discussed with RIC staff regarding continual improvement by providing more detailed documentation throughout the permitting process.

5.3 Conclusion

The inspection team concluded that licensee staff performed technical permitting reviews in a manner consistent with NRC licensing policies, procedures, and guidance. In addition, the team determined that the technical permitting reviews performed by licensee staff addressed health and safety issues and concluded that the licensee processed permitting actions in accordance with its NRC-approved timeliness goals. The team determined that the process for reviewing and issuing permitting actions by the licensee was adequate.

6. Decommissioning Oversight Program (IP 87129)

6.1 Inspection Scope

The inspection team reviewed the USAF's oversight of decommissioning activities at permitted sites. The scope of the activities examined included the technical quality of inspections, amendments to permits for decommissioning sites, reviews of decommissioning related documents and correspondence, tracking decommissioning progress at sites in progress or under consideration, and decommissioning timeliness milestones. The team evaluated these elements through discussions with RIC staff and review of procedures and documents. The team did not review decommissioning activities for facilities designated for closure under the authority of the Base Realignment and Closure process.

6.2 Observations and Findings

The LOU and AFMAN 40-201 contained guidance for the USAF's handling of decommissioning and site termination. The RIC informed the inspection team that they were developing a standard operating procedure specifically for decommissioning.

License Amendment 30, dated August 17, 2021, added two conditions regarding an alternative decommissioning schedule and decommissioning funding plan. License Condition 20 approved an alternate schedule for the completion of decommissioning at any permitted site to be completed as soon as practical but no later than five years following the initiation of decommissioning. License Condition 21 approved an extension to submit a decommissioning funding plan to the NRC at intervals not to exceed five years.

In accordance with Condition 31 of the LOU, the licensee is required to submit decommissioning plans (DPs) for decommissioning groups 3 or above to the NRC for review and approval. During the review period, the NRC reviewed changes to the DP for Robins AFB, GA. Robins AFB was the only USAF permittee in decommissioning.

6.3 Conclusion

The inspection team concluded that the licensee's decommissioning inspection program was adequate to ensure that a thorough assessment of decommissioning sites was considered and the findings appropriately documented.

7. Allegation and Incident Handling Programs (IP 87129)

7.1 Inspection Scope

The inspection team reviewed the licensee's program for handling allegations and responding to incidents. This included a determination of the adherence to NRC reporting requirements, the effectiveness of the licensee in handling allegations and responding to incidents, and the status of any open allegations. In evaluating this focus element, the team used the MML's responses to the NRC questionnaire and interviews with licensee staff.

7.2 Observations and Findings

The LOU and licensee procedure AFMAN 40-201 contained instructions for the USAF's handling of events and allegations. The licensee conducted onboarding allegation training as well as annual refresher training for all staff.

The USAF received one allegation during the evaluation period. The RICS notified the NRC of the allegation in a timely manner. As the allegation was not regarding improper action by the RICS or suspected wrongdoing, the RICS processed the allegation in accordance with AFMAN 40-201. The RICS convened an allegation review board within 30 days of receipt of the allegation to determine the appropriate follow-up. The RICS conducted an investigation and thoroughly evaluated the concerns. Communications with the concerned individual, including acknowledgement and closure, were appropriate and timely. The RICS adequately maintained the allegation file and appropriately designated the file for the sensitivity of the material.

The team reviewed the Nuclear Material Events Database (NMED) for events reported to the NRC and the USAF log of incidents for events the USAF identified. During the evaluation period, one event was reported to the NRC:

- NMED No. 200311 (Event Notification 54825) involved a leaking radium-226 source at the Wright-Patterson AFB, OH (Permit No. OH-00798-00).

The licensee appropriately processed the event in accordance with the requirements of the AFMAN 40-201 procedure and in a manner that protected health and safety for USAF staff, the public, and the environment. The team also evaluated event reports associated with the USAF's generally licensed sources and devices. The Procedure AFMAN 40-201 assigns the initial response to the permittee where the event or incident occurred with review and recommendations being assigned to RIC staff.

7.3 Conclusion

The inspection team concluded that the licensee had programs in place to manage allegations and respond to events involving RAM. The licensee's response to allegations and events during the review period were complete, thorough, and timely.

8. Independent Inspection – KAFB Operations/Training-10 (OT-10) Radiation Training Sites (IP 87126)

8.1 Inspection Scope

On September 27–30, 2021, and October 22, 2021, the NRC performed an independent inspection of the licensee's activities associated with the OT-10 Radiation Training Sites at KAFB. The inspector reviewed activities that were conducted under the permit issued by the RIC to the KAFB 377th Air Base Wing Vice Commander, Permit No. NM-00602-02. The inspector reviewed records, procedures, and documents maintained by the licensee and its permittee. The inspector also observed facilities, performed independent radiation measurements, and interviewed personnel.

8.2 Background: OT-10 Radiation Training Sites

The 377th Air Base Wing is the host unit at KAFB. One of the missions of the 377th Air Base Wing at KAFB is to ensure readiness and training in nuclear operations. The OT-10 Radiation Training Sites at KAFB are the DOD's only radiological field training sites. Starting in 1961, eight sites located in the north-central part of KAFB were "seeded" with thorium-232 oxide sludge to create areas of detectable radiation in the environment for students to obtain practical field training using radiation detectors. The OT-10 sites are considered integral to the mission of the DOD.

Historical information regarding the OT-10 sites indicated that the thorium-232 oxide sludge was first applied to eight sites at KAFB in 1961 and that sludge application continued through 1990. The sludge was spread on the ground, allowed to dry, and was raked or tilled into the topsoil. The thorium-232 oxide sludge was used as a lower hazard analog for plutonium dispersion that would occur from a nuclear weapons accident or incident. It is believed that the thorium oxide sludge was applied nonuniformly on the OT-10 sites to create "hot spots" to lend realism to the training experience. To mimic expected conditions for a nuclear weapons accident or incident, wreckage, debris, and equipment were placed on the sites.

In 1990, training activities were discontinued at Training Site (TS) 5, TS6, TS7, and TS8. Wreckage, debris, and equipment from those four sites was removed and redistributed to the four active sites, TS1, TS2, TS3, and TS4. Throughout the 1990s, the licensee performed various site assessments and radiological investigations of the inactive sites TS5–TS8. In July 2000, the USAF submitted a DP for TS5–TS8 to the NRC (ML011560711 and ML011560733). The purpose of the DP was to describe the actions to be taken by the USAF to reduce residual radioactive contamination at the inactive TS such that they could be released for unrestricted use. The DP described the licensee's proposal to decommission TS5–TS8, including two buildings located within TS8: Building 28005 and Building 28010. In November 2002, the USAF submitted a revised DP to the NRC (ML023390119, ML023390168, ML030290767, ML030290770, ML030290773, and ML030290775).

In January 2003, the NRC prepared a Safety Evaluation Report (SER) regarding the USAF's proposal (ML030080421) and the NRC amended the license to incorporate the revised DP. The approved DP included a derived concentration guideline level for thorium-232 in soil of 5.9 picocuries/gram. This derived concentration guideline level

was based on specific information regarding the radiological characterization that had been performed of TS5–TS8. The NRC performed several inspections of the decommissioning activities as they were in progress at TS5–TS8. The decommissioning activities were completed in 2004.

The USAF submitted its Final Status Survey Report (FSSR) to the NRC, which was dated January 2005, and received by the NRC on May 2005 (ML051570099 and ML051570105). The FSSR provided information to support the USAF request that TS5, TS6, TS7, and TS8, including Building 28010 at TS8, be released for unrestricted use. The FSSR noted that Building 28005 at TS8 remained contaminated above the radiological release criteria. Accordingly, Building 28005 was not included in the USAF's request for release for unrestricted use.

