



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

January 9, 2008

Lt. Col. Scott Nichelson
Department of the Air Force
USAF Radioisotope Committee
HQ AFMOA/SG3PR
110 Luke Ave., Suite 405
Bolling AFB, DC 20032-7050

SUBJECT: NRC INSPECTION REPORT 030-28641/2007003

Dear Lt. Col. Nichelson:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspections conducted during calendar year 2007, in which no violations were identified. These inspections were selected based on the priority assigned in accordance with the provisions of Manual Chapter 2800, "Materials Inspection Program." The Master Materials License (MML) permittees selected were the 200th Red Horse Squadron Camp Perry Air National Guard Station, U.S. Air Force Academy, Elmendorf Air Force Base, and Nellis Air Force Base. The details of the inspections are summarized in the enclosed Inspection Report.

The purpose of the inspection was to determine whether activities authorized under NRC License 42-23539-01AF were conducted in accordance with NRC requirements. The NRC examined activities with respect to radiation safety and compliance and the conditions authorized under the respective permits. Within the scope of this inspection, no violations were identified; therefore, no response to this letter is required. At the conclusion of the inspections, the findings were discussed with members of the respective Air Force Base's staff.

Should you have any questions concerning these inspections, please contact Ms. Rachel S. Browder at (817) 276-6552 or the undersigned at (817) 860-8197.

Sincerely,

/RA/

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Docket No.: 030-28641
License No.: 42-23539-01AF

Enclosure: Inspection Report
Attachment: Supplemental Inspection Information

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SUNSI Review Completed: RSB3 ADAMS: Yes No Initials: RSB3

Publicly Available Non-Publicly Available Sensitive Non-Sensitive

DOC. NAME: C:\FileNet\ML080100268.wpd

Final: r:_dnms\

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

INSPECTION REPORT

Docket No: 030-28641

License No: 42-23539-01AF

Report No: 030-28641/2007003

Permittee: 200th Red Horse Squadron, Camp Perry Air National Guard
Permits: OH-00365-02/01AFP, OH-30302-05/02AFP
Location: Ohio
Date: June 6, 2007
Inspector: George O. Parker, Health Physicist
Region III

Permittee: U.S. Air Force Academy
Permits: CO-12629-02/00AFP, CO-01236-02/05AFP
Location: Colorado
Date: August 13-14, 2007
Inspector: Anthony D. Gaines, Sr. Health Physicist
Region IV

Permittee: Elmendorf Air Force Base
Permits: AK-30306-03/00AFP, AK-30320-02/00AFP, AK-30435-04/00AFP,
AK-00115-00/01AFP
Location: Alaska
Date: August 21, 2007
Inspector: Janine F. Katanic, Ph.D., Health Physicist
Region IV

Permittee: Nellis Air Force Base
Permits: NV-30048-02/00AFP, NV-23354-03/00AFP
Location: Nevada
Date: September 26, 2007
Inspector: Janine F. Katanic, Ph.D., Health Physicist
Region IV

Approved By: Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Attachment: Supplemental Inspection Information

ENCLOSURE

EXECUTIVE SUMMARY

Department of the Air Force
USAF Radioisotope Committee
NRC Inspection Report 030-28641/2007003

The permittee's training and physical security elements which were reviewed by the inspector, and the permittee's radiation safety programs were conducted in a manner protective of the health and safety of workers and the general public. Additionally, the inspector confirmed that licensed activities were conducted in accordance with NRC regulations and the United States Air Force (USAF) License No. 42-23539-01AF.

Report Details

1 200th Red Horse Squadron, Camp Perry Air National Guard

1.1 Inspection Scope

The radiation safety program, training, and security of permitted materials were reviewed to verify that licensed activities were being conducted in a manner protective of the health and safety of workers and the general public. Additionally, the permitted programs were inspected to verify compliance with the NRC regulations, conditions of the USAF permit, and provisions of the USAF License No. 42-23539-01AF.

1.2 Observations and Findings

Permit OH-00365-02/01AFP authorized chemical agent monitors (CAMs) to the engineering detachment of the 200th Red Horse Squadron located at Camp Perry, Port Clinton, Ohio. The storage location for the CAMs was examined by the inspector. The designated location was determined to be adequate for the storage of the CAMs.

