




UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

December 5, 2000

MEMORANDUM TO: Samuel L. Pettijohn, (MS-8F5)
Health Physicist, NMSS

FROM: Mark R. Shaffer, Chief
Nuclear Materials Inspection Branch 

SUBJECT: MATERIALS LICENSE EVENT REPORT SUMMARY

Attached is the subject report for November 2000, and licensee event report evaluation forms, as indicated in the third table, detailing the Region's responses to the events.

Attachments: As stated

RIV distrib. w/attachments:
 EWMerschhoff
 MRShaffer
 CLCain
 DBSpitzberg
 John Hickey, NMSS/IMNS/MSIB (T8F5)
 Fred Brown, NMSS/IMOB (T8F5)
 RRErickson
 LER File

DOCUMENT NAME: S:\DNMS\Nmib\LER\2000\November 2000 LER.wpd

To receive copy of document, indicate in box: "C"= Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:DNMS:NMIB		C:NMIB		D:DNMS	<i>DP</i>		
RRErickson <i>RE</i>		MRShaffer <i>MA</i>		DDChamberlain			
12/ 1 /00		12/ 1 /00		12/ 4 /00			

OFFICIAL RECORD COPY

REPORT DATE	EVENT DATE	DATE RECEIVED	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
10/29/00	10/20/00	11/13/00	Pathfinder Energy Services	17-27623-01	39.77(d)	30 day written report pertaining to well logging source abandonment occurring on 10/20/00. (Well OCS-G-15781. See licensee letter dated 11/06/00.	Open and Closed
10/27/00	10/26/00	11/06/00	Pathfinder Energy Services	17-27623-01	39.77(d)	30 day written report pertaining to well logging source abandonment occurring on 10/25/00. (Well OCS-G-2937 A-51 ST01. West Delta, Block 109, Offshore Louisiana See licensee letter dated 10/31/00.	Open and Closed
10/31/00	10/04/00	11/09/00	Halliburton Energy Services	42-26844-01	39.77(d)	30 day written report pertaining to well logging source abandonment occurring on 11/14/00. (well OCS-G-4481 #A-22). See licensee letter dated 10/31/00.	Open and Closed
11/09/00	11/08/00	11/09/00	Siemens Power Corporation	SNM-1227	NRC Bulletin 91-01	A 4 gallon container of uranium containing waste was transferred to a 30 gallon drum without first being sampled. The 30 gallon drum contained 40 grams of U-235 prior to the 4 gallon drum being inserted. See Event # 37507	Open
11/16/00	11/16/00	11/16/00	U.S. Air Force Sarasota, Florida	42-23539-01AF	20.2201(a)(1)(ii)	Aircraft crashed near Sarasota, Florida and may have been carrying two ²⁴¹ Am sources. Air Force to investigate and attempt to recover. See Event # 37529	Open

REPORT DATE	EVENT DATE	DATE RECEIVED	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
11/16/00	11/05/00	11/20/00	Halliburton Energy Services	42-01068-07	39.77(d)	30 day written report pertaining to well logging source abandonment occurring on 11/05/00. (well OCS-G-2177, South Pass 49, Well #A-20). See licensee letter dated 11/16/00.	Open
11/22/00	11/16/00	11/22/00	Schlumberger	42-00090-03	39.77(d)	Telephone notification for approval pertaining to well logging source abandonment on 11/22/00. (well OCFG-04003, A-6). See telephone memo from R-IV Duty Officer.	Open
11/29/00	11/01/00	11/29/00	Baker Hughes Inteq.	17-27437-01	39.77(d)	30 day written report pertaining to well logging source abandonment occurring on 11/11/00. See licensee letter dated 11/29/00.	Open and Closed

FUEL CYCLE AND MATERIAL LICENSEE EVENT REPORTS
Previously Received and Remaining Open
Current for November 2000

REPORT DATE	EVENT DATE	DATE RECEIVED	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
10/07/99	10/05/99	10/07/99	Cogema Mining Inc.	SUA-1341	License condition 11.2	Monitor well MW89 exceeded 2 of 3 upper control limits. See event # 36272.	Open
10/28/99	10/28/99	10/28/99	Cogema Mining, Inc.	SUA-1341	License condition 11.2	Monitor well 6MW21 exceeded all 3 upper control limits. See event # 36365.	Open
03/30/00	03/30/00	03/30/00	Envirocare of Utah, Inc.	SMC-1559	License condition	4000 gallons of LARW pumped onto 11.e.2 cell.	Open
04/06/00	04/05/00	04/06/00	Envirocare of Utah, Inc.	SMC-1559	License condition 12.5	Two railcar shipments arrived at Envirocare with damaged strong tight containers (material wrap was determined to be damaged).	Open
04/28/00	04/27/00	04/28/00	Crow Butte Resources	SUA-1534	License condition	Well #SM-723 exceeded sulfate upper control limits. See event #36940.	Open
05/12/00	05/09/00	05/12/00	Cogema Mining, Inc.	SUA-1341	License condition 11.2	Monitor well M2 exceeded two of three upper control limits. See event #36996.	Open

FUEL CYCLE AND MATERIAL LICENSEE EVENT REPORTS
 Previously Received and Remaining Open
 Current for November 2000

REPORT DATE	EVENT DATE	DATE RECEIVED	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
05/26/00	05/26/00	05/26/00	Crow Butte Resources	SUA-1534	License condition	Well SM 613 exceeded the sulfate limits and Well SSM 628 exceeded the sulfate and chloride limits. See event # 37039.	Open
05/19/00	05/19/00	05/19/00	Crow Butte Resources	SUA-1534	License condition	Inner liner of evaporation pond #4 appears to be leaking. See event # 37014.	Open
05/26/00	08/99-11/99	05/26/00	Envirocare of Utah, Inc.	SMC-1559	License condition	Monitor wells exceeded upper control limits.	Open
06/16/00	04/04/00	06/16/00	Sioux Valley Hospital	40-12378-01	35.33(a)	Medical misadministration involving an underdose of ¹³¹ I. See event # 37086.	Open
06/28/00	06/27/00	06/28/00	Envirocare of Utah, Inc.	SMC-1559	License condition 12.5	Three railcar shipments arrived at Envirocare with damaged strong tight containers.	Open
6/9/00	6/9/00	6/9/00	Crow Butte Resources	SUA-1534	License Condition	Licensee detected an increase in an evaporation pond underdrain. See Event # 37073	Open
7/6/00	7/3/00	7/6/00	Envirocare of Utah, Inc.	SMC-1559	License Condition 12.5	11 strong tight containers arrived on 7/3/00 damaged.	Open

Previously Received and Remaining Open

Current for November 2000

REPORT DATE	EVENT DATE	DATE RECEIVED	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
7/11/00	7/10/00	7/11/00	USAF CMC Lexington	42-23539-01AF	30.50(b)(1)(i)	Two aircraft engines set off portal alarms. See Event # 37160.	Open
08/10/00	08/09/00	08/10/00	Cogema Mining, Inc.	SUA-1341	License Condition 11.2	Monitor well M2 exceeded 2 of 3 upper control limits. See Event # 37220.	Open
08/10/00	07/12/00	08/15/00	U.S. DOE	INTEC-NRC-00-059 Docket 72-20	72.186	A determination was made that the "Safeguards Contingency Plan" appendix to the TMI-2 Physical Protection Plan had not undergone proper change control as specified in 10 CFR 72.186 and that a violation of TMI-2 ISFSI TS 5.5.4(b) had occurred.	Open
08/22/00	08/22/00	08/22/00	Midwest Inspection Services	35-27005-01	20.2202(a)(1)	Personnel monitoring device returned from vendor with a reading of 710 Rem. See Event # 37247	Open
08/25/00	08/25/00	08/25/00	Crow Butte Resources	SUA-1534	License Condition	Company had high conductivity on monitor for primary liner leak detection in settling pond.	Open
09/10/00	09/09/00	09/10/00	Crow Butte Resources	SUA-1534	License Condition	Samples reported on 9/9/00 confirmed that 4 parameter upper control limits were exceeded in well SM6-12. See event # 37301.	Open

FUEL CYCLE AND MATERIAL LICENSEE EVENT REPORTS
Previously Received and Remaining Open
Current for November 2000

REPORT DATE	EVENT DATE	DATE REC'D	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
10/6/00	10/5/00	10/6/00	Envirocare of Utah	SMC-1559	License Condition	Shipment arriving on 10/5/00 was observed to be leaking water.	Open
10/12/00	10/11/00	10/12/00	Siemens Power Corp.	SNM-1227	NRC Bulletin 99-01	Quantity of U-235 exceeded limits for Mass Control See Event # 37424	Open

(See Attached Licensee Event Report Evaluation Forms)

REPORT DATE	EVENT DATE	DATE REC'D	LICENSEE	LICENSE NUMBER	REPORTING REQUIREMENT	DESCRIPTION	STATUS
7/27/99	7/26/99	7/27/99	U.S. Air Force Robins AFB	42-25539-01AF	20.2202(b)(1)	Possible personnel overexposure attributed to a technician creating dust while hammering and chiseling depleted uranium counterweights. See event # 35964. See NMED Report # 990519 See NRC Report 03028641/00-04	Closed
06/23/00	06/23/00	06/23/00	USAF Barksdale AFB	42-23539-01AF	20.2201(a)(1)(i)	18 Lost/stolen lensatic compasses each containing approximately 120 mCi ³ H. See event # 37109. See NMED Report # 000453	Closed
08/02/00	08/02/00	08/02/00	U.S. Air Force Kirkland Air Force Base	42-23539-01AF	30.50(b)(2)(ii)	Inadvertent halon discharge at irradiator facility. See Event # 37205. See NMED Report # 000568	Closed
08/09/00	08/08/00	08/09/00	U.S. Air Force Lincoln Nevada	42-23539-01AF	20.2201(a)(1)(ii)	Aircraft crashed into mountain with two 4-Curie ²⁴¹ Am sources See Event # 37217. See NMED Report # 000579	Closed
08/31/00	08/30/00	08/31/00	U.S. Air Force Cannon Air Force Base	42-23539-01AF	20.2201(a)(1)(i)	Four exit signs, each containing 20 Ci of H-3 were discovered missing and presumed stolen from Bldg 1245. See event # 37278 See NMED Report # 000651	Closed

SEPARATOR SHEET

UNSPECIFIED EVENT

LICENSEE INFORMATION **Pathfinder Energy Services, Inc.**

License No: **17-27623-01**

Docket No: **030-34946**

Additional license numbers, if multiple licenses _____

City of Record: **Houston**

County of Record: **Harris**

State of Record: **Texas**

Telephone No: **(713) 996-1270**

Were other licensee/individuals involved? Yes___ No **X**
(If no, skip to **EVENT INFORMATION** section)

ADDITIONAL LICENSEE INFORMATION¹

License No: _____

Docket No: _____

Additional license numbers, if multiple licenses _____

City of Record: _____

County of Record: _____

State of Record: _____

Telephone No: _____

EVENT INFORMATION

City: **Spinnaker Exploration Company, High Island, Block A-7, Offshore Louisiana**

Well: **OCS-G-15781 #3**

Date of Event: **October 20, 2000 (sources lodged)**

Time of Event: **09:15 hrs.**

Agreement State: Y___ N **X**

NRC Region No: **IV**

Reportable Event: Y **X** N___

Reporting Regulation: **10 CFR 39.77(d)**

Date Event Reported to NRC or State: **10/29/00**

Was a Consultant Hired to Investigate: Y___ N **X**

(If yes go to **CONSULTANT** section)

¹ If a non-licensee is involved, note that fact and enter appropriate data

UNSPECIFIED EVENT

License Number 17-27623-01

Docket Number 030-34946

CONSULTANT(S)

Was a Consultant Hired to Investigate: Y___ N X

Consultant(s) Name: _____ Company: _____

Who Hired Consultant: _____

Consultant's Specialty: _____

CORRECTIVE ACTIONS

Logging tool with two sealed sources was stuck in hole October 20, 2000, multiple attempts to recover sources were made, without success. Sources were declared irretrievable on October 29, 2000 and abandonment approved by NRC on October 29, 2000. Sources were abandoned on October 29, 2000. Licensee appeared timely in notifying NRC of irretrievable sources and was timely in their 30 day written report.

Licensee's report dated November 6, 2000, was received in NRC offices on November 13, 2000.

See copy of the 30-day report attached.

ADDITIONAL INFORMATION

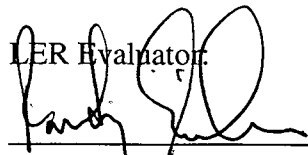
Inspectors should review this abandonment at the next routine inspection.

RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y X N___

Conduct a reactive inspection: Y___ N X (If yes) Inspection Report No: _____

LER recommended for closure: Y___

LER Evaluator:

Evaluator Signature

Date: 11/13/00

Approved by:


Branch Chief

Date: 11/16/00

November 6, 2000

U.S. Nuclear Regulatory Commission – Region IV
611 Ryan Plaza Drive
Suite 400
Arlington, Texas 76011-8064

Attention: Mark Shaeffer

CC:
Mineral Management Service
102 Oak Park Drive
Suite 200
Clute, TX 77531
Attention: Kassim Kassim

RE: **NRC Radioactive Materials License Number 17-27623-01**
Abandonment of Radioactive Sources

This notice is being furnished to describe the final abandonment of two (2) radioactive sources associated with LWD well-logging activities as described in the referenced license.

Date of Occurrence:	20 October 2000 (09:15hrs - Tool Stuck)
Company Name:	Spinnaker Exploration Company LLC 1200 Smith Street Suite 800 Houston, TX 77002
Well Name:	OCS-G-15781 #3 API 42-708-40521-00
Well Location (surface):	Lat. 29.6.57 N - Lon. 94.9.46 W 354406.49 X, 498276.67 Y High Island , Block A-7 Offshore Louisiana (Federal Waters)
Depth of Well:	15242' md 13997' tvd
Bottom of Fish:	15240' md 13996' tvd
Depth of 8 Curie Am-241Be Source	15144' md 13913' tvd
Depth of 1.5 Curie Cs-137 Source:	15149' md 13917' tvd

Depth of Top Fish: 13305' md
12427' tvd

Depth of Bottom Cement Plug #1: 15242' md
Depth of Top Cement Plug #1 14266' md

Depth of Bottom Cement Plug #2: 13905' md
Depth of Top Cement Plug #2: 13305' md

Description of Sources: One 1.5 Curie Cs-137, Doubly Encapsulated, Special Form,
Well Logging Sealed Source
Serial Number: 2648GW
Amersham Model CDC.CY6

One 8 Curie Am-241Be, Doubly Encapsulated, Special Form,
Well Logging Sealed Source
Serial Number: DNS-009
Gammatron Model AN-HP

After a reasonable effort was made at recovery, which included jarring for a number of days, and following our discussion with Mark Shaeffer (NRC – Region IV) on October 29, 2000, the following abandonment plan was implemented. The radioactive sources were immobilized and sealed in place with two cement plugs. A total of 1239 feet of metal pipe was left above the top source to act as a mechanical deflection device and prevent inadvertent intrusion on the sources.

A sidetracked well is planned to be drilled from the top cement plug to the original TD depth of 15242 ft MD 13997 ft TVD. The sidetrack well is planned **not** to come within 15 ft of the sources. A 7 5/8" liner (casing) will be set at 15242 ft MD 13997 ft TVD and cemented in place.

You will also find attached a diagram of the well showing the depth of the sources and a sheet showing the information contained on the permanent identification plaque that will be supplied to Spinnaker.

If you need additional information or have any questions please contact me at the letterhead address.

Sincerely,



Andrew Neil
Corporate Radiation Safety Officer

ENC: Facsimile of Abandonment Plaque
Well Diagram

CC: John Samuell – V.P. Operations – Western Hemisphere
Ron Weegman – North America Operations
A.J. Brousard – M/LWD Operations Manager
Chuck Hansen – Spinnaker Drilling Consultant

Spinnaker Exploration Company, L.L.C.

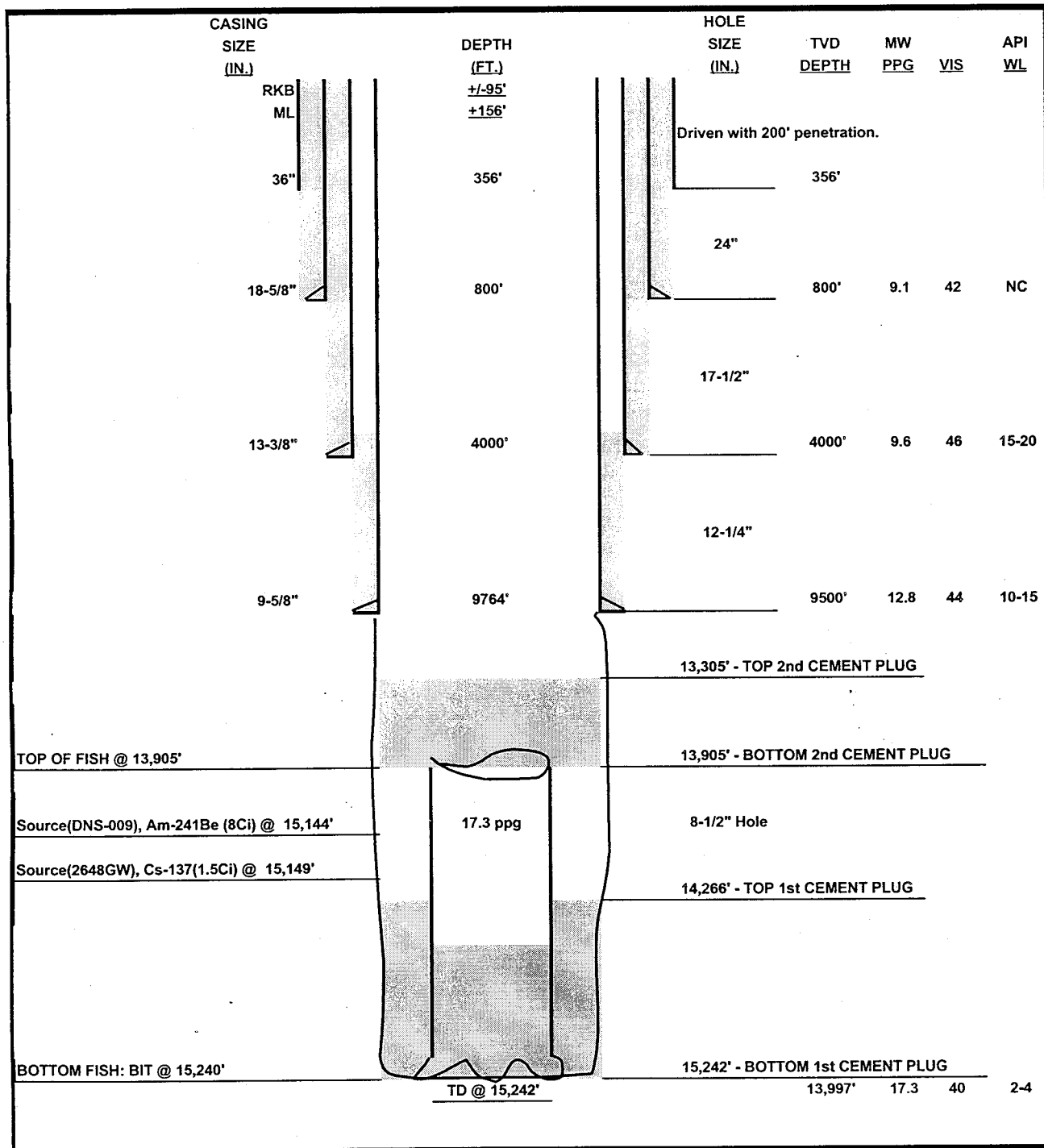
WELL DATA SHEET

LEASE: OCS-G-15781
WELL: #3
LOCATION: High Island A7

SURFACE LOCATION: 678' FNL & 4907' FWL of HI A7
BTM HOLE LOCATION: 1983' FNL & 8998' FWL of HI A7
WATER DEPTH: +49'

OBJECTIVE: Rob L

PLAN TO PLUG BACK TO BYPASS AROUND FISH AND DRILL TO ORIGINAL BOTTOM HOLE LOCATION



COMPANY: SPINNAKER EXPLORATION
HOUSTON, TEXAS
WELL: OCS-G-15781 #3
API 42-708-40521-00
LOCATION: HIGH ISLAND
BLOCK #A-7



CAUTION



ONE 1.5 CURIE Cs-137 AND ONE 8 CURIE Am-241Be
RADIOACTIVE SOURCE ABANDONED ON
29 OCTOBER 2000 AT 15144 FT MD (13913 FT TVD)
PLUGBACK DEPTH 13305 FT MD (12427 FT TVD)

DO NOT RE-ENTER THIS WELL
BEFORE CONTACTING
US NUCLEAR REGULATORY COMMISSION OR
MINERALS MANAGEMENT SERVICE

SEPARATOR SHEET

UNSPECIFIED EVENT

LICENSEE INFORMATION **Pathfinder Energy Services, Inc.**

License No: **17-27623-01**

Docket No: **030-34946**

Additional license numbers, if multiple licenses _____

City of Record: **Houston**

County of Record: **Harris**

State of Record: **Texas**

Telephone No: **(713) 996-1270**

Were other licensee/individuals involved? Yes___ No **X**
(If no, skip to **EVENT INFORMATION** section)

ADDITIONAL LICENSEE INFORMATION¹

License No: _____

Docket No: _____

Additional license numbers, if multiple licenses _____

City of Record: _____

County of Record: _____

State of Record: _____

Telephone No: _____

EVENT INFORMATION

City: **Texaco Exploration and Production, West Delta, Block 109, Offshore Louisiana**
Well: **OCS-G-2937 A-51 ST01**

Date of Event: **October 25, 2000 (sources lodged)**

Time of Event: **05:00 hrs.**

Agreement State: Y___ N **X**

NRC Region No: **IV**

Reportable Event: Y **X** N___

Reporting Regulation: **10 CFR 39.77(d)**

Date Event Reported to NRC or State: **10/27/00**

Was a Consultant Hired to Investigate: Y___ N **X**

(If yes go to **CONSULTANT** section)

¹ If a non-licensee is involved, note that fact and enter appropriate data

UNSPECIFIED EVENT

License Number 17-27623-01

Docket Number 030-34946

CONSULTANT(S)

Was a Consultant Hired to Investigate: Y__ N X

Consultant(s) Name: _____ Company: _____

Who Hired Consultant: _____

Consultant's Specialty: _____

CORRECTIVE ACTIONS

Logging tool with two sealed sources was stuck in hole October 25, 2000, multiple attempts to recover sources were made, without success. Sources were declared irretrievable on October 27, 2000 and abandonment approved by NRC on October 27, 2000. Sources were abandoned on October 28, 2000. Licensee appeared timely in notifying NRC of irretrievable sources and was timely in their 30 day written report.

Licensee's report dated October 31, 2000, was received in NRC offices on November 6, 2000.

See copy of the 30-day report attached.

ADDITIONAL INFORMATION

Inspectors should review this abandonment at the next routine inspection.


RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y X N__

Conduct a reactive inspection: Y__ N X (If yes) Inspection Report No: _____

LER recommended for closure: Y__

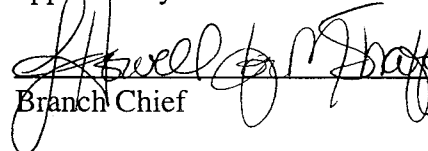
LER Evaluator:



Evaluator Signature

Date: 11/13/00

Approved by:



Branch Chief

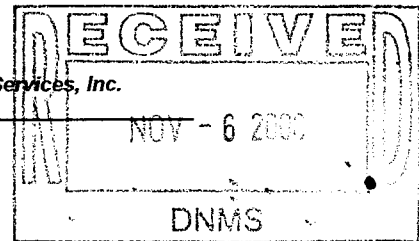
Date: 11/16/00



PathFinder Energy Services, Inc.

15151 Sommermeyer St. Houston, Texas 77041-5332 (713) 996-1299 Fax (713) 996-1270

October 31, 2000



U.S. Nuclear Regulatory Commission – Region IV
611 Ryan Plaza Drive
Suite 400
Arlington, Texas 76011-8064

Attention: **Mark Shaeffer**

CC:
Mineral Management Service
New Orleans District
990 North Corporate Drive
Suite 100
New Orleans, LA 70123-3392
Attention: David Trocquet

RE: **NRC Radioactive Materials License Number 17-27623-01**
Abandonment of Radioactive Sources

This notice is being furnished to describe the final abandonment of two (2) radioactive sources associated with LWD well-logging activities as described in the referenced license.

Date of Occurrence:	25 October 2000 (05:00hrs - Tool Stuck)
Company Name:	Texaco Exploration & Production P.O. Box 61050 New Orleans, LA 70130
Well Name:	OCS-G-2937 A-51 ST01 API 17-719-40693-01
Well Location (surface):	Lat. 28.50.2 N - Lon. 89.27.11 W 2602112.91 X, 66745.88 Y West Delta, Block. 109 Offshore Louisiana (Federal Waters)
Depth of Well:	8760' md 4486' tvd
Bottom of Fish:	5519' md 3438' tvd
Depth of 8 Curie Am-241Be Source	5414' md 3404' tvd
Depth of 1.5 Curie Cs-137 Source:	5420' md 3406' tvd

Depth of Top Fish: 5360' md
3380' tvd

Depth of Bottom Cement Plug: 5260' md
3340' tvd

Depth of Top Cement Plug: 4465' md
3048' tvd

Description of Sources: One 1.5 Curie Cs-137, Doubly Encapsulated, Special Form,
Well Logging Sealed Source
Serial Number: 2463-GW
Amersham Model CDC.CY6

One 8 Curie Am-241Be, Doubly Encapsulated, Special Form,
Well Logging Sealed Source
Serial Number: DNS-054
Gammatron Model AN-HP

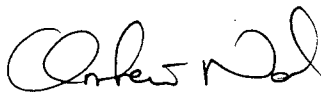
After a reasonable effort was made at recovery, which included jarring and the use of washpipe, and following our discussion with Mark Shaeffer (NRC – Region IV) on October 27, 2000, the following abandonment plan was implemented. On October 28, 2000, the radioactive sources were immobilized and sealed in place with a 795ft cement plug. This left a total of 54 feet of metal pipe above the top source to act as a mechanical deflection device and prevent inadvertent intrusion on the sources.

A sidetracked well is planned to be drilled from the top of the cement plug to 11122 ft MD 5259 ft TVD. A 7 5/8" liner (casing) will be set at 11122 ft MD 5259 ft TVD and cemented in place.

You will also find attached a diagram of the well showing the depth of the sources and a sheet showing the information contained on the permanent identification plaque that will be supplied to Texaco.

If you need additional information or have any questions please contact me at the letterhead address.