The NRC completed a Final SER on December 5, 2005 (ML053460250). The NRC concluded that based on the information provided by the USAF, sites TS5, TS6, TS7, and TS8, including Building 28010 at TS8, but excluding Building 28005 at TS8, met the NRC's criteria in 10 CFR 20.1402 and were acceptable for release for unrestricted use. On December 13, 2005, the NRC issued Amendment No. 19, to the USAF MML, which authorized the release of TS5, TS6, TS7, TS8, and Building 28010 for unrestricted use in accordance with 10 CFR 20.1402 (ML053490369). The license amendment did not authorize the release of Building 28005. On January 13, 2006, the NRC published notice of the license amendment in the *Federal Register* (71 FRN 2276). Following this licensing action, four OT-10 sites: TS1, TS2, TS3, and TS4, remained in active use for training purposes.

8.3 Observations and Findings: Active OT-10 Radiation Training Sites

The four active OT-10 sites (TS1, TS2, TS3, and TS4) remain under the regulatory purview of the USAF MML. The licensed activities were conducted under the permit issued by the RIC to the KAFB 377th Air Base Wing Vice Commander, Permit No. NM-00602-02. The Bioenvironmental Engineering (BE) Flight at KAFB oversees the licensed activities and usage of the OT-10 sites. The OT-10 sites are used by the Defense Threat Reduction Agency's (DTRA) Defense Nuclear Weapons School (DNWS).

The permit authorized the possession and use of source material in the form of unsealed thorium-232 oxide sludge with trace amounts of uranium-234 and uranium-238. The authorized use as specified in the permit was for DTRA/DNWS to train personnel in the detection of dispersed radiological contamination from nuclear weapons accidents or incidents. The permit authorized the thorium-232 oxide to be stored and used at TS1, TS2, TS3, and TS4 at KAFB, and that waste material may be stored in Building 28014 at KAFB.

The TS1 site simulates a damaged vehicle convoy and is approximately 7.64 acres. The TS2 site simulates a C-130 aircraft crash site and is approximately 12.5 acres. The TS3 site simulates a B-52 aircraft crash site and is approximately 10 acres. The TS4 site simulates a helicopter crash site and is approximately 10.3 acres. The terrain of each of the sites varies, with some areas of flat terrain, some areas of elevation change with hills, and arroyos or washes of varying depth and width.

Several training courses taught by DTRA/DNWS use the active OT-10 sites. Students practice radiation survey techniques and perform analysis of ground radioactive contamination levels and ambient radiation dose rates. The Nuclear Emergency Team Operations course provides nuclear weapons accident or incident response operations training to joint service responders. The Joint Nuclear Explosive Ordinance Disposal Course provides detailed training for explosive ordinance technicians that may be part of an initial response force for a nuclear weapons accident or incident. The Applied Radiological Response Techniques Level 2 course provides training in performing hands-on radiation surveys and interpretation of collected data. The Basic/Intermediate Radiological Nuclear Training course has core lessons involving radiation detection. The number of students varies by course. Each of the four courses are held several times a year. The permittee noted that for the conduct of the DTRA/DNWS courses, TS1, TS2, and TS3 are used more extensively than TS4.

The permittee controlled access to the active OT-10 sites through key control of the locks on the sites' access gates. When access to the active sites was needed for a DTRA/DNWS course, the permit RSO or Alternate RSO provided a pre-entry briefing regarding the radiological conditions within the sites, procedural and radiological control requirements, non-radiological hazards that exist within the sites, and other relevant topics. Due to the radiological conditions, minimum personnel protective equipment requirements to enter the active sites included gloves and rubber boots.

Prior to 2006, there was indication that passive radiation dosimeters were placed along the fenced perimeters of the active OT-10 sites. Records from these dosimeters were not available for review by the inspector. In 2006, the passive dosimeters were discontinued in lieu of the performance of ambient radiation surveys. At that time, the licensee began to perform radiation surveys every six months at numbered fenceposts along the fenced perimeters of the active OT-10 sites, to assess the public dose for each of the active OT-10 sites. For the radiation surveys, the licensee performed an exposure rate survey at 1-meter with an ionization chamber survey meter, and a gross count using a survey meter with a sodium iodide probe. Although records of the 2006 survey were unavailable for review by the inspector, it was documented by the former permit alternate RSO that elevated radiation levels were detected along the TS2 fenced perimeter at the point of a "major western fence erosion undercut."

In 2008, the permittee observed that the arroyo that cuts through TS2 had deepened to several feet. The fenced perimeter survey identified radiation levels that exceeded those detected in the earlier 2006 survey, including one "small area of exceedingly high count rates immediately at the fence undercut." At that time, sandbags were placed within the TS2 site and at the fence undercut. Over the next two years, the permittee noted that the TS2 arroyo continued to erode and deepen. During that time, soils appeared to have moved along the TS2 drainage path to the point where the previously placed sandbags had been covered by silt and were no longer visible.

From the available information reviewed by the inspector, sometime between 2006 and 2011, the permittee used T-poles and barbed wire were to cordon off areas outside of the fenced perimeters of TS2 and TS4 where migration of thorium-232 source material had been detected. One area that was cordoned off was outside of the western perimeter of TS2, bordered on one side by the western perimeter fence of TS2, and on the other side by Pole Line (Power Line) Road. This is a heavily trafficked dirt road that

is maintained by daily multiple applications of water from spray trucks. Barbed wire was also used to cordon off an extensive area bordered on one side by the northwestern perimeter fence of TS4, and on the other side down the slope of a steep embankment and arroyo along the northwest and west perimeter of TS4. At TS2 and at TS4 the barbed wire was posted with radiation caution signs. The permittee and the RIC did not have any record of a permit amendment to add the cordoned off barbed wire areas to the permit as extensions of the TS2 and TS4 sites. These extended areas were not part of the areas that had been permitted by the RIC for training of personnel and were not used during DTRA/DNWS training courses.

In March 2011, a licensee contractor performed an environmental scanning survey of the four active OT-10 sites to characterize the distribution of thorium-232 source material within the OT-10 sites and to identify any areas where contamination had migrated outside of the fenced perimeters of the active OT-10 sites. The survey report, "Radiological Survey of the active OT-10 Thorium-seeded Training Sites at KAFB, New Mexico," dated April 13, 2011, documented that based on visual observations of the surface soils and radiation surveys, there were indications that radioactive material had migrated outside of the fenced perimeter of the OT-10 sites. The licensee contractor's survey report documented that they observed elevated radiation levels along the western perimeter of TS2 in the borrow pit for Pole Line (Power Line) Road, suggesting migration of licensed materials on the downward slope of the TS2 site. Additionally, the licensee contractor's survey report documented that they observed elevated radiation levels outside of the northwestern fenced perimeter of TS4, with visual evidence of surface runoff into an arroyo. The report concluded that both cordoned off areas "indicate the need for scrutiny in future environmental monitoring conducted at both TS."

In September 2011, the licensee's contractor repeated the environmental scanning survey of the four active OT-10 sites. The survey report, "Radiological Survey of the active OT-10 Thorium-seeded Training Sites at KAFB, New Mexico," dated October 3, 2011, described that visual observations and radiation surveys again indicated that radioactive material had migrated outside of the fenced perimeter of TS2 and TS4. At TS2, an alluvial plain was noted to be present where the arroyo that runs through TS2 met Pole Line (Power Line) Road outside of the western fenced perimeter of TS2. At TS4, elevated radiation levels were again observed along the northwestern and western outside of the fenced perimeter, in an area described as a wash that fed into an arroyo.