Permit OH-30302-05/02AFP authorized one portable density gauge to the engineering detachment of the 200th Red Horse Squadron located at Camp Perry, Port Clinton, Ohio. The squadron used the portable density gauge primarily as a training tool for members of the national guard. The squadron was authorized by the permit to perform soil density and compaction testing.

Personnel interviewed by the inspector demonstrated they were adequately trained and knowledgeable of radiation safety practices and procedures. The squadron did not perform any service or maintenance activities on the gauge. The inspector observed how the gauge was used by authorized personnel and confirmed that the gauge was properly stored. The permittee had implemented the new security requirements for portable gauges as required by 10 CFR 30.34(i). The inspector also determined there was adequate physical security while the gauge was in storage or on vehicles being transported on public roads.

1.3 Conclusion

The radiation safety program, training and radioactive material security were determined to be satisfactory.

2 U.S. Air Force Academy

2.1 Inspection Scope

The radiation safety program, training and radioactive material security were reviewed to verify that licensed activities were being conducted in a manner protective of the health and safety of workers and the general public. Additionally, the permitted programs were inspected to verify compliance with the NRC regulations, conditions of the USAF permit, and provisions of the USAF License No. 42-23539-01AF.

2.2 Observations and Findings

Permit CO-12629-02/00AFP authorized a Broadscope Type A academic permit to the U.S. Air Force Academy. The permit authorized any byproduct materials with atomic numbers 3 through 83 in any form, individually authorized sealed sources, and neutron activated products. The inventory of radioactive materials at the time of the inspection consisted of microcuries quantities of sealed sources. The majority of sealed sources were maintained in storage and not being used. However, the permittee indicated they wanted to maintain the flexibility of the Broadscope permit due to different research pursuits undertaken by their instructors and faculty members.

Permit CO-01236-02/05AFP authorized diagnostic nuclear medicine for 10 CFR 35.100 and §35.200 modalities, and for any uses under §35.300, occurring within the US Air Force Academy 10th Medical Group Hospital. The permit listed 11 authorized users. In conducting its nuclear medicine program, the permittee received unit dosages of materials which were ordered according to specific patient need. The nuclear medicine staff demonstrated proper handling and survey techniques. The permittee routinely performed four studies a day. Most of the studies performed were for heart and bone examinations. The permittee's nuclear medicine staff typically performed a thyroid uptake scan and hepatobiliary scan once per week. They also performed five to eight sentinel node biopsies per year and two to four thyroid therapies per year. The inspector noted that containers of unit dosages were properly inspected by the nuclear medicine staff and subsequently returned to the nuclear pharmacy.

The inspector toured the facilities and found them to be sufficient and as described in the permit. Based on interviews with the nuclear medicine staff and observations of techniques used in conducting permitted activities, the inspector determined that radiation safety procedures were being followed and the staff was knowledgeable of radiation uses and safety practices.

2.3 Conclusion

The radiation safety program, training and management oversight of permitted activities were determined to be satisfactory.

3 Elmendorf Air Force Base

3.1 Inspection Scope

The radiation safety program, training, and radioactive material security were reviewed to verify that licensed activities were being conducted in a manner protective of the health and safety of workers and the general public. Additionally, the permitted programs were inspected to verify compliance with the NRC regulations, conditions of the USAF permit, and provisions of the USAF License No. 42-23539-01AF.

3.2 Observations and Findings

Permit AK-30306-03/00AFP authorized CAMs, ICAMs, and ACADAs to the 3rd Civil Engineering Squadron. The permittee had recently moved to a new facility, which was authorized on the permit. The inspector determined that the devices were in storage and adequately secured and controlled.

Permit AK-30320-02/00AFP authorized 18 LANTIRN Pods used on the F-15E Strike Eagle aircraft. The permit holder is the 3rd Component Maintenance Squadron. All 18 LANTIRN Pods had been transferred to other Air Force bases prior to the inspection. The final transfer documentation was reviewed and determined to be satisfactory. The inspector was informed by the permittee that the transfer documentation will subsequently be submitted to the Radioisotope Committee (RIC) for termination of the permit.

