APPENDIX A

U.S. NUCLEAR REGULATORY COMMISSION REGION IV

NRC Inspection Report: 30-28641/89-09

License: 42-23539-01AF

Docket: 30-28641

Category: B-1

Licensee: Department of the Air Force

USAF Radioisotope Committee

Brooks Air Force Base, Texas 78235-5000

Inspection At: Brooks Air Force Base, Texas

Inspection Conducted: December 5-7, 1989

Inspectors:

lliam L. Fisher, Division of Radiation

Safety and Safeguards

Region II

Approved:

A. Bill Beach, Director, Division of Radiation Safety and Safeguards

Inspection Summary

Inspection Conducted December 5-7, 1989 (Report 30-28641/89-09)

Areas Inspected: Routine, announced inspection of activities associated with the Air Force Master Materials License, including: organization, regulations, and procedures; program management; permit and inspection activities; and licensee event reports.

Results: Within the areas inspected, no violations were identified during the inspection. One unresolved item regarding source labeling was identified (Section 8). A number of minor violations had been identified, since the 1988 annual inspection, during NRC inspections at various Air Force bases (Section 9).

DETAILS

1. Persons Contacted

- *Colonel Charles K. Maffet, Chairman, Radioisotope Committee
- **Colonel David G. Wood, Executive Secretary, Radioisotope Committee **Major Lawrence Donovan, Staff Health Physicist, Radioisotope Committee
- **Major Donald W. Jordan, Radioisotope Committee Fellow
- *Telephone exit interview on December 8, 1989
- **Attended exit interview on December 7, 1989

2. Licensee Action on Previous NRC Findings

During the November 14-18, 1988, annual summary inspection, the licensee was found not to have performed confirmatory measurements routinely during inspections of permittee sites. The inspectors confirmed that, as stated in the Air Force letter of January 31, 1989, permit inspection operating instructions and checklists have been revised to require confirmatory measurements and that confirmatory measurements are being performed. This matter is now considered closed.

The 1988 annual summary inspection also identified two observations, to which the January 31, 1989, Air Force letter also responded.

The first observation concerned the resolution of conflicts between Department of Transportation (DOT) regulations and Air Force regulations governing military air shipment of NRC-licensed material. The January 31, 1989, Air Force letter established an April 1989 target date for requesting a license amendment to resolve those conflicts. However, the licensee has not resolved certain questions and, consequently, has not yet requested the license amendment. The Radioisotope Committee (RIC) intended to consider the matter during its forthcoming quarterly meeting and to correspond with NRC in early 1990. This matter remains open.

The second 1988 observation concerned: (1) the effect upon the Air Force of a potential change in NRC inspection frequencies, and (2) a question of the timeliness of Air Force inspections of new permittees. Regarding the first part of the observation, the Air Force continues to inspect most permittees every 24-30 months, but now inspects radiography permittees (Tyndall AFB and McClellan AFB) and broad scope medical permittees (Keesler AFB and Lackland AFB) annually (Section 6). This matter is considered closed. Regarding the second part of the observation, the Air Force is following an inspection policy described in its January 31, 1989, letter and approved in the NRC February 17, 1989, response (Section 6). This matter also is considered closed.

3. Organization, Regulations, and Procedures

The inspectors discussed the membership of the RIC and reviewed organization and staffing related to the Master Materials License. The membership of the RIC was stated to be as described in paragraph 5 of Air Force Regulation 161-16, "Control of Radioactive Material" (December 16, 1988). The qualifications of RIC members were not reviewed during this inspection.

The RIC staff, located entirely at Brooks AFB, includes the RIC executive secretary, three additional military positions (one unfilled presently), and two Civilian positions. No problems were identified in either staff size or ability.

The staff appears to conduct the permit function effectively, to resolve day-to-day permit-related problems thoroughly, to communicate well with other Air Force organizations, and to make good use of Air Force Inspection and Safety Center (AFISC) and NRC inspection findings.

The current inspection emphasized Air Force regulations and procedures, many of which are incorporated by reference into the Master Materials License. These documents appear to have been updated as necessary.