There are also several indicators that elevated radiation levels would be detected outside of the fenced perimeters of the active OT-10 sites. The USAF first seeded the OT-10 sites with thorium-232 decades ago, with no environmental or engineering controls to prevent or mitigate offsite migration. The KAFB installation sits in the Albuquerque basin, which is considered a semi-arid area. The ground is normally dry, and the area is subject to droughts, but heavy precipitation can occur during thunderstorms and seasonal monsoon-like events. The topographic features of each of the active OT-10 sites, including the presence of washes and arroyos, provide a means for material to migrate beyond the fenced perimeters. Additionally, the July 2000 DP for TS5-TS8 indicated that two of the sites had elevated areas of radiological contamination beyond their fenced perimeters (ML011560711 and ML011560733). This information could have been used by the licensee to inform the need for reviews of the four active OT-10 sites and the implementation of an appropriate radiation monitoring program.

Such monitoring could have determined the presence of any radiological contamination, and if so, the scope and extent of that contamination such that appropriate remedial actions could be performed.

Despite information over the course of several years indicating that thorium-232 had migrated beyond the fenced perimeters of the OT-10 sites, the licensee did not make or cause to be made, surveys of these areas, including the subsurface. Such surveys were necessary for the licensee to comply with the regulations in 10 CFR Part 20. Furthermore, based on the licensee's knowledge of the migration of thorium-232 beyond the fenced perimeters of the OT-10 sites, such surveys were reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, the concentrations or quantities of residual radioactivity, and the potential radiological hazards of the radiation levels and residual radioactivity detected. *Residual radioactivity* includes radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from licensee activities.

In early 2020, the former permit Alternate RSO and a Health Physicist from DTRA/DNWS developed a plan to identify thorium-232 contaminated soils that had migrated beyond the fenced perimeter at TS2 and to return the contaminated soils to the interior of TS2. This was identified by the permittee as a "self-help" project that would use local resources and personnel from the BE Flight and DTRA/DNWS. The Alternate RSO and the Health Physicist from DTRA/DNWS briefed the leadership and command of the BE Flight and DTRA/DNWS at KAFB on the plan, "Thorium-232 Mitigation and Reconstitution Procedures, Western Area, Outside OT-10, TS2," dated May 11, 2020. The permittee provided the plan to a civilian contractor at the RIC who offered comments and feedback. The permittee did not request an amendment to the permit. On June 4, 2020, the individual at the RIC informed the permittee that they were "clear to proceed." This individual at the RIC "approved" the plan although this did not constitute formal approval of the plan by the RIC. Such formal approval would have needed to follow RIC processes and procedures and have approval by RIC leadership. Because an amendment request was not submitted and the plan approval was informal, the RIC did not amend the permit to authorize the thorium-232 mitigation and reconstitution activities.

The plan as written was to use hand shovels and trowels to remove any soils that exceeded the permittee-established mitigation action level for thorium-232. According to the plan, background radiation levels were to be determined while standing in the thorium-232 contaminated area and holding the radiation detection probe above one's head and performing a one-minute count. The soils that were identified as contaminated with thorium-232 more than the permittee-established mitigation action level were to be placed into buckets that would be hauled by personnel from outside the fenced perimeter of TS2 and upslope into TS2. The buckets of contaminated soils were then to be used to fill sandbags that would be used to create berms within TS2. The plan called for the establishment of a control point upon exiting the thorium-232 contaminated area for the screening of personnel and equipment for radiological contamination. Personnel or items that exceeded a permittee-established clearance limit would be decontaminated with a dish detergent solution and toilet paper, which was to be collected and buried within TS2. Note that the permit did not authorize the burial of radioactive waste on the OT-10 sites, and that this should not have been necessary since the permit authorizes waste to be stored in Building 28014 at KAFB. Prior to implementing the plan, the

permittee estimated that the area outside of the TS2 fenced perimeter that required mitigation would be approximately 20 feet by 20 feet, and that thorium-232 contaminated soils removal would not be needed beyond the top 2 inches of topsoil.

The execution of the plan commenced on or about June 16, 2020, with the clearing of vegetation and brush within the area outside of the western fenced perimeter of TS2. Vegetation and brush were tossed over the fenced perimeter into TS2. In the cleared area, a grid was established to perform radiation surveys. Background measurements were acquired in an outdoor area to the north of TS1, which was a change from the plan. Due to the hot, arid conditions, work activities were performed over the course of several days, using half-days in the morning as a strategy to avoid the hottest hours of the day. Several personnel within the posted radiologically contaminated area outside the fenced perimeter of TS2, as well as personnel within the posted and radiologically contaminated TS2 site wore and utilized personal drinking water hydration packs. As areas were identified that exceeded the permittee-established mitigation action level, personnel used hand shovels and trowels to remove the contaminated soils.

Due to the large volume of contaminated soils identified, the plan to place the contaminated soils into buckets was abandoned. The soils were instead placed into wheelbarrows that were hauled several hundred meters upslope into the TS2 interior and dumped into mounds or piles. The plan to load thorium-232 contaminated soils into sandbags was abandoned. The area where thorium-232 contaminated soils were detected and removed was approximately 50 feet by 110 feet, significantly larger than anticipated. Although this area much was much larger than expected, the participants proceeded forward with the work activity because personnel were available at that time to perform the work. In some areas, thorium-232 contaminated soils were removed to a depth of 2-4 inches, but in other areas soils were removed to a depth of 12-24 inches, which was significantly deeper than anticipated by the plan.

As the strenuous work of hand shoveling and hauling wheelbarrows upslope into TS2 progressed over several days, another change to the plan occurred. The New Mexico Air National Guard's 210th Rapid Engineer Deployable Heavy Operational Repair Squadron Engineers (RED HORSE) Squadron was brought on board to assist with the movement of thorium-232 contaminated soils upslope into TS2. Individuals with the RED HORSE Squadron operated a 310SL tractor with front loader bucket and a CAT 272D skid steer loader to support the work activity. The RED HORSE Squadron skid steer loader was brought into the area outside of the fenced perimeter of TS2 and the thorium-232 contaminated soils were hand shoveled into the bucket of the skid steer loader. At a transfer point, where a section of the TS2 perimeter fence was removed, the skid steer loader offloaded its bucket into the front end loader bucket of the tractor, which was positioned inside of TS2 on the other side of the transfer point. The RED HORSE Squadron tractor brought the thorium-232 contaminated soils upslope within TS2 and dumped the contaminated soils into piles. Although motorized vehicles were used within the contaminated site, no actions were taken to mitigate or control dust generation. The permittee estimated that approximately 120 tons of thorium-232 contaminated soils were removed from outside the fenced perimeter of TS2 and either moved by wheelbarrow or tractor into TS2.

As described above, the permittee-established a mitigation action level to identify thorium-232 contaminated soils. The intent of the mitigation action level was to reduce

the concentration of thorium-232 contaminated soils outside of the fenced perimeter of TS2. The mitigation action level was not intended by the permittee to be a remediation goal or to return the area to radiation levels that were indistinguishable from background radiation in soil. As a result, the area remains contaminated despite the removal of 120 tons of thorium-232 contaminated soils. After completion of the mitigation and reconstitution activities, the T-poles and barbed wire cordoning off the area outside of TS2 remained in place and continued to be radiologically posted.

The licensee deposited the 120 tons of thorium-232 contaminated soils along the central arroyo that runs through TS2. After the mitigation and reconstitution activities were completed, in July 2020, an estimated 800 sandbags of “clean” fill dirt were emplaced into TS2 and in August 2020, an additional 600–800 sandbags of “clean” fill dirt were emplaced into TS2. The licensee did not perform a radiological analysis of the fill dirt to identify the presence of any radiological contaminants. Accordingly, it is unknown if any additional RAM was introduced into TS2. Furthermore, when depositing the 120 tons of loose contaminated soils, and emplacing the hundreds of sandbags onto TS2, the licensee did not perform an engineering analysis to determine where to properly place these materials such that they would be effective to prevent or mitigate further erosion or movement of thorium-232 contaminated soils beyond the fenced perimeter of TS2.