Permit AK-30435-04/00AFP authorized three X-Ray fluorescence devices that used sealed radioisotope source(s) to excite characteristic x-rays of a test sample's constituent elements, such as lead. The permit was authorized to the 3rd Aerospace Medicine Squadron. There were 8 trained users for the devices. These devices were used as part of the environmental monitoring program at Elmendorf AFB facilities to detect the presence of lead-based paint. The inspector confirmed that the devices were adequately stored and secured at the authorized facility.

Permit AK-00115-00/01AFP authorized an X-Ray fluorescence device to the 611th Civil Engineering Squadron. The device was used at Air Force facilities throughout Alaska as part of the Base Realignment and Closure (BRAC) project. The inspection of this permittee was conducted telephonically with the authorized user, since the device was being used in Galena, Alaska. The inspector determined that when the device was not being used in the field, it was stored in a locked storage cabinet in the authorized user's office. The inspector determined that the storage of the device was satisfactory.

3.3 Conclusion

The radiation safety program, training and radioactive material security were determined to be satisfactory.

4 Nellis Air Force Base

4.1 Inspection Scope

The radiation safety program, training, radioactive material security, and management oversight were reviewed to verify that licensed activities were being conducted in a manner protective of the health and safety of workers and the general public. Additionally, the permitted programs were inspected to verify compliance with the NRC regulations, conditions of the USAF permit, and provisions of the USAF License No. 42-23539-01AF.

4.2 Observations and Findings

Permit NV-30048-02/04AFP authorized the possession of depleted uranium (DU) for purposes of storage, pilot training/pilot proficiency and tactical evaluation. Permitted materials in the form of GAU-8 armor piercing incendiary/tracer DU munitions were received and stored at Building 11093, located on Nellis AFB. Permitted materials were used at Range 63-10 of the Southern Range Complex. The inspector noted that the permit was in timely renewal pending the final review of the environmental monitoring plan results, which had been conducted at the range in support of permitted activities.

The NRC reviewed the environmental monitoring plan. The plan consisted, in part, of constant air sampling adjacent to the target area, close-in air sampling conducted during live fire tests of DU munitions from the A-10 Thunderbolt aircraft, surface scans using a FIDLER (Field Instrument for Detection of Low-Energy Radiation) instrument, and measurements with a low energy thin window GM probe. Additionally, subsurface soil samples were collected at 17 discrete locations. The locations of the subsurface soil samples were located roughly along the line of the target tank area and at other select locations adjacent to the tank target area. Samples were collected at 0-5 cm, 5-20 cm and 20-25 cm below the surface. Results from the January 2006 soil sample collection indicated a few samples that exceeded 35 pCi/g. Range 63-10 is quite arid but does occasionally receive precipitation, which collects in the arroyo which runs through the target area. Aspects of vertical and horizontal surface water migration in the target area was documented by a USAF staff member during the pursuit of a Master's degree. This data was being used by the permittee to better understand water migration and to plan future areas of study.

The target area for Range 63-10 was assessed once a year by the ordinance contractor to the ranges at Nellis AFB. The contractor was tasked with walking through the target area and removing intact DU penetrators. Partial penetrators or oxidized penetrators were left in place. The annual cleanup effort conducted by the ordinance contractor removed approximately 500 penetrators from the target area. During the inspection, measurements were taken with the permittee's FIDLER at approximately one foot from the ground surface. The measurements indicated approximately 5,000 cpm as background and at least 100,000 cpm in areas with visible DU contamination. The U.S. Department of Energy (DOE) Remote Sensing Lab, which is based in Las Vegas, Nevada, performed flyovers of certain portions of Range 63-10 to identify potential contamination on the range. The DOE aerial overflight data produced images of approximately 20,000 cpm in the tank target area and lower counts in the tank library area. The data also indicated areas of elevated counts to the west of the target tank area which was a previous target area. The permittee demonstrated that this previous area was still within the permitted area of Range 63-10. The DOE Remote Sensing Lab plans on conducting further flyovers to assist Nellis AFB in characterizing the extent of potential contamination on Range 63-10.