Sincerely,



Andrew Neil
Corporate Radiation Safety Officer

ENC: Facsimile of Abandonment Plaque
Well Diagram

CC: John Samuell – V.P. Operations – Western Hemisphere
Ron Weegman – North America Operations
A.J. Brousard – M/LWD Operations Manager
Jeffrey Savelle – Texaco Drilling Engineer

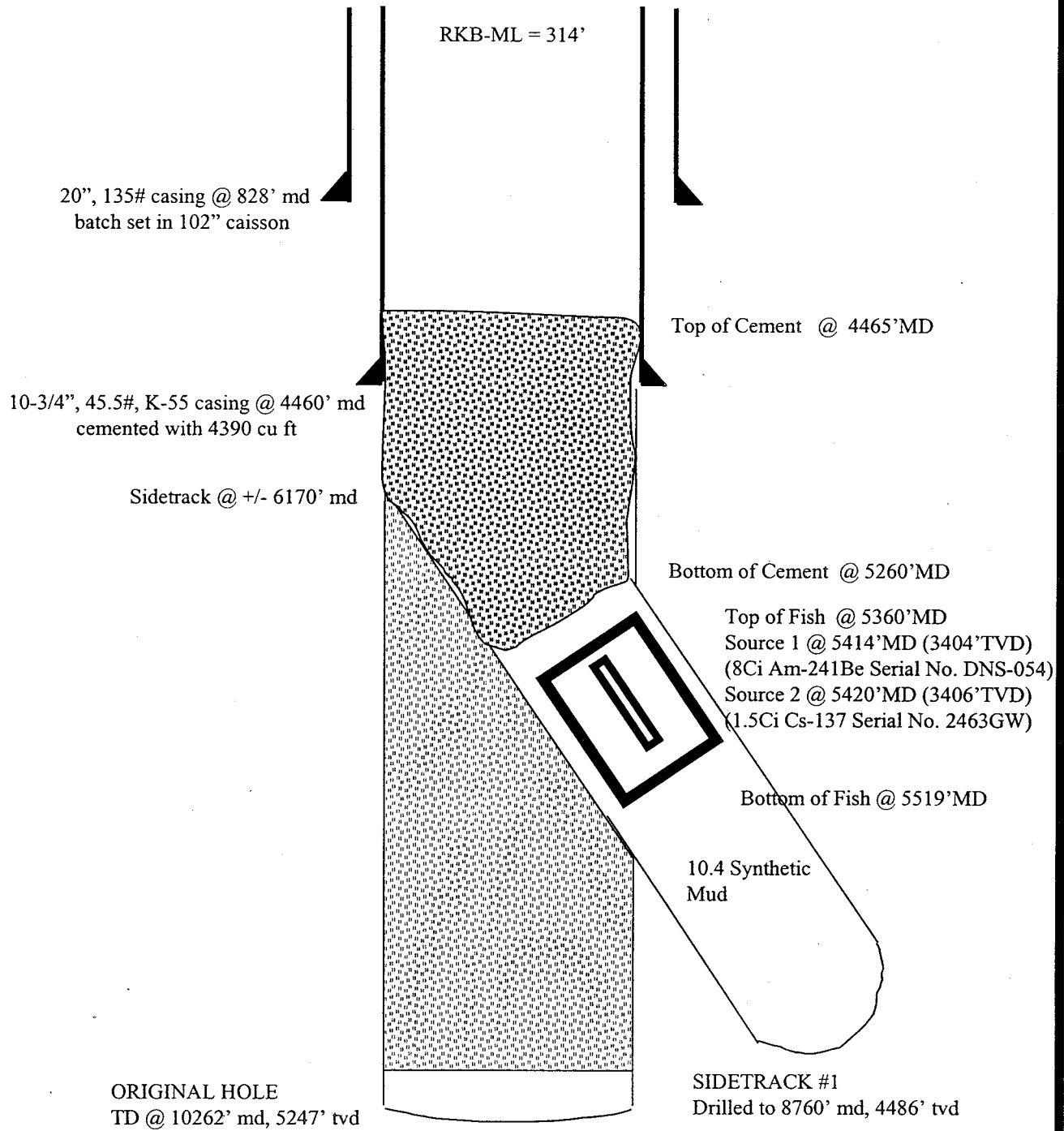


10/27/00

PROPOSED WELLBORE SCHEMATIC

OCS-2937 #A-51 Stk 1 TP&A

West Delta Block 109



COMPANY: TEXACO
NEW ORLEANS, LOUISIANA
WELL: OCS-G-2937 A-51 ST01
API 17-719-40693-01
LOCATION: WEST DELTA
BLOCK #109



CAUTION



ONE 1.5 CURIE Cs-137 AND ONE 8 CURIE Am-241Be
RADIOACTIVE SOURCE ABANDONED ON
28 OCTOBER 2000 AT 5414 FT MD (3404 FT TVD)
PLUGBACK DEPTH 4465 FT MD (3048 FT TVD)

DO NOT RE-ENTER THIS WELL
BEFORE CONTACTING
US NUCLEAR REGULATORY COMMISSION OR
MINERALS MANAGEMENT SERVICE

SEPARATOR SHEET

UNSPECIFIED EVENT

LICENSEE INFORMATION **Halliburton Energy Services, Inc.**

License No: <u>42-26844-01</u>	Docket No: <u>030-29470</u>
Additional license numbers, if multiple licenses _____	
City of Record: <u>Houston</u>	County of Record: <u>Harris</u>
State of Record: <u>Texas</u>	Telephone No: <u>(281) 871-5745</u>

Were other licensee/individuals involved? Yes___ No **X**
(If no, skip to **EVENT INFORMATION** section)

ADDITIONAL LICENSEE INFORMATION¹

License No: _____	Docket No: _____
Additional license numbers, if multiple licenses _____	
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: <u>BP Exploration-Alaska, South Pad, Prudhoe Bay, Alaska (S-102)</u>	
<u>API # 50-029-22972-00</u>	
Date of Event: <u>September 26, 2000 (sources lodged)</u>	Time of Event: <u>Unknown</u>
Agreement State: Y___ N <u>X</u>	NRC Region No: <u>IV</u>
Reportable Event: Y <u>X</u> N___	Reporting Regulation: <u>10 CFR 39.77(d)</u>
Date Event Reported to NRC or State: <u>10/31/00</u>	
Was a Consultant Hired to Investigate: Y___ N <u>X</u>	
(If yes go to <u>CONSULTANT</u> section)	

¹ If a non-licensee is involved, note that fact and enter appropriate data

UNSPECIFIED EVENT

License Number 42-26844-01

Docket Number 030-29470

CONSULTANT(S)

Was a Consultant Hired to Investigate: Y___ N X

Consultant(s) Name: _____ Company: _____

Who Hired Consultant: _____

Consultant's Specialty: _____

CORRECTIVE ACTIONS

Logging tool with two sealed sources was stuck in hole September 26, 2000, multiple attempts to recover sources were made, without success. Sources were declared irretrievable on October 4, 2000. Sources were abandoned on October 4, 2000. Licensee appeared timely in notifying NRC of irretrievable sources.

Licensee's report dated October 31, 2000, was received in NRC offices on November 9, 2000.

See copy of the 30-day report attached.

ADDITIONAL INFORMATION

Inspectors should review this abandonment at the next routine inspection.

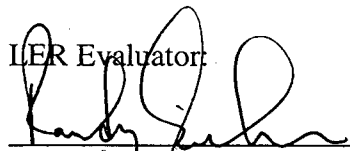
RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y X N___

Conduct a reactive inspection: Y___ N X (If yes) Inspection Report No: _____

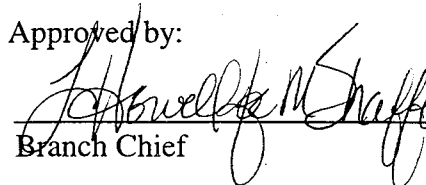
LER recommended for closure: Y___

LER Evaluator:


Evaluator Signature

Date: 11/13/00

Approved by:


Branch Chief

Date: 11/16/00



NOV - 9 2000

HALLIBURTON ENERGY SERVICES

3000 North Sam Houston Parkway East (77032-3219) / Post Office Box 60070 / Houston, TX 77205-0070 / 281-871-5745 / Fax: 281-871-7119

October 31, 2000

United States Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive
Suite 400
Arlington, Texas 76011

Attn: Dwight D. Chamberlain

Re: Notification of Source Abandonment USNRC Radioactive Materials License No.
42-26844-01

Dear Mr. Chamberlain

This letter presents the 30 day notification as required by Title 10, Part 39.77 (d) for the final abandonment of a well logging source utilized under the above referenced license.

Date of Occurrence:	October 4, 2000
Source(s) Abandoned:	One (1) 2 Ci. Cs-137 Be radioactive source, NRC model number CDC.CY13, source serial number 1975GW and One (1) 4 Ci Am241Be radioactive source, NRC model number AMN.CY17, source serial number 7950NK
Company Name, Surface Location and Well Identification:	BP Exploration (Alaska), Inc. S pad, Prudhoe Bay, Alaska S-102 API # 50-029-22972-00
Kick-off and Sidetrack Depth after Abandonment:	8017' MD (4655' TVD)
Depth to Top of the Fish: (Top of Abandoned Drillstring)	8476' MD (4900' TVD)

Depth of Sources: The 2 Ci. Cs-137 source is located at 8564.5' MD (4881.6 TVD), 4 Ci Am241Be source is located at 8531' MD (4866.8' TVD)

Depth to Bottom of Well: 8688' MD (4938' TVD)

Description of Recovery Attempts: Jarring was started shortly after the tool was stuck with as much as 90,000 lbs. of pull exerted both in the up and down direction. The mud weight was reduced from 104 ppg to 10.1 ppg. A sack fishing tool (SFT) pill was pumped on 9/26/00.

Continued working stuck pipe jarring up and down while applying torque to the drill string, maximum over pull while jarring was 80,000 lbs. Pumped 2 bbls SFT out to annulus every hour while jarring.

On 9/27/00 spotted 107 bbl of crude oil in annulus to reduce hydrostatic pressure and jar on stuck pipe. Worked 4 turns of left hand torque down drill pipe and ran CCL and string shot. Fired shot at 8478' (top of middle flex collar under the jars). Did not back off. Reran CCL and string shot fired at 8447', did not back off.

9/28/00 ran freepoint , tool failed.

Continued working pipe and jarring. On 9/28/00 spotted 25 bbls of SFT pill around BHA tried to back off, and succeeded. Top of fish is now at 8386' jars are looking up. Wash over pipe to float sub, pulled out of hole.

RIH with fishing BHA jarred up and down, no success.

On 10/1/00, top of fish now at 8479', returned into hole with 9" washover pipe of 10/2/00. Washed over fish to the top of the SLD stabilizer blades at 8564.7' MD on 10/3/00. Spotted 25 bbl of SFT around washed pipe, pulled out of hole slowly to avoid swabbing.

Continued to jar up and down on 10/4/00.

All fishing attempts were unsuccessful, decision made to abandon.

Abandonment

The fish that presents 55 ' of drill string above the topmost radioactive source was immobilized by pumping 459' of cement with red dye blended in as an intrusion marker above the top of the fish.

This will effectively abandon, protect, and secure the 2 Curie Cs-137 source and the 4 Curie Am241Be source in the well and protect the source from future intrusion into that portion of the well.

Warning Statement:

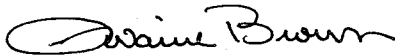
A warning plaque will be made and provided to Anadarko for mounting on the wellhead. See attachment for Warning Statement plaque.

Other Agencies Notified in Writing:

Alaska Department of Oil and Gas

Please call Dwaine Brown at (281) 871-5745 if you have any questions.

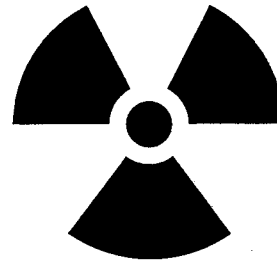
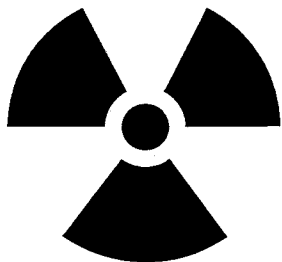
Respectfully,



Dwaine Brown, RRPT
Global Lead Radiation Safety Officer

Attachments: Abandonment Plaque Facsimile

cc: 42-26844-01 license file



CAUTION

**BP Exploration
(Alaska)
S-102**

API# 50-029-22972-00

ONE 2 CURIE Cs-137 RADIOACTIVE SOURCE
ABANDONED AT 8564 FT MD (4882 FT TVD) AND
ONE 4 CURIE AM241BE RADIOACTIVE SOURCE
ABANDONED AT 8531 FT MD (4867 FT TVD) ON 4
OCTOBER, 2000. PLUG BACK DEPTH 8017 FT. MD
(4655 FT TVD). DO NOT REENTER THIS WELL
BELOW PLUG BACK BEFORE CONTACTING THE
UNITED STATES NUCLEAR REGULATORY
COMMISSION AND THE ALASKA DEPARTMENT OF
OIL AND GAS

SEPARATOR SHEET

LICENSEE EVENT REPORT EVALUATION FORM

Page 1 of 2

UNSPECIFIED EVENT

Licensee Name : **Baker Hughes INTEQ**

LICENSEE INFORMATION

License No: 17-27437-01	Docket No: 030-32818
Licensee Additional license numbers, if multiple licenses NONE	
City of Record: Broussard	County of Record: UNKNOWN
State of Record: Louisiana	Telephone No: 318-856-72014061

Were other licensee/individuals involved? Yes ___ No **X**
(If no, skip to EVENT INFORMATION section)

ADDITIONAL LICENSEE INFORMATION¹

License No: _____	Docket No: _____
Additional license numbers, if multiple licenses _____	
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: Offshore Louisiana, OCS-G-8650 E-1 STP, East Cameron Block 192, Coastal Oil & Gas, Rowan California No 42	State : Offshore Louisiana
--	--------------------------------------

Date of Event: **November 1, 2000-tool stuck in hole** Time of Event: **1615 hours**

Agreement State: Y ___ N **X** NRC Region No: _____
Reportable Event: Y **XX** N ___ Reporting Regulation: **10 CFR 39.77**

Date Event Reported to NRC or State: **November 3, 2000**

Was a Consultant Hired to Investigate: Y ___ N **X**
(If yes go to CONSULTANT section)
NMED Report Number: **No NMED No. as of yet** N/A

¹ If a non-licensee is involved, note that fact and enter appropriate data

LICENSEE EVENT REPORT EVALUATION FORM

Page 2 of 2

UNSPECIFIED EVENT

Licensee Name: Baker Hughes INTEQ

License Number 17-27437-01

Docket Number 030-32818

CONSULTANT(S)

Was a Consultant Hired to Investigate: Y___ N X

Consultant(s) Name: _____ Company: _____

Who Hired Consultant: _____

Consultant's Specialty: _____

CORRECTIVE ACTIONS

Licensee's RSO, Bert Winders called 11/3/2000, and notified Bob Brown of stuck sources and planned abandonment procedures.

—

Verbal authorization given by Bob Brown on 11/3/2000 to Bert Winders to abandon the sources.

Licensee sent 30-day abandonment report dated November 29, 2000 via FAX on November 29, 2000. See attached.

ADDITIONAL INFORMATION

Licensee's notification of stuck sources and the licensee's 30-day report appears to meet notification requirements and both the notification and 30-day report were deemed timely.

Licensee was given verbal authorization to abandon the sources based on abandonment program discussed during the phone call of 11/3/2000.

Next inspection should review the records and facts of this abandonment.

RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y **XX** N__
Conduct a reactive inspection: Y__ N **XX** (If yes) Inspection Report No: _____
LER recommended for closure: Y__

LER Evaluator:

R. A. Leonard
Evaluator Signature

Date: 11-30-00

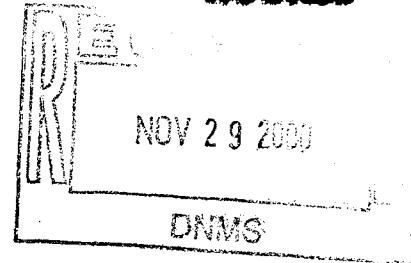
Approved by:

Linda Howell
Branch Chief

Date: 11/30/00

November 29, 2000

Nuclear Regulatory Commission Region IV
611 Ryan Plaza Dr., Suite 400
Arlington, Texas 76011-8064
Attn.: Mr. Richard Leonardi



Re: NRC License No. 17-27437-01

(1) Date Occurrence:

Tool stuck in hole on November 1, 2000 at approximately 1615 hours.

(2) Irretrievable Source Descriptions:

5 Ci (185 GBq) Americium-241/Be - Serial Number: NSL 4110

2 Ci (74 GBq) Cesium-137 - Serial Number: DLS 1119

(3) Surface Location & Well Identification:

Operator -	Coastal Oil & Gas
Rig -	Rowan California # 42
Well -	OCS-G-8650 E-1 ST2
Field -	East Cameron 192
Rig Surface Location -	419 feet from West Line & 6,629 from South Line
General Area -	Federal Waters

(4) Results of Efforts Immobilize:

- Top of fish at 18,476 ft MD (17,671 ft TVD) leaving drilling system in hole as deflection device.
- Pumped concrete mixed with red dye to immobilize and seal top of hole. Top of cement plug at 18,094 ft MD (17,315 ft TVD).

(5) Recovery Efforts:

01 November 2000

0020 Resume washing to bottom.

0045 Tag bottom, circulate bottoms up at 6383 feet MD.

0145 Pump slug.

- 0210 POOH to casing shoe for 2nd LOT.
- 0330 Circulate bottoms up at 4450 feet MD.
- 0420 Stop circulating, prepare for LOT.
- 0445 Begin LOT.
- 0545 Leak off = 13.0 ppg.
- 0613 Trip in the hole.
- 0809 Fill up pipe.
- 0815 On bottom drilling at 6383 feet MD with MW 11.2 ppg. WOB 25 Klbs,
GPM 500 and SPP 2200 psi.
- 0920 Bit depth at 6427 feet MD (3799 feet TVD), inform the company man of pore pressure increase to 12.2 ppg with a drilling mud weight of 11.2 ppg. at 6382 feet MD (3785 feet TVD).
- 0930 Circulating out a maximum gas of 2387 units and a mud cut from 11.2 to 10.4 ppg.
- 1030 Raise mud weight to 11.4 ppg and circulate at 6427 feet MD (3799 feet TVD).
- 1115 ECD increased to 12.8 ppg, reduce flow rate from 500 to 470.
- 1155 Raise mud weight to 11.6 ppg and circulate.
- 1355 Take a slow pump rate.
- 1413 Resume drilling at 6427 feet MD.
- 1500 Raise mud weight to 11.8 ppg at 6460 feet MD (3812 feet TVD).
- 1505 Flow check (-) at 6463 feet MD (3813 feet TVD).
- 1512 Resume drilling.
- 1548 ECD increase to 12.9 ppg, cut back flow rate from 482 to 452 GPM.
- 1553 Maximum formation gas reported was 1978 units and a mud cut from 11.6 to 11.0 ppg at 6501 feet MD (3827 feet TVD).
- 1600 Off bottom and flow check at 6505 feet MD (3828 feet TVD).
Well is flowing. Well shut in. SIDP 300 psi. SICP 0 psi.
- 1612 Well is opened up and circulate at a reduce flow rate.
- 1615 Toolstring becomes stuck at a bit depth of 6453 feet MD (6505 feet MD, 3828 feet TVD).

1807 Increase flowrate.

2020 Raise mud weight to 12.0 ppg and circulate.

02 November 2000

0025 Raise mud weight to 12.2 ppg and circulate.

0500 Still circulating.

0530 Raise mud weight to 12.3 ppg and circulate.

0830 Raise mud weight to 12.4 ppg and circulate.

1150 Open the well up, attempt to work the drill string free with no success.

1340 Raise mud weight to 12.5 ppg and circulate.

03 November 2000

0000 Continue to circulate with 12.5 ppg mud.

0145 Pump Black Magic and let set.

0550 Attempt to work pipe.

1130 Rig up and run freepoint tool.

1800 Cannot get past 3300 feet with freepoint tools.

1900 Circulate and condition the mud.

04 November 2000

0330 Pump and work freepoint tool to 5440 feet MD WLM.

0430 Locate free point at 5404 feet MD WLM.

0435 POOH with freepoint tool.

0530 Lay down freepoint tool and circulate.

0830 RIH with string shot.

0930 Back off drill pipe at 4405 feet MD, circulate bottoms up.

1200 POOH with 5 inch drill pipe. Top of fish at 4392 feet MD.

1430 Pick up 384 feet of 7 5/8 inch wash pipe, TIH.

05 November 2000

0000 Continue TIH with wash pipe.

0400 Unable to wash over fish at 4393 feet.

0500 Circulate out maximum gas of 3200 units and a mud cut from 12.5 to 12.1 ppg.
0630 Pull out of the hole.
0930 Out of the hole, left 6 joints of wash pipe in the hole. The top of new fish approximately 4199 feet.
1000 Wait on fishing tool equipment.
1500 Trip in hole with spear assembly.
1830 Tag top of fish at 4179 feet MD, circulate bottoms up.
1900 Attempt to spear fish.
1930 Pump slug, POOH.
2300 Out of hole, no fish.
2315 Trip in hole with spear assembly.

06 November 2000

0500 Out of hole. Successfully retrieved wash pipe.
0630 Run in hole with wash pipe and burn shoe.
1100 Tag top of fish at 4393 feet MD.
1115 Circulate bottoms up.
1230 Start washing over fish.
1900 Stop washing over at 4457 feet MD. Encountering high standpipe pressure.
1915 Circulate bottoms up. Start losing returns.
2300 Check for flow (-). Pump slug and POOH.

07 November 2000

0000 Make up 8 3/8 inch burn shoe and TIH.
0400 Start washing over top of the fish (4393 feet MD).
1800 Wash down to 4533 feet MD. Circulate bottoms up.
1900 Check for flow (-). Pump slug and POOH.
1930 Slip and cut drill line at 3140 feet MD.
2030 POOH.
2300 Lay down BHA.

08 November 2000

0030 Pick up spear and jarring assembly.
0230 TIH.
0500 Screw into fish and attempt to circulate (4393 feet MD). Packing off.
0700 Rig up wireline for freepoint and backoff run.
0915 Waiting on orders.
1600 Permission given by MMS for P & A.
1800 Waiting for workboat with necessary P & A equipment.

09 November 2000

0600 Waiting on boat to arrive at rig.
1700 Boat arrives at rig. Offload same.
1800 Rig up wireline and run in hole with perforating guns.
2015 Could not get past 3693 feet MD. POOH.
2100 Add knuckle joint and trip back in hole.
2220 Could not get past 4405 feet MD. POOH and disarm guns.
2300 Rig down wireline.

10 November 2000

0000 Waiting on coil tubing unit.
1300 Rig up coil tubing unit.
2130 Go in hole with perforating guns.

11 November 2000

0200 Perforate drill pipe from 6158 to 6160 feet MD (6 shots per foot).
0230 POOH with coil tubing.
0400 Circulate through drill pipe.
1030 Pump cement through perforations.
1200 Radioactive logging sources cemented in place.
1300 End of MWD services.

(6) Depth of Source(s):

Americium-241/Be - 6,387 feet Measured Depth (3,787 ft. TVD)

Cesium-137 - 6,396 feet Measured Depth (3,790 ft. TVD)

(7) Top of Cement Plug:

4,025 feet Measured Depth

(8) Depth of Well:

6,505 feet Measured Depth (3,828 ft TVD)

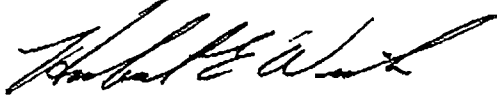
(9) Other Information:

Attachments for Reference – Plaque Design & Final Plugging Sketch

(10) Agencies Notified:

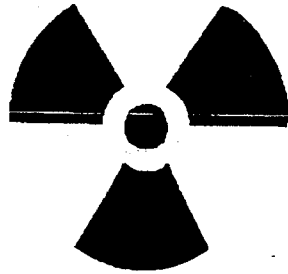
Coastal Oil & Gas notified the MMS

Thank you for your attention to this matter,

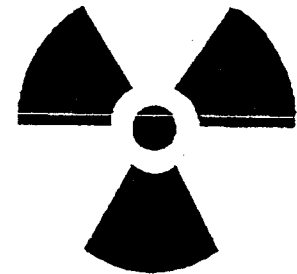


Hubert E. Winders, RRPT
Radiation Protection Officer

Coastal Oil & Gas
Well No. OCS-G-8650, E-1 ST2
East Cameron Blk 192
419 FWL & 6,629 FSL



CAUTION



**ONE 2 CURIE Cs-137 RADIOACTIVE SOURCE ABANDONED
Nov 11, 2000 AT 6,396ft MD (3,790ft TVD) AND ONE 5
CURIE AM-241/Be RADIOACTIVE SOURCE ABANDONED
Nov 11, 2000 AT 6,387ft MD (3,787ft TVD). TOP OF FISH
AT 4,334ft MD (3,144ft TVD)**

**DO NOT ENTER WELL BEFORE CONTACTING
NUCLEAR REGULATORY COMMISSION**

SEPARATOR SHEET

LICENSEE EVENT REPORT EVALUATION FORM

Page 1
of 3

UNSPECIFIED EVENT

Licensee Name: USAF

LICENSEE INFORMATION

License No: <u>42-23539-01AF</u>	Docket No: <u>030-28641</u>
Additional license numbers, if multiple licenses _____	
City of Record: <u>San Antonio</u>	County of Record: <u>Bexar</u>
State of Record: <u>Texas</u>	Telephone No: <u>(202) 767-4308</u>

ADDITIONAL LICENSEE INFORMATION¹

Were other licensee/individuals involved? Yes___ No <u>X</u>	
(If yes, complete this section)	
License No: _____	Docket No: _____
Licensee Name: _____	
Additional license numbers, if multiple licenses _____	
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: <u>Robins AFB</u>	State: <u>Georgia</u>
Date of Event: <u>7/26/99</u>	Time of Event: <u>10:00 am EDT</u>
Agreement State: <u>Y X</u> <u>N</u>	NRC Region No: <u>RIV</u>
Reportable Event: <u>Y X</u> <u>N</u>	Reporting Regulation: <u>20.2202(b)(2)</u>
Date Event Reported to NRC or State: <u>7/27/99</u>	
Was a Consultant Hired to Investigate?: <u>Y</u> <u>N X</u>	
(If yes, complete <u>CONSULTANT(S)</u> section)	
NMED Report Number: <u>990519</u>	

LICENSEE EVENT REPORT EVALUATION FORM

Page 2
of 3

UNSPECIFIED EVENT

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

CONSULTANT(S)

Consultant(s) Name: _____ Company: _____
Who Hired Consultant: _____
Consultant's Specialty: _____

SPECIFIC DATA

Device Model number DU Counterweights Manufacturer's name _____
Device Serial number _____
Source Model number _____ Manufacturer's name _____
Serial number _____ Radionuclide depleted Uranium
Activity of the source N/A Assay date of source unknown

¹ If a non-licensee is involved, note that fact and enter appropriate data

CORRECTIVE ACTIONS

See attached letters.

ADDITIONAL INFORMATION

The licensee reported final intake results of affected individuals to be less than one mRem in an 8/3/00 letter. This incident was reviewed during a routine inspection performed by RII on 9/19-20/00. The results of the review indicated that the corrective actions taken by the Air Force were effective and appropriate.