No violations or deviations were identified by the inspectors.

4. Program Management

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The inspectors reviewed the licensee's compliance with, and applicability of, the Master Materials License Conditions. No license condition violations were identified. License Condition 16.B. incorporates "Understandings" dated July 1, 1987. Understanding Number 4 refers to certain permits. The licensee intends to review that understanding to ensure that it reflects current permit numbers. License Condition 16.G. refers to a one-time disposal of waste acid solution from Tinker AFB. That disposal having been completed, the licensee will request deletion of License Condition 16.G. as part of the next amendment request.

License Condition 16.H. concerns the licensee's request to dispose of radioactive wastes at Texas municipal solid waste sites. The licensee indicated that to date there has been no need for such disposal.

License Condition 16.I. concerns the extension of leak test intervals for sources used in electronic generators in northern Alaska. The licensee indicated that the leak test interval has been extended by permit, to a maximum of 12 months, only at Burnt Mountain, Alaska.

The inspectors reviewed the first, second, and third quarter 1989 RIC meeting minutes. The meetings appear to have been well planned and attended, with no essential members missing. Meeting minutes were well documented. Among other things, the RIC appropriately reviewed corrective actions resulting from AFISC inspections.

Although the RIC itself is not directly involved in the permitting process, the executive secretary is significantly involved in much of the permit casework. In addition, the executive secretary and staff use very effective computerized tracking systems to stay abreast of the permitting process. Tracking systems reviewed during this inspection included a "Correspondence Log for All Uncleared Actions Only," a "Calendar Suspense" log, and a new "Permit Action Statistics" report. Under the direction of the executive secretary, the staff appears to have conducted the permitting process effectively.

The executive secretary and staff appear to have made good use of AFISC and NRC inspection findings. Permittee responses to inspection findings are addressed to and followed up by the RIC in order to ensure proper corrective action by the permittee and, if necessary, amendment of the permit.

The executive secretary and staff appear to maintain a close working relationship with the USAF Occupational and Environmental Health Laboratory (OEHL). For example, at the time of this inspection the two organizations were collaborating to resolve a potential dosimetry problem identified during a recent NRC inspection at Andrews AFB.

The inspectors reviewed briefly the training of RIC, permittee, AFISC, and DEHL staffs. During the past year, selected RIC staff members attended several regulatory courses, workshops, and meetings sponsored by NRC. The training of permittee staffs was reviewed appropriately during AFISC inspections. Several members of the AFISC staff attended the 1989 USAF Health Physics/Bioenvironmental Engineering Symposium. OEHL staff members attended a variety of courses, symposia, and meetings related to health physics.

The inspectors examined the USAF 1988 annual ALARA review, which was documented in the minutes of the first quarter 1989 RIC meeting. From 1987 to 1988, the number of individuals monitored decreased from 11,789 to 11,433, about 2,000 of whom actually worked with licensed material. The average annualized dose equivalent increased from about 10 millirem per individual in 1987 to 13 millirem per individual in 1988. The collective dose equivalent increased from 123 man-rem in 1987 to 160 man-rem in 1988.

The inspectors reviewed the Radioisotope Committee's consideration of medical misadministrations, as documented in the minutes of quarterly RIC meetings. Apparently the Air Force had relatively few misadministrations, all of which were reviewed by the RIC.

No violations or deviations were identified by the inspectors.

5. The Permitting Function

The inspectors reviewed a representative sample of Air Force permits and permitting actions to determine conformance with NRC licensing policies. The Air Force currently has about 200 permits in effect in the United

States and about 70 permits in effect outside the United States. Some of these permits are for radiation sources not regulated by NRC. Active permits include 14 nuclear medicine, 2 broad scope medical, and 2 industrial radiography. The remainder are lower priority permits for research and development, instrument calibration, and other less hazardous activities. During the fourth quarter of 1988 and calendar year 1989 to date, the licensee issued about 50 new permits, issued about 290 amendments and renewals, and terminated about 35 permits. At the time of this inspection, the RIC staff had about 30 licensing actions in various stages of completion. During the period covered by this inspection, the RIC staff made one pre-permitting visit to Carswell AFB.