On October 25, 2005, the USAF RIC was issued NRC License Amendment No. 18 which authorized the disposal of four M-47 tanks from Nellis AFB, Nevada to a waste disposal licensee, U.S. Ecology Idaho, in accordance with 10 CFR 20.2002. The regulations in 10 CFR 20.2002 allows for an alternate disposal procedure which is not otherwise authorized in the regulations of this chapter. Additionally, the license amendment exempted the low-contaminated material authorized for burial from further Atomic Energy Act (AEA) and NRC licensing requirements. As of the date this inspection, the 4 tanks had not been disposed of and remained at the tank library on Range 63-10. Since the tank library is located in a permitted DU contaminated area and there have been live-fire tests of DU munitions on the range since License Amendment No. 18 was approved, then the tanks are considered potentially contaminated. The four tanks would require to be re-surveyed to meet the release criteria originally approved by the NRC and subsequently removed from the licensed area, pending final disposal.

Based on observations and specific data reviewed during the inspection, it was determined that the extent of DU contamination around the tank target area appeared to be well characterized. The NRC understands that Nellis AFB will continue to use the range for permitted activities and that the range will be impacted by DU penetrators. Based on the environmental monitoring plan and the annual clean-up process on Range 63-10, the inspector determined that the permitted activities will be controlled and monitored. Other areas, including the former tank target area to the west of the current test area, have not been as well characterized. The NRC is aware that evaluating the use of DU from past tests areas will require extensive historical and archival reviews. It is important to note that the historical areas that have been identified were within the permitted area of Range 63-10. The inspector concluded that the permittee was being proactive in exploring options related to the future of the tank library and potential disposal scenarios for the contaminated tanks.

Permit NV-23354-03/00AFP authorized portable density gauges for material measurements in support of construction projects. The permit was authorized to the 820th Red Horse Squadron at Nellis AFB. The portable gauging devices were in storage and not frequently used at the time of the inspection because the squadron was deployed. The inspector determined that the gauges were labeled and stored correctly and the facility was posted as required. The controls established by the permittee to meet the security requirements for portable gauges in 10 CFR 30.34(i) were determined to be sufficient and met the physical security requirements. The inspector reviewed the use, inventory and leak test records for the portable gauges and determined that they were sufficient and were maintained as required.

The training program maintained by the permittee was reviewed and based on observations and discussion with one of the permittee's personnel, the inspector determined that the training was adequate to enable users to safely use the gauges and implement the required transportation requirements. The permittee demonstrated its effective use of checklists for verifying items such as shipping papers. The annual audit of the radiation protection program content and implementation was performed as required by 10 CFR 20.1101(c). The inspector determined that the audit was a complete and thorough assessment of the program and was performed in a timely manner.

4.3 Conclusion

The radiation safety program, training, security and management oversight were determined to be satisfactory.

5 Exit Meeting Summary

The inspector presented inspection results to members of the licensee at telephonic exit meetings on July 20 and December 11, 2007.

The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Lt. Col. Craig Smyser, Elmendorf AFB
Maj Timothy Ritter, U.S. Air Force Academy
Dr. Carl L. Enloe, U.S. Air Force Academy
Maj Craig Refosco, Nellis AFB
Cpt. Leilani Bush, Nellis AFB
MSgt Dean Kim, Elmendorf AFB

INSPECTION PROCEDURES USED

IP 87124	Fixed and Portable Gauge Programs
IP 87126	Industrial/Academic/Research Programs
IP 87130	Nuclear Medicine Programs, Written Directive Not Required
IP 87131	Nuclear Medicine Programs, Written Directive Required

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

AFB	Air Force Base
CFR	Code of Federal Regulations
DU	Depleted Uranium
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
RSO	Radiation Safety Officer
CAM	Chemical Agent Monitor
ICAM	Improved Chemical Agent Monitor
ACADA	Automatic Chemical Agent Detector Alarm
LANTIRN	Low Altitude Navigation and Targeting Infrared for Night
FIDLER	Field Instrument for Detection of Low-Energy Radiation