NMED 990519

See Report # 03028641/00-04

LICENSEE EVENT REPORT EVALUATION FORM

Page 3
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y X N
Conduct a reactive inspection: Y N X (If yes) Inspection Report No:
LER recommended for closure: Y X

LER Evaluator:

Anthony D. Gaur
Evaluator Signature

Date: 11/29/00

Approved by:

[Signature]
Branch Chief

Date: 12/01/00

Tony Haines

Other Nuclear Material		Event Number: 35964	
REP ORG: UNITED STATES AIR FORCE	REGION: 1	NOTIFICATION DATE: 07/27/1999	
LICENSEE: UNITED STATES AIR FORCE	STATE: DC	NOTIFICATION TIME: 16:58[EDT]	
CITY: WASHINGTON DC	AGREEMENT: N	EVENT DATE: 07/26/1999	
COUNTY:		EVENT TIME: 10:00[EDT]	
LICENSE#: 42-23539-01AF		LAST UPDATE DATE: 07/27/1999	
DOCKET:			
		PERSON	ORGANIZATION
		ROBERT HAAG	R2
		BILL JONES	R4
		CHARLEY HAUGHNEY	NMSS
NRC NOTIFIED BY: MAJOR HICKS			
HQ OPS OFFICER: JOHN MacKINNON			
EMERGENCY CLASS: N/A			
10 CFR SECTION:			
BAE1 20.2202(b)(1) PERS OVEREXPOSURE			

EVENT TEXT

USAF PERSON INHALED DEPLETED URANIUM DUST

THE USAF RADIOISOTOPE COMMITTEE, BOLLING AIR FORCE BASE, REPORTED THE FOLLOWING INCIDENT WHICH OCCURRED AT ROBINS AIR FORCE BASE, GEORGIA .

AT 1000 ON 07/26/99, USAF PERSONNEL WERE PERFORMING MAINTENANCE ON A C-141 CARGO AIRCRAFT AILERON. A TECHNICIAN WAS FOUND USING A HAMMER AND CHISEL TO REMOVE INSTALLED DEPLETED URANIUM COUNTERWEIGHTS FROM THE AILERON. THIS PROCESS PRODUCED DUST AND DEBRIS WHICH WAS SCATTERED BY A NEARBY FAN. THE TECHNICIAN USING A HAMMER AND CHISEL ON THE DEPLETED URANIUM WAS IN VIOLATION OF SEVERAL RULES.

UPON DISCOVERY OF THIS ACTIVITY, THE TECHNICIAN WAS TOLD TO IMMEDIATELY STOP WORK . THE AREA HAS BEEN SECURED AND DECONTAMINATION PROCEDURES INITIATED. HEALTH PHYSICS SUPPORT HAS BEEN REQUESTED FROM BROOKS AIR FORCE BASE, SAN ANTONIO, TEXAS. BIOASSAYS OF THE TECHNICIAN AND OTHER WORKERS IN THE AREA HAS BEEN INITIATED.

CONTAMINATION LEVELS IN THE ROOM WHERE THE MAINTENANCE WAS BEING PERFORMED WERE FOUND TO BE ABOVE BACKGROUND (NUCLEAR RESEARCH CORPORATION MODEL ADM-300 DETECTOR WITH A PANCAKE PROBE WAS USED TO SURVEY THE AREA). THE AREA OF CONTAMINATION HAS BEEN CONFINED TO THE BUILDING 180 MAINTENANCE BAY.

A FOLLOWUP REPORT BY THE USAF RADIOISOTOPE COMMITTEE WILL BE MADE TO NRC
REGION 4 BY 08/27/99.

Other Nuclear Material		Event Number: 35964	
REP ORG: UNITED STATES AIR FORCE		NOTIFICATION DATE: 07/27/1999	
LICENSEE: UNITED STATES AIR FORCE		NOTIFICATION TIME: 16:58[EDT]	
CITY: WASHINGTON DC	REGION: 1	EVENT DATE: 07/26/1999	
COUNTY:	STATE: DC	EVENT TIME: 10:00[EDT]	
LICENSE#: 42-23539-01AF	AGREEMENT: N	LAST UPDATE DATE: 07/27/1999	
DOCKET:			
		PERSON	ORGANIZATION
		ROBERT HAAG	R2
		BILL JONES	R4
		CHARLEY HAUGHNEY	NMSS
NRC NOTIFIED BY: MAJOR HICKS			
HQ OPS OFFICER: JOHN MacKINNON			
EMERGENCY CLASS: N/A			
10 CFR SECTION:			
BAE1 20.2202(b)(1) PERS OVEREXPOSURE			

EVENT TEXT

USAF PERSON INHALED DEPLETED URANIUM DUST

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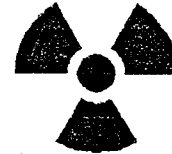
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A FOLLOWUP REPORT BY THE USAF RADIOISOTOPE COMMITTEE WILL BE MADE TO NRC REGION 4 BY 08/27/99.



JUL 27 1999



SECRETARIAT

USAF RADIOISOTOPE COMMITTEE

TO FAX NO: 817-860-8263

DATE: 27 Jul 99

NAME: Mr Tony Gaines

ORGANIZATION: USNRC Region IV TX

FOR PICKUP CONTACT: 817-860-8252

SUBJECT: Incident at Robins AFB

COMMENTS: Tony, I haven't forgotten the Pope & Shaw
follow up reports, but as you can tell, I've been overcome
by events.

FROM: Mitch

HQ AFMOA/SGOR
110 LUKE AVE, ROOM 405
BOLLING AFB DC 20332-7050

FAX: DSN 297-5302
Commercial: 202-767-5302

PHONE: DSN 297-4309 Lt Col Jordan
-4308 Maj Swenson
-4307 Maj Hicks
-4306 Capt Coleman

Commercial: 202-767-XXXX

No. Pages Including Fax Page 5

RADIOACTIVE MATERIALS INCIDENT REPORTING

1. Date/Time Notified: 27 Jul 99 / 1300
2. Person Making Notification: Capt Jim Lohaus (Base Radiation Safety Officer)
 - a. Organization, Office Symbol and Installation: 78AMDS/SGPB
 - b. Telephone Nos.: (DSN) 497-7555 (Commercial) 912-327-7555
 - c. TELEFAX Nos.: (DSN) 497-7525 (Commercial) 912-497-7525

A. DESCRIPTION OF INCIDENT/ACCIDENT

1. Date & Time of Occurrence or Discovery: 26 Jul 99 / 1000
2. Organization Possessing Source(s): WR-ALC / TINMPC
3. Specific Location(s): Building 180, Robins AFB, Warner Robins GA.
4. What Happened: On 23 Jul 99, Mr McCall (WR-ALC / TIELC) called 78AMDS/SGPB with concerns about TINMPC performing maintenance on a C-141 (cargo aircraft) aileron which has depleted uranium counter weights. The technician doing the maintenance used a hammer and chisel to remove the counter weights from the aileron. This process produced dust & debris which was scattered by a nearby fan. TINMPC does not have a permit to do this type of work, the technician may have an exposure, and the room is contaminated with DU.

B. RADIOACTIVE MATERIALS INVOLVED

1. USAF Master Materials License: 42-23539-01AF Docket: 030-28641
2. Applicable USAF RAM Permit: None Docket: None
3. Commodity (i.e., compasses, etc): DU counter weight
4. Radioisotope(s) Involved: Depleted Uranium Activity:
5. Sealed Source Model/Serial No.: Possessed under 10CFR 40.13
6. Commercial Carrier:
7. Radiopharmaceutical Supplier:

Rev: 8 Nov 93

John McKinnon

C. DESCRIPTION OF CORRECTIVE ACTIONS

- ## Violation of aircraft Technical Orders (T.O.)

D. CONTAMINATION INVOLVED

1. Monitoring Results/Radiation Levels (mR/hr, cpm): Contamination levels in the room where the maintenance was done were above background.
2. Surfaces and Dimensional Area Contaminated: Area of contamination is confined to the maintenance bay located in Bld 180.
3. Concentrations Released (Known or Estimated): Unknown.
4. Instruments and Method Used for Survey/Estimate: Nuclear Research Corp. Model ADM-300 with pancake probe.

E. PERSONS INVOLVED/EXPOSED

- | | NAME | GRADE | SSAN | TELEPHONE NO |
|--|--|-------|------|--------------|
| 1. Military or DOD Personnel: | <u>Mr. Payton Tolbert (Technician)</u> | | | |
| 2. Civilians: | | | | |
| 3. Estimated Levels/Concentrations to which Exposed: | <u>Unknown.</u> | | | |

F. BASE PERSONNEL RESPONDING

- | | | | |
|---------------------|------------------------|-------------|--|
| 1. Command Element: | <u>AFMC</u> | | |
| 2. BEE/HP: | | 4. Medical: | |
| 3. RSO: | <u>Capt Jim Lohaus</u> | 5. DP: | |

G. NOTIFICATIONS

1. Air Force: ✓ 3. State: _____
2. Federal: ✓ 4. Local: _____
5. Press Aware/On Scene/Press Releases Made: None
6. Reportable to NRC: Yes IAW 10 CFR 20.2202
7. Telephone: ✓ Region IV (817/860-8116) ✓ Ops Center (301/851-6550)
Event no. 35964 816-5100

8. Written: _____

H. Additional/Follow-up Information

Follow-up report to NRC by 27 Aug 99.

202-767-4307
Report taken by: Maj Mitch Hicks Entered into database: Yes
File: Permit folder N/A C-15-1



DEPARTMENT OF THE AIR FORCE
AIR FORCE MEDICAL OPERATIONS AGENCY
BOLLING AIR FORCE BASE, DC

1999

4 Aug 1999

MEMORANDUM FOR WR-ALC/CC

FROM: AFMOA/CV
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

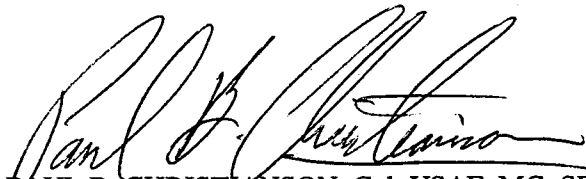
SUBJECT: Request for Incident Report Concerning Possession and Unauthorized Maintenance on Nuclear Regulatory Commission (NRC) Regulated Material Without an Air Force Permit, and the Subsequent Violation of Title 10 Code of Federal Regulations (CFR), Part 40.13

Reference: Incident report by phone, 78 AMDS/SGPB, 27 Jul 1999

On 27 Jul 1999, Capt James Lohaus, in accordance with reporting criteria of Air Force Instruction (AFI) 40-201, *Managing Radioactive Materials in the USAF*, paragraph 3.11.2, and 10 CFR 20.2202 made an immediate report to AFMOA/SGOR concerning the unauthorized maintenance on NRC controlled material and the possible exposure of workers to a radiological hazard. The material in question is the depleted uranium counterweights located on the C-141 aircraft. The counterweights come under strict control of 10 CFR 40.13 which explicitly forbids the physical, metallurgical, or chemical treatment or processing of the counterweights. On 27 Jul 99, it was reported that a worker within WR-ALC/TINMPC was performing maintenance on a depleted uranium counter weight with a chisel. The worker also performed this task in front of a fan which in turn spread contamination within the work bay of building 180. Since this item is NRC regulated, in accordance with incident reporting protocols, the incident was called into the NRC Operations Center; NRC Event No. 35964. The work performed on the counterweight is also in direct violation of AFI 40-201, paragraphs 1.11 and 1.12. A written report is required on the circumstances surrounding the unauthorized maintenance performed by WR-ALC. An incident report must be provided to this office containing the following elements:

- a. A description of the material involved.
- b. A description of the circumstances under which the incident occurred.
- c. A statement of disposition, or probable disposition of the material involved.
- d. Exposures of individuals to radiation, circumstance under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.
- e. Actions that have been taken or will be taken to secure the material and prevent any further spread of contamination.
- f. Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the violation, and the date that the procedures will be implemented.

A response is required by **26 Aug 1999** to this office in order to meet NRC reporting date of 27 Aug 1999. If you have any questions, please contact Maj Mitch Hicks at DSN 297-4307 or commercial (202) 767-4307. Telefax: DSN 297-5302, (202) 767-5302. E-Mail: James.Hicks@USAFSG.bolling.af.mil.

A handwritten signature in black ink, appearing to read "Paul B. Christianson", written over a horizontal line.

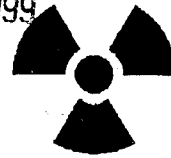
PAUL B. CHRISTIANSON, Col, USAF, MC, SFS
Chairman, USAF Radioisotope Committee
Office of the Surgeon General

cc:

NRC Region IV
HQ USAF/SG
AFMOA/CC
HQ AFMC/SGCR
HQ AFMC/SGPB



SEP - 2 1999



SECRETARIAT

USAF RADIOISOTOPE COMMITTEE

TO FAX NO: 817-860-8263 DATE: 2 Sep 99
NAME: Mr Tony Gaines
ORGANIZATION: USNRC Region IV TX
FOR PICKUP CONTACT: 817-860-8252
SUBJECT: DU Counterweights at Robins AFB GA

COMMENTS: Tony, please read my cover letter, it'll
answer some questions as you read the Robins report.

FROM: Mitch

HQ AFMOA/SGOR
110 LUKE AVE, ROOM 405
BOLLING AFB DC 20332-7050

FAX: DSN 297-5302
Commercial: 202-767-5302

PHONE: DSN 297-4309 Lt Col Jordan
-4308 Maj Swenson
-4307 Maj Hicks
-4306 Capt Coleman
Commercial: 202-767-XXXX

No. Pages Including Fax Page 7



DEPARTMENT OF THE AIR FORCE
AIR FORCE MEDICAL OPERATIONS AGENCY
BOLLING AIR FORCE BASE, DC

2 Sep 1999

MEMORANDUM FOR USNRC Region IV
611 Ryan Plaza Drive, Suite 400
Arlington TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Incident Report Concerning Violation of 10 CFR 40.13, Depleted Uranium Counterweights;
Robins AFB

Reference: NRC Event No. 35964

An incident report was received by this office on 31 Aug 99 containing the following elements:

- a. A description of the material involved.
- b. A description of the, circumstances under which the incident occurred.
- c. A statement of disposition, or probable disposition of the material involved.
- d. Exposures of individuals to radiation, circumstance under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.
- e. Actions that have been taken, or will be taken, to secure the material and prevent any further spread of contamination.
- f. Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the violations, and the date that the procedures will be implemented.

After a review of the response (Attachment) from WR-ALC/CC (Major General Goddard) and a phone conversation with the Radiation Safety Officer (RSO), we believe that this report can serve as an interim report, with a follow-up or final report by 28 Sep 99. In reference to paragraph 1.a., in the attachment, further investigation is required to determine if this is a historical problem versus a one-time incident. In paragraph 3.d., in the attachment, does not define the total area requiring decontamination. After a phone call to the RSO, he stated that the total area of contamination is 20 feet by 40 feet. Paragraph 4.d. states that the fifth worker (highest potential exposure) did not pick up sample containers until 16 Aug 99; he submitted samples on 31 Aug 99. This means that sample results will not be ready

James M. Hicks

CC:
NRC Operations Center
HQ AFMC/SG
WR-ALC/CC w/o Atch
78 AMDS/SGPB w/o Atch



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS WARNER ROBINS AIR LOGISTICS CENTER (AFMC)


25 August 1999

MEMORANDUM FOR AFMOA/CV

FROM: WR-ALC/CC
215 Page Road, Suite 269
Robins AFB GA 31098-1662

SUBJECT: Incident Report Concerning Possession and Unauthorized Maintenance on Nuclear
Regulatory Commission (NRC) Regulated Material Without an Air Force Permit
and the Subsequent Violation of Title 10 Code of Federal Regulations (CFR), Part
40.13 (Your Memo, 4 Aug 99)

Our response to your 4 August 1999 request is attached. If you require additional information, my
point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, DSN 497-7555.


RICHARD N. GODDARD
Major General, USAF
Commander

Attachment:
Incident Report

cc:
HQ AFMC/SG
WR-ALC/JA



Printed on recycled paper

Robins AFB GA Incident Report Concerning Possession and Unauthorized Maintenance on Nuclear Regulatory Commission (NRC) Regulated Material Without an Air Force Permit and the Subsequent Violation of Title 10 Code of Federal Regulations (CFR), Part 40.13--NRC Event No. 35964 (27 Jul 99)

1. Description of the material involved:

a. The material involved was depleted uranium (DU) used as balance weights on C-141 aircraft. The incident that initiated the 27 July 99 verbal report by 78 AMDS/SGPB to AFMOA/SGOR (the Radioisotope Committee (RIC)) involved evidence of physical alteration of a DU balance weight for a C-141 elevator, a broken 10-pound DU balance weight for a C-141 elevator and the recognition of the need to have a radioactive material permit. Additionally, settled aerosols and debris were noted on work surfaces. Initial radiation measurements (using an ADM-300) of the settled aerosols and debris indicated they were radioactive. Based on the operation, and discussion and history of that workplace, it was strongly suspected that the settled aerosols and debris were DU/DU oxide and contaminated with DU/DU oxide.

b. The pattern of contamination noted during additional radiation measurements made by 78 AMDS/SGPB during the evening of 28 Jul 99 suggested the radioactive dust resulted from cumulative historical operations, not solely from the operation that began on/about 23 Jul 99.

2. Description of the circumstances under which the incident occurred:

a. Background: On Friday 23 Jul 99, 78 AMDS/SGPB was called by the WR-ALC/TI radiation safety officer (TI RSO). The TI RSO asked SGPB to evaluate a process for health hazards in bldg 180. SGPB scheduled a visit to the shop for Monday 26 Jul 99.

b. SGPB arrived at bldg 180 approximately 0715 on 26 Jul 99 and met with the TI RSO and other members of WR-ALC/TIE/TIN to evaluate the health risks associated with the C-141 elevator weight and balancing process. SGPB observed a soft aluminum wedge inserted between a nut plate and a corroded DU balance weight in an apparent effort to forcibly separate them. Further, it was pointed out by one of the workers that another balance weight had already been broken as a result of this process. SGPB observed:

- (1) Dust and debris around the area where the technician was working;
 - (2) Lack of respiratory health protection and engineering controls; and
 - (3) That an USAF Radioactive Material (RAM) Permit might be required for this operation (further discussion revealed that a permit did not exist).
- c. SGPB asked that the operation be stopped immediately until the health hazard control and RAM permitting requirements could be determined.

3. A statement of disposition, or probable disposition of the material involved.

a. The broken balance weight: the part that broke off has been placed in an appropriately labeled low level radioactive waste drum. The parts that remained attached to the elevator were left in place, painted and returned to storage. SGPB suggested this elevator be sent to a licensed contractor for appropriate refurbishment or disposition. TI RSO is recommending the refurbishment contract be modified to accommodate this elevator.

b. Contaminated materials and work surfaces that cannot be decontaminated: contaminated articles (i.e., fabric pads) identified to date have been placed in an appropriately labeled low level radioactive waste drum.

c. Removable DU/DUO dusts and debris: Trained C-5 weight and balance personnel and IERA/SDRH (Brooks AFB) vacuumed up the removable contamination (i.e., DU/DUO dust and debris) using a dedicated HEPA-filtered vacuum (this vacuum with contents will ultimately be disposed of as low-level radioactive waste).

d. Debris and materials from pending decontamination operations (see para 5, below): to be determined.

4. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas:

a. On Wednesday evening (28 July 99), SGPB called the USAF Institute for Environment, Occupational Safety and Health Risk Assessment, Radiation Surveillance Division (IERA/SDRH) requesting immediate staff-assistance to support the exposure assessment and work area survey. SDRH arrived on Thursday evening (29 Jul 99). SGPB assisted with the survey which started at 2200 and lasted until 0230 (30 Jul 99). SDRH out-briefed 78 MDG/CC and stated they would provide an estimated total effective dose equivalent based on environmental monitoring and bioassay results.

(1) Potential routes of exposure:

(a) External exposure from intact DU balance weights and DU/DUO dusts and debris.

(b) Internal exposure from ingestion and inhalation of dust and respirable aerosols.

(2) There are two time-related aspects of worker potential exposure:

(a) Recent exposures due to the 23 through 26 July 99 work; and

(b) Chronic exposures associated with historical processes in that work area. The historical exposures may have occurred from similar operations involving DU. As of this report, SGPB is still reviewing case file data, which includes several consultant reports, and interviewing personnel to complete the historical picture.

SEP - 2 1999

b. SDRH performed a survey (swipes, real-time measurements) to determine the extent of the contaminated areas. Results of the survey will be used to estimate the potential external dose to workers prior to area decontamination.

c. SDRH then vacuumed those sites using a dedicated HEPA-filtered vacuum. Those areas were then re-checked to measure the success of the removal of the non-fixed contamination and identify areas of fixed contamination. Some areas that were vacuumed, when rechecked, indicated successful removal of non-fixed contamination. Fixed contamination requiring more aggressive decontamination methods remains in the area.

d. Internal exposures are being assessed by bioassay (24-hour fecal and urine specimens). WR-ALC/TI selected five workers who were at highest risk for internal exposure, based as functions of time and distance from the operations, and provided their names to SGPB. Four out of the five of the workers have submitted samples to the 78 MDG clinical laboratory for shipment to IERA/SDRA (Radioanalytical Division, Brooks AFB TX). The fifth worker picked-up sample bottles on 16 Aug 99.

5. Actions that have been taken, or will be taken, to secure the material and prevent any further spread of contamination:

a. See discussion of disposal, paragraph 3 above.

b. SGPB received a sample statement of work from Brooks for a contract to decontaminate affected parts of bldg 180.

c. See paragraph 6a below for RAM Permit discussion.

6. Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the violations, and the date that the procedures will be implemented:

a. To prevent recurrence of these violations, the RAM permit authorizing C-5 weight and balancing operations was amended by the RIC to include similar C-141 operations.

b. Close coordination between TI and SGPB will be established for these operations. Surveys will be performed quarterly and briefed to TI and 78 MDG/CC for at least 1 year and thereafter to be determined.

Capt Lohaus/78 AMDS/SGPB/7-7555/17 Aug 99



DEPARTMENT OF THE AIR FORCE
AIR FORCE MEDICAL OPERATIONS AGENCY
BOLLING AIR FORCE BASE, DC

SEP 13 1999

2 Sep 1999

MEMORANDUM FOR USNRC Region IV
611 Ryan Plaza Drive, Suite 400
Arlington TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Incident Report Concerning Violation of 10 CFR 40.13, Depleted Uranium Counterweights;
Robins AFB

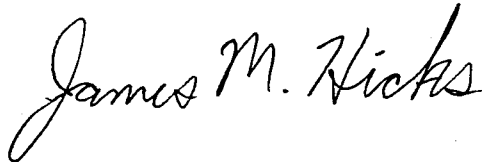
Reference: NRC Event No. 35964

An incident report was received by this office on 31 Aug 99 containing the following elements:

- a. A description of the material involved.
- b. A description of the, circumstances under which the incident occurred.
- c. A statement of disposition, or probable disposition of the material involved.
- d. Exposures of individuals to radiation, circumstance under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.
- e. Actions that have been taken, or will be taken, to secure the material and prevent any further spread of contamination.
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After a review of the response (Attachment) from WR-ALC/CC (Major General Goddard) and a phone conversation with the Radiation Safety Officer (RSO), we believe that this report can serve as an interim report, with a follow-up or final report by 28 Sep 99. In reference to paragraph 1.a., in the attachment, further investigation is required to determine if this is a historical problem versus a one-time incident. In paragraph 3.d., in the attachment, does not define the total area requiring decontamination. After a phone call to the RSO, he stated that the total area of contamination is 20 feet by 40 feet. Paragraph 4.d. states that the fifth worker (highest potential exposure) did not pick up sample containers until 16 Aug 99; he submitted samples on 31 Aug 99. This means that sample results will not be ready

until 14 Sep 99. In reference to paragraph 6., the C-141 operations were officially placed under a Permit on 10 Aug 99. Permit conditions require strict adherence to 10 CFR 40.13; not to perform any type of maintenance on the counterweights that could result in chemically, metallurgically, or physically changing the counterweights. If you have any questions, please contact me at (202) 767-4307. Telefax, (202) 767-5302.

A handwritten signature in black ink that reads "James M. Hicks". The signature is written in a cursive, flowing style.

JAMES M. HICKS, Maj, USAF, BSC
Deputy Chief
USAF Radioisotope Committee Secretariat
Office of the Surgeon General

Attachment:
WR-ALC/CC Memo, 25 Aug 99

cc:
NRC Operations Center
HQ AFMC/SG
WR-ALC/CC w/o Atch
78 AMDS/SGPB w/o Atch



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS WARNER ROBINS AIR LOGISTICS CENTER (AFMC)


25 August 1999

MEMORANDUM FOR AFMOA/CV

FROM: WR-ALC/CC
215 Page Road, Suite 269
Robins AFB GA 31098-1662

SUBJECT: Incident Report Concerning Possession and Unauthorized Maintenance on Nuclear Regulatory Commission (NRC) Regulated Material Without an Air Force Permit and the Subsequent Violation of Title 10 Code of Federal Regulations (CFR), Part 40.13 (Your Memo, 4 Aug 99)

Our response to your 4 August 1999 request is attached. If you require additional information, my point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, DSN 497-7555.


RICHARD N. GODDARD
Major General, USAF
Commander

Attachment:
Incident Report

cc:
HQ AFMC/SG
WR-ALC/JA



Robins AFB GA Incident Report Concerning Possession and Unauthorized Maintenance on Nuclear Regulatory Commission (NRC) Regulated Material Without an Air Force Permit and the Subsequent Violation of Title 10 Code of Federal Regulations (CFR), Part 40.13–NRC Event No. 35964 (27 Jul 99)

1. Description of the material involved:

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(2) Lack of respiratory health protection and engineering controls; and

(3) That an USAF Radioactive Material (RAM) Permit might be required for this operation (further discussion revealed that a permit did not exist).

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d. Debris and materials from pending decontamination operations (see para 5, below): to be determined.

4. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas:

a. On Wednesday evening (28 July 99), SGPB called the USAF Institute for Environment, Occupational Safety and Health Risk Assessment, Radiation Surveillance Division (IERA/SDRH) requesting immediate staff-assistance to support the exposure assessment and work area survey. SDRH arrived on Thursday evening (29 Jul 99). SGPB assisted with the survey which started at 2200 and lasted until 0230 (30 Jul 99). SDRH out-briefed 78 MDG/CC and stated they would provide an estimated total effective dose equivalent based on environmental monitoring and bioassay results.

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(2) There are two time-related aspects of worker potential exposure:

(a) Recent exposures due to the 23 through 26 July 99 work; and

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b. SDRH performed a survey (swipes, real-time measurements) to determine the extent of the contaminated areas. Results of the survey will be used to estimate the potential external dose to workers prior to area decontamination.

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d. Internal exposures are being assessed by bioassay (24-hour fecal and urine specimens). WR-ALC/TI selected five workers who were at highest risk for internal exposure, based as functions of time and distance from the operations, and provided their names to SGPB. Four out of the five of the workers have submitted samples to the 78 MDG clinical laboratory for shipment to IERA/SDRA (Radioanalytical Division, Brooks AFB TX). The fifth worker picked-up sample bottles on 16 Aug 99.

5. Actions that have been taken, or will be taken, to secure the material and prevent any further spread of contamination:

a. See discussion of disposal, paragraph 3 above.

b. SGPB received a sample statement of work from Brooks for a contract to decontaminate affected parts of bldg 180.

c. See paragraph 6a below for RAM Permit discussion.

6. Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the violations, and the date that the procedures will be implemented:

a. To prevent recurrence of these violations, the RAM permit authorizing C-5 weight and balancing operations was amended by the RIC to include similar C-141 operations.

b. Close coordination between TI and SGPB will be established for these operations. Surveys will be performed quarterly and briefed to TI and 78 MDG/CC for at least 1 year and thereafter to be determined.