The RIC staff has had no need to deny a permit application. Problems arising during the application process have been resolved satisfactorily.

No significant changes to permitting procedures have been made since the 1988 summary inspection. However, Air Force Regulation 161-16, "Control of Radioactive Material," was updated in December 1988.

No violations or deviations were identified by the inspectors.

6. The Inspection Function

The inspectors reviewed activities of the Air Force Inspection and Safety Center (AFISC), Norton AFB, California, which is responsible for inspecting permittees under the Master Materials License. During the period November 1988 to November 1989, the AFISC inspected 145 permittees, some of which did not possess NRC-licensable material, at 92 locations. The AFISC inspects most permittees every 24-30 months, and inspects industrial radiography and broad scope medical permittees annually. Inspections appear to have been performed as described in the Air Force's January 31, 1989, letter in response to the 1988 NRC summary inspection. The licensee indicated that no AFISC inspections are overdue.

The inspectors reviewed approximately 10 percent of AFISC inspections performed in 1987, 1988, and 1989. Inspections appear to have been timely and thorough and to have covered not only routine permittee activities but also events, such as medical misadministrations. However, some inspection reports were found to be vague in describing violations of permit conditions and of NRC and Air Force regulations. In such cases, the reader could only deduce, from the recommended corrective action, that a violation had occurred. There is little doubt that AFISC inspectors clearly identify violations to permittee personnel. However, such findings may not be obvious to persons (Air Force and NRC) limited to reading the inspection reports. This observation should be addressed by the Air Force.

During the 1988 summary inspection, the Air Force was found not to have performed confirmatory measurements during AFISC inspections. The review of AFISC inspection reports during the current summary inspection

confirmed that such measurements are now routine. This matter is considered closed.

According to AFISC records, three permittees possessing NRC-licensed material received unsatisfactory ratings since the 1988 summary inspection. The inspectors found the licensee's follow-up and corrective actions to have been appropriate, as described below.

In late 1987, an AFISC inspection at Wright Patterson AFB identified significant weaknesses in the radiation safety program. Follow-up inspections in early and late 1988 revealed improvement but also some additional weaknesses. A December 1989 inspection found the program now to be satisfactory.

In January 1989, an AFISC inspection found the Nevada Air National Guard, Reno, Nevada, not to be in satisfactory compliance with its USAF radioactive material permit. As a result and because the permit no longer was needed, the permit was terminated.

In June 1989, an AFISC inspection found the Idaho Air National Guard, Boise Air Terminal, not to be in satisfactory compliance with its USAF radioactive material permit. As a result, the Radioisotope Committee suspended the permittee's authorization to use the listed radioactive material. More recently, steps have been taken to dispose of the radioactive material in order to terminate the permit.

No violations or deviations were identified by the inspectors.

7. Licensee Event Reports

During 1989, to the date of this summary inspection, the licensee identified 26 events reportable to NRC. Ten reports concerned the loss, potential loss, or loss of accountability of licensed material. Eight of the ten events had been closed out. Six reports concerned diagnostic misadministrations; all six had been closed out. Other reports concerned aircraft crashes (2), radwaste (1), spill (1), leaking sources (3), magnesium-thorium (1), instrument calibrator (1), and incineration (1). At the time of this inspection, 21 of the 26 events had been closed out. During this period, the Air Force continued its conservative mode of informing NRC of even minor events, as evidenced by numerous additional reports which were not required by regulations or the license.

No violations or deviations were identified by the inspectors.

8. Unresolved Item

An unresolved item is a matter about which more information is required to determine whether it is acceptable, a deviation, or a violation.

At the time of this inspection, the licensee was determining whether Inflight Blade Integrity System (IBIS) sources were properly labeled. This matter is considered an unresolved item.

