



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

July 20, 2010

Department of the Air Force
ATTN: David A. Smith, Lt Col, USAF, BSC
Chief, Radiation Programs
AF/SG (AFMSA/SG3PB)
USAF Radioisotope Committee
1500 Wilson Blvd., Suite 1600
Arlington, VA 22209

SUBJECT: NRC INSPECTION REPORT 30-28641/09-001 FOR MACDILL
AIR FORCE BASE

Dear Lt Col Smith:

This letter refers to a U.S. Nuclear Regulatory Commission (NRC) inspection conducted on October 27, 2009, at MacDill Air Force Base (AFB), Tampa, Florida, and the in-office review through July 2, 2010. The preliminary inspection findings were discussed with Lt Col Kenneth W. Ohlson, Commander of Security Forces, Capt Michael Smith, Installation Radiation Safety Officer (RSO), and Mr. Scott Rush, Alternate RSO, at the conclusion of the onsite portion of the inspection. The inspection results were discussed with you during a final telephonic exit briefing conducted on July 8, 2010.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your NRC license. Within these areas, activities authorized under U.S. Air Force Permit FL-00290-00/01AFP were reviewed, with a focus on selected procedures and representative records, security and control of licensed material, observations of activities, and interviews of personnel. Based on the results of this inspection, NRC has determined that no violations or deviations of NRC requirements were identified; therefore, no response to this letter is required. Please maintain this letter as a record of this inspection effort.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning this inspection, please contact Ms. Rachel Browder at 817-860-8116 or Ms. Jackie Cook at 817-860-8132.

Sincerely,

/RA/ Jackie Cook, acting

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

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

Enclosures:
NRC Inspection Report 30-28641/09-001
w/Attachment

Internal distribution w/Enclosure 1 via e-mail:

- A. Howell, D:DNMS
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 030-28641

License: 42-23539-01AF

Report: 30-28641/09-001

Licensee: Department of the Air Force
USAF Radioisotope Committee

Permit Holder: MacDill Air Force Base
Permit: FL-00290-00/01AFP
Location: Tampa, Florida

Date: October 27, 2009

Inspector: Sattar Lodhi, Ph.D., Senior Health Physicist
Region I

Accompanied By: Lisa C. Dimmick, Health Physicist
FSME/DMSSA/LISD

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

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Department of the Air Force
NRC Inspection Report 30-28641/09-001

This inspection was a routine, unannounced inspection at MacDill Air Force Base (AFB), Tampa, Florida, Permit FL-00290-00/01AFP, authorized by U.S. Air Force Master Materials License 42-23539-01AF. The inspection was performed using Inspection Procedure 87124, "Fixed and Portable Gauge Programs," and focused on security and control of radioactive materials, radiation instrumentation and surveys, and management oversight. The permit authorized the use of cobalt-60 sealed sources in a vehicle inspection device. The permittee possessed one such device, a GaRDS mobile (GaRDS truck). Although the device was mobile, the permittee had used it as a stationary device to scan vehicles that entered MacDill AFB.

In a memorandum dated March 9, 2009, the Radioisotope Committee notified MacDill AFB that using the GaRDS truck as a stationary device to scan target vehicles entering MacDill AFB may be contrary to the requirements specified in the registration certificate of the device, because the drivers in the target vehicles being scanned were not trained as radiation workers. Based on this assessment, the Radioisotope Committee required the facility to "Cease and Desist" the use of the GaRDS truck in any way contrary to the registration certificate. MacDill AFB had not used the device following the receipt of the memorandum, as of the date of this inspection.

On October 27, 2009, the inspector reviewed the permittee's records, which indicated that between September 26 and December 10, 2008, the device had failed twice to operate properly as designed because the source was stuck in the closed position. The permittee did not notify the Radioisotope Committee of this potential malfunction. The inspector noted that the permittee received one new source on November 3, 2008, and a second new source in early December 2008. The NRC expressed to the Radioisotope Committee the importance of communication between the permittees and the Radioisotope Committee, especially with follow up to incidents and potential safety hazards, such as this particular malfunction. The Radioisotope Committee subsequently requested an evaluation report from the manufacturer to identify all possible problems that contributed to the stuck source and the resolutions to ensure that any defect or failure would not create a substantial safety hazard.