DEPARTMENT OF THE AIR FORCE
AIR FORCE MEDICAL OPERATIONS AGENCY
BOLLING AIR FORCE BASE, DC

22 Oct 1999

MEMORANDUM FOR USNRC Region IV
611 Ryan Plaza Drive, Suite 400
Arlington TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Interim Report Concerning Violation of 10 CFR 40.13, Depleted Uranium Counterweights;
Robins AFB GA

Reference: NRC Event No. 35964

A site visit report was received by this office on 18 Oct 99 containing the following elements:

- a. A baseline survey to identify and quantify contamination.
- b. A description of the survey equipment.
- c. A description of the procedures used to survey the area of contamination.
- d. Results of urinalysis from the personnel involved in the release of contaminate.
- e. Actions taken to educate personnel on ALARA principles.

After a review of the response (Attachment) from IERA/SDR (response team from Brooks AFB TX) and a phone conversation with the Radiation Safety Officer (RSO) at 78 AMDS/SGPB (Robins AFB GA), we believe that this report can serve as an interim report, with a follow-up or final report by 18 Nov 99. Results of fecal samples from workers are pending completion of lab analysis. If you have any questions, please contact me at (202) 767-4307. Telefax, (202) 767-5302.

JAMES M. HICKS, Maj, USAF, BSC
Deputy Chief
USAF Radioisotope Committee Secretariat
Office of the Surgeon General

Attachment:
IERA/SDR Memo, 30 Sep 99

cc:

NRC Operations Center

HQ AFMC/SGC

WR-ALC/CC w/o Atch

78 AMDS/SGPB w/o Atch



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 311TH HUMAN SYSTEMS WING (AFMC)
BROOKS AIR FORCE BASE TEXAS

30 September 1999

MEMORANDUM FOR 78 AMDS/SGPB
655 7TH Street
Robins AFB GA 31098

FROM: IERA/SDR
2402 E Drive
Brooks AFB TX 78235-5114

SUBJECT: Site Visit Robins AFB, 29-30 July 1999

1. At the request of Robins AFB Bioenvironmental Engineering (BEE) Office, Capt M. E. Cornell and MSgt M. McRoberts proceeded to Robins AFB on 29 July 1999, to conduct a confirmatory radiation assessment survey of possible depleted uranium (DU) contamination in building 180. Paint operations normally occur in this shop with some manipulation of DU counterweights located inside ailerons.
2. Shop case files indicated the DU operations had been identified as early as Jun 1995. Consultant letters included initial investigations, findings from several visits, and recommendations dated to as recent as February 1998. The last site visit memorandum included the following recommendations: obtaining a USAF Radioactive Material Permit, monitoring of personnel, use of Personnel Protective Equipment, and a baseline radiological and metallurgical analysis. The response to this letter from Robins AFB indicated there was a work stoppage.
3. The goal of this visit was to start a baseline survey to identify and quantify contamination, compare to former measurements, complete personnel bioassays, and perform initial decontamination. Using three survey meters, a Ludlum 2360 with alpha/beta probe (SN 145472 and SN PR154734 respectively), a Ludlum microR (SN 148143), and a Bicon with a beta/gamma probe (SN C429C and SN C056D respectively), the previously cordoned area was surveyed for confirmatory contamination in areas identified by the BEE office. Elevated alpha and beta survey meter readings were recorded. Area contamination swipes were taken from the elevated survey points. Field survey data was left with Capt Lohaus at the time of the survey and swipe/bioassay results were subsequently forwarded to SGPB. We will, however, compile a collective listing of the survey results and forward as an addendum to this letter by the end of next week.
4. It was observed during the initial survey while taking swipes that a considerable amount of dust was located within the cordoned area of the shop. Using a DCM Clean-Air Products Inc. vacuum with a HEPA filter, Capt Cornell meticulously swept the cordoned area for

Atch

approximately 20 minutes. After the decontamination process, surveys and swipes were again accomplished at the locations identified with elevated survey readings. In some locations the reading increased by as much as 50%. This would indicate that dust had previously masked some of the fixed DU alpha particle emissions from detection.

5. Ten swipes were taken at locations with elevated survey meter readings. Of these swipes, three exceeded background measurements for alpha and beta radiation. They ranged from two to twelve times background. Swipe contamination results increased as much as 50% after decontamination. This again could be attributed to the dust masking alpha detection. Even with these elevated measurements, they still were below the Nuclear Regulatory Commission guidelines for release of areas for unrestricted use.
6. On 30 July 1999, Capt Cornell and MSgt McRoberts out-briefed the hospital commander, administrative staff from the shop and members of the BEE office. Capt Cornell presented the findings, initial calculations for exposure levels, and recommendations for the future. Recommendations included increased safety training for shop personnel, since there was evidence of eating in all areas of the shop, disposal of waste dated from 1996, a full survey of the shop to identify contamination outside the cordon area, and a complete decontamination of the shop. It was also restated that a Radioactive Materials Permit would be necessary to continue shop operations. It was noted that shop operations could continue without any increased health and safety risk to personnel.
7. Early consultant letters showed possible worst case exposure levels to individuals accomplishing the DU operation in question of 937 mrem/year. However, urine sample results from five individuals who were directly involved or in the close vicinity of the DU operations from the previous week, were below minimum detectable limits which indicated there was no intake from this industrial operation. Fecal sample analysis is in process, and with the negative results on the urine samples, it is very unlikely any detectable activity will be measured in these samples. We will forward the fecal results upon completion.
8. Radiation measurement and swipe data indicated that the residual levels of DU contamination existing within the building did not exceed unrestricted release criteria for DU contamination. Both the estimated average and maximum residual contamination levels fell below the dose concentration guideline levels (DCGLs) based on the NRCs unrestricted release criteria of 25 mrem/year.
9. ALARA training was provided on 30 July 1999 for 30 personnel involved with shop operations including the administrative staff and BEE office personnel. Capt Cornell presented the basic principles for radiation safety, including time, distance and shielding; sources for annual doses of radiation; types and shielding of radiation; and relative risk associated with occupational radiation exposure. The five individuals selected for urine and fecal bioassays were instructed on the procedures for collecting their respective samples. BEE and hospital laboratory personnel were also trained in bioassay collection procedures.
10. Capt Cornell offered to assist creating a scope of work and obtaining a suitable contractor for decontamination of the shop as the Chief of the AF Radioactive and Mixed Waste Office.

11. Please contact Capt Cornell at DSN 240-3489, com 210-536-3489, e-mail maridee.cornell@brooks.af.mil for further questions regarding this site visit.



RANDALL E. SCOTT, LtCol, USAF, BSC
Chief, Radiation Surveillance Division



**311th Human Systems Wing
IERA
Radioanalytical Branch**



SAMPLE ANALYSIS RESULTS REPORTED ON 24-AUG-1999

OEBA ID: 49905365

Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STB 100
ROBINS AFB GA. 31098-1640

IDENTIFICATION:

Base Sample # WW9900324 E228431
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 16-JUL-99 RECEIVED: 17-AUG-99 COMPLETED: 18-AUG-99
Sample Volume Received: 1 SWIPE(s)

EPA CODE N/A GROSS ALPHA
EPA CODE N/A GROSS BETA

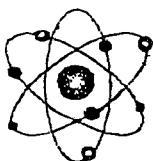
< 2.0E-06
< 2.0E-06

Microcuries / Swipe
Microcuries / Swipe

COMMENTS:

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061
or commercially at (210) 536-2061.



**IERA/SDRR
2402 E Drive
Brooks AFB TX 78235-5114**

**We have made some changes to our sampling guide, it's new, electronic
and easy to use. Please visit our Web Site for more information.
<http://sg-www.satx.disa.mil/iera/sdr/sdr.html>**

MARK C. WROBEL, Maj, USAF, 0390
Chief, Radioanalytical Branch





**311th Human Systems Wing
IERA
Radioanalytical Branch**



SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900034

Customer Address Code: Q00168A

WARNER ROBINS ALC/TIPL

420 2ND STREET, STE 100

ROBINS AFB GA, 31098-1640

IDENTIFICATION:

**** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****

Base Sample # TJ9900005

Workplace or Site ID: 168 ROBINS AFB

DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED:

Name: GARVINE, JAMES

SSAN: 556251140

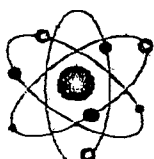
Sample Volume Received: 338.7 GRAM(s)

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061
or commercially at (210) 536-2061.



**IERA/SDRR
2402 E Drive
Brooks AFB TX 78235-5114**

MARK C. WROBEL, Maj, USAF, Ret
Chief, Radioanalytical Branch



*We have made some changes to our sampling guide, it's new, electronic
and easy to use. Please visit our Web Site for more information.
<http://sg-www.satc.disa.mil/iera/sdr/sdrr.htm>*



**311th Human Systems Wing
IERA
Radioanalytical Branch**



SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900030

Customer Address Code: Q00168A

WARNER ROBINS ALC/TIPL

420 2ND STREET, STE 100

ROBINS AFB GA. 31098-1640

IDENTIFICATION:

**** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****

Base Sample # TU9900001

Workplace or Site ID: 168 ROBINS AFB

DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED: 13-SEP-99

Name: BOOHER, JOHN

SSAN: 257742734

Sample Volume Received: 1900 MILLILITER(S)

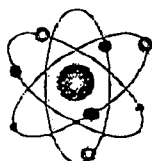
EPA CODE N/A URANIUM 234	< 1.0E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 3.1E-01	Picocuries / 24hr

COMMENTS:

BLDG 160, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061
or commercially at (210) 536-2061.



IERA/SDRR

2402 E Drive

Brooks AFB TX 78235-5114

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and easy to use. Please visit our Web Site for more information.*

<http://sg-www.satc.disa.mil/iera/sdr/sdrr.htm>

MARK C. WROBEL, Maj, USAF, DRC
Chief, Radioanalytical Branch



Thomas Dale D III Civ IERA/SDRR

From: Thomas Dale D III Civ IERA/SDRR
Sent: Friday, December 03, 1999 10:27 AM
To: 'Julie.Coleman@USAFSG.bolling.af.mil'
Subject: Robbins DU Bioassays

Importance:

Hi Julie.

I know you wanted a letter but this is gonna have to do. My conversations with Capt Lohaus can be summarized as follows:

1) When urine samples were completed, SDRR called the results to Lohaus and informed him that they appeared within the normal limits of dietary excretion. Fecal results would be transmitted upon completion.

2) Two of the five individuals that were sampled demonstrated measurable concentrations in the feces that suggested intake due to both concentration AND isotopic ratios (ie. U238/U234 ratio consistent with DU stock). I did an estimate of intake and CEDE/CDE based on both the ingestion and inhalation pathways. In either, fraction of ALI was small. If an inhalation vs ingestion, the CEDE may be regulatory issue dependent on how the worker is classified (rad worker or not). The CEDE for the inhalation intake was ~200 mrem. Ingestion was significantly less, and less than 100 mrem.

Assumptions used: Insoluble DU, (Class Y) and sample collected 7 days post intake (no incident date was specified on AF2753).

3) Contacted Lohaus (~mid October) personally and conveyed the sample results and dosimetric information. Recommended an additional urine and fecal from the two subjects with fecal concentrations. Also informed him that since the urine was negative and fecal positive, my opinion was that the likely exposure route was ingestion OR inhaled material too large to reach the deep regions of the lung and swallowed. If my assumptions are correct, then the subsequent urine and fecal should be within normal limits. If inhaled and the deep regions of the lung retained DU, then the urine should have measurable concentrations.

4) Lohaus requested sample collection media and SDRR provided him fecal containers and urine bottles. To date, have not received samples. I did talk to Lohaus approximately one month ago and discussed routine bioassay programs for these workers. His initial thought was to conduct an annual twenty-four hour urine. I asked him to re-think the frequency and recommended that as a minimum, a quarterly program should be considered. Perhaps his thought process led him to believe that a quarterly program mitigated the need for the immediate sampling of the two workers in question.

5) Subsequent to our conversation Tuesday(?)^{11/30}, I contacted Lohaus to make sure that the samples hadn't gotten lost in the mail. In fact, he had not yet sampled. Lohaus indicated at that time, he would instruct the workers to submit the samples. *probably another 30 days*

That pretty much brings us to date. Sorry that its not a letter format, but frankly this is the best I could do by today. Hope that helps. I'll be in the DC area (sorta) next week. If you need something else, call me at 410-943-3843.

VR

DThomas



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

16 March 2000

MEMORANDUM FOR USNRC, REGION IV
611 RYAN PLAZA DRIVE STE 400
ARLINGTON TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Ave Room 405
Bolling AFB DC 20332-7050

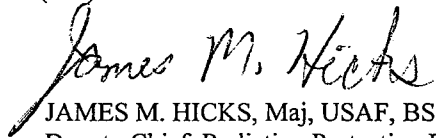
SUBJECT: Interim Report Concerning Violation of 10 CFR 40.13, Depleted Uranium Counterweights;
Robins AFB GA

Reference: NRC Event No. 35964

This office received an interim report (Attachment 1) on 16 February 2000 containing the following elements:

- a. A summary concerning the first round of urine sampling from workers most likely to have received any amount of intake from the depleted uranium.
- b. A recommendation to perform a second round of urine bioassays to increase the statistical confidence level of the first bioassay.
- c. A proposal to decontaminate building 180 to public release limits.
- d. Results of urinalysis from the personnel involved in the release of contaminate.
- e. Also attached (Attachment 2) under separate memos are interpretation of does as explained to each potentially exposed individual.

After a review of the interim report, the memos to the potentially exposed individuals, and phone conferences with the Robins Air Force Base Radiation Safety Officer, it has been established that the individuals involved will be re-bioassayed to determine a more accurate figure for any doses that may have been received from the incident. Out of all the personnel bioassayed, only one demonstrated a receipt of a dose. Mr Edmond Tolbert was evaluated to have received a Committed Effective Dose Equivalent of 200 millirems. The results for Mr Tolbert are based upon total inhalation of the material. The second round of bioassays may show that his exposure may have been more from ingestion than from inhalation. If this proves to be true, then Mr Tolbert's dose will drop significantly. Results of urine samples from workers are pending completion of lab analysis. The attachments contain Privacy Act information, please protect per the 1974 Privacy Act, as amended. If you have any questions, please contact me at (202) 767-4307. Our Telefax is (202) 767-5302.


JAMES M. HICKS, Maj, USAF, BSC
Deputy Chief, Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachments: (See Next Page)

Attachments:

1. 78 AMDS/SGPB Memo, 7 February 2000
2. 78 AMDS/SGPF Memos, 19 January 2000

cc:

NRC Operations Center
HQ AFMC/SGC



DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia

5014



7 February 2000

MEMORANDUM FOR AFMOA/SGOR

FROM: 78 AMDS/SGPB

SUBJECT: Fourth Interim Report Concerning Violation of 10 CFR 40.13, Depleted Uranium Counterweights, Robins AFB GA; Nuclear Regulatory Commission Event Number 35964; USAF Radioactive Material Permit GA-00462-00/00AFP, Docket 040-00462

1. The following update is provided in support of the subject incident:

a. After the identification of the incident (July 99), five workers were selected to provide bioassay samples (fecal and urine) to determine if depleted uranium intake/uptake occurred. The five workers were selected as a function of being the highest at-risk group for depleted uranium exposure, based on their jobs and their proximity to depleted uranium counterweight operations. The samples were collected between 2 Aug 99 and 22 Aug 99, IERA/SDRR, Brooks AFB TX. The samples were received by SDRR on 23 Aug 99.

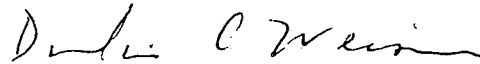
b. The laboratory (SDRR) provided, by mail, uninterpreted bioassay results in several reports dated from 20 Sep 99 to 1 Oct 99 (Atch 1). The laboratory provided written clarification of the data with annotated sample reports dated 16 Dec 99 (Atch 2). The following analysis was provided to Capt Lohaus (78 AMDS/SGPB) and me by Mr. Dale Thomas (SDRR) in telephone and e-mail correspondence. The urine and fecal bioassay results showed three of the five workers had uranium excretion rates within the normal dietary range, as defined by ICRP Report 23. The fourth worker had a uranium dietary excretion rate at the upper limit of the normal dietary excretion range. The fifth worker's uranium dietary excretion rate was above the upper limit of the normal dietary excretion range. Assuming ingestion was the route of exposure for the fifth worker, the Committed Effective Dose Equivalent, as defined in 10 CFR 20, was estimated to be 0.8 millirems. Assuming inhalation was the route of exposure for the fifth worker, the Committed Effective Dose Equivalent was estimated to be 200 millirems. Both estimated doses are at least an order of magnitude below 10 CFR 20 and Air Force limits.

c. Mr. Thomas recommended a second round of urine bioassays for the fourth and fifth workers to increase the statistical confidence level of the initial measurements. One worker asked to delay sample collection until after the Dec 99 holidays. After both samples were collected, one leaked pending transit. We were advised by Mr Thomas to discard the remainder of that sample and collect a new sample. The laboratory confirmed the second round of urine samples were received 2 Feb 2000. We will forward the results to you as soon as we receive them.

d. Regarding the decontamination of building 180, expedient decontamination was performed by the IERA Health Physics Branch (SDRH) during their response at Robins AFB 29/30 Jul 99. Remaining contamination is fixed; measurements showed workers are not exposed at or above dose limits for members of the public (10 CFR 20.1301). We wrote a statement of work (sent to you earlier for review) for the characterization and decontamination down to public release limits (per the Multi-Agency Radiation and Survey Investigation Manual) and submitted it to SDRH who offered to work the contracting activities. Note there is no regulatory or health requirement for this level of decontamination at this time. We are waiting for a cost and scheduling proposal from SDRH to present to WR-ALC/TINR so they can determine if and when the project should proceed. You will be kept apprised of developments.

Atch 1

2. If you require additional information, our point of contact is Capt Jim Lohaus, (912) 327-7555.



DULCIE A. WEISMAN, LtCol, USAF, BSC
Bioenvironmental Engineering Flight Commander

2 Attachments:

1. Bioassay results, uninterpreted
2. Bioassay results, annotated

cc:

78 MDG/CC

AFMC/SGCR

IERA/SDRH

/SDRR

WR-ALC/TINPL

/TIE

/JACE

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900035
Customer Address Code: Q001692
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA. 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # TJ9900006
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: BOOHER, JOHN
SSAN: 257742734
Sample Volume Received: 175.1 GRAM(s)

EPA CODE N/A URANIUM 234	8.0E-01 +/-	2.7E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	1.2E+00 +/-	3.3E-01 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

Although detectable activity is present, the isotopic ratio and concentration are more consistent with excretion of natural uranium vs occupational intake of DU.

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://eg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900030
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # TU9900001
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: BOOHER, JOHN
SSAN: 257742734
Sample Volume Received: 1900 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 1.0E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 1.1E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.diaa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900038
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU9900009
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 22-AUG-1999 RECEIVED: 25-AUG-1999 COMPLETED: 14-OCT-1999
Name: DAVIS, VERNON
SSAN: 257989964
Sample Volume Received: 500 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 3.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 4.1E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 4.2E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://eg-www.sacx.diaa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900039
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA. 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900010
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 22-AUG-1999 RECEIVED: 25-AUG-1999 COMPLETED: 14-OCT-1999
Name: DAVIS, VERNON
SSAN: 257989964
Sample Volume Received: 225.9 GRAM(s)

EPA CODE N/A URANIUM 234	1.2E-00 +/-	3.2E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	1.1E-01 +/-	1.0E-02 Picocuries / 24hr
EPA CODE N/A URANIUM 238	6.5E-01 +/-	2.3E-01 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/edr/edrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900033
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # GH9900359
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: GARVIN, JAMES
SSAN: 556251140
Sample Volume Received: 690 MILLILITER(s)

EPA CODE N/A URANIUM 234	1.6E-01 +/-	1.2E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 6.0E-02	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, TX 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.diaa.mil/iera/edr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900034
Customer Address Code: Q00168Z
78 AMOS/SGPB
655 SEVENTH STREET
ROBINS AFB GA. 31098-2227

IDENTIFICATION: **** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****
Base Sample # TJ9900005
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: GARVINE, JAMES
SSAN: 556251140
Sample Volume Received: 338.7 GRAM(s)

EPA CODE N/A URANIUM 234	1.5E+00 +/-	4.6E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.0E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	2.3E+00 +/-	5.7E-01 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

Note ratio of U-238/U-234

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://ag-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900032
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: **** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****
Base Sample # GH9900361
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: MCLEOD, JAMES
SSAN: 255560005
Sample Volume Received: 1150 MILLILITER(s)

EPA CODE N/A URANIUM 234	<	7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 235	<	8.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	<	3.0E-02	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900037
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900008
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: MCLEOD, JAMES
SSAN: 255560005
Sample Volume Received: 201.2 GRAM(s)

EPA CODE N/A URANIUM 234	3.1E-01 +/-	9.0E-02 Picocuries / 24hr
EPA CODE N/A URANIUM 235	2.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	3.1E-01 +/-	9.0E-02 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.diaa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900031
Customer Address Code: Q00168Z
78 AMOS/SGPB
655 SEVENTH STREET
ROBINS AFB GA. 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU99000002
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: TOLBERT, EDMOND
SSAN: 259743434
Sample Volume Received: 2800 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 5.1E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.8E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 1.5E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900036
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA. 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # TJ9900007
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: TOLBERT, EDMOND
SSAN: 259743434
Sample Volume Received: 78.2 GRAM(s)

EPA CODE N/A URANIUM 234	4.8E+00 +/-	6.9E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	3.6E-01 +/-	1.6E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 238	2.8E+01 +/-	3.1E+00 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

Note ratio of U-238/U-234:

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, CS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>



*311th Human Systems Wing
IERA
Radioanalytical Branch*



SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900035
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

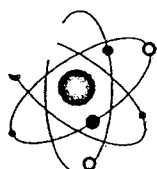
IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900006
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED:
Name: BOOHER, JOHN
SSAN: 257742734
Sample Volume Received: 175.1 GRAM(s)

COMMENTS:

BLDG 180, BAY AREA

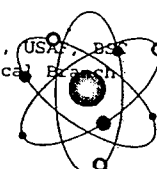
RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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Chief, Radioanalytical Branch



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311th Human Systems Wing IERA Radioanalytical Branch



SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900030
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU9900001
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED: 13-SEP-99
Name: BOOHER, JOHN
SSAN: 257742734
Sample Volume Received: 1900 MILLILITER(s)

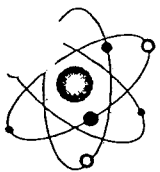
EPA CODE N/A URANIUM 234	< 1.0E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 3.1E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

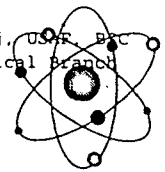
RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061 or commercially at (210) 536-2061.



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MARK C. WROBEL, Maj, USAF, PAC
Chief, Radioanalytical Branch



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IERA
Radioanalytical Branch*



SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900039
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

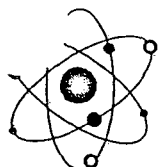
IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900010
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 22-AUG-99 RECEIVED: 25-AUG-99 COMPLETED:
Name: DAVIS, VERNON
SSAN: 257989964
Sample Volume Received: 225.9 GRAM(s)

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

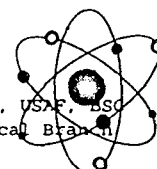
If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061
or commercially at (210) 536-2061.



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Brooks AFB TX 78235-5114*

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Chief, Radioanalytical Branch





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Radioanalytical Branch*



SAMPLE ANALYSIS RESULTS REPORTED ON 20-SEP-1999

OEBA ID: 29900038
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU9900009
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 22-AUG-99 RECEIVED: 25-AUG-99 COMPLETED: 13-SEP-99
Name: DAVIS, VERNON
SSAN: 257989964
Sample Volume Received: 500 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 3.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 4.1E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 4.2E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

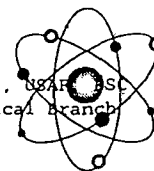
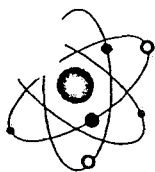
RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061
or commercially at (210) 536-2061.

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Chief, Radioanalytical Branch

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SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900034
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

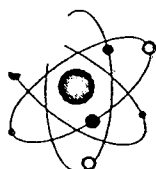
IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900005
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED:
Name: GARVINE, JAMES
SSAN: 556251140
Sample Volume Received: 338.7 GRAM(s)

COMMENTS:

BLDG 180, BAY AREA

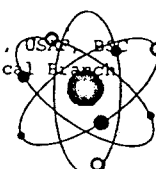
RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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Chief, Radioanalytical Branch



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IERA
Radioanalytical Branch*



SAMPLE ANALYSIS RESULTS REPORTED ON 22-SEP-1999

OEBA ID: 29900033
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # GH9900359
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED: 27-AUG-99
Name: GARVIN, JAMES
SSAN: 556251140
Sample Volume Received: 690 MILLILITER(s)

EPA CODE N/A URANIUM 234	1.6E-01 +/-	1.2E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 6.0E-02	Picocuries / 24hr

COMMENTS:

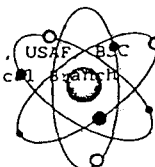
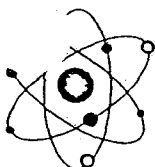
BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061 or commercially at (210) 536-2061.

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SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900037
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

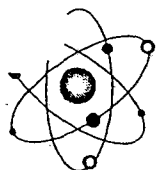
IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900008
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED:
Name: MCLEOD, JAMES
SSAN: 255560005
Sample Volume Received: 201.2 GRAM(s)

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO .2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

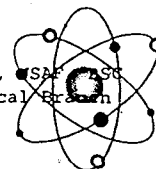
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or commercially at (210) 536-2061.



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Brooks AFB TX 78235-5114

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Chief, Radioanalytical Branch





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IERA
Radioanalytical Branch*



SAMPLE ANALYSIS RESULTS REPORTED ON 22-SEP-1999

OEBA ID: 29900032
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: **** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****
Base Sample # GH9900361
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED: 27-AUG-99
Name: MCLEOD, JAMES
SSAN: 255560005
Sample Volume Received: 1150 MILLILITER(s)

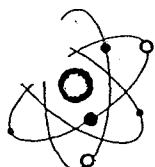
EPA CODE N/A URANIUM 234	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 8.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 3.0E-02	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

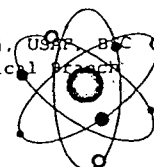
RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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SAMPLE ANALYSIS RESULTS REPORTED ON 01-OCT-1999

OEBA ID: 29900036
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

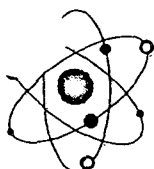
Base Sample # TJ99000007
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED:
Name: TOLBERT, EDMOND
SSAN: 259743434
Sample Volume Received: 78.2 GRAM(s)

COMMENTS:

BLDG 180, BAY AREA

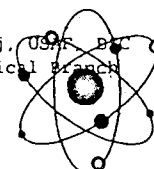
RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

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Radioanalytical Branch



SAMPLE ANALYSIS RESULTS REPORTED ON 20-SEP-1999

OEBA ID: 29900031
Customer Address Code: Q00168A
WARNER ROBINS ALC/TIPL
420 2ND STREET, STE 100
ROBINS AFB GA, 31098-1640

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU9900002
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-99 RECEIVED: 23-AUG-99 COMPLETED: 13-SEP-99
Name: TOLBERT, EDMOND
SSAN: 259743434
Sample Volume Received: 2800 MILLILITER(s)

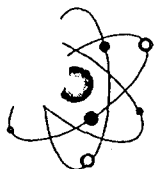
EPA CODE N/A URANIUM 234	< 5.1E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.8E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 1.5E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact OEBA at DSN 240-2061 or commercially at (210) 536-2061.