9. NRC Inspections of Air Force Facilities

Since September 1988, the NRC had inspected 25 permitted activities at 13 Air Force facilities. These inspections are listed in Appendix B. All violations identified during these inspections were classified as Severity Level IV or V (10 CFR Part 2, Appendix C). Air Force responses, when required, were satisfactory.

No violations or deviations were identified by the inspectors.

10. Exit Briefing

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On December 7, 1989, the inspectors met with Air Force personnel indicated in Section 1 to summarize the inspection findings. On December 8, 1989, the findings were briefly conveyed by telephone to the Chairman of the Radioisotope Committee, who had been unable to participate on December 7, 1989.

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APPENDIX B

AIR FORCE INSPECTIONS CONDUCTED BY NRC
BETWEEN SEPTEMBER 1988 AND NOVEMBER 1989

Inspec.	Dates		Permit		Violations	
Number	Inspec.	Letter	Number	Location	No.	S.L.
88-11	11/14/88	01/05/89	04-10053-1AFP	Norton AFB	1	V
88-12	11/15/88	01/05/89	04-11469-1AFP	Beale AFB		IV, IV
88-13	11/16/88	01/05/89	04-10056-3AFP	Beale AFE	2 2	V, V
88-14	11/17/88	01/05/89	04-10116-1AFP	Mather AFB	2	IV, V
88-15	11/18/88	01/05/89	04-30082-1AFP	Mather AFB	1	v ·
88-16		not performed)	04-0000 - Init			
88-17	11/14-18/89	12/19/88	NRC License No.	(Annual Review)	1	IV
	11/14-10/05	11/10/00	42-23539-01AF	Brooks AFB		
88-18	09/26-27/88	12/02/88	04-07840-1AFP	Travis AFB	3	V, IV, V
88-19	09/27/88	12/02/88	04-10146-4AFP	Travis AFB	3 2	V. 1V
88-20	12/01/88	12/08/88	NRC License No.	(RIC Meeting)	n	
	11/01/00	12/00/00	42-23539-01AF	Brooks AFB		
88-21	(Inspection	not performed)	45-50000-07VI	DIOCKS AID		
88-22	05/24-25/88	12/28/88	20-30055-1AFP	Hanscom AFB	0	
00-22	00/24-20/00	12/20/00	20-03095-2AFP	Hanscom AFB	1	IV
			20-03095-3AFP	Hanscom AFB	ò	
			20-10088-4AFP	Hanscom AFB	1	īv
88-23	12/15/88	02/01/89	53-10018-1AFP	Hickam AFB	7	
88-24	11/16/88	01/25/89	35-30117-1AFP	Tinker AFB	ö	v. v. iv. v
89-01	04/11-18/89		50-01810-3AFP	Elmendorf AFB	0	
03-01	(4/11-10/03	00/11/09	50-10033-1AFP	Elmendorf AFB	0	
			50-10033-1AFF		U	
			04-09551-1AFP	(Burnt Mountain)	^	
89-02	03/29/89	03/29/89		McClellan AFB	0	
89-03	03/29/89	03/29/89	09-10107-3AFP	Tyndall AFB	0	
89-04	03/29/89	03/29/89	09-15149-2AFP	Tyndall AFB	0	
89-05	08/25/89		09-15149-1AFP	Tyndall AFB	0	
89-06		09/12/89	43-30112-1AFP	Hill AFB	0	
89-07	(Inspection					
69-01	10/23/89	01/05/90	21-10080-2AFP	K. I. Sawyer AFB		
	10/23/89	01/05/90	21-30125-1AFP	K. I. Sawyer AFB		
	10/23/89	01/05/90	21-21431-1AFP	K. I. Sawyer AFB		
00.00	10/23/89	01/05/90	21-30090-1AFP	K. I. Sawyer AFB		
89-08	09/21/89	11/17/89	08-08401-1AFP	Andrews AFB	2	IV, IV
00.00	10/5 7/00	01/00/00	NRC License No.	(Annual Review)		
89-09	12/5-7/89	01/08/90	42-23539-01AF	Brooks AFB	0	