It is believed that approximately 23 individuals from the BE Flight and DTRA at KAFB participated in the mitigation and reconstitution activities at TS2. Additionally, at least two individuals from the RED HORSE Squadron participated. As noted earlier, the permittee established a control point upon exiting the contaminated area for the screening of personnel and equipment for radiological contamination. As described to the inspector, this was a “self-help” project and there was a “call for equipment” before the plan was executed. Personnel were asked to bring and use their own personal shovels, trowels, wheelbarrows, and other equipment from their personal residences. Some equipment was government-owned, including the tractor and skid steer brought by the RED HORSE Squadron. It was described to the inspector that the BE Flight and DTRA personnel were screened for contamination whenever leaving through the control point, and that equipment was screened for contamination when it was removed from the work area through the control point. It was described to the inspector that no personnel or equipment exceeded the permittee-established clearance limit and therefore no decontamination was necessary using the planned toilet-paper-burial method within TS2. Although it appeared that the clearance surveys were performed, the licensee did not maintain any records of those surveys to demonstrate that personnel and equipment that were released from the site did not exceed the permittee-established clearance limit.

In November 2020, the former permit Alternate RSO prepared a written “Memorandum for Record: OT-10 Offsite Mitigation and Radiological Verification Survey.” The brief document described that thorium-232 contaminated soils were removed until the measurements were below the permittee-established mitigation action level. After that was complete, additional measurements were collected that identified 14 “hot spots” that required further removal of thorium-232 contaminated soils. Of the 14 “hot spots,” two were immediately outside of the TS2 perimeter fence, two were within the main mitigation work area and ten were in the area adjacent to Pole Line (Power Line) Road. The Memorandum concluded that the area outside of the fenced perimeter of TS2 were cleared to below the permittee-established mitigation action level, that temporary erosion

control measures were put in place, and that a more robust mitigation and erosion control plan was needed.

On August 13, 2021, the permit was renewed by the RIC. The renewed permit specified that that radiation migration out of the controlled area be surveyed to confirm the migration is “unsubstantial.” The word “unsubstantial” was not defined by the RIC and did not establish any action thresholds or formal engineering controls to be utilized by the permittee. Requiring the permittee to confirm that migration of thorium-232 was “unsubstantial” was not based on sound radiation protection principles and therefore is unlikely to be an effective means to identify areas of thorium-232 contamination. Furthermore, the permit requirement does not establish what actions should be taken if “substantial” contamination is identified. In the absence of appropriate action thresholds and proper engineering controls to address the movement of thorium-232 contaminated soils, migration of licensed material will continue beyond the fenced perimeters of the active OT-10 sites.

In September and October 2021, the inspector observed the active OT-10 sites. The inspector requested to walk outside the fenced perimeters. Personnel from the BE Flight and DTRA/DNWS accompanied the inspector. These personnel, including the permit Alternate RSO, had never walked the fenced perimeter of the sites. The inspector traversed the fenced perimeters of TS1, TS2, and TS4 to observe the conditions of the sites and observed portions of the fenced perimeter of TS3. In some areas, evidence of burrowing animals was present within the sites. At TS2 and TS4, the inspector observed the cordoned off areas where thorium-232 contamination had been identified outside of the respective perimeter fences.

At TS2, the inspector observed that the area where 120 tons of thorium-232 contaminated soils were removed appeared to be completely silted over, and vegetation and brush had regrown, with no visible evidence of the contaminated soils removal. Continued erosion of soils from within TS2 into the area was apparent. Looking at the interior of TS2, the inspector observed the emplaced mounds of thorium-232 contaminated soils near the large arroyo that traverses the site.

At the cordoned off area outside of TS4, the inspector observed that several T-poles and barbed wire sections were knocked down, and other sections were in disrepair. This area completely dropped off beyond the northwestern and western fenced perimeter of TS4, down a steep embankment with a deep arroyo feature.

The licensee has not established a program of custodial care for the active OT-10 sites to maintain visible and durable radiation hazard postings, clear brush, manage the fence line, address animal intrusion, or put proper engineering controls in place to control erosion.

8.3.1 Apparent Violation of 10 CFR 40.3

Title 10 CFR 40.3 requires, in part, that a person subject to 10 CFR Part 40 may not possess, use, provide for long-term care, or dispose of radioactive material as defined in 10 CFR Part 40, or any source material after removal from its place of deposit in nature, unless authorized in a specific or general license issued by the Commission under the regulations in 10 CFR Part 40.

Materials License No. 42-23539-01AF, Conditions 6.B, 7.B, 8.B, and 9.B. of Amendment Nos. 29 and 30 state, in part, that the licensee can use any source material, in any chemical and physical form, in any amount as needed, for uses authorized by the USAF RIC.

Contrary to the above, in June 2020, the licensee failed to confine its use of source material to the purposes authorized in a specific license. Specifically, unsealed source material was used in a manner that was not authorized by the USAF RIC. Soils contaminated with thorium-232 oxide, source material under USAF permit NM-00602-01, were removed from outside of the western perimeter boundary of TS2 at Kirtland AFB, and were relocated to within the TS2 perimeter boundary, an activity and use not authorized by the USAF RIC.

The licensee's failure to confine its use of material to the purposes authorized in a specific license is an apparent violation of 10 CFR 40.3. (030-28641/2021-005-01)

8.3.2 Apparent Violation of 10 CFR 20.1101(b)

Title 10 CFR 20.1101(b) requires that the licensee shall use, to the extent practical, procedures and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).

Contrary to the above, from June 2020 to October 22, 2021, the licensee failed to use, to the extent practical, procedures and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to members of the public that are ALARA as evidenced by the following three examples:

- In June 2020, the licensee removed and relocated approximately 120 tons of soils contaminated with thorium-232 oxide and failed to use, to the extent practical, procedures and engineering controls to restrict occupational doses and doses to members of the public: (1) licensee personnel wore and utilized personal hydration packs for drinking water while working in radiologically posted areas where thorium-232 contaminated soils were being handled, increasing the likelihood of ingesting radioactive materials; (2) excavated thorium-232 contaminated soils from outside the fenced perimeter boundary of TS2 were relocated within the fenced perimeter boundary of TS2 in surface piles without proper engineering controls to mitigate or prevent the materials from being windswept beyond the fenced perimeter boundary of TS2, or to mitigate or prevent the continued offsite migration of the materials through precipitation events; and (3) motorized vehicles consisting of a skid steer and a tractor were used within the thorium-223 contaminated area without the establishment of proper engineering controls and measures such as dust controls to minimize inhalation of contaminated dust.

- On August 23, 2021, the licensee established criteria that radiation migration out of the controlled areas of the OT-10 sites be surveyed to confirm the migration is "unsubstantial." The use of the subjective word "unsubstantial" to establish radiation migration criteria was not based on sound radiation protection principles. The word "unsubstantial" was not defined by the licensee and did not establish action

thresholds to achieve occupational doses and doses to members of the public that are ALARA.

- On October 22, 2021, the licensee failed to use proper engineering controls to control access to the area where elevated radiation levels and thorium-232 contaminated soils had been detected outside of the northwestern fenced perimeter of TS4. Specifically, several T-poles and barbed wire sections were knocked down, and other barbed wire sections were in disrepair.