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2402 E Drive
Brooks AFB TX 78235-5114

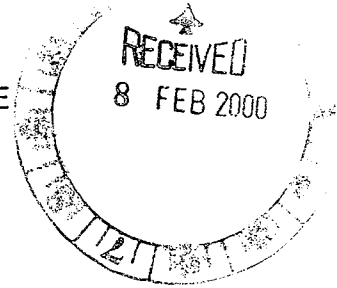
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Chief, Radioanalytical Branch



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DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia



19 January 2000

MEMORANDUM FOR EDMOND TOLBERT (259-74-3434)

FROM: 78 AMDS/SGPF

SUBJECT: Results from Bioassay for Depleted Uranium

1. We received the results from your bioassay for depleted uranium (Attachment 1). These results indicate your exposure is above normal dietary excretion limits, as defined in International Council of Radiation Protection and Measurement Publication 23. *Any exposure from depleted uranium is well below Federal and Air Force occupational exposure limits, and thus you are not at increased risk of injury or illness as a result of this exposure.* These limits allow up to 5000 millirem per year for occupational exposure. Based upon these results, your Committed Effective Dose Equivalent is 200 millirems.
2. This means that, based upon these results, you can expect to receive 200 millirems of occupational exposure from depleted uranium over the next 50 years. To put this into perspective, the average dose to any given member of the public from naturally-occurring ionizing radiation sources (radon, food, water, cosmic rays, solar radiation, altitude, etc.) is 360 millirem per year. Based upon these results, you can expect to receive 55% of the annual average background dose over the next 50 years. Future requests for bioassay may be made to verify these results for scientific validity.
3. You are encouraged to continue to use adequate controls (i.e., administrative, engineering and personal protective equipment) when working around depleted uranium.
4. If you require additional information, my point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, 7-7555.

LAURA TORRES-REYES, LtCol, USAF, MC, FS
Commander, Flight Medicine Flight

Attachment

1. Bioassay Results

cc:

WR-ALC/JACE
HQ AFMC/SGCR
AFMOA/SGOR

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900036
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900007
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: TOLBERT, EDMOND
SSAN: 259743434
Sample Volume Received: 78.2 GRAM(s)

EPA CODE N/A URANIUM 234	4.8E+00 +/-	6.9E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	3.6E-01 +/-	1.6E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 238	2.8E+01 +/-	3.1E+00 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

Note ratio of U-238/U-234.

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900031
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # TU9900002
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: TOLBERT, EDMOND
SSAN: 259743434
Sample Volume Received: 2800 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 5.1E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.8E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 1.5E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://ag-www.satx.disa.mil/iera/sdr/sdr.htm>



DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia

19 January 2000

MEMORANDUM FOR JAMES GARVINE (556-25-1140)

FROM: 78 AMDS/SGPF

SUBJECT: Results from Bioassay for Depleted Uranium

1. We received the results from your bioassay for depleted uranium (Attachment 1). These results indicate your exposure is at the very high end of normal dietary excretion limits, as defined in International Council of Radiation Protection and Measurement Publication 23. *Any exposure from depleted uranium is well below Federal and Air Force occupational exposure limits, and thus you are not at increased risk of injury or illness as a result of any exposure.* Future requests for bioassay may be made to verify these results.
2. You are encouraged to continue to use adequate controls (i.e., administrative, engineering and personal protective equipment) when working around depleted uranium.
3. If you require additional information, my point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, 7-7555.

LAURA TORRES-REYES, LtCol, USAF, MC, FS
Commander, Flight Medicine Flight

Attachment

1. Bioassay Results

cc:

WR-ALC/JACE
HQ AFMC/SGCR
AFMOA/SGOR

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900034
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ99000005
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: GARVINE, JAMES
SSAN: 556251140
Sample Volume Received: 338.7 GRAM(s)

EPA CODE N/A URANIUM 234	1.5E+00 +/-	4.6E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.0E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	2.3E+00 +/-	5.7E-01 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

Note ratio of U-238/U-234

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900033
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: **** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****
Base Sample # GH9900359
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: GARVIN, JAMES
SSAN: 556251140
Sample Volume Received: 690 MILLILITER(s)

EPA CODE N/A URANIUM 234	1.6E-01 +/-	1.2E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 6.0E-02	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061
or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, TX 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>



DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia


19 January 2000

MEMORANDUM FOR VERNON DAVIS (257-98-9964)

FROM: 78 AMDS/SGPF

SUBJECT: Results from Bioassay for Depleted Uranium

1. We received the results from your bioassay for depleted uranium (Attachment 1). These results indicate your exposure is within normal dietary excretion limits, as defined in International Council of Radiation Protection and Measurement Publication 23. *Any exposure from depleted uranium is well below Federal and Air Force occupational exposure limits, and thus you are not at increased risk of injury or illness as a result of any exposure.*
2. You are encouraged to continue to use adequate controls (i.e., administrative, engineering and personal protective equipment) when working around depleted uranium.
3. If you require additional information, my point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, 7-7555.


LAURA TORRES-REYES, LtCol, USAF, MC, FS
Commander, Flight Medicine Flight

Attachment

1. Bioassay Results

cc:

WR-ALC/JACE
HQ AFMC/SGCR
AFMOA/SGOR

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900039
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900010
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 22-AUG-1999 RECEIVED: 25-AUG-1999 COMPLETED: 14-OCT-1999
Name: DAVIS, VERNON
SSAN: 257989964
Sample Volume Received: 225.9 GRAM(s)

EPA CODE N/A URANIUM 234	1.2E+00 +/-	3.2E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	1.1E-01 +/-	1.0E-02 Picocuries / 24hr
EPA CODE N/A URANIUM 238	6.5E-01 +/-	2.3E-01 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900038
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # TU9900009
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 22-AUG-1999 RECEIVED: 25-AUG-1999 COMPLETED: 14-OCT-1999
Name: DAVIS, VERNON
SSAN: 257989964
Sample Volume Received: 500 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 3.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 4.1E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 4.2E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/adr/sdrr.htm>



DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia

19 January 2000

MEMORANDUM FOR JOHN BOOHER (257-74-2734)

FROM: 78 AMDS/SGPF

SUBJECT: Results from Bioassay for Depleted Uranium

1. We received the results from your bioassay for depleted uranium (Attachment 1). These results indicate your exposure is within normal dietary excretion limits, as defined in International Council of Radiation Protection and Measurement Publication 23. *Any exposure from depleted uranium is well below Federal and Air Force occupational exposure limits, and thus you are not at increased risk of injury or illness as a result of any exposure.*
2. You are encouraged to continue to use adequate controls (i.e., administrative, engineering and personal protective equipment) when working around depleted uranium.
3. If you require additional information, my point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, 7-7555.

A handwritten signature in cursive script, reading "Laura Torres-Reyes", is positioned above the typed name.

LAURA TORRES-REYES, LtCol, USAF, MC, FS
Commander, Flight Medicine Flight

Attachment

1. Bioassay Results

cc:

WR-ALC/JACE
HQ AFMC/SGCR
AFMOA/SGOR

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900035
Customer Address Code: Q001682
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # TJ9900006
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: BOOHER, JOHN
SSAN: 257742734
Sample Volume Received: 175.1 GRAM(s)

EPA CODE N/A URANIUM 234	8.0E-01 +/-	2.7E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	1.2E+00 +/-	3.3E-01 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

Although detectable activity is present, the isotopic ratio and concentration are more consistent with excretion of natural uranium vs occupational intake of DU.

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900030
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU9900001
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: BOOHER, JOHN
SSAN: 257742734
Sample Volume Received: 1900 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 1.0E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 1.3E-01	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 3.1E-01	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>



DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia

19 January 2000

MEMORANDUM FOR JAMES McCLEOD (255-56-0005)

FROM: 78 AMDS/SGPF

SUBJECT: Results from Bioassay for Depleted Uranium

1. We received the results from your bioassay for depleted uranium (Attachment 1). These results indicate your exposure is within normal dietary excretion limits, as defined in International Council of Radiation Protection and Measurement Publication 23. *Any exposure from depleted uranium is well below Federal and Air Force occupational exposure limits, and thus you are not at increased risk of injury or illness as a result of any exposure.*
2. You are encouraged to continue to use adequate controls (i.e., administrative, engineering and personal protective equipment) when working around depleted uranium.
3. If you require additional information, my point of contact is the Base Radiation Safety Officer, Captain Jim Lohaus, 7-7555.

A handwritten signature in cursive script, reading "Laura Torres-Reyes".

LAURA TORRES-REYES, LtCol, USAF, MC, FS
Commander, Flight Medicine Flight

Attachment

1. Bioassay Results

cc:

WR-ALC/JACE
HQ AFMC/SGCR
AFMOA/SGOR

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900037
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TJ9900008
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: MCLEOD, JAMES
SSAN: 255560005
Sample Volume Received: 201.2 GRAM(s)

EPA CODE N/A URANIUM 234	3.1E-01 +/-	9.0E-02 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 2.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	3.1E-01 +/-	9.0E-02 Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 16-DEC-1999

IERA/SDRR ID: 29900032
Customer Address Code: Q00168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****

Base Sample # GH9900361
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 02-AUG-1999 RECEIVED: 23-AUG-1999 COMPLETED: 14-OCT-1999
Name: MCLEOD, JAMES
SSAN: 255560005
Sample Volume Received: 1150 MILLILITER(s)

EPA CODE N/A URANIUM 234	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 8.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	< 3.0E-02	Picocuries / 24hr

COMMENTS:

BLDG 180, BAY AREA

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>



DEPARTMENT OF THE AIR FORCE
AIR FORCE MEDICAL OPERATIONS AGENCY
WASHINGTON DC

15 June 2000

MEMORANDUM FOR USNRC, REGION IV
611 RYAN PLAZA DR STE 400
ARLINGTON TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Ave Room 405
Bolling AFB DC 20332-7050

SUBJECT: Final Report Regarding WR-ALC Depleted Uranium Incident, Robins AFB GA

Reference: (a) NRC Event No. 35964

(b) USAF Permit No. GA-00462-00/00AFP, Docket No. 040-00462

This office received a final report (attachment) on 14 June 2000 containing the following elements:

- a. Results from re-sampling the two individuals who showed uranium slightly above or at the Minimum Detectable Activity for the laboratory counters used at Brooks AFB.
- b. Evaluation of the sampling results.

After a review of the final report, I recommend closure for this incident. The re-sampling of the two individuals shows that the earlier sample results were within the noise levels for the sample counter, and that sample results for all the workers are within normal dietary excretion limits. If you have any questions, please contact me at (202) 767-4307. Telefax, (202) 767-5302.

JAMES M. HICKS, Maj, USAF, BSC
Deputy Chief, Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
78 AMDS/SGPB Memo, 12 April 2000

cc:
NRC Operations Center
HQ AFMC/SGC



DEPARTMENT OF THE AIR FORCE
78th Air Base Wing (AFMC)
Robins Air Force Base, Georgia

12 April 2000

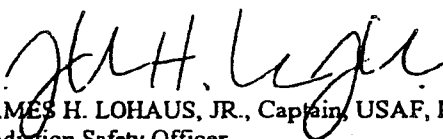
MEMORANDUM FOR AFMOA/SGOR (MAJOR HICKS)

FROM: 78 AMDS/SGPB

SUBJECT: Fifth and Final Report Regarding WR-ALC Depleted Uranium Incident;
Nuclear Regulatory Commission Event Number 35964;
USAF Radioactive Material Permit No. GA-00462-00/00AFP

Discussions with AFMOA/SGOR regarding subject incident indicated demonstration of negative bioassay results on two workers potentially exposed to depleted uranium would suffice to close out subject event. These results are attached. Please note both results are within normal dietary excretion limits, as defined by ICRP Report No. 23, and consequently do not present an elevated health risk to the workers.

Unless otherwise indicated by you, we will consider this event closed. WR-ALC/TI will continue with normal, permitted depleted uranium operations, and this office will provide the proper health physics support to these operations. If you require additional information, please contact me at DSN 487-7555.


JAMES H. LOHAUS, JR., Captain, USAF, BSC
Radiation Safety Officer
Health Physicist

Attachment:

1. Bioassay results

cc:

WR-ALC/TI (Messrs. D. Keene & K. Warnock)
AFMC/SGCR (Major W. Hoak)
WR-ALC/JACE (Mr. D. Stotts)



SAMPLE ANALYSIS RESULTS REPORTED ON 23-FEB-2000

IERA/SDRR ID: 20000006
Customer Address Code: Q00168Z
78 AMDS/SCPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227
ATTN: CAPT LOHAUS

IDENTIFICATION: **** NOTICE **** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 **** NOTICE ****
Base Sample # TU0000479
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 17-DEC-1999 RECEIVED: 03-FEB-2000 COMPLETED: 18-FEB-2000
Name: TOLBERT, EDMOND P.
SSAN: 259243434
Sample Volume Received: 2700 MILLILITER(s)

EPA CODE N/A URANIUM 234	1.2E-01 +/-	1.0E-01 Picocuries / 24hr
EPA CODE N/A URANIUM 235	< 7.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	1.6E-01 +/-	1.2E-01 Picocuries / 24hr

COMMENTS:

ST: 16-DEC-1999 @ 1200
SAMPLE VOLUME 2700MLS PER 24-HR COLLECTION PERIOD.
LEAKED IN TRANSIT.

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSN 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale D. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>

SAMPLE ANALYSIS RESULTS REPORTED ON 23-FEB-2000

IERA/SDRR ID: 20000005
Customer Address Code: 000168Z
78 AMDS/SGPB
655 SEVENTH STREET
ROBINS AFB GA, 31098-2227
ATTN: CAPT LOHAUS

IDENTIFICATION: ***** NOTICE ***** PERSONAL DATA SUBJECT TO PRIVACY ACT OF 1974 ***** NOTICE *****
Base Sample # TU0000478
Workplace or Site ID: 168 ROBINS AFB
DATE COLLECTED: 17-DEC-1999 RECEIVED: 03-FEB-2000 COMPLETED: 18-FEB-2000
Name: GARVINE
SSAN: 556251140
Sample Volume Received: 1100 MILLILITER(s)

EPA CODE N/A URANIUM 234	8.0E-02 +/-	5.0E-02 Picocuries / 24hr
EPA CODE N/A URANIUM 235	6.0E-02	Picocuries / 24hr
EPA CODE N/A URANIUM 238	7.0E-02 +/-	5.0E-02 Picocuries / 24hr

COMMENTS:

ST: 16-DEC-1999/WILL CONTACT CUST FOR TIME.
SAMPLE VOLUME 1100ML PER 24-HR COLLECTION PERIOD.
LEAKED IN TRANSIT

RESULTS ACCURATE TO 2 SIGNIFICANT FIGURES.
UNCERTAINTY AT 95% CONFIDENCE LEVEL.

If you have any questions concerning the information provided above, please contact IERA/SDRR at DSM 240-2061 or commercially at (210) 536-2061.

Address: IERA/SDRR
2402 E Drive
Brooks AFB, Tx 78235-5114

Mr. Dale O. Thomas, GS-13
Chief, Radioanalytical Branch

Website: <http://sg-www.satx.disa.mil/iera/sdr/sdrr.htm>



AUG - 3 2000

DEPARTMENT OF THE AIR FORCE

AIR FORCE INSTITUTE FOR ENVIRONMENT, SAFETY, AND OCCUPATIONAL HEALTH RISK ANALYSIS (AFMCI)
BROOKS AIR FORCE BASE, TEXAS

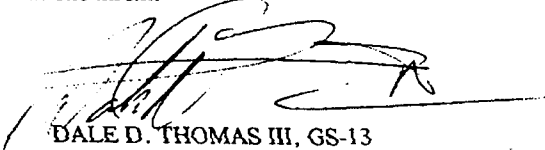
3 August 2000

MEMORANDUM FOR AFMOA/SGOR
110 Luke Avenue, Room 400
Bolling AFB DC 20332-7050
Attention: Lt Col Swenson

FROM: IERA/SDRR
2402 E Drive
Brooks AFB, TX 78235-5114

SUBJECT: Internal Dosimetric Evaluation of Non-Radiation Workers at Robins AFB

1. Five individuals at Robins AFB submitted bioassay samples to this lab to assess intake of depleted uranium (DU) resulting from due to potential exposure in the workplace. These personnel were not classified as radiation workers.
2. My initial recommendations to the installation radiation safety officer (RSO) included both twenty-four hour urine and fecal samples to determine whether an ingestion or inhalation intake occurred. Two of the five individuals demonstrated concentrations of depleted uranium (elevated U-238 with respect to U-234) in the feces. Three individuals demonstrated concentrations of uranium in feces consistent with normal dietary elimination as published in International Commission on Radiological Protection (ICRP) Publication No. 23, Report of the Task Group On Reference Man. All initial urine measurements were consistent with the normal dietary elimination of natural uranium as published in ICRP Publication No. 23.
3. My conversations with the Robins AFB RSO after the completion of the initial urine and fecal measurements were to discuss sampling strategy for the accurate determination of intake pathway, resultant committed dose equivalent (CDE), and committed effective dose equivalent (CEDE). During these conversations, I explained that the CEDE could range from 200 mrem for an inhalation intake of Class Y uranium oxide to approximately 0.1 mrem for ingestion of insoluble uranium metal. I also indicated that the absence of elevated U-238 in the urine samples was a strong indicator that the intake occurred via the ingestion pathway.
4. Urine samples were subsequently collected in Dec 1999 from the two individuals that had questionable intakes. Concentrations of uranium in these urine samples were consistent with normal dietary elimination of natural uranium. Further, the ratio of U-238 to U-234 was consistent with natural uranium. The absence of an elevated U-238 measurement in the second samples inferred that the uranium was not passed to blood stream; thus suggesting that the intake had occurred via ingestion or inhalation (and subsequent ingestion) of non-respirable particles. Fecal samples were contraindicated at this point in due to the short residence time of non-systemic uranium in the GI tract. Further, no systemically deposited uranium is excreted through the fecal pathway.
5. Individual intakes, CDEs, and CEDE's were computed using the Radiological Bioassay and Dosimetry Code assuming an ingestion intake. This code is based on the ICRP #30 metabolic pathway model. Data generated through the use of this code was uploaded into the USAF Master Radiation Exposure Registry (MRER) and reported to the installation RSO by means of the AF Form 1527-1, *Annual Occupational Exposure To Ionizing Radiation*. In each case, the CEDE and CDE were less than one mrem.


DALE D. THOMAS III, GS-13
Chief, Radioanalytical Branch

SEPARATOR SHEET

General Information or Other

Event Number: 37109

REP ORG: US AIR FORCE
LICENSEE: US AIR FORCE
CITY: BARKSDALE AFB
COUNTY:
LICENSE#: 422353901-AF
DOCKET:

REGION: 4
STATE: LA
AGREEMENT: Y

NOTIFICATION DATE: 06/23/2000
NOTIFICATION TIME: 12:54[EDT]
EVENT DATE: 06/23/2000
EVENT TIME: 11:00[CDT]
LAST UPDATE DATE: 06/23/2000

PERSON	ORGANIZATION
JOE TAPIA	R4
KEVIN RAMSEY	NMSS

NRC NOTIFIED BY: WROBEL
HQ OPS OFFICER: CHAUNCEY GOULD

EMERGENCY CLASS: N/A
10 CFR SECTION:
BAB1 20.2201(a)(1)(i) LOST/STOLEN LNM>1000X

EVENT TEXT

THE US AIR FORCE REPORTED 18 LOST/STOLEN LENSATIC COMPASSES.

In March, 2000 the Air Force recalled all lensatic compasses NSN 6605-00-151-5337 and Barksdale AF Base, La. inadvertently sent 17 of these compasses to the Defense Reutilization Management Organization (DRMO) in Texarkanna, Tx. DRMO has no record of receiving these 17 compasses from Barksdale AFB. Since this time, Barksdale base supply had collected 3 more of these compasses and as of 6/3/00 one has been identified as being missing. Each of these 18 missing compasses contain 120 millicuries or less of tritium. Barksdale base supply is conducting an intense search for these compasses.

LICENSEE EVENT REPORT EVALUATION FORM

Page 1
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

LICENSEE INFORMATION

License No: <u>42-23539-01AF</u>	Docket No: <u>030-28641</u>
Additional license numbers, if multiple licenses _____	_____
City of Record: <u>San Antonio</u>	County of Record: <u>Bexar</u>
State of Record: <u>Texas</u>	Telephone No: <u>(202) 767-4308</u>

ADDITIONAL LICENSEE INFORMATION¹

Were other licensee/individuals involved? Yes____ No <u>X</u>	
(If yes, complete this section)	
License No: _____	Docket No: _____
Licensee Name: _____	_____
Additional license numbers, if multiple licenses _____	_____
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: <u>Barksdale AFB</u>	State: <u>Louisiana</u>
Date of Event: <u>06/23/00</u>	Time of Event: <u>11:00 am CDT</u>
Agreement State: <u>Y</u> <u>X</u> <u>N</u>	NRC Region No: <u>RIV</u>
Reportable Event: <u>Y</u> <u>X</u> <u>N</u>	Reporting Regulation: <u>20.2201(a)(1)(i)</u>
Date Event Reported to NRC or State: <u>06/23/00</u>	
Was a Consultant Hired to Investigate?: <u>Y</u> <u>N</u> <u>X</u>	
(If yes, complete <u>CONSULTANT(S)</u> section)	
NMED Report Number: <u>000453</u>	

LICENSEE EVENT REPORT EVALUATION FORM

Page 2
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

CONSULTANT(S)

Consultant(s) Name: _____ Company: _____
Who Hired Consultant: _____
Consultant's Specialty: _____

SPECIFIC DATA

Device Model number 17 Lensatic Compasses Manufacturer's name _____
Device Serial number _____
Source Model number _____ Manufacturer's name _____
Serial number _____ Radionuclide H-3
Activity of the source 190 millicuries each Assay date of source unknown

¹ If a non-licensee is involved, note that fact and enter appropriate data

CORRECTIVE ACTIONS

See attached letters.

ADDITIONAL INFORMATION

The lensatic compasses containing 190 mCi of tritium were disposed of by sending them to a DRMO in Texarkana instead of to be recycled at Wright Patterson AFB. The compasses were never recovered.

NMED 000453

LICENSEE EVENT REPORT EVALUATION FORM

Page 3
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

ECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y__ N X

Conduct a reactive inspection: Y__ N X (If yes) Inspection Report No: _____


LER recommended for closure: Y X

LER Evaluator:


Evaluator Signature

Date: 11/28/00

Approved by:


Branch Chief

Date: 12/01/00



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

JUL 31

24 Jul 00

MEMORANDUM FOR: 2 AMDS/SGPB

FROM: HQ AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB DC 20332-7050

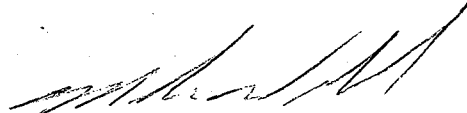
SUBJECT: Missing USAF Radioactive Material

References: Phone conversation, 23 June 2000
E-mail, 21 July 2000

During the phone conversation with me on 23 Jun 2000, Capt Norton stated that 17 lensatic compasses (NSN 6605-00-151-5337) were transferred from base supply (SUPS) to DRMO Texarakan, instead of being recycled through the 88 ABW/EMB, Wright-Patterson AFB. Attempts to recover the compasses from DRMO resulted in the DRMO claiming no record of receiving the material. These are Nuclear Regulatory Commission regulated items which require a written report on the circumstances surrounding their disappearance from your inventory. An incident report must be provided to this office containing the following elements:

- a. A description of the licensed material involved, including kind, activity, and chemical and physical form.
- b. A description of the circumstances under which the loss occurred.
- c. A statement of disposition, or probable disposition of the material involved.
- d. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.
- e. Actions that have been taken or will be taken to recover the material.
- f. Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the loss of material.

Request a final report by **18 August 2000**. If you have any questions, please contact me at DSN 297-4309 or commercial (202) 767-4309. Telefax: DSN 297-5302, (202) 767-5302. E-Mail: mark.wrobel@usafsg.bolling.af.mil.



MARK C WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

NRC Region IV
HQ AFIA/SGO
HQ ACC/SGOP



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

24 July, 2000

MEMORANDUM FOR USNRC, REGION IV
ATTN: MR. GAINES
611 RYAN PLAZA DR STE 400
ARLINGTON TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Ave Room 405
Bolling AFB DC 20332-7050

SUBJECT: Interim Incident Report for Lost Lensatic Compasses, Managed under AF Master Material License
42-23539-01AF, Docket No. 030-28641

On 23 June 2000 our office reported to the NRC Operations Center (Mr. Gould) the loss of 17 lensatic compasses in accordance with 10CFR20.2201(a)(1). The compass national stock number was 6605-00-151-5337, with each compass containing 120 mCi tritium when initially produced. The after incident report supplied by the responsible AF Bioenvironmental Engineering Office is interim (Attachment 1), pending interview of additional personnel involved with the shipment of the subject compasses from the base supply office to the Texarkana Defense Reutilization and Management Office (DRMO). Findings to date have indicated the recovery of a single misplaced lensatic compass that was being held at the base supply warehouse, and a continuation of interviews and shipment tracking for the remaining 17 lensatic compasses inadvertently sent to DRMO. An 18 August final report suspense date has been requested from the base.

If you have any questions regarding this issue, please contact me at DSN 297-4309 or E-Mail at mark.wrobel@usafsg.bolling.af.mil. Our Telefax is DSN 297-5302. Our Beeper for receiving after-duty-hours Incident/Accident Reports is 1-888-425-3861. AFMOA/SGOR's web page is <http://sg-www.satx.disa.mil/moasgor/>.

MARK C. WROBEL Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
E-mail from 2 AMDS/SGPB, Barskdale AFB, LA

cc:
HQ ACC/SGOP
HQ AFIA/SGO

Wrobel, Mark, Maj, AFMOA/SGOR

From: Norton Phillip L Capt 2 AMDS/SGPB [Phillip.Norton@barksdale.af.mil]
Sent: Friday, July 21, 2000 4:43 PM
To: 'Wrobel, Mark, Maj, AFMOA/SGOR'
Cc: Hamilton Mark A Col ACC/SGOP; Naugle Allen R Maj 2 AMDS/SGPB
Subject: 30 Day Update to Missing Lensatic Compasses

1. This will serve as our 30 day update for the missing lensatic compasses from the Barksdale AFB Supply Warehouse. The individual compass that was lost has been located and shipped off for disposal. The compasses that were shipped to Texarkana DRMO have not been located.

2. The compasses in question were taken from 2 SUPS Supply Warehouse to 2 TRANS for shipment to Texarkana DRMO since they did not come up in the supply computer system as being radioactive. 2 TRANS then shipped the compasses to Texarkana DRMO. Texarkana DRMO has no record of receiving the compasses and 2 TRANS has no record of the compasses being returned. Interviews are still in the process to determine if the situation can be rectified.