REPORT DETAILS

I. Organization and Scope of the Program

a. Inspection Scope

The inspector reviewed the organization and scope of the program.

b. Observations and Findings

MacDill Air Force Base (AFB), 6th Security Forces Squadron, was authorized Radioactive Materials Permit FL-00290-00/01AFP to use a cobalt-60 (Co-60) sealed source in a GaRDS mobile (GaRDS truck) vehicle inspection device. The facility had appointed a Radiation Safety Officer (RSO) and an Alternate RSO (ARSO) to implement the radiation safety program at the facility and maintain records related to the use of the device. The RSO was not available on the day of inspection; however, the ARSO was available and was interviewed by the inspector. Based on a review of the records maintained by the permittee, the inspector determined that the permittee had acquired licensed material on March 26, 2008, and the first use of the device was on April 23, 2008.

The device was used to scan randomly selected (contractor-owned) vehicles prior to their entry into the secured area of MacDill AFB until March 10, 2009. These vehicles entered the facility between 0520 hours and 1700 hours on weekdays and from 0530 hours to 1000 hours on Saturdays. There were always at least four active authorized users (AUs) of the device on any working day.

c. Conclusions

The inspector did not identify any violations or safety concerns.

II. Facilities, Equipment, and Use of Licensed Material

a. Inspection Scope

The inspector reviewed the permittee's facilities and the use of permitted material to verify compliance with regulatory requirements. The NRC assessment was performed based on interviews with personnel and review of associated records.

b. Observations and Findings

The facility possessed one GaRDS truck which contained one Co-60 sealed source. A review of records indicated that the device was first used on April 23, 2008, and had been in use at the facility until March 10, 2009. The device was used by MacDill AFB to scan randomly selected vehicles of contractors who entered the restricted areas of the base. The scanning operation conducted by the GaRDS truck was performed outside the restricted area by the AUs. Although the truck was a mobile unit, it was used in a stationary mode by the permittee.

At least two AUs were present during a scan of a vehicle. One of the AUs was at the controls inside the truck and the other stayed outside the truck to direct the target vehicle to a position so that the driver of the target vehicle was not in direct line of the radiation beam. After the target vehicle was positioned appropriately, the AU outside the truck would signal the other AU inside the truck to initiate the scan, then he would signal the driver of the target vehicle to move slowly forward until the entire cargo area of the target vehicle was scanned.

The permittee affirmed that the device was used in a stationary mode because of space restrictions. The permittee also indicated that a large number of contractor vehicles entered the restricted areas of the base on a given day and only randomly selected vehicles were scanned. The inspector noted that the road leading to the security gate of the facility was a narrow road and the device was parked and used at the side of this road, outside the restricted area of the base.

The device is registered with the Sealed Source and Device Registry (SSDR) and has Certificate of Registration CA-1218-D-101-S. In a memorandum dated March 9, 2009, to the 6th Security Forces Squadron, the Radioisotope Committee (RIC) stated, in part:

“your unit may be allowing owners of the target vehicle to drive through the tunnel (space between the source and the detectors) during inspections. Such individuals would not meet our definition of fully trained.”

Based on this assessment, the RIC required the permittee to “Cease and Desist” the use of the device in any way contrary to the SSDR. The letter did not prohibit the use of the device as a mobile unit with the target vehicle stationary. However, following the receipt of the memorandum, the permittee ceased the use of the device. The device was last used by the permittee on March 10, 2009.

c. Conclusions

The inspector did not identify any violations or safety concerns.

III. Material Receipt, Inventory, and Leak Tests

a. Inspection Scope

The inspector reviewed the permittee’s records of receipt of licensed material, inventory, and leak tests of sealed sources.

b. Observations and Findings

The permittee’s records indicated that the permittee first received radioactive material on March 26, 2008. The material consisted of a Co-60 sealed source (Source E3-684). The source was installed in the GaRDS truck by a representative of Rapiscan (the vendor). The Certificate of Registration of the device requires that the source be leak-tested at a frequency of 12 months. The source had been tested for leakage by its vendor prior to shipment to the facility and upon arrival at the facility on March 26, 2008. The permittee tested the device for leakage again on September 26, 2008. These tests did not indicate any leakage of licensed material.