The licensee's failure to use, to the extent practical, procedures and engineering controls to achieve doses that are ALARA is an apparent violation of 10CFR 20.1101(b). (030-28641/2021-005-02)

8.3.3 Apparent Violation of 10 CFR 20.2103(a)

Title 10 CFR 20.2103(a) requires, in part, that each licensee shall maintain records showing the results of surveys required by 10 CFR 20.1501. The licensee shall retain these records for 3 years after the record is made.

Contrary to the above, from June 2020 to October 22, 2021, the licensee failed to maintain records showing the results of surveys required by 10 CFR 20.1501. Specifically, the licensee failed to maintain records associated with activities performed in June 2020 to relocate approximately 120 tons of soils contaminated with thorium-232, including: (1) personnel contamination surveys of individuals that performed activities within the contaminated site, and (2) release surveys of equipment that was used within the contaminated site and then released for unrestricted use, including shovels, wheeled carts, buckets, wheelbarrows, tarps, personal protective equipment, a skid steer, and a tractor.

The licensee's failure to maintain records showing the results of surveys required by 10 CFR 20.1501 is an apparent violation of 10 CFR 20.2103(a). (030-28641/2021-005-03)

8.3.4 Apparent Violation of 10 CFR 20.1501(a)

Title 10 CFR 20.1501(a) requires, in part, that each licensee shall make or cause to be made, surveys of areas, including the subsurface that: (1) may be necessary for the licensee to comply with the regulations in 10 CFR Part 20, and (2) are reasonable under the circumstances to evaluate: the magnitude and extent of radiation levels, the concentrations or quantities of residual radioactivity, and the potential radiological hazards of the radiation levels and residual radioactivity detected.

Title 10 CFR 20.1003 defines *residual radioactivity* as radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee but excludes background radiation. It also includes radioactive materials remaining at the site because of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR Part 20.

Contrary to the above, from March 2011, to October 22, 2021, the licensee failed to make or cause to be made, surveys of areas, including the subsurface that: (1) may be necessary for the licensee to comply with the regulations in this part, and (2) are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentrations or quantities of residual radioactivity, and the potential radiological hazards of the radiation levels and residual radioactivity detected. Specifically, ambient radiation measurements performed by the licensee in March 2011 indicated that licensed radioactive material had migrated beyond the perimeter at the western boundary of TS2 and at the northwestern boundary of TS4. The licensee failed to make or cause to be made, surveys of areas, including the subsurface outside of the fenced perimeter boundaries of the active OT-10 sites at KAFB, that were necessary for the licensee to comply with the regulations in 10 CFR Part 20 and were reasonable under the observed circumstances to evaluate the magnitude and extent of radiation levels, the concentrations or quantities of residual radioactivity, and the potential radiological hazards of the radiation levels and residual radioactivity detected.

The licensee's failure to make or cause to be made, surveys necessary to comply with 10 CFR Part 20 and are reasonable under the circumstances, is an apparent violation of 10 CFR 20.1501(a). (030-28641/2021-005-04)

8.4 Observations and Findings: Building 28005 at TS8

As described in Section 8.3, when TS5–TS8 were decommissioned, the USAF's DP and revised DP called for Building 28005 at TS8 to be part of the decommissioning effort. However, the licensee's FSSR noted that Building 28005 at TS8 remained contaminated above the radiological release criteria and was not included in the USAF's request for release for unrestricted use (ML053460250). The FSSR further noted that a fence would be installed around Building 28005 to separate it from the remainder of TS8. In the FSSR, the licensee stated that it would remove two drums of thorium-232 oxide sludge from Building 28005, vacuum inside the building, and establish a baseline radiological characterization of the interior of the building.

On December 13, 2005, the NRC issued Amendment No. 19, which authorized the release of TS5-TS8 and Building 28010 located at TS8 for unrestricted use in accordance with 10 CFR 20.1402 (ML053490369). The amended license specified that "Building 28005, located on TS8, will not be released for unrestricted use." The NRC's December 13, 2005, letter to the licensee further specified that the "licensing action does not authorize the release of Building 28005, which shall remain on the Air Force permit until it is approved for unrestricted use."

On October 22, 2021, while performing inspection activities at the active OT-10 sites at KAFB, the inspector requested information about the status of Building 28005, which was not listed on the current permit. Personnel from the BE Flight and DTRA at KAFB had never heard of Building 28005 and were unaware of its status or location. The inspector shared a drawing that had been submitted as part of the licensee's FSSR, indicating the approximate location of Building 28005 within KAFB. The inspector, with personnel from the BE Flight and DTRA, navigated to the location. At the location, the inspector observed Building 28005 within a fenced area. The fence was posted with faded radiological postings with the radiation trefoil and the words "Caution Radiation."

Other faded postings noted that it was an “alpha contamination site.” The inspector observed that the gate to access the Building 28005 site was unsecured and was open a few feet wide.

The inspector entered the Building 28005 site through the open gate while performing radiation surveys with a Thermo RadEye G, serial number 370, calibration due February 13, 2022. The façade of the building was visible, but the top, sides, and back were covered by an earthen berm. A short ventilation pipe protruded from the top of the earthen berm. A small broken concrete pad with a few broken concrete steps was observed outside of the Building 28005 entrance. The inspector approached this area and observed a weather-worn mannequin and other debris outside of the building near the concrete pad. The building had steel double doors that were ajar and not locked. Gamma radiation levels at the concrete pad outside of the steel doors were approximately 65 microrem/hour whereas a background radiation level measurement taken earlier in the day outside the DAFIA office at KAFB was approximately 10-15 microrem/hour. The inspector looked through the gap in the ajar doors and observed that the interior dimensions of the building were approximately 20 feet by 10 feet. The walls appeared to be constructed of corrugated metal. The ceiling also appeared to be constructed of corrugated metal and was arched with a maximum height of approximately 10 feet at the center of the building. The floor appeared to be concrete with a significant amount of dust and loose debris. From the areas that were visible through the ajar doors, the inspector observed a table, an open rectangular bin with unknown items inside, a bucket with its lid removed and next to it on the floor, and a metal shelving unit with various items.

Limited information was available regarding the radiological conditions of the interior of Building 28005. The NRC’s January 2003 SER regarding the USAF’s proposed DP documented that the licensee had performed surveys inside of Building 28005 in 2001, and that the highest gamma exposure rate inside of the building was 4.5 millirem/hour, and that the highest surface contamination level was 200,000 dpm/100 cm^2 (ML030080421). The inspector requested to review the baseline radiological characterization of the interior of the building that was referenced in the licensee’s FSSR. Neither the permittee nor the RIC could locate or provide this survey or other relevant records that would be important to decommissioning.

Based on the inspector’s review of the available information, it appeared that Building 28005 was left in its radiologically contaminated state for a purpose - to be used for training exercises by DTRA/DNWS courses to be used in the same way as the active OT-10 sites. While the active OT-10 sites offered an outdoor field training experience, the building could offer a different training scenario inside of a physical space.

The inspector reviewed the history of the OT-10 sites permit. After the NRC issued the license amendment for the MML on December 13, 2005, which authorized the release of TS5–TS8 and Building 28010, the RIC removed TS5, TS6, TS7, and TS8 from the permit. Building 28010 and Building 28005 were part of TS8. Although Building 28010 was released by the NRC for unrestricted use, Building 28005 was not released by the NRC for unrestricted use. However, when TS5, TS6, TS7, and TS8 were removed from the permit by the RIC, they did not take the action to put Building 28005, which was part of TS8, on to the permit.

During the NRC's inspection and in the weeks that followed, there was continued discussion between the NRC, the permittee, and the RIC regarding the status and responsibility for Building 28005. Various historical documents and correspondence from the period when TS5–TS8 were decommissioned were reviewed by the inspector. These records provide contradictory information regarding the status of Building 28005, and whether "responsibility" resided with the USAF or DTRA.