3. If you have any questions regarding this incident please contact me at the number below.

PHILLIP L. NORTON, Capt, USAF, BSC
OIC, Industrial Hygiene
Assistant Base Radiation Safety Officer
2 AMDS/SGPB, Bioenvironmental Engineering
Phone: (318)456-6725 Fax: (318) 456-6732
DSN: 781-XXXX
Email: phillip.norton@barksdale.af.mil
<mailto:phillip.norton@barksdale.af.mil>



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

31 Jul 00

MEMORANDUM FOR HQ USAF/IL (Ms. Ruth Hill)
HQ DLA (Mr. Michael Coogen)

FROM: AFMOA/SGOR
110 Luke Ave, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Impact of DLA and Service Specific Databases on Control of RAM Commodities

An inquiry from NRC Region IV (Mr. Gaines) was received on a recent incident at Barksdale AFB regarding the loss of 17 lensatic compasses. One of the failures identified by the base in their interim report was the failure of the compasses to be tagged as radioactive when brought up on the supply database system. Mr. Gaines has asked for an explanation of the DLA/AF Supply System databases ability to track radioactive materials, and a discussion of what changes would be required in these databases to assure these compasses and similar commodities are properly flagged. To meet the requisite reporting requirements for NRC Region IV, we would like a brief summary of the issue by **18 Aug 00** for inclusion in our final report to the NRC on the Barksdale incident. Further, because this appears to be a recurring issue, we would appreciate a presentation on the topic at the Fall RIC meeting.

If you have any questions, please contact Julie Coleman or me at DSN 297-4306 or 297-4308, respectively, or telefax DSN 297-5302. Our e-mails are julie.coleman@usafsg.bolling.af.mil or kristin.swenson@usafsg.bolling.af.mil.

A handwritten signature in cursive script, reading "Kristin Swenson", is positioned above the typed name.

KRISTIN N. SWENSON, Maj, USAF, BSC
Medical Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

NRC Region IV
HQ AFIA/SGO



18 AUG 2000

MEMORANDUM FOR AFMOA/SGOR

FROM: HQ USAF/ILSP
1030 Air Force Pentagon
Washington DC 20330-1030

SUBJECT: Impact of DLA and Service Specific Databases on Control of RAM Commodities
(Your Memo, 31 Jul 00)

Your memo references a Nuclear Regulatory Commission (NRC) reportable incident at Barksdale AFB and indicates the NRC would like an explanation of what changes would be required for the DLA and Air Force supply systems to track radioactive materials.

This is an interim response because, other than your memo, we do not have access to any of the supporting documents related to the incident or how the loss of control occurred. We have been in contact with Mr Delmer Passmore, Barksdale AFB, and have obtained some preliminary information. Based on information available to date, it appears that the incident occurred through a combination of human error and erroneous data in the item record loaded in the Barksdale Standard Base Supply System.

In order to provide full and accurate information to the NRC, we will need additional time to verify the preliminary information and to determine whether it is entirely a local problem or whether it might be symptomatic of an AF-wide data systems problem.

We already have HQ AFMC/LGI evaluating the Barksdale information. We anticipate providing a more definitive response by 30 Sep 00. Our POC is Ms Ruth Hill, (703) 695-4514.

MICHAEL R. VANHOUSE, Col, USAF
Chief, Supply/Fuels Policy & Procedures Div.
Directorate of Supply

cc:
HQ AFMC/LGI
SSG/LGS
HQ AFMC/LGIS



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

AUG 23

18 August 2000

MEMORANDUM FOR US NRC REGION IV
ATTN: MR. TONY GAINES

FROM: AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: US NRC Incident Number 37109

Per your request, attached is the Defense Logistics Agency's response to your inquiries with respect to their supply system database's ability to track radioactive materials, and a discussion of what changes would be required in these databases to assure these commodities and similar commodities are properly flagged.

Please contact me with any questions at 202-767-4306, telefax DSN 297-5302. My e-mail address is julie.coleman@usafsg.bolling.af.mil.

A handwritten signature in black ink, appearing to read "Julie L. Coleman", is positioned above the typed name.

JULIE L. COLEMAN
Chief, Materials Licensing
Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
DLA Response

MEMORANDUM FOR, AFMOA/SGOR

SUBJECT: Impact of DLA and Service Specific Databases on Control of Radioactive Commodities

Reference AFMOA/SGOR letter dated 31 Jul 00; subject; same as above.

Subject reference addresses a Nuclear Regulatory Commission (NRC) reportable incident at Barksdale Air Force Base involving the loss of control of seventeen (17) lensatic compasses, NSN 6605-00-151-5337, 120 mCi per compass, regulated by the NRC under the general license requirements. To date, I have no copies or supporting documentation as to the nature of the incident and/or how the loss of control occurred. This response is based on the best available information provided to me by the noted reference above.

The noted reference above stated one of the failures identified by the Air Force installation for loss of control of the regulated items is the items were not properly identified as radioactive when they were introduced into the supply database systems. A query of the catalog data in the Federal Logistics Information System (FLIS), the Management Data Response Report for the NSN noted in the paragraph above revealed the following:

- a. The item is used by the Department of Army, Department of Navy, and Marine Corps.
- b. The Source of Supply and DoD integrated manager for the NSN is the Department of Army.
- c. The item is identified as being entered into the Hazardous Material Information System with a hazardous material indicator code of "Y".
- d. The item is identified with a Hazardous Characteristic Code of "A1" (Specific or General License requirements).
- e. The item is specifically identified as being radioactive in the Army's Management Data Response database with a Special Control Item Code of "8"; radioactive.
- f. The item is assigned a type cargo code (TCC) of "A" which indicates it is radioactive requiring a radioactive label.
- g. The Department of Army (DoD integrated manager) has coded the NSN as condemned, no longer authorized for procurement, issue, use or requisitioning.

When an item is issued from a Defense Logistics Agency (DLA) depot utilizing the Distribution Standard System (DSS), DSS will identify and print the "radioactive information" on the DD-1348 (Material Release Order) based on the Item Data. DSS will print in block twenty-seven, the Hazardous Characteristics Code (HCC) and

ATCH

definition; and the Type Cargo Code (TCC) and definition. DSS identifies items containing radioactive material and/or hazardous material by querying from a variety of codes that the Services use in their legacy systems to identify hazardous material.

In this particular instance, Barksdale Air Force Base is not affiliated DLA activity. Therefore I cannot address what particular tracking capabilities are used when transferring items by Air Force to a DLA Defense Reutilization and Marketing Office. This particular NSN and item data information noted above were entered into the FLIS and the Army identified the item with the appropriate codes. In addition, the Army also identified the item with a Special Contents Item Control (SCIC) in their Service Database. The Air Force utilizes different codes.

The database query has confirmed the lensatic compasses were properly identified as containing radioactive material regulated by a specific or general license by the managing and using activities. Items containing regulated radioactive material are restricted from being excessed for disposal to any and all Defense Reutilization and Marketing Services. Disposal of items containing radioactive material are to be accomplished in accordance with Department of Defense and Military Services directives. Loss of control of these items may well be the result of "human error" and not an error in the supply databases.

I will coordinate with the Logistics Policy and Acquisition Directorate for a presentation for the fall meeting of the Air Force Radioisotope Isotope Committee delineating more into detail the procedures of the supply distribution function and management of items containing regulated radioactive material.

MICHAEL A. COOGEN
Health Physicist

From: "Coleman, Julie, Civ, AFMOA/SGOR" <Julie.Coleman@USAFSG.Bolling.af.mil>
To: "Mr. Tony Gaines" <adg1@nrc.gov>
Date: Mon, Aug 21, 2000 11:44 AM
Subject: FW: Final Report, Missing USAF Radioactive Material, 17 Lensatic Comp asses (NSN 6605-00-151-5337)

FYI...

-----Original Message-----

From: Phillip.Norton@BARKSDALE.AF.MIL
[mailto:Phillip.Norton@BARKSDALE.AF.MIL]
Sent: Friday, August 18, 2000 9:17 AM
To: Wrobel, Mark, Maj, AFMOA/SGOR
Cc: Mark.Hamilton2@langley.af.mil; Allen.Nauble@BARKSDALE.AF.MIL
Subject: Final Report, Missing USAF Radioactive Material, 17 Lensatic
Comp asses (NSN 6605-00-151-5337)

1. This is the final report for the 17 missing lensatic compasses (NSN 6605-00-151-5337). The 17 compasses contain 190 mCi of Tritium for a total of 3.23 Ci of Tritium.
2. The following paragraphs are summaries of interviews I conducted with personnel involved (see attached statements from Mr. Delmer Passmore and Ms. Sally Knox, Mr. Larry Baker's statement will be forwarded upon receipt):
 - a. Summary of Statement from Mr. Delmer Passmore, 2d Supply Squadron Storage and Issue Supervisor: In early June 2000 Mr. Passmore was contacted by Ms. Mary Bradford, 2d Supply Equipment Management to find the status of 17 compasses that were turned into base supply as unserviceable. She stated that the compasses needed to be returned to Robins AFB, GA because of a defect. Mr. Passmore processed an 865 inquiry of the Standard Base Supply System to get a history on the items. The inquiry revealed the following: the 17 compasses were turned in and processed on day 0074 under document number E277SH 0061 0023 by SrA Anderson, Supply Receiving Section. This turn in resulted in an A5J, transfer to DRMO/Salvage transaction. This was generated based on the supply code for this item being M4 which can be turned in to DRMO. Mr. Passmore contacted Mr. Larry Baker at the Texarkana DRMO at the Red River Army Depot. Mr. Baker had no record of receipt of the compasses in question. Mr. Passmore then contacted this office to see what actions needed to be taken.
 - b. Summary of Conversation with Ms. Sally Knox, 2d Transportation Squadron Shipment and Distribution Center Chief: Ms. Knox's section shipped a consolidated container with multiple items including the 17 lensatic compasses to the Texarkana DRMO on 17 Mar 2000 on Government Bill of Lading M-2,375193 using Overnite Transportation Company. Ms. Knox stated that the shipment was received at DRMO because some of the items were sold to the public. According to Ms. Knox, DRMO even contacted the persons that bought the other items in the shipment to see if they had inadvertently received the compasses in their items.
 - c. Summary Conversation with Mr. Larry Baker, Texarkana DRMO, Red River Army Depot: According to Mr. Baker DRMO never received the 17 lensatic compasses. He has checked his system buy using both the National Stock

Number and DRMO's internal tracking numbers that would have been used. He contends that the compasses were not received or they would be in his system.

3. There are no expected exposures as these compasses are essentially the same compasses that can be purchased at a local sporting goods or outdoor store.

4. Barksdale Air Force Base has done everything in its power to recover the missing lensatic compasses as described above. Barksdale has contacted DRMO to inquire about the items, and DRMO has contacted its customers that bought items from the same shipment. The only other step that we can take is to have the Office of Special Investigations (OSI) investigate the possibility of theft by the parties involved to include Barksdale AFB personnel, Texarkana DRMO personnel, and Overnite Transportation Company personnel. Please advise if this action is necessary.

5. 2 Supply Squadron personnel will be trained that even though the code for the item is an M4, the compasses still need to be handled just like an A1.

6. If there are any questions regarding this report please contact Maj Allen Naugle or myself at DSN 781-6730.

<<STATEMENT, COMPASSES.doc>> <<Shipment of Compasses, FE460800740154XXX>>
<<Proof-of-Delivery >>

PHILLIP L. NORTON, Capt, USAF, BSC
OIC, Industrial Hygiene
2 AMDS/SGPB, Bioenvironmental Engineering
Phone: (318)456-6725 Fax: (318) 456-6732
DSN: 781-XXXX
Email: phillip.norton@barksdale.af.mil
<mailto:phillip.norton@barksdale.af.mil>

STATEMENT

24 JULY 2000

1. Early in June 2000, Ms. Mary Bradford, 2d Supply Equipment Management, (DSN 781-8215) ask if I would help find the status of compasses that were to be turned in to Base Supply as unserviceable in order for them to be returned to the Robins AFB Ga. Because of a defect in the compasses. The stock number of the compasses is 6605 00 151 5337, with a quantity of 17 each for the transaction that is missing.
1. I processed a history inquire through the Standard Base Supply Computer System (865 inquire) and found that a turn in had been processed for 17 each on 0074 day (mid March 2000) under document number E277SH 0061 0023 by SRA Anderson, Receiving Section, according to Supply Asset Tracking System (SATS). The turn in resulted in an A5J (transfer to DRMO/Salvage transaction).
1. According to SATS SRA Anderson moved the compasses to outbound Transportation in Building 4845 for transfer to DRMO Texarkana.
1. I have worked with Mr. Larry Baker (DSN 829-3077/DRMO Texarkana) about the compasses on a number of occasions with negative results. There is no record of the compasses in their computer system. There were a couple of others that I spoke with at DRMO about the compasses in the absence of Mr. Baker with the same negative results.
1. I never physically saw the compasses. My dealings with them has been strictly through the history inquire that I ran.
1. To date, it is not known where these assets might be.

DELMER W. PASSMORE, WS-6, DAF
Storage and Issue Supervisor
DSN 781-8461
Comm: 456-8461
e-mail: Delmer.Passmore@BARKSDALE.af.mil

From: <sally.knox@BARKSDALE.AF.MIL>
To: <Phillip.Norton@BARKSDALE.AF.MIL>
Date: Thu, Aug 17, 2000 4:17 PM
Subject: Shipment of Compasses, FE460800740154XXX

Capt Norton:

Per our telephone conversation, information requested is furnished. The compasses were shipped to DRMO Texarkana, Red River Army Depot, Hooks TX, 17 March 2000, on Government Bill of Lading M-2,375193.

If there is any other information you may need, please let me know.

Sara R Knox, DAFC
Chief, Shipment Distribution Center
(318)456-8818
DSN 781-8818

From: <sally.knox@BARKSDALE.AF.MIL>
To: <Phillip.Norton@BARKSDALE.AF.MIL>
Date: Thu, Aug 17, 2000 7:24 PM
Subject: Proof-of-Delivery

Capt Norton:

Remembered as I was ready to go home that Overnite Transportation Company offers a proof-of-delivery by fax. Nothing has ever been said that would indicate

that the shipment was not delivered to DRMO Texarkana clear of any shortage in containers. Just to insure that 17 pieces were delivered, I order a POD.

It

should be here by the time I get to work in the morning. Will call you to let you

know I have it in hand.

Sara R Knox, DAFC
Chief, SDC
(318)456-8818
DSN 781-8818



DEFENSE LOGISTICS AGENCY

HEADQUARTERS

8725 JOHN J. KINGMAN ROAD, SUITE 2533

FT. BELVOIR, VIRGINIA 22060-6221

IN REPLY
REFER TO

DSS-E

AUG 21 2000

MEMORANDUM FOR AFMOA/SGOR

SUBJECT: Impact of DLA and Service Specific Databases on Control of Radioactive
Commodities

Reference AFMOA/SGOR letter, dated July 31, 2000, subject as above.

The referenced letter addresses a Nuclear Regulatory Commission (NRC) reportable incident at Barksdale Air Force Base involving the loss of control of 17 lensatic compasses, NSN 6605-00-151-5337, 120 millicuries per compass, regulated by the NRC under the general license requirements. To date, I have no copies or supporting documentation as to the nature of the incident or how the loss of control occurred. This response is based on the best available information provided to me by the reference above.

The referenced letter stated one of the failures identified by the Air Force installation for loss of control of the regulated items is that the items were not properly identified as radioactive when they were introduced into the supply database systems. A query of the catalog data in the Federal Logistics Information System (FLIS), the Management Data Response Report for the compasses revealed the following:

- a. The item is used by the Department of Army, Department of Navy, and Marine Corps.
- b. The Source of Supply and DoD integrated manager for the NSN is the Department of Army.
- c. The item is identified as being entered into the Hazardous Material Information System with a hazardous material indicator code of "Y."
- d. The item is identified with a Hazardous Characteristic Code of "A1" (Special General License Requirements).
- e. The item is specifically identified as being radioactive in the Army's Management Data Response Database with a Special Control Item Code of "8", radioactive.
- f. The item is assigned a type cargo code (TCC) of "A" which indicates it is radioactive requiring a radioactive label.
- g. The Department of Army (DoD Integrated Manager) has coded the NSN as condemned, no longer authorized for procurement, issue, use or requisitioning.

When an item is issued from a Defense Logistics Agency (DLA) depot utilizing the Distribution Standard System (DSS), DSS will identify and print the "radioactive information" on

Federal Recycling Program



Printed on Recycled Paper

the DD-1348 (Material Release Order) based on the Item Data. DSS will print in block 27, the Hazardous Characteristics Code (HCC) and definition and the Type Cargo Code (TCC) and definition. DSS identifies items containing radioactive material and/or hazardous material by querying from a variety of codes that the Services use in their legacy systems to identify hazardous material.

In this particular instance, Barksdale Air Force Base is not an affiliated DLA activity. Therefore, I cannot address what particular tracking capabilities are used when transferring items by Air Force to a DLA Defense Reutilization and Marketing Office. This particular NSN and item data information noted above is in the FLIS, and the Army identified the item with the appropriate codes. In addition, the Army also identified the item with a Special Contents Item Control (SCIC) in their Service Database. The Air Force utilizes different codes.

The database query has confirmed the lensatic compasses were properly identified as containing radioactive material, regulated by a specific or general license by the managing and using activities. Items containing regulated radioactive material are restricted from being excessed for disposal to any and all Defense Reutilization and Marketing Offices. Disposal of items containing radioactive material are to be accomplished in accordance with Department of Defense and Military Services directives. Loss of control of these items may well be the result of "human error" and not an error in the supply databases.

I will coordinate with the Logistics Policy and Acquisition Directorate for a presentation for the fall meeting of the Air Force Radioisotope Committee delineating in greater detail the procedures of the supply distribution function and management of items containing regulated radioactive material.



JOHN M. SCHEER
Division Chief
Safety and Health



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

12
7 September 2000

MEMORANDUM FOR USNRC, REGION IV
ATTN: TONY GAINES
611 RYAN PLAZA DRIVE STE 400
ARLINGTON TX 76011-8064

FROM: AFMOA/SGOR
110 Luke Ave Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Final Incident Report for Lost Lensatic Compasses, Barksdale AFB, LA
(Air Force Master Material's License No. 42-23539-01AF)

This is the final report on the loss of the lensatic compasses at Barksdale AFB, LA. An investigation has indicated there were system deficiencies in the supply and transportation system that resulted in the compasses missing the label 'radioactive material' in the local supply database. The memos from HQ USAF/ILS and HQ DLA (attached) describe this disconnect. These supply and transportation systems problems will be addressed and followed in the quarterly USAF Radioisotope Committee.

If you have any questions, please contact me at (202) 767-4308 or by email:
kristin.swenson@usafsg.bolling.af.mil. Our Telefax is (202) 767-5302.

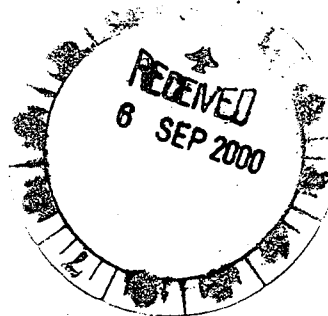
KRISTIN N. SWENSON, Lt Col, USAF, BSC
Chief, Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachments:

1. HQ USAF/ILS Memo w/ atch, 28 Aug 00
2. HQ DLA Memo, 21 Aug 00



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC



28 AUG 2000

MEMORANDUM FOR HQ AFMC/LG

FROM: HQ USAF/ILS
1030 Air Force Pentagon
Washington DC 20330-1030

SUBJECT: Impact of DLA and Service Specific Databases on Control of RAM Commodities

References: (a) AFMOA/SGOR Memo, 31 Jul 00, subject as above (Atch 1)

(b) 2nd Supply Squadron/LGSCD Memo, 16 Aug 00, Missing Lensatic Compasses
NSN 6605-00-151-5337 (Atch 2)

(c) HQ DLA/DSS-E Memo, 21 Aug 00, subject as above (Atch 3)

The Air Force Medical Operations Agency recently notified us (Atch 1) of a Nuclear Regulatory Commission (NRC) reportable incident at Barksdale AFB involving the loss of seventeen lensatic compasses and asked that we investigate the failure of the supply system to identify the compasses as radioactive items. Since Air Force systems have the capability to identify radioactive items, we asked Barksdale AFB to provide a detailed account of how the loss occurred. Barksdale's response (Atch 2) implies there may be systemic deficiencies in both supply and transportation systems that are contributing to invalid cataloging data in the Standard Base Supply System (SBSS).

The Army is the DoD integrated manager for the compass lost by Barksdale. Defense Logistics Agency's response to the AFMOA (Atch 3) indicates the Federal Logistics Information System (FLIS) cataloging data, entered by the Army, correctly identifies the compass as containing radioactive material regulated by a specific or general license. Theoretically, the Air Force should use FLIS data to update the SBSS through scheduled Stock Number User Directory (SNUD) updates. However, preliminary discussions with AFMC personnel indicate that not all data SNUD sends to the SBSS originates from the FLIS, even on items managed by the other services. Accordingly, request you investigate the Barksdale incident and provide definitive information to support the Air Force final response to the NRC. Areas requiring response include:

a. How Air Force supply and transportation systems identify radioactive items to those issuing, disposing of, handling, and transporting materiel.

b. Document the source of radioactive item identification data SNUD sends to the SBSS, any pass through systems, and frequency of data update.

c. Identify corrective actions to ensure Air Force data systems contain valid FLIS radioactive item information and projected milestones.

We can't emphasize enough the seriousness of this incident. Failure to properly identify radioactive items can cause additional incidents involving the loss of control over radioactive material, personnel injury, significant legal costs and NRC-levied fines. Request your written response by 15 Sep 00. Additionally, request your representative to the USAF Radioisotope Committee (RIC) be prepared to brief the next RIC meeting tentatively scheduled for 11 Oct 00. Questions may be referred to Ms Ruth Hill, HQ USAF/ILSP, DSN 225-4514.



ROBERT E. MANSFIELD JR. BRIG GEN, USAF
Director of Supply
DCS/Installations & Logistics

Attachments:

1. AFMOA/SGOR Memo, 31 Jul 00
2. 2nd Sup Sqd/LGSCD Memo, 16 Aug 00
3. HQ DLA/DSS-E Memo, 21 Aug 00

cc:

HQ AFMC/LGT
HQ AFMC/LGI
HQ AFMC/SG
AFMOA/SGOR



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

31 Jul 00

MEMORANDUM FOR HQ USAF/IL (Ms. Ruth Hill) ✓
HQ DLA (Mr. Michael Coogen)

FROM: AFMOA/SGOR
110 Luke Ave, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Impact of DLA and Service Specific Databases on Control of RAM Commodities

An inquiry from NRC Region IV (Mr. Gaines) was received on a recent incident at Barksdale AFB regarding the loss of 17 lensatic compasses. One of the failures identified by the base in their interim report was the failure of the compasses to be tagged as radioactive when brought up on the supply database system. Mr. Gaines has asked for an explanation of the DLA/AF Supply System databases ability to track radioactive materials, and a discussion of what changes would be required in these databases to assure these compasses and similar commodities are properly flagged. To meet the requisite reporting requirements for NRC Region IV, we would like a brief summary of the issue by 18 Aug 00 for inclusion in our final report to the NRC on the Barksdale incident. Further, because this appears to be a recurring issue, we would appreciate a presentation on the topic at the Fall RIC meeting. ✓

If you have any questions, please contact Julie Coleman or me at DSN 297-4306 or 297-4308, respectively, or telefax DSN 297-5302. Our e-mails are julie.coleman@usafsg.bolling.af.mil or kristin.swenson@usafsg.bolling.af.mil.

KRISTIN N. SWENSON, Maj, USAF, BSC
Medical Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

NRC Region IV
HQ AFIA/SGO

16 Aug 00

MEMORANDUM FOR HQ USAF/IL (Ruth Hill)

FROM: 2d Supply Squadron/LGSCD
845 Logistics Land
Barksdale AFB, La. 71110

SUBJECT: Missing Linsatic Compasses NSN 6605 00 151 5337

On 17 August 2000, I spoke with Ms. Ruth Hill concerning the subject assets and I was asked to furnish information on the missing compasses.

A turn in was processed through the Supply Asset Tracking System (SATS) on 0074 date from account E277SH 0061 0023 for 17 each NSN 6605 00 151 5337, condition code H (condemned) resulting in the creation of an A5J Transfer to DRMO. Upon processing the turn in into SATS, a DD Form 1348-1A Issue Release/Receipt Document and SATS label for transfer of assets to DRMO were created. The only way this would have been prevented from automatically taking place would have been to use Transaction Exception Code (TEX) 1 of a Shipment Exception Code (SEX) is assigned to the NSN. This prevents internal computer controls from taking place and puts the asset on an unserviceable detail record.

I went into the SATS system and recreate the A5J document to see what information was reflected on the actual form. The TCC is shown in block 8 of the 1348-1A as "M4". Block 16 shows the phrase code that is assigned to each TCC. The phrase code reads "MAGNETIC MATERIE/NOT ASSIGNED. The "M" represents the Magnetic Materiel and the "4" shows as not assigned.

Areas and records below were checked:

Inquire from SBSS reflects Health Hazard code "1" which indicates that information on this NSN is contained in the Hazardous Information Files. This information is not available unless a 233 inquire is processed into the SBSS.

FED LOG reflected that the above NSN has TCC "A" assigned with a description of, Radioactive Substance, UN class 7 (radioactive label). FED LOG is used as a guide for personnel and is not used to load item records into SBSS.

The D043 (utilized by Customer Service to load item records into SBSS) show the TCC as "M4". This is the code that is actually appears in the SBSS. According to AFMAN 23-110, Vol. II, Pt. II, Chpt. 27, Table 27R4.1, the TCC of "M" has an explanation phrase of "MAGNETIC MATERIEL" and the TCC "4" has an explanation phrase of "Radio-active Substance in Limited Quantities; No Label Required". Supply Customer Service personnel load item records using FIL screen 442. There is not a space on this screen for TCC inputs. According to the AFMAN 23-110 Chap. 27 referenced above, "The code on the item record will remain blank until the AFMC 0013 system distributes the appropriate code(s) through SNUD (D071) by means of BDT/BVS). Codes can be single or where applicable a dual code may be authorized. TCC and phrase codes are loaded through automatic program controls according to our Computer Operations Personnel.

It has not been determined where the correct phrase codes will be input from to update the SBSS to indicate the phrase for TCC "4" as radioactive.

An ASNUD listing was created requesting assets in storage with TCC "M4" and a total of three stock numbers appeared which includes the above NSN. The other two NSN's are: 6605 01 196 6971 and 5826 01 078 4935.

If you have any further questions on this matter, please contact me at DSN 871-8461 or Commercial 318-456-8461 or telefax DSN 781-8290, e-mail address: Delmer.Passmore@BARKSDALE.af.mil.

DELMER W. PASSMORE, WS-10, DAF
Materials Handler Supervisor
2d Supply Squadron
Barksdale AFB, La. 71110



DEFENSE LOGISTICS AGENCY
HEADQUARTERS
8725 JOHN J. KINGMAN ROAD, SUITE 2533
FT. BELVOIR, VIRGINIA 22060-6221

REPLY
REFER TO

DSS-E

AUG 21 2000

MEMORANDUM FOR AFMOA/SGOR

SUBJECT: Impact of DLA and Service Specific Databases on Control of Radioactive Commodities

Reference AFMOA/SGOR letter, dated July 31, 2000, subject as above.

The referenced letter addresses a Nuclear Regulatory Commission (NRC) reportable incident at Barksdale Air Force Base involving the loss of control of 17 lensatic compasses, NSN 6605-00-151-5337, 120 millicuries per compass, regulated by the NRC under the general license requirements. To date, I have no copies or supporting documentation as to the nature of the incident or how the loss of control occurred. This response is based on the best available information provided to me by the reference above.