Review of records also indicated that on November 3, 2008, the facility received a replacement sealed source of Co-60 (Source F5-218). Records did not indicate the reason for the acquisition of this source or what necessitated the replacement of the source. However, interviews with facility personnel indicated that the first source (Source E3-684) was stuck in the closed position and the GaRDS truck could not be operated. The personnel could not provide the date of this occurrence but stated that the malfunction was identified during the daily routine checks of the device prior to its use. Based on the records of leak tests, the inspector concluded that this must have occurred after September 26, 2008.

From additional review of records, the inspector noted that the facility received another Co-60 source (Source F5-216). The record of the date of receipt for this source was not available; however, based on leak test records, the inspector concluded that the facility may have received this source before December 12, 2008, and it was installed in the device after this date. This source was tested for leakage on December 12, 2008, before installation into the device, and then again on May 22, 2009. A memorandum by the RSO dated December 10, 2008, indicated that on December 10, 2008, Source F5-218 was returned to Eckert & Ziegler because of "inconsistent readings and failure to consistently come out of the safe position when activated." The inspector noted that the device's mechanism for opening the source and its shutter mechanism are the required safety features of the device. The permittee did not have records to demonstrate that these malfunctions of the device were reported to the RIC. The NRC discussed with the RIC the importance of communication between the permittees and the RIC, especially with follow up to incidents and potential safety hazards such as this particular malfunction. The RIC had requested an evaluation report from the manufacturer to identify all possible problems that contributed to the stuck source and the resolutions to ensure that any defect or failure would not create a substantial safety hazard.

c. Conclusions

The permittee maintained records of leak tests and inventory of licensed material; however, the permittee was unable to provide records of daily use of the device and specific dates of receipt of licensed material by the facility. The permittee did not inform the RIC of the occurrences of the stuck shutter and that the manufacturer had to replace the sealed source two times. After the RIC was informed of these occurrences, then the RIC requested an evaluation report from the manufacturer to identify all possible problems that contributed to the stuck source and the resolutions to ensure that any defect or failure would not create a substantial safety hazard.

IV. Training of Workers

a. Inspection Scope

The inspector reviewed the permittee's training program.

b. Observations and Findings

The permittee had developed and implemented policies and procedures to ensure that the personnel authorized to use licensed material were provided adequate training in the safe use of the device and appropriate radiation safety procedures. The AUs were required to complete hands-on training on the device prior to using the device without

supervision. The inspector reviewed training records and interviewed a few AUs to verify that the individuals had received the required training necessary to safely operate the device. The permittee's records indicated that Rapiscan engineers provided hands on training on April 23, 2008, to the RSO, ARSO, and a few AUs.

c. Conclusions

The inspector did not identify any violations or safety concerns.

Exit Meeting

On October 27, 2009, the inspector presented the preliminary inspection results to Lt Col Kenneth W. Ohlson, Commander of Security Forces, and other members of his staff. A final exit briefing following an in-office review was held telephonically with the USAF RIC on July 8, 2010, to discuss the findings of this inspection.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Lt. Col. Kenneth W. Ohlson, Commander of Security Forces
Capt. Michael Smith, Installation RSO
Mr. Scott Rush, Alternate RSO

INSPECTION PROCEDURE USED

IP 87124, Fixed and Portable Gauge Programs

ITEMS OPENED, CLOSED, OR DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

AFB	Air Force base
ARSO	alternate radiation safety officer
AU	authorized user
CFR	<i>Code of Federal Regulations</i>
Co-60	cobalt-60
NRC	U.S. Nuclear Regulatory Commission
RIC	Radioisotope Committee
RSO	radiation safety officer
SSDR	Sealed Source and Device Registry
USAF	United States Air Force