In a letter dated June 20, 2003, the RIC informed the NRC that there was an "administrative ownership transfer of TS8" and that DTRA will assume all future responsibility for cleanup of TS8 (ML032170792). It is unclear what was meant by "administrative ownership transfer." A review of DTRA's NRC license (License No. 45-25551-01, Docket No. 030-35668) in effect at that time, Amendment No. 6, dated March 30, 2003, only authorized the possession, and use of sealed sources and did not authorize the possession of unsealed source material or thorium-232 oxide. Accordingly, any actual transfer of licensed materials or regulatory responsibility for Building 28005, which was contaminated with unsealed thorium-232 oxide source material, would not have been authorized. For a transfer of licensed materials to occur, the DTRA license would have needed to be amended by the NRC to authorize the unsealed thorium-232 source material, its chemical and/or physical form, its use, and to add the radiologically contaminated Building 28005 at KAFB as a specific location of use or storage on the DTRA license.

Following the NRC's inspection, the permittee noted that a letter dated April 4, 2006, was sent to the NRC by the RIC regarding Building 28005. The NRC could not locate this letter in ADAMS, and the permittee did not provide it to the inspector. The letter is cited by the permittee as saying that the "property" of TS8 was transferred to DTRA/DNWS, a fence was erected around the building, it remained contaminated above radiological release criteria, that the building "is still currently controlled under the USAF permit," but that DTRA would be responsible for the continued maintenance and ultimate decommissioning of the building. A review of DTRA's NRC license in effect at the time, Amendment No. 9, dated April 7, 2005, only authorized the possession, and use of sealed sources and did not authorize the possession of unsealed source material or thorium-232 oxide, nor did it authorize Building 28005 at KAFB as a specific location of use or storage.

It appears that discussions between the USAF and DTRA used various conflicting terminology regarding ownership of the property vs. financial responsibility for eventual decommissioning/remediation. Transfer of ownership of a property, whether administrative or physical, if such a transfer occurred, is not equivalent with the transfer of NRC licensed materials at the site. No documentation was provided to support that responsibility and oversight of the NRC licensed materials at Building 28005 would be handled any differently than those at the active OT-10 sites, which are under the USAF MML and used by DRTA/DNWS under the oversight of the USAF MML. The conflicting and confusing terminology used between the USAF and DTRA appears to have resulted in a bifurcation of accountability, and a diffusion of responsibility, that led to the RIC releasing Building 28005 for unrestricted use when it removed TS8 from the permit following the NRC's licensing action on December 13, 2005.

At the time of the NRC's inspection, it was evident that neither the USAF nor DTRA were aware of Building 28005, and that the fenced site and Building 28005 were not being

controlled. The NRC has not been provided with information to support that Building 28005 meets the NRC's radiological release criteria. Furthermore, radiation surveys performed by the inspector indicate that the building is still radiologically contaminated well above background radiation levels, although the scope and extent of radiological contamination is unknown. By the RIC failing to place controls over Building 28005, and by the RIC failing to list the building on the permit, Building 28005 was released by the licensee, perhaps unintentionally, for unrestricted use, although it did not meet the NRC's radiological release criteria.

8.4.1 Apparent Violation of 10 CFR 20.1402

Title 10 CFR 20.1402 requires, in part, that a site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a total effective dose equivalent (TEDE) to an average member of the critical group that does not exceed 25 millirem per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as is reasonably achievable (ALARA).

Materials License No. 42-23539-01AF, Condition 19.Q of Amendment Nos. 19–24, Condition 20.Q of Amendment Nos. 25–29, and Condition 22.Q of Amendment No. 30 requires, in part, that the licensee shall adhere to the statements and representations contained in FSSR for Environmental Restoration Program Site OT-10, Radiation Training Sites, dated January 2005, and received May 2005. The four OT-10 TS: TS5, TS6, TS7, and TS8, including Building 28010 are approved for unrestricted use in accordance with 10 CFR 20.1402. Building 28005, located on TS8, will not be released for unrestricted use.

The FSSR for Environmental Restoration Program Site OT-10, Radiation Training Sites, dated January 2005, and received May 2005, states, in part, that Building 28005 at TS8 remains contaminated above the radiological release criteria.

Contrary to the above, between December 13, 2005, to October 22, 2021, the licensee released Building 28005 at TS8 for unrestricted use although the site failed to meet the NRC criteria to be acceptable for release for unrestricted use. Specifically, the licensee failed to place controls over Building 28005 at TS8 at Kirtland AFB and failed to list the site on the respective MML permit, which resulted in Building 28005 being released by the licensee for unrestricted use. When released for unrestricted use by the licensee, Building 28005 had radiation levels that were distinguishable from background radiation that could have resulted in a TEDE to an average member of the critical group exceeding 25 millirem per year, and the residual radioactivity in Building 28005 had not been reduced to levels that were ALARA.

The licensee's release of a site that failed to meet the NRC criteria for release for unrestricted use is an apparent violation of 10 CFR 20.1402. (030-28641/2021-005-05)

8.4.2 Apparent Violation of 10 CFR 40.36(f)

Title 10 CFR 40.36(f) requires, in part, that each person licensed under 10 CFR Part 40 shall keep records of information important to the decommissioning of a facility in an identified location until the site is released for unrestricted use.

Materials License No. 42-23539-01AF, Condition 19.Q of Amendment Nos. 19–24, Condition 20.Q of Amendment Nos. 25–29, and Condition 22.Q of Amendment No. 30 require, in part, that the licensee shall adhere to the statements and representations contained in FSSR for Environmental Restoration Program Site OT-10, Radiation Training Sites, dated January 2005, and received May 2005. The four OT-10 TS: TS5, TS6, TS7, and TS8, including Building 28010 are approved for unrestricted use in accordance with 10 CFR 20.1402. Building 28005, located on TS8, will not be released for unrestricted use.

The FSSR for Environmental Restoration Program Site OT-10, Radiation Training Sites, dated January 2005, and received May 2005, states, in part, when referencing Building 28005 (Bunker 28005), that the licensee will establish a baseline radiological characterization of the inside floors, walls, and ceilings.

Contrary to the above, from December 13, 2005, to October 22, 2021, the licensee failed to keep records of information important to the decommissioning of a facility in an identified location until the site is released for unrestricted use. Specifically, the licensee was unable to locate the baseline radiological characterization of the inside floors, walls, and ceiling of Building 28005, an area where thorium-232 oxide source material was used and stored and did not keep this and other records important to decommissioning in an identified location.

The licensee's failure to keep records of information important to decommissioning is an apparent violation of 10 CFR 40.36(f). (030-28641/2021-005-06)

8.5 Observations and Findings: Programmatic Oversight of OT-10 Radiation Training Sites

The inspector observed that the licensee's radiation protection program for the OT-10 sites was consistent with the actual permitted activities, which was for the use of thorium-232 to train personnel in the detection of dispersed radiological contamination from nuclear weapons accidents or incidents. The radiation safety program, however, was inadequate to address other considerations related to the environmental use of thorium-232 oxide. As a result, the licensee performed activities that were not authorized, including the removal of thorium-232 contaminated soils. These removal activities were not well planned or executed, resulting in deficiencies related to ALARA considerations. The radiation protection program did not contain adequate provisions for documenting surveys of personnel or equipment. The radiation protection program did not consider the need for an appropriate environmental monitoring program. Surveys that the licensee performed were not adequate to determine the scope and extent of radiological contamination beyond the fenced perimeters of the active OT-10 sites. The radiation protection program also did not include provisions for addressing radiologically contaminated buildings.