The referenced letter stated one of the failures identified by the Air Force installation for loss of control of the regulated items is that the items were not properly identified as radioactive when they were introduced into the supply database systems. A query of the catalog data in the Federal Logistics Information System (FLIS), the Management Data Response Report for the compasses revealed the following:

- a. The item is used by the Department of Army, Department of Navy, and Marine Corps.
- b. The Source of Supply and DoD integrated manager for the NSN is the Department of Army.
- c. The item is identified as being entered into the Hazardous Material Information System with a hazardous material indicator code of "Y."
- d. The item is identified with a Hazardous Characteristic Code of "A1" (Special General License Requirements).
- e. The item is specifically identified as being radioactive in the Army's Management Data Response Database with a Special Control Item Code of "8", radioactive.
- f. The item is assigned a type cargo code (TCC) of "A" which indicates it is radioactive requiring a radioactive label.
- g. The Department of Army (DoD Integrated Manager) has coded the NSN as condemned, no longer authorized for procurement, issue, use or requisitioning.

When an item is issued from a Defense Logistics Agency (DLA) depot utilizing the Distribution Standard System (DSS), DSS will identify and print the "radioactive information" on



the DD-1348 (Material Release Order) based on the Item Data. DSS will print in block 27, the Hazardous Characteristics Code (HCC) and definition and the Type Cargo Code (TCC) and definition. DSS identifies items containing radioactive material and/or hazardous material by querying from a variety of codes that the Services use in their legacy systems to identify hazardous material.

In this particular instance, Barksdale Air Force Base is not an affiliated DLA activity. Therefore, I cannot address what particular tracking capabilities are used when transferring items by Air Force to a DLA Defense Reutilization and Marketing Office. This particular NSN and item data information noted above is in the FLIS, and the Army identified the item with the appropriate codes. In addition, the Army also identified the item with a Special Contents Item Control (SCIC) in their Service Database. The Air Force utilizes different codes.

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I will coordinate with the Logistics Policy and Acquisition Directorate for a presentation for the fall meeting of the Air Force Radioisotope Committee delineating in greater detail the procedures of the supply distribution function and management of items containing regulated radioactive material.



JOHN M. SCHEER
Division Chief
Safety and Health



IN REPLY
REFER TO

DSS-E

DEFENSE LOGISTICS AGENCY
HEADQUARTERS
8725 JOHN J. KINGMAN ROAD, SUITE 2533
FT. BELVOIR, VIRGINIA 22060-6221



AUG 21 2000

MEMORANDUM FOR AFMOA/SGOR

SUBJECT: Impact of DLA and Service Specific Databases on Control of Radioactive Commodities

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JOHN M. SCHEER
Division Chief
Safety and Health

SEPARATOR SHEET

Other Nuclear Material

Event Number: 37205

REP ORG: U.S. AIR FORCE
LICENSEE: U.S. AIR FORCE
CITY: KIRKLAND AFB
COUNTY:
LICENSE#: 42-23539-01AF
DOCKET:

REGION: 4
STATE: NM
AGREEMENT: Y

NOTIFICATION DATE: 08/02/2000
NOTIFICATION TIME: 15:04[EDT]
EVENT DATE: 08/02/2000
EVENT TIME: 08:00[MDT]
LAST UPDATE DATE: 08/02/2000

PERSON	ORGANIZATION
BLAIR SPITZBERG	R4
SCOTT MOORE	NMSS

NRC NOTIFIED BY: MARK WROBEL
HQ OPS OFFICER: BOB STRANSKY

EMERGENCY CLASS: N/A
10 CFR SECTION:
IBBF 30.50(b)(2)(ii) EQUIP DISABLED/FAILS

EVENT TEXT

INADVERTENT HALON DISCHARGE AT IRRADIATOR FACILITY

The licensee reported that a halon fire suppression system at the Kirkland AFB irradiator facility discharged without an alarm or manual actuation. The source rack was in the shielded position throughout the event. All other safety systems, including the fire detection system, remained functional. The licensee has contacted the fire suppression system vendor to investigate the discharge.

The licensee has contacted NRC Region IV (Gaines) regarding this event.

LICENSEE EVENT REPORT EVALUATION FORM

Page 1
of 3

UNSPECIFIED EVENT

Licensee Name: USAF

LICENSEE INFORMATION

License No: <u>42-23539-01AF</u>	Docket No: <u>030-28641</u>
Additional license numbers, if multiple licenses _____	
City of Record: <u>San Antonio</u>	County of Record: <u>Bexar</u>
State of Record: <u>Texas</u>	Telephone No: <u>(202) 767-4308</u>

ADDITIONAL LICENSEE INFORMATION¹

Were other licensee/individuals involved? Yes___ No <u>X</u>	
(If yes, complete this section)	
License No: _____	Docket No: _____
Licensee Name: _____	
Additional license numbers, if multiple licenses _____	
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: <u>Kirtland AFB</u>	State: <u>New Mexico</u>
Date of Event: <u>8/2/00</u>	Time of Event: <u>8:00 am MDT</u>
Agreement State: <u>Y X</u> N___	NRC Region No: <u>RIV</u>
Reportable Event: <u>Y X</u> N___	Reporting Regulation: <u>30.50(b)(2)</u>
Date Event Reported to NRC or State: <u>8/02/00</u>	
Was a Consultant Hired to Investigate?: Y___ N <u>X</u>	
(If yes, complete CONSULTANT(S) section)	
NMED Report Number: <u>000568</u>	

LICENSEE EVENT REPORT EVALUATION FORM

Page 2
of 3

UNSPECIFIED EVENT

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

CONSULTANT(S)

Consultant(s) Name: _____ Company: _____
Who Hired Consultant: _____
Consultant's Specialty: _____

SPECIFIC DATA

Device Model number unknown Manufacturer's name unknown
Device Serial number unknown
Source Model number unknown Manufacturer's name unknown
Serial number unknown Radionuclide Co-60
Activity of the source 5,400 Ci Assay date of source unknown

¹ If a non-licensee is involved, note that fact and enter appropriate data

CORRECTIVE ACTIONS

See attached letters.

ADDITIONAL INFORMATION

The licensee reported that the fire suppression system of their Co-60 irradiator facility spontaneously discharged. The source was in the shielded position when the discharge occurred and remained in the shielded position for the cleanup. The subsequent investigation indicated that the system processor board failed. The processor board was replaced and the placed was cleaned up.

NMED 000568

LICENSEE EVENT REPORT EVALUATION FORM

Page 3
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

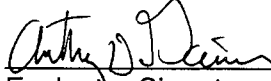
License Number 42-23539-01AF

Docket Number 030-28641

RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y___ N <u>X</u> Conduct a reactive inspection: Y___ N <u>X</u> (If yes) Inspection Report No: _____ LER recommended for closure: Y___ X___
--

LER Evaluator:


Evaluator Signature

Date: 11/27/00

Approved by:


Branch Chief

Date: 12/01/00



USNRC, Region IV
(Mr. Haines)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

2 August 2000

MEMORANDUM FOR AFRL/VSSE (MR. BILL KEMP)

FROM: HQ AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB DC 20332-7050

SUBJECT: Discharge of Halon Fire Suppression System at Co-60 Irradiator Facility

Reference: Phone Conversation, 2 August 2000

Our office was contacted on 2 August 2000 by Capt Abell concerning the spontaneous discharge of the halon fire suppression system of the Co-60 irradiator managed under AF RAM Permit No. NM-30470-01/00AFP and Docket No. 030-90350. Based on our interpretation of 10CFR30.50(b)(2), this incident was reported to the USNRC Operation Center and USNRC, Region IV. To closeout this incident, a written incident report must be provided to our office within 30 days addressing the following elements:

- a. A description of the incident and causative factors.
- b. A description of the licensed material involved, including activity, and chemical and physical form.
- c. A description of the short and long-term impact of the incident on facility operations.
- d. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.
- e. Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the incident.

Request a response by **31 August 2000**. If you have any questions, please contact me at DSN 297-4309 or commercial (202) 767-4309. E-Mail: mark.wrobel@usafsg.bolling.af.mil. Our Telefax is DSN 297-5302 or commercial (202) 767-5302.

MARK C WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

cc: (See Next Page)

cc:

AFRL/VS

377 AMDS/SGPB

HQ AFMC/SGCR

HQ AFIA/SGO (Maj Nicholson)

USNRC, Region IV (Mr. Gaines)



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

30 August 2000

MEMORANDUM FOR: USNRC, REGION IV
ATTN: MR. GAINES
611 RYAN PLAZA DR STE 400
ARLINGTON TX 76011-8064

FROM: HQ AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB D 20332-7050

SUBJECT: Discharge of Halon Fire Suppression System at Co-60 Irradiator Facility, Managed Under AF Master Material License 42-23539-01AF, Docket No. 030-28641, and AF Permit RAM Permit No. NM-30470-01/00AFP and Docket No. 030-90350

Our office was contacted on 2 August 2000 by Capt Abell, Kirtland AFB RSO, concerning the spontaneous discharge of the halon fire suppression system of the Co-60 irradiator managed under AF RAM Permit No. NM-30470-01/00AFP and Docket No. 030-90350. Based on our interpretation of 10CFR30.50(b)(2), this incident was reported to the USNRC Operation Center and USNRC, Region IV, and assigned event number 37205. The final incident report received from the base is attached. We consider this issue closed.

If you have any questions regarding this issue, please contact me at DSN 297-4309 or E-Mail at mark.wrobel@usafsg.bolling.af.mil. Our Telefax is DSN 297-5302. Our Beeper for receiving after-duty-hours Incident/Accident Reports is 1-888-425-3861. AFMOA/SGOR's web page is <http://sg-www.satx.disa.mil/moasgor/>.

MARK C WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
377 AMDS/SGPB Memo

cc:
AFRL/VS
AFRL/VSSE (MR. BILL KEMP)
377 AMDS/SGPB
HQ AFMC/SGCR
HQ AFIA/SGO (Maj Nicholson)



DEPARTMENT OF THE AIR FORCE
377 AEROSPACE MEDICINE SQUADRON (AFMC)

28 Aug 00

MEMORANDUM FOR AFMOA/SGOR

FROM: 377 AMDS/SGPB
2050A Second St SE
Kirtland AFB NM 87117-5559

SUBJECT: AFRL/VS Formal Response to Ltr Dated 2 Aug 00, Discharge of Halon Fire Suppression System, Co-60 Irradiator Facility

1. The following information is in formal response to the spontaneous discharge of Halon Fire Suppression System, Co-60 Irradiator Facility (AF RAM permit NM-30470-01/00AFP, Docket # 030-90350) on 2 Aug 00. The description of events should be clarified by noting the fire suppression system involved was not Halon, but by a dry chemical named FORAY (MSDS on file). A description of the incident, causative factors, licensed material involved, short and long term impact, exposures to individuals, and adopted measures preventing reoccurrence are addressed in the following paragraphs:

a) A description of the incident and causative factors:

- On 2 Aug 00 at approximately 0815 hrs, Mr. William Kemp, AFRL/VS Radiation Safety Officer for RAM Permit No. NM-30470-01/00, notified 377 AMDS/SGPB (KAFB Radiation Safety Officer) that an incident had occurred where the Co-60 facility (Bldg 48065) fire suppression system had initiated without cause. It was identified that the fire suppression system employed the use of an O₂ depletor (dry chemical displacant called FORAY) and immediate concerns were addressed as to people in the facility at the time of deployment (no personnel were identified). The Co-60 source was verified in the down position and there was no threat identified for exposure to high levels radiation. Mr. Kemp contacted SGPB and then was advised to contact the Fire Department, SGPB would be responding to the scene to assist in the health and safety of initial responders.
- Upon arrival at the Co-60 facility, contact was established with the Fire Department, Incident Commander (IC) to cover the health and safety aspects of the facility prior to entry. Mr. Kemp had fully briefed the IC on all critical information addressing radiological hazards and fire suppression system configuration. Mr. Kemp issued pocket dosimeters and gamma survey meter to the initial entry team who performed a sweep of the facility for fire, rad, LEL, and O₂ measurements. No unusual observations or readings were reported and no exposures were recorded at mission completion.

- Mr. Kemp successfully performed a function check on all facility radiation monitors to ensure the rad detection system was operational. At approximately 0900 hrs the response effort was terminated.
- Causative factor was determined by the manufacture to be a catastrophic failure of the fire suppression system, processor board.

b) Description of licensed material involved, including activity, and chemical and physical form:

- Activity of the Co-60 irradiator: 5400 Cu. Chemical and physical form: sealed source, Cobalt.

c) A description of the short and long term impact of the incident on facility operations.

- Only short-term impact to the facility has been identified—facility was non-operational during a one-month repair period. No long-term impact has been identified.

d) Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.

- Incident occurred with source in the shielded position. No personnel were at or near the facility during the incident.

e) Procedures or measures that have been, or will be, adopted to ensure against a reoccurrence of the incident.

- The fire suppression system processing board has been upgraded with the latest version of manufactures software and hardware. Upon manufacture's recommendation, a semiannual maintenance inspection will be implemented (prior to the fire suppression system incident, maintenance inspections were performed annually).

2. Please address further questions or concerns to the PRSO at DSN 246-6889, or the BRSO at DSN 246-3625.


CLINTON E. ABELL, Capt, USAF, BSC
Kirtland AFB Radiation Safety Officer

SEPARATOR SHEET

Other Nuclear Material

Event Number: 37217

REP ORG: U.S. AIR FORCE

LICENSEE: U.S. AIR FORCE

CITY:

REGION: 4

NOTIFICATION DATE: 08/09/2000

NOTIFICATION TIME: 16:35[EDT]

EVENT DATE: 08/08/2000

EVENT TIME: 16:30[PDT]

LAST UPDATE DATE: 08/09/2000

COUNTY: LINCOLN

STATE: NV

LICENSE#: 422353901-AF

AGREEMENT: Y

DOCKET:

PERSON ORGANIZATION

KRISS KENNEDY R4

C.W. (BILL) REAMER NMSS

NRC NOTIFIED BY: MARK WROBEL

HQ OPS OFFICER: BOB STRANSKY

EMERGENCY CLASS: N/A

10 CFR SECTION:

BAB2 20.2201(a)(1)(ii) LOST/STOLEN LNM>10X

EVENT TEXT

TWO AM-241 SOURCES LOST IN CRASH OF AIRCRAFT

On 8/8/00, ^{micro} at approximately 1630 PDT, an F-16 crashed on a mountain north of Glendale, NV. The aircraft was equipped with a LANTIRN pod, which contains two 4 Ci Am-241 sources (registry number NR-0136-S-0208-5; Amersham model AMM.7). The crash occurred approximately 5,000 feet up the side of a mountain that is approximately 7,000 feet high in a very remote location. The Air Force incident investigation team has not yet accessed the crash site. Wreckage is reported to be spread along a 1,000 foot distance. The licensee will make reasonable efforts to retrieve the sources.

The licensee has already contacted NRC Region IV (Gaines) regarding this event.

LICENSEE EVENT REPORT EVALUATION FORM

Page 1
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

LICENSEE INFORMATION

License No: <u>42-23539-01AF</u>	Docket No: <u>030-28641</u>
Additional license numbers, if multiple licenses _____	
City of Record: <u>San Antonio</u>	County of Record: <u>Bexar</u>
State of Record: <u>Texas</u>	Telephone No: <u>(202) 767-4308</u>

ADDITIONAL LICENSEE INFORMATION¹

Were other licensee/individuals involved? Yes___ No <u>X</u>	
(If yes, complete this section)	
License No: _____	Docket No: _____
Licensee Name: _____	
Additional license numbers, if multiple licenses _____	
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: <u>Nellis AFB</u>	State: <u>Nevada</u>
Date of Event: <u>8/8/00</u>	Time of Event: <u>16:30 PDT</u>
Agreement State: <u>Y X</u> N___	NRC Region No: <u>RIV</u>
Reportable Event: <u>Y X</u> N___	Reporting Regulation: <u>20.2201(a)(1)(i)</u>
Date Event Reported to NRC or State: <u>8/9/00</u>	
Was a Consultant Hired to Investigate?: Y___ N <u>X</u>	
(If yes, complete CONSULTANT(S) section)	
NMED Report Number: <u>000579</u>	

LICENSEE EVENT REPORT EVALUATION FORM

Page 2
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

CONSULTANT(S)

Consultant(s) Name: _____ Company: _____
Who Hired Consultant: _____
Consultant's Specialty: _____

SPECIFIC DATA

Device Model number _____ Manufacturer's name _____ Device
Serial number _____
Source Model number AMM.7 Manufacturer's name Amersham
Serial number unknown 2sources Radionuclide Am-241
Activity of the source 4 microcuries each Assay date of source unknown

¹ If a non-licensee is involved, note that fact and enter appropriate data

CORRECTIVE ACTIONS

See attached letters.

ADDITIONAL INFORMATION

The permittee lost two 4 microcurie Am-241 sources in a LANTIRN Pod, when the F-16 crashed that had the Pod on board. The crash occurred on the side of a mountain that is remote and not easily accessible. The initial crash recovery team located parts of the Pod, and recovery of the Pod and sources will be attempted at a later time.

NMED 000579

LICENSEE EVENT REPORT EVALUATION FORM

Page 3
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y___ N X
Conduct a reactive inspection: Y___ N X (If yes) Inspection Report No: _____
LER recommended for closure: Y X

LER Evaluator:

Approved by:

Anthony D. Baise Date: 11/28/00
Evaluator Signature

[Signature] Date: 12/6/00
Branch Chief



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

SEP 18

8 September, 2000

MEMORANDUM FOR: USNRC, REGION IV ✓
ATTN: MR. GAINES
611 RYAN PLAZA DR STE 400
ARLINGTON TX 76011-8064

FROM: HQ AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB D 20332-7050

SUBJECT: Interim Report, Nellis F-16 Crash and Loss of Am-241 Sources

Our office was contacted on 9 Aug 2000 by Nellis AFB that an F-16 carrying a LANTIRN pod had crashed on Mormon Peak, approximately 25 miles north of Glendale, Nevada. The pod contained two Am-241 sources, 4 μ Ci each. Based on the requirements of 10CFR20.2201(a), this incident was reported to the USNRC Operation Center and USNRC, Region IV, and assigned event number 37217. The LANTIRN pod was identified at the crash site, and remains in place pending completion of the crash investigation. An inspection of the pod is planned in September to assure the sources are present and intact. An interim incident report received from the base is attached. A final report will be prepared after the final disposition of the pod and sources have been determined.

If you have any questions regarding this issue, please contact me at DSN 297-4309 or E-Mail at mark.wrobel@usafsg.bolling.af.mil. Our Telefax is DSN 297-5302. Our Beeper for receiving after-duty-hours Incident/Accident Reports is 1-888-425-3861. AFMOA/SGOR's web page is <http://sg-www.satx.disa.mil/moasgor/>.

MARK C WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
99 AMDS/SGPB Memo

cc:
SGOE
NRC Region IV
HQ ACC/SGOP
HQ AFIA/SGO (Maj Nicholson)



**DEPARTMENT OF THE AIR FORCE AND
DEPARTMENT OF VETERANS AFFAIRS
MIKE O'CALLAGHAN FEDERAL HOSPITAL
NELLIS AIR FORCE BASE, NEVADA**

8 Sep 00

MEMORANDUM FOR AFMOA/SGOR (MAJOR WROBEL)

FROM: 99AMDS/SGPB

4700 N. Las Vegas Blvd., Ste. 2419

Nellis AFB NV 89191

SUBJECT: Interim Report, 8 August 2000 F-16 Crash and Recovery of Am-241 Sources

1. The preliminary investigation of the subject aircraft mishap has been completed. I've been informed that the Crash Recovery Team (57 EMS/LGM) has located all portions of the LANTIRN pod involved in the crash. The Permittee of the subject radioactive material (57 CRS/CRVS on USAF Radioactive Material Permit No. 27-30354-1AFP) has conversed with the Crash Recovery Team and believes the Am-241 is still contained within the pod.
2. A representative from 57 CRS/CRVS is planning to travel to the crash site to inspect the pod. I will go along to confirm the presence of the permitted sources and test for removable contamination. Upon return to Nellis AFB, I will inform you of the results.
3. Please contact me at DSN 348-3311 if you have any questions.

A handwritten signature in black ink, appearing to read "Dennis O'Sullivan".

DENNIS O'SULLIVAN, Capt, USAF, BSC
Base Radiation Safety Officer



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

13 2000

1 November 2000

MEMORANDUM FOR USNRC, REGION IV
ATTN: MR. GAINES
611 RYAN PLAZA DR STE 400
ARLINGTON TX 76011-8064

FROM: HQ AFMOA/SGZR
110 Luke Avenue, Room 405
Bolling AFB D 20332-7050

SUBJECT: Follow-on Interim Report, F-16 Crash and Loss of Am-241 Sources, Nellis AFB NV
(Permit No. NV-30354-00/01AFP, Docket No. 030-90282)

The attached correspondence provides an update on the status of the investigation and recovery concerning the 8 August 2000 crash of an F-16 carrying a LANTIRN pod on Mormon Peak NV. We still consider the item open, and will provide updates, as information from Nellis AFB becomes available.

If you have any questions regarding this issue, please contact me at DSN 297-4309 or E-Mail at mark.wrobel@usafsg.bolling.af.mil. Our Telefax is DSN 754-8089. Our Beeper for receiving after-duty-hours Incident/Accident Reports is 1-888-425-3861. AFMOA/SGZR's web page is <http://sg-www.satx.disa.mil/moasgor/>.

MARK C. WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
99 AMDS/SGPB Memo, 31 Oct 00

cc:
AFMOA/SGZE
99 AMDS/SGPB
HQ ACC/SGOP
HQ AFIA/SGO (Maj Nicholson)



**DEPARTMENT OF THE AIR FORCE AND
DEPARTMENT OF VETERANS AFFAIRS
MIKE O'CALLAGHAN FEDERAL HOSPITAL
NELLIS AIR FORCE BASE, NEVADA**

31 Oct 00

MEMORANDUM FOR AFMOA/SGOR (MAJOR WROBEL)

FROM: 99AMDS/SGPB
4700 N. Las Vegas Blvd., Ste. 2419
Nellis AFB NV 89191

SUBJECT: Interim Report; 8 August 2000 F-16 Crash and Recovery of Am-241 Sources

1. The 99 Support Group Commander, Col. Tedesco, informed me that the 99 Air Base Wing is still negotiating with the Bureau of Land Management on the disposition and/or recovery timetable of the aircraft wreckage. The entire wreckage, including the LANTIRN components, remains at a very remote, yet precarious, location on a mountain ledge. Col. Tedesco is working closely with the Air Force Safety Center to develop a plan to recover the material safely. He gave no expected completion date.
2. The Repair and Reclamation Section, 57 EMS/LGMTR, stated they would be revisiting the site in approximately 3 weeks and may be able to bring back the LANTIRN components. Col. Tedesco concurred with this possibility. I will keep you informed of any changes to the present situation.
3. Please contact me at DSN 348-3311 if you have any questions.

signed
DENNIS O'SULLIVAN, Capt, USAF, BSC
Base Radiation Safety Officer

SEPARATOR SHEET

Other Nuclear Material		Event Number: 37278	
REP ORG: U.S. AIR FORCE		NOTIFICATION DATE: 08/31/2000	
LICENSEE: U.S. AIR FORCE		NOTIFICATION TIME: 10:15[EDT]	
CITY: CANNON AFB	REGION: 4	EVENT DATE: 08/30/2000	
COUNTY:	STATE: NM	EVENT TIME: 14:00[MDT]	
LICENSE#: 42-23539-01AF	AGREEMENT: Y	LAST UPDATE DATE: 08/31/2000	
DOCKET:			
		PERSON	ORGANIZATION
		CHUCK PAULK	R4
		BRIAN SMITH	
NRC NOTIFIED BY: MAJOR WROBEL			
HQ OPS OFFICER: FANGIE JONES			
EMERGENCY CLASS: N/A			
10 CFR SECTION:			
BAB1 20.2201(a)(1)(i) LOST/STOLEN LNM>1000X			

EVENT TEXT

4 MISSING EXIT SIGNS CONTAINING TRITIUM

The licensee reported that 4 exit signs, 'Safety Sign' by SRB Technologies Inc., each containing 20 curies of tritium, were discovered missing and presumed stolen from building 1245. An investigation is underway and a report will follow in 30 days.

The licensee notified NRC R4 (Gaines).

LICENSEE EVENT REPORT EVALUATION FORM

Page 1
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

LICENSEE INFORMATION

License No: <u>42-23539-01AF</u>	Docket No: <u>030-28641</u>
Additional license numbers, if multiple licenses _____	
City of Record: <u>San Antonio</u>	County of Record: <u>Bexar</u>
State of Record: <u>Texas</u>	Telephone No: <u>(202) 767-4308</u>

ADDITIONAL LICENSEE INFORMATION¹

Were other licensee/individuals involved? Yes___ No <u>X</u>	
(If yes, complete this section)	
License No: _____	Docket No: _____
Licensee Name: _____	
Additional license numbers, if multiple licenses _____	
City of Record: _____	County of Record: _____
State of Record: _____	Telephone No: _____

EVENT INFORMATION

City: <u>Cannon AFB</u>	State: <u>New Mexico</u>
Date of Event: <u>8/30/00</u>	Time of Event: <u>14:00 MDT</u>
Agreement State: <u>Y</u> <u>X</u> <u>N</u>	NRC Region No: <u>RIV</u>
Reportable Event: <u>Y</u> <u>X</u> <u>N</u>	Reporting Regulation: <u>20.2201(a)(1)(i)</u>
Date Event Reported to NRC or State: <u>8/31/00</u>	
Was a Consultant Hired to Investigate?: <u>Y</u> <u>N</u> <u>X</u>	
(If yes, complete <u>CONSULTANT(S)</u> section)	
NMED Report Number: <u>000651</u>	

LICENSEE EVENT REPORT EVALUATION FORM

Page 2
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

CONSULTANT(S)

Consultant(s) Name: _____ Company: _____
Who Hired Consultant: _____
Consultant's Specialty: _____

SPECIFIC DATA

Device Model number Betalux Exit Signs Manufacturer's name SRB Technologies
Device Serial number 201455, 201458, 201459, and 201450
Source Model number _____ Manufacturer's name _____
Serial number _____ Radionuclide H-3
Activity of the source 20 curies each Assay date of source 11/97

¹ If a non-licensee is involved, note that fact and enter appropriate data

CORRECTIVE ACTIONS

See attached letters.

ADDITIONAL INFORMATION

Four Exit signs containing 20 curies each were stolen from a dormitory building. The signs have not been recovered.

LICENSEE EVENT REPORT EVALUATION FORM

Page 3
of 3

LOST, ABANDONED, OR STOLEN RADIOACTIVE MATERIAL

Licensee Name: USAF

License Number 42-23539-01AF

Docket Number 030-28641

RECOMMENDED NRC FOLLOWUP

Review event and corrective actions during next routine inspection: Y ☐ N ☒
Conduct a reactive inspection: Y ☐ N ☒ (If yes) Inspection Report No: _____
LER recommended for closure: Y ☒ X ☐

LER Evaluator:

Anthony D. Deane
Evaluator Signature

Date: 11/28/00

Approved by:

[Signature]
Branch Chief

Date: 12/01/00



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

NRC, Region IV
(Mr. Daines)

SEP 8

31 Aug 00

MEMORANDUM FOR: 27 CE/CEV (Mr. Daniel Barnett)
27 ADOS/SGGB (Capt Gabe Moreno-Fergusson)

FROM: AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB DC 20332-7050

SUBJECT: Missing USAF Radioactive Material

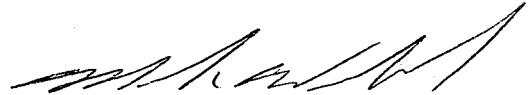
References: Phone conversation, 31 August 2000 from Capt Moreno-Fergusson
E-mail, 30 August 2000 from Capt Moreno-Fergusson

Phone and e-mail correspondence from 27 ADOS/SGGB on 30 and 31 Aug 2000 with Capt Gabe Moreno-Fergusson stated that 4 tritium exit signs were found missing from Bldg 1245, the Component Repair Squadron Dorm. These are Nuclear Regulatory Commission regulated items which require a written report on the circumstances surrounding their disappearance. An incident report must be provided to this office containing the following elements:

- a. A description of the licensed material involved, including kind, activity, and chemical and physical form.
- b. A description of the circumstances under which the loss occurred.
- c. A statement of disposition, or probable disposition of the material involved.
- d. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.
- e. Actions that have been taken or will be taken to recover the material.
- f. Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the loss of material.