Actions to correct the individual identified deficiencies are necessary, but these corrective actions alone will not assure that the licensee's radiation protection program is commensurate with the scope and extent of environmental use of thorium-232 oxide in soil, and for the control of a radiologically contaminated building. A radiation protection program that is commensurate with the scope and extent of licensed activities to address the broader considerations associated with the environmental use of thorium-232 oxidize should consider: roles and responsibilities of the RSO and other personnel,

methods to maintain exposures ALARA, types of radiation surveys and action thresholds, posting and labeling, access control and security of licensed materials, personnel monitoring, air monitoring, respiratory protection, training, reporting requirements, records retention, emergency procedures, radioactive waste management and disposal, and audits.

8.5.1 Apparent Violation of 10 CFR 20.1101(a)

Title 10 CFR 20.1101(a) requires, in part, that each licensee shall develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of 10 CFR Part 20.

Contrary to the above, from December 13, 2005, to October 22, 2021, the licensee failed to develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of 10 CFR Part 20. Specifically, the licensee failed to develop, document, and implement a radiation protection program that was commensurate with the scope and extent of environmental use of thorium-232 oxide in soil, and for the control of radiologically contaminated Building 28005 at KAFB.

The licensee's failure to develop, document, and implement a radiation protection program commensurate with the scope of licensed activities is an apparent violation of 10 CFR 20.1101(a). (030-28641/2021-005-07)

8.6 Conclusions

In June 2020, approximately 120 tons of soils contaminated with thorium-232 were removed from an area that was outside of the fenced perimeter of one of the OT-10 sites to mitigate the migration of radioactive materials. This soils removal activity was not authorized by the RIC and therefore not authorized by the NRC license. The thorium-232 contaminated soils removal activities failed to use, to the extent practical, procedures and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to members of the public that are ALARA. Although the licensee performed personnel contamination surveys of individuals and release surveys of equipment used during the soils removal activities, they failed to maintain records of those surveys.

Over the course of several years, there were multiple indications that thorium-232 had migrated beyond the fenced perimeters of the OT-10 sites. However, the licensee failed to make, or cause to be made, surveys of areas, including the subsurface that may be necessary for compliance with NRC regulations and are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, the concentrations or quantities of residual radioactivity, and the potential radiological hazards of the radiation levels and residual radioactivity detected. *Residual radioactivity* includes radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from licensee activities.

Additionally, the licensee released a building at KAFB for unrestricted use although the building remained contaminated above the NRC's radiological release criteria. The

licensee failed to maintain records important to decommissioning, including records related to a baseline radiological survey performed by the licensee.

The licensee failed to develop, document, and implement a radiation protection program that was commensurate with the scope and extent of environmental use of thorium-232 oxide in soil, and for the control of a radiologically contaminated building at KAFB.

9 Exit Meeting Summary

On May 5, 2022, a final videoconference exit meeting was conducted with Col. Gogate and representatives of the RIC, DAFIA, and the KAFB permittees regarding the apparent violations. The NRC representatives described the NRC's enforcement process and the options for the licensee to request a PEC or ADR with the NRC. The inspectors discussed the content of the Inspection Report, and the licensee did not identify any proprietary information.

Supplemental Inspection Information

PARTIAL LIST OF PERSONS CONTACTED

Biennial Team Inspection
Maj. Gen. (Dr.) Sharon R. Bannister
Col. Sanjay A. Gogate, Chair, RIC
Lt. Col. Christina Peace, Chief, RICS
Lt. Col. Ryan Danley, DAFIA
Lt. Col. Lisa Roach, RICS, Action Officer
Maj. Benjamin McComb, Deputy Chief, RICS
Ramachandra K. Bhat, Ph.D., CHP, RICS, Action Officer
Bruce Murren, RICS, Action Officer

Independent Inspection at KAFB
Col. Jason F. Vattioni, Commander, 377th Air Base Wing, Commander, KAFB Installation
Col. Christopher M. Whelan, Commandant, DTRA/DNWS, KAFB
Kimberly Paffett, KAFB Installation RSO, Permit RSO
Maj. Keith Sanders, Permit Alternate RSO, Commander, BE Flight, KAFB
LCDR John P. Hallahan III, Chief, Health Physics Division, DTRA/DNWS, KAFB
Matthew Thompson, Historian, DTRA/DNWS, KAFB
Estevan Trujillo, Inspector General (Interim), KAFB

INSPECTION PROCEDURES USED

IMC 2810	Master Material License Inspection Program
IP 87129	Master Materials Program
IP 87126	Industrial/Academic/Research Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

030-28641/2021-004-01	AV	Failure to annually review the radiation protection program. (10 CFR 20.1101(c))
030-28641/2021-004-02	AV	Failure to implement an inspection program consistent with the NRC's inspection program. (License Condition 22.S)
030-28641/2021-004-03	AV	Failure to secure from unauthorized access or maintain constant surveillance of licensed materials (10 CFR 20.1801 and 10 CFR 20.1802)
030-28641/2021-004-04	AV	Failure to implement an enforcement program consistent with the NRC's enforcement program. (License Condition 22.S)
030-28641/2021-005-01	AV	Failure to confine the use of source material to the purposes listed in a specific license. (10 CFR 40.3)

030-28641/2021-005-02	AV	Failure to use, to the extent practical, procedures and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to members of the public that are ALARA. (10 CFR 20.1101(b))
030-28641/2021-005-03	AV	Failure to maintain records showing the results of surveys. (10 CFR 20.2103(a))
030-28641/2021-005-04	AV	Failure to make, or cause to be made, surveys of areas, including the subsurface that may be necessary for compliance and are reasonable under the circumstances. (10 CFR 20.1501(a))
030-28641/2021-005-05	AV	Release of a building that failed to meet the criteria for unrestricted use. (10 CFR 20.1402)
030-28641/2021-005-06	AV	Failure to keep records of information important to the decommissioning of a facility. (10 CFR 40.36(f))
030-28641/2021-005-07	AV	Failure to develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance. (10 CFR 10 CFR 20.1101(a))

Discussed

None

Closed

NMED No. 200311 (Event Notification 54825)

LIST OF ACRONYMS USED

10 CFR	Title 10 of the *Code of Federal Regulations*
ADAMS	Agencywide Documents Access and Management System
ADR	Alternative Dispute Resolution
AFB	Air Force Base
AFMAN	Air Force Manual
AFMRA	Air Force Medical Readiness Agency
ALARA	As Low As is Reasonably Achievable
AV	Apparent Violation
BE	Bioenvironmental Engineering
DAFIA	Department of the Air Force Inspection Agency
DNWS	Defense Nuclear Weapons School
DOD	Department of Defense
DP	Decommissioning Plan
DTRA	Defense Threat Reduction Agency
EA	Enforcement Action
FSSR	Final Status Survey Report
IMC	Inspection Manual Chapter
IP	Inspection Procedure
KAFB	Kirtland Air Force Base
LOU	Letter of Understanding
MML	Master Materials License
NCV	Non-cited Violation
NMED	Nuclear Material Events Database
NOV	Notice of Violation
NRC	U.S. Nuclear Regulatory Commission
OT-10	Operations/Training-10
PEC	Predecisional Enforcement Conference
RAM	Radioactive Material
RIC	Radioisotope Committee
RICS	Radioisotope Committee Secretariat
RED HORSE	Rapid Engineer Deployable Heavy Operational Repair Squadron Engineers
RSO	Radiation Safety Officer
SER	Safety Evaluation Report
TEDE	Total Effective Dose Equivalent
TS	Training Site
USAF	U.S. Air Force

INSPECTION CASEWORK REVIEWS

File No.: 1
Permittee: Kelly AFB TX-00656
Permit Type: Possession and Storage
Date(s) of Inspection: April 15, 2021
Inspector: Lt. Col. Danley

File No.: 2
Permittee: Wright-Patterson AFB OH-30154
Permit Type: Instrument Calibration, Leak Test, and Research & Development
Date(s) of Inspection: April 27, 2021
Inspector: Lt. Col. Danley

File No.: 3
Permittee: Wright-Patterson AFB OH-00563
Permit Type: Instrument Calibration and Leak Tests
Date(s) of Inspection: April 28, 2021
Inspector: Lt. Col. Danley

File No.: 4
Permittee: Wright-Patterson AFB OH-00803
Permit Type: Instrument Calibration, Waste Disposal, Source Material
Date(s) of Inspection: April 29, 2021
Inspector: Lt. Col. Danley

File No.: 5
Permittee: Wright-Patterson AFB OH-30158
Permit Type:
Date(s) of Inspection: April 29, 2021
Inspector: Lt. Col. Danley

File No.: 6
Permittee: Nellis AFB NV-00780
Permit Type: Source Material Greater than 150 Kilograms
Date(s) of Inspection: May 6, 2021
Inspector: Lt. Col. Danley

File No.: 7
Permittee: Nellis AFB NV-00797
Permit Type: Source Material Munition – Outdoor Testing, Decontamination Services
Date(s) of Inspection: May 6 & 7, 2021
Inspector: Lt. Col. Danley

File No.: 8
Permittee: Elgin AFB NV-00497
Permit Type: Decontamination Services
Date(s) of Inspection: May 20, 2021
Inspector: Lt. Col. Danley

File No.: 9
Permittee: Elgin AFB FL-08883
Permit Type: Source Material Munition – Outdoor Testing
Date(s) of Inspection: May 20, 2021
Inspector: Lt. Col. Danley

File No.: 10
Permittee: Elgin AFB FL-00781
Permit Type: Source Material Greater than 150 Kilograms
Date(s) of Inspection: May 21, 2021
Inspector: Lt. Col. Danley

File No.: 11
Permittee: Robins AFB GA-00462
Permit Type: Source Material Greater than 150 Kilograms
Date(s) of Inspection: June 20, 2021
Inspector: Lt. Col. Danley

File No.: 12
Permittee: Robins AFB GA-30351
Permit Type: Measuring Systems
Date(s) of Inspection: June 30, 2021
Inspector: Lt. Col. Danley

File No.: 13
Permittee: USAF Academy CO-12629
Permit Type: Research & Development
Date(s) of Inspection: September 3, 2020
Inspector: Lt. Col. Danley

File No.: 14
Permittee: Kirkland AFB NM-30470
Permit Type: Irradiators
Date(s) of Inspection: February 20–21, 2020
Inspector: Lt. Col. Danley

PERMIT CASEWORK REVIEWS

File No.: 1
Permittee: Hill AFB UT-00793-01/00
Type of Action: Renewal
Permit Type: Source Material Greater than 150 Kilograms

File No.: 2
Permittee: Hill AFB UT-00793-01/01
Type of Action: Amendment
Permit Type: Source Material Greater than 150 Kilograms

File No.: 3
Permittee: Hill AFB UT-00696-03/01
Type of Action: Amendment
Permit Type: Self-shielded Irradiators

File No.: 4
Permittee: Hill AFB UT-00696-03/02
Type of Action: Amendment
Permit Type: Self-shielded Irradiators

File No.: 5
Permittee: Hill AFB UT-00696-03/03
Type of Action: Amendment
Permit Type: Self-shielded Irradiators

File No.: 6
Permittee: Hill AFB UT-00696-03/04
Type of Action: Amendment
Permit Type: Self-shielded Irradiators

File No.: 7
Permittee: Hill AFB UT-00696-03/05
Type of Action: Amendment
Permit Type: Self-shielded Irradiators

File No.: 8
Permittee: Edwards AFB CA-30305-04/04
Type of Action: Amendment
Permit Type: Measuring Systems

File No.: 9
Permittee: Edwards AFB CA-30305-05/00
Type of Action: Renewal
Permit Type: Measuring Systems

File No.: 10
Permittee: Nellis AFB NV-00780-01/00
Type of Action: Renewal
Permit Type: Source Material Greater than 150 Kilograms

File No.: 11
Permittee: Nellis AFB NV-00780-01/01
Type of Action: Amendment
Permit Type: Source Material Greater than 150 Kilograms

File No.: 12
Permittee: Kirtland AFB NM-00677-01/04
Type of Action: Amendment
Permit Type: Research & Development

File No.: 13
Permittee: Kirtland AFB NM-00677-01/05
Type of Action: Amendment
Permit Type: Research & Development

File No.: 14
Permittee: Kirtland AFB NM-00602-02/00
Type of Action: Renewal
Permit Type: Source Material Greater than 150 Kilograms

File No.: 15
Permittee: Kirtland AFB NM-30470-04/03
Type of Action: Amendment
Permit Type: Irradiators

File No.: 16
Permittee: Kirtland AFB NM-30470-04/04
Type of Action: Amendment
Permit Type: Irradiators

File No.: 17
Permittee: Kirtland AFB NM-30470-04/05
Type of Action: Amendment
Permit Type: Irradiators

File No.: 18
Permittee: Kirtland AFB NM-30470-04/06
Type of Action: Amendment
Permit Type: Irradiators

File No.: 19
Permittee: Kirtland AFB NM-00792-00/02
Type of Action: Termination
Permit Type: Research & Development

File No.: 20
Permittee: Eglin AFB FL-00497-04/00
Type of Action: Renewal
Permit Type: Decontamination Services

File No.: 21
Permittee: Eglin AFB FL-00497-04/01
Type of Action: Amendment
Permit Type: Decontamination Services

File No.: 22
Permittee: Robins AFB GA-30351-05/01
Type of Action: Amendment
Permit Type: Measuring Systems

File No.: 23
Permittee: USAF Academy CO-12629-04/01
Type of Action: Amendment
Permit Type: Research & Development

File No.: 24
Permittee: USAF Academy CO-12629-04/02
Type of Action: Amendment
Permit Type: Research & Development

File No.: 25
Permittee: USAF Academy CO-12629-04/03
Type of Action: Amendment
Permit Type: Research & Development

File No.: 26
Permittee: Wright-Patterson AFB OH-00798-00/02
Type of Action: Amendment
Permit Type: Radium-226 and Measuring Systems

File No.: 27
Permittee: Wright-Patterson AFB OH-00563-01/04
Type of Action: Amendment
Permit Type: Instrument Calibration and Leak Tests

File No.: 28
Permittee: Wright-Patterson AFB OH-00563-02/00
Type of Action: Renewal
Permit Type: Instrument Calibration and Leak Tests

File No.: 29
Permittee: Davis-Monthan AFB AZ-30068-05/04
Type of Action: Amendment
Permit Type: Radium-226 and Measuring Systems

File No.: 30
Permittee: Tyndall AFB FL-00709-02/05
Type of Action: Termination
Permit Type: Vehicle and Cargo Inspection Systems

File No.: 31
Permittee: Malmstrom AFB MT-00616-03/04
Type of Action: Termination
Permit Type: Portable Gauges

LIST OF INDEPENDENT NRC INSPECTIONS

Hill Air Force Base – Ogden, Utah
Permit Nos. UT-00793-00; UT-00696-03
Inspection Report No. 030-28641/2021-002
July 19, 2021
(ML21250A238 and ML21246A292)

Davis-Monthan Air Force Base – Tucson, Arizona
Permit No. AZ-30058-05
Inspection Report No. 030-28641/2021-001
September 8, 2021
(ML21292A310)

Kirtland Air Force Base – Albuquerque, New Mexico
Permit No. NM-00610-02/00
Inspection Report No. 030-28641/2021-003
September 27–30, 2021
(ML21292A305)