Since theft is the expected cause of item loss, you are requested to report this loss to local Security Forces or Office of Special Investigation. Their report should be provided as an attachment to your incident response. Further, because loss of control of these items has been a recurring issue of concern for your base, you are also advised to inform your base commander of this incident.

Request a final report by **29 Sep 00**. If you have any questions, please contact me at DSN 297-4309 or commercial (202) 767-4309. Telefax: DSN 297-5302, (202) 767-5302. E-Mail: mark.wrobel@usafsg.bolling.af.mil.



MARK C WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

cc:

27 FW/CC

AFMOA/SGOE

NRC Region IV (Mr. Gaines)

HQ AFIA/SGO (Maj Nicholson)

HQ ACC/SGOP (Col Hamilton)



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

NRC Region IV
(Mr. Saines)

2 Oct 2000

MEMORANDUM FOR 27 CE/CEV
ATTN: DANIEL BARNETT

FROM: AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJET: Missing USAF Radioactive Material

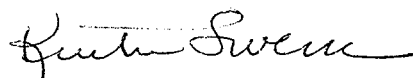
References: 27 CEV/CV Memo dated 29 Sep 2000

Your incident report responding to the loss of four tritium exit signs is inadequate, and is rejected based on the following deficiencies.

- a. Your description of the items failed to identify the activity, and chemical and physical form of the tritium.
- b. A complete description of the circumstances under which the loss occurred was not provided, in all likelihood because a police investigation was not accomplished as requested by our office. The justification that material property value did not exceed \$750 to merit an investigation is irrelevant. The material is NRC accountable, and if improperly handled could pose a health risk to individuals and the environment. Further, lack of an appropriate investigation may result in fines being levied against the US Air Force, and Cannon AFB specifically, for violations of reporting requirements under 10 CFR 20, and failure to manage material in accordance with the General License in accordance with 10 CFR 31.
- c. A statement of disposition, or probable disposition of the material involved, is inadequate for reasons identified above.
- d. The quantitative information of swipe samples taken from around the former sign locations was not provided. Further, since an investigation was not conducted, potential individual exposures remain unknown.
- e. It is evident that no actions have been taken to recover the material, which is an inadequate response.
- f. Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss of material are not fully documented. How much "more often" will facility

managers conduct inventories and brief dorm residents. How has this incident impacted your Tritium Exit Sign Removal Plan? Further, in accordance with section 2-4 of this Plan, investigations of theft or loss of signs will involve the Base Radiation Safety Officer. Phone conversations with Capt Moreno-Fergusson indicated that this report was generated without his review. Please explain.

Because this incident represents a continuing negative trend in management of these items, an IG staff assistance has been requested. A revised report is required by **31 Oct 2000**. If you have any questions, contact Maj Wrobel at DSN 297-4309 or commercial (202) 767-4309; Telefax: DSN 754-8089, (202) 404-8089; E-Mail: mark.wrobel@usafsg.bolling.af.mil.



KRISTIN N. SWENSON, Lt Col, USAF, BSC
Chief, Radiation Protection Division
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:

27 CE/CEV Memo, dated 29 Sep 00

cc:

27 FW/CC

27 ADOS/SGGB (Capt Moreno-Fergusson)

AFMOA/SGOE

NRC Region IV (Mr. Gaines)

HQ AFIA/SGO (Maj Nicholson)

HQ ACC/SGOP (Col Hamilton)



DEPARTMENT OF THE AIR FORCE

27th CIVIL ENGINEER SQUADRON (ACC)
CANNON AIR FORCE BASE NEW MEXICO

29 SEP 2000

MEMORANDUM FOR AFMOA/SGOR

FROM: 27 CE/CEV
506 N DL Ingram Blvd
Cannon AFB NM 88103-5003

SUBJECT: Missing USAF Radioactive Material

1. Reference your letter dated 31 Aug 00 on the reporting requirements for the missing sign.
2. Attached are the incident report requested by your office and the police report on the missing signs. The local OSI office would not investigate the incident due to property lost to the US Air Force was less than \$750.00.
3. If you have any questions about the reports, please contact me at DSN 681-1146 or commercial (505) 784-6022, my fax is DSN 681-1089, (505) 784-1089, e-mail daniel.barnett@cannon.af.mil.

A handwritten signature in dark ink, appearing to read "Daniel A. Barnett", is positioned above the typed name.

DANIEL A. BARNETT, GS-13
Chief, Environmental Flight

Attachments:

1. Incident Report

~~2. Police report~~ w/D

Atch

Incident Report on lost tritium exit signs, building 1245

Information request by AFMOA/SGOR:

a. *A description of the licensed material involved, including kind, activity, and chemical and physical form.*

- Luminous exit signs NCNRC License No. 034-0534-2 containing tritium gas.

b. *A description of the circumstances under which the loss occurred.*

- Four tritium exit signs were found missing during an asbestos sampling event in dormitory building 1245. The asbestos program manager is also one of the POCs for the tritium exit sign removal plan.

c. *A statement of disposition, or probable disposition of the material involved.*

- Signs are missing and presumed stolen by person or persons unknown.

d. *Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.*

- 27 ADOS/SGGB completed swipe samples for contamination, with no exposure noted, and no apparent damage to the signs.

e. *Actions that have been taken or will be taken to recover the material.*

- Inventory taken in other dormitories on base to see if any others were missing. Security forces and OSI were notified to conduct an investigation on the possible theft of government property.

f. *Procedure or measures that have been, or will be, adopted to ensure against a recurrence of the loss of material.*

- Have dormitory managers complete an inventory of the signs in their facility more often and complete more briefings to the dorm residents.

g. *Other information.*

- Wing commander has been notified.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

3 November 2000

MEMORANDUM FOR USNRC, REGION IV
ATTN: MR. GAINES
611 RYAN PLAZA DR STE 400
ARLINGTON TX 76011-8064

FROM: HQ AFMOA/SGZR
110 Luke Avenue, Room 405
Bolling AFB D 20332-7050

SUBJECT: Final Report, Missing Tritium Exit Signs, Cannon AFB NM

An incident report has been generated by Cannon AFB NM concerning their reported loss of four generally licensed tritium exit signs from a base dormitory. The incident was reported to the NRC on 31 August 2000, under the requirements of 10CFR 20.2201(a). The signs were presumably stolen, and the theft is currently under investigation by base Security Force and AF Office of Special Investigation. The base has implemented numerous corrective actions including: completing a sign inventory, briefing facility and effected squadron commanders, revising the base exit sign removal plan, revising applicable radiation protection instructions, and improving public awareness through a newspaper article. Based on these actions, we consider this issue closed. We will forward the final Security Force/AFOSI report when it is available and notify you if and when the signs are ever recovered.

If you have any questions regarding this issue, please contact me at DSN 297-4309 or E-Mail at mark.wrobel@usafsg.bolling.af.mil. Our Telefax is DSN 754-8089. Our Beeper for receiving after-duty-hours Incident/Accident Reports is 1-888-425-3861. AFMOA/SGZR's web page is <http://sg-www.satx.disa.mil/moasgor/>.

MARK C. WROBEL, Maj, USAF, BSC
Health Physicist
Radiation Protection Division and
USAF Radioisotope Committee Secretariat
Air Force Medical Operations Agency
Office of the Surgeon General

Attachment:
27 FW/CC Memo, 2 Nov 00

cc: (See Next Page)
cc:

cc:

AFMOA/SGZE w/o Atch

27 ADOS/SGGB w/o Atch

HQ ACC/SGOP w/o Atch

HQ AFIA/SGO (Maj Nicholson)



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE NEW MEXICO

MEMORANDUM FOR AFMOA/SGOR

110 Luke Avenue Room 405
Bolling AFB DC 20332-7050

FROM: 27 FW/CC

100 S DL Ingram Blvd Suite 100
Cannon AFB NM 88103-5214

SUBJECT: Missing USAF Radioactive Material

1. In reference to your memo dated 2 Oct 00, IAW Title 10, Code of Federal Regulations, Part 20.402, Report of Theft or Loss of Licensed Material and AF Instruction 40-201, enclosed are letters describing the radioactive material missing from Cannon AFB, the believed circumstances under which the loss occurred, our current attempts to locate and recover the sources and current and future corrective actions to be initiated to minimize the potential for this kind of incident recurring. Response to your comments can be found in "Statement of Disposition" (Atch 2). We will forward results of Security Forces investigation and any follow-up correspondence as they occur.
2. If there are any questions, or if you require further assistance, please contact my point of contact, Captain Gabriel Moreno-Fergusson, 27 ADOS/SGGB at DSN 681-4063 or Commercial (505) 784-4063.

JEFFREY A. REMINGTON, Colonel, USAF
Commander

Attachments:

1. Incident Description
2. Statement of Disposition
3. Newspaper Article
4. CAFB Sup 1 to AFI 40-201
5. Briefing-to Managers/Duty-to-Report Ltr
6. 27 CES/CC Ltr, 12 Oct 00
7. Distribution List

Global Power for America

Incident Report

- 30 Aug – At approximately 1430 MST, I received e-mail from Mr. William Hamilton, 27 CES/CEV, about four signs found missing from dorm 1245. I notified Col Schaefer and proceeded to call the emergency number of the RIC (since it was after hours). I paged the phone twice until I got a phone call from Mrs. Julie Coleman. I explained to her about the incident. She asked me to call back on September 1st and give Maj Wrobel the details. Contacted Maj Marchioni at HQ ACC/SGOP to inform him of the incident. Left a message in his machine.
- 31 Aug – Contacted Maj Wrobel first thing in the morning. Provided him with the serial numbers of the signs missing, the locations, etc. He requested the telephone numbers for Mr. Daniel Barnett and AF OSI. Contacted Mr. Hamilton trying to obtain more information. Mr. Hamilton informed me that he had found that the signs were missing during an inspection of a carpet installer contractor. He is also the POC for the sign inventory.
- 1 Sept – Collected swipe samples of the areas where the signs were removed from and took pictures of those areas. Received e-mail from Mrs. Coleman requesting information about any other missing sign or other radioactive material missing. She also enquired about the swipes samples. Contacted FedEx to come and pick up the swipe samples, they weren't able to pick them up until the next day.
- 4 Sept - Maj Wroble contacted me after he had spoken to Mr. Barnett at CE. He mentioned that CE was advised to follow their plan.
- 19 Sept – Received e-mail from Mr. Hamilton about the Environmental Leadership Council (ELC). According to him, it was briefed at the ELC that the initial letter was going to be written by Bio. I replied to the e-mail saying that the initial investigation needed to be done by the Unit RSO answering the questions to me and I would coordinate on it. This message was sent to Col Schaefer, Mr. Barnett, Mr. Hamilton, and Lt Yang. Col Schaefer forwarded the message to LtCol Desport (CES/CC).
- 27 Sept – I e-mailed Mr. Hamilton enquiring the status of the report. Col Schaefer had scheduled and rescheduled a meeting with LtCol Desport twice to talk about the signs, the letter, and what to do in the future.
- 29 Sept – Received a phone call at home from Mrs. Chappell, Col Schaefer's secretary. She said that she had received a call from Capt David Pugh of AFMOA asking for me and for the location of the letter. I came into the MDG and contacted Capt Pugh. I gave him the phone number for Mr. Barnett because I have not seen the letter. Capt Pugh contacted me again and said that the letter had been faxed to him and that he had faxed me a copy of it. This is the first time I saw the reply letter.

- 2 Oct – Had a meeting with Col Schaefer, LtCol Desport, Mr. Barnett, and I at 0700 in the morning. We discussed about the signs, the correspondence and where we were going. Left the meeting with a good understanding and that the response was going to be coordinated sooner. Received a fax copy of the AFMOA reply (later dated that day). Contacted Col Schaefer and provided him with a copy of it. Contacted Maj Contrades (SFS/CC) about the investigation. He replied that he would go ahead and continue with it
- 11 Oct – I went to a meeting of the Facility Utilization Board – Project Prioritization Working Group. The project for the signs was going to be prioritized against all other projects in base. After the meeting, talked with LtCol Desport about the signs and that Col Schaefer and I wanted to meet with him. He declined the invitation at this time and said that we would have the response from CE to AFMOA by that Friday.
- 12 Oct – Met with SA Powers from Det 224, AFOSI to talk about the signs. Col Schaefer briefed on the situation while SrA Whitman from Bio brought the correspondence. Agreed to keep them posted of all events happening related to the lights. Provided them a complete copy of all the historical and current correspondence with CE, AFMOA, and ACC.
- 16 Oct – Met with Col Sewall, Col Bowen, Col Schaefer, LtCol Desport, and Mr. Daniel Barnett about the signs. Received a copy of CE response letter.
- 17 Oct – E-mailed the draft of all initial documents to all members involved.
- 20 Oct – Forward package for final coordination.



GABRIEL MORENO-FERGUSSON, Capt, USAF, BSC
Flight Commander, Bioenvironmental Engineering Flight

**STATEMENT DESCRIBING THE MISSING SOURCES,
DISPOSITION IF FOUND, AND PRESENT
AND FUTURE CORRECTIVE ACTIONS**

1. DESCRIPTION OF MISSING SOURCES

Manufacturer: SRB Technologies Inc.
P.O. Box 25267
Winston-Salem, NC 27114—5267
Tel: (336) 659-2610
FAX: (336) 768-7720

Model Number: B-100 LUMINEXIT or BETALUX Self-Luminous Exit Signs

Serial Numbers: # 201455, #201458, #201459, and #201450.

Date of Manufacture: November 1997

Radioactive Material:

Chemical Form: Tritium (H_3)

Physical Form: Gas

Maximum Activity in Curies (Ci): 20 Ci/each

Remaining Activity: 18.904 Ci/each
(Assuming a Maximum of 20 Ci at the date
of manufacturing)

Exposure to Individuals: UNKNOWN at this time. Swipe samples results for the areas where the signs were located were $< 3.7 \text{ E-}06 \text{ } \mu\text{Ci/Swipe}$, therefore, we assume the signs were intact at the time of disappearance.

2. STATEMENT OF DISPOSITION

If found, these items will be disposed in accordance with AF Instruction 40-201 and coordination with HQ AFMOA/SGOR, DET 1, HSC/OEBZ (AFRWO), and/or SRB Technologies Inc. Currently, all signs are being disposed of through 88 ABW/EMO DET, Wright-Patterson AFB, OH in coordination with Mr. Mark Mays and/or Mr. Chris Anthony. If unable to dispose through them, the signs will be transfer back to the manufacturer for recycling or disposal IAW Part 10 Code of Federal Regulations, and will be transported in accordance Title 49, Code of

Federal Regulations, Part 173.424 , Exempted packages for radioactive instruments and articles.

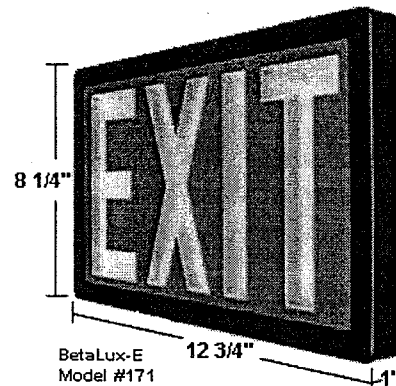
3. CORRECTIVE ACTIONS

The following corrective actions are being implemented in order to minimize the potential for this incident to occur in the future.

- a. Civil Engineering Letter on Reporting Missing Radioluminescent Exit Signs (Attachment 6)
- b. Newspaper article (Attachment 3)
- c. Complete inventory review
- d. Revision of Sign Removal Plan, IAW CAFB Supplement 1 to AFI 40-201, published 11 September 2000 (Attachment 4), by use of prioritization matrixes (Attachment 12 of CAFB Sup 1 to AFI 40-201)
- e. Briefing to Office of Special Investigations (OSI), Security Forces Commander, and Legal Office Representative. Investigation is being conducted by Security Forces and OSI. All results of the investigation will be forwarded.
- f. Briefing to Facility Managers (all facilities not just limited to dorms) with letter of understanding (Attachment 5)
- g. Monthly facility inspections and quarterly briefings will be conducted by the facility managers.
- h. Briefing to all Squadron Commanders on facilities they own that contain this signs.
- i. Meetings quarterly with members of CE and MDG as part of a working group chaired by the MDG Deputy Commander. Minutes of this meeting will be briefed quarterly to the Environmental Leadership Council chaired by the Wing Commander.

EXIT SIGNS MISSING FROM DORMITORY

Submitted by: Capt Gabriel Moreno-Fergusson



Another Exit Sign Missing? What's the big deal? The big deal is that these particular signs contain Tritium Gas. Tritium (H_3) is the radioactive form of hydrogen. Tritium in its natural state produces a soft green light that basically "glows in the dark." This light is what makes them useful as Radioluminescent Exit Signs because they do not need electricity to make them glow. Inside the signs, tritium does not pose any type of health hazard. However, an internal exposure to beta radiation can occur if the signs are damaged or broken. These signs are licensed and controlled by the Nuclear Regulatory Commission (NRC) because of their radioactivity and potential for adverse health effects. Federal law and Air Force Policy require total control of all radioactive materials found and used in an installation such as Cannon. In most instances, the loss of a licensed radioactive material is treated as a federal offense and must be reported immediately to the NRC through the Air Force Radioisotope Committee (RIC). During a routine inspection of the base facilities by members of the 27 Civil Engineering Environmental Flight, it was noted that four of these signs were missing from the second floor of building 1245, the Comm and Mission Support Squadron dormitory. Previously, two of these signs were found missing from the first floor of building 1156. It is illegal to possess these signs without a license. We have reasons to suspect that the signs were taken down by a dorm resident. Because of this, the RIC has requested the involvement of Security Forces Office of Investigation (SFOI) and the Office of Special Investigations (OSI) to assist in this matter because of the nature of the items and the fact that they are controlled and regulated by a federal agency.

If you have the signs, or if you know of the whereabouts of the signs, they should be returned to the Bioenvironmental Engineering Flight. There can be severe repercussions if the signs are not returned and found during a routine dorm inspection. Also, there may be federal charges associated with improper or illegal disposal of them. Please contact Capt Moreno-Fergusson at extension 4-4063, building 1400 (Base Clinic), room 137 as soon as possible if you have some information about them.

**BY ORDER OF THE COMMANDER
HEADQUARTERS, 27TH FIGHTER WING (ACC)**

AIR FORCE INSTRUCTION 40-201

**CANNON AIR FORCE BASE
Supplement 1**

11 September 2000

Aerospace Medicine

RADIATION PROTECTION PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

OPR: 27 ADOS/SGGB (Capt Moreno-Fergusson)
Supersedes: CAFBI 48-05, 9 July 1997

Certified by: 27 MDG/CC (Col Sewall)
Pages: 9/Distribution: F

AFI 40-201, Managing Radioactive Materials in the USAF, dated 25 July 1994, is supplemented as follows. This supplement applies to Cannon AFB units and tenant units where radiation sources or radiation generating devices exist. Records created or accumulated as required by the instruction will be maintained and disposed of in accordance with AFMAN 37-139, Records Disposition Schedule.

1.15. The 27th Fighter Wing Commander has the ultimate responsibility for the 27 FW Radiation Protection Program and delegates the responsibility of the overall operation of the Radiation Protection Program at Cannon Air Force Base to the base Radiation Safety Officer (RSO). The Wing Commander must appoint, by letter, the base RSO and his/her alternates (not the Medical Group Commander).

1.16. Unit, Detachment, and Tenant Commanders must designate, in writing, a unit RSO to support the base RSO. Notify the base RSO in writing when a new Unit/Detachment Radiation Monitor is assigned. Ensure the unit RSO provides all information necessary to evaluate the radiation hazard to the base RSO.

1.16.12. (Added) Immediately notify the RSO of any suspected personnel overexposure to radiation.

1.20.8. (Added) Performs or supervises radiation protection surveys and hazard categorizations on all ionizing and non-ionizing radiation sources to ensure compliance with appropriate directives.

1.20.9. (Added) Provides guidance on radiation hazards and exposure limits. Provides assistance as requested by unit RSO's developing training plans for ionizing and non-ionizing radiation.

1.20.10. (Added) Investigates potential overexposures to wing personnel.

1.20.11. (Added) Coordinates on all requests for radioactive material permits.

1.20.12. (Added) Ensures radiation inspections are conducted and unsafe conditions are terminated.

1.20.13. (Added) Monitors the receipt, shipment, transfers, and disposal of all radioactive materials.

1.20.14. (Added) Ensures that diagnostic and therapeutic medical x-ray devices are operated and maintained by the guidance of Title 21, Code of Federal Regulations, parts 1000 and 1020. Performs radiation surveys on all diagnostic and therapeutic medical x-ray devices and equipment operated and maintained at Cannon AFB.

1.20.15. (Added) Is responsible for placing personnel on, monitoring results of, and conducting the Thermal Luminescent Dosimeters (TLD) and as low as reasonably achievable (ALARA) program. The RSO will conduct ALARA training for all personnel monitored on the TLD program.

1.20.16. (Added) A 27 FW Radiation Safety Committee will not be established due to the small number of radiation sources on base.

1.21. The Permit RSO ensures directives set forth in Air Force Instruction 40-201 are followed and that training is documented on each employee's AF Form 55.

1.24. (Added) Public Health (PH) (27 ADOS/SGGM): Public Health determines occupational physical examination requirements through the Aeromedical Council.

1.25. (Added) Unit RSO: Unit RSOs act as the single focal point for the unit on radiation protection issues. It is the unit representative's responsibility to inform the base RSO of changes involving radiation generating devices or equipment and/or radiation safety procedures.

1.25.1. (Added) The Unit RSO must brief unit personnel on the radiation overexposure notification procedures, and the importance of coordinating changes in radiation generating devices or equipment and radiation safety procedures.

1.25.2. (Added) Perform an annual inventory of all ionizing and non-ionizing sources operated by the unit and provide a copy to the base RSO (27 ADOS/SGGB).

1.25.3. (Added) Ensure all ionizing radiation operators are trained and certified by the section supervisor and maintain a current listing of all certified operators for the unit.

1.25.4. (Added) If technical order (TO) guidance is not available, ensure an operating instruction (OI) is written for each piece of equipment which has the potential to expose unit personnel to

hazardous radiation when operated in a manner consistent with manufacturer's recommendations. The OI should include standard safety procedures and must be reviewed annually.

1.25.5. (Added) Coordinate radiation survey or hazard evaluations with the base RSO.

1.25.6. (Added) Assist in investigations of suspected or actual overexposures.

1.25.7. (Added) Ensure corrective actions are initiated within the unit on all radiation protection program deficiencies identified by the base RSO.

1.25.8. (Added) Insure training on non-ionizing radiation safety training for personnel exposed to radio frequency (RF) and laser radiation is documented on each employee's AF Form 55.

1.26. (Added) Section Supervisors: Section Supervisors must refer all pregnant active duty, reservists on active duty, and civilian females who work with ionizing radiation sources/equipment to the Medical Group and Public Health, respectively, as soon as pregnancy is suspected.

1.26.1. (Added) Ensure all personnel are identified to PH for determination of occupational physical requirements.

1.26.2. (Added) Report suspected radiation overexposures to the unit RSO.

3.2.1.3. May not buy radioluminescent exit signs for any reason without prior approval and justification given in writing to 27 ADOS/SGGB and the USAF Radioisotope Committee. Signs currently in use must be disposed of in accordance with HQ AFMOA/CV. For specifics on the management of radioluminescent exit signs refer to Attachment 11 of this supplement.

3.4. Requests for possession and use of radioactive sources must be in accordance with T.O. 00-110N-3, Requisition, Handling, Storage and Identification for Radioactive Material, paragraph 8, and must be coordinated through 27 ADOS/SGGB.

3.4.19. For contractors operating radiation sources on Cannon AFB, the base RSO will issue a letter to the base representative for that contract outlining requirements when using or storing items on base. A base radioactive materials number will be assigned to this package for tracking purposes.

3.6. Storage of radioactive materials will be in accordance with T.O. 00-110N-3. The base RSO must approve all storage areas before use. Follow-up surveys are performed every 90 days on restricted areas and annually on unrestricted areas. Cannon AFB does not have any restricted areas. The base RSO maintains the results of the surveys. Report any unusual circumstances to the base RSO.

3.6.4. (Added) Control of Radio Luminescent Exit Signs:

3.6.4.1. (Added) All radio luminescent exit signs containing tritium gas on Cannon AFB property must be surveyed and inventoried every six months.

3.6.4.2. (Added) 27 ADOS/SGGB will notify the Director of Nuclear Material Safety and Safeguards, US Nuclear Regulatory Commission (NRC), Washington DC 20555-0001 within 30 days of transferring the devices. This notification includes the manufacturer, name, model, and serial number of the device and the name and address of the receiving person. No report to the NRC will be required for devices returned to the manufacturer. Notification to the base RSO must be made *immediately* for any missing signs.

3.6.5. (Added) All laser systems require an initial survey by the base RSO. An annual site survey is required of all potentially hazardous laser systems.

3.6.6. (Added) X-ray generating equipment requires an annual survey by the base RSO to ensure compliance with applicable procedures.

3.6.7. (Added) Radio Frequency (RF) systems are any emitters with operating frequencies between 10 KHz and 300 GHz. A survey by the base RSO is required before placing any emitter device into operation. An annual site survey is required of all RF systems categorized as potentially hazardous.

3.6.8. (Added) New construction designs for facilities housing radiation sources will be coordinated with the base RSO.

3.8. The 27th Transportation Squadron will pack, crate and ship radioactive materials IAW 49 CFR and other applicable commercial and military transportation directives as stated in T.O. 00-110N-3. The 27th Transportation Squadron will receive radioactive materials IAW 49 CFR, AFJMAN 24-204, and other applicable commercial and military directives. Damaged shipments or shipments received with broken container seals will be handled IAW T.O. 00-110N-3 and AFJI 24-228, Reporting of Transportation Discrepancies in Shipments.

JEFFREY A. REMINGTON, Colonel, USAF
Commander, 27th Fighter Wing

Attachments: 3

1. Terms

11. (Added) Management Plan for Control, Disposition and Transfer of Radio Luminescent Exit Signs

12. (Added) Prioritization Matrixes

ATTACHMENT 1

TERMS

A1.1. Radiation Hazards (Added)--Any electromagnetic propagation of energy which would result in significant biological damage. All forms of electromagnetic radiation are included--ionizing and non-ionizing.

A1.1.1. Ionizing Radiation. Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, hi-speed protons, and other particles capable of producing ions.

A1.1.2. Non-Ionizing Radiation. Electromagnetic radiation emitted by certain equipment that is of sufficient energy and frequency to cause biological damage, but not ionization of material. For the purpose of this supplement, lasers, radars, radios, industrial microwave ovens, and certain medical equipment are examples of types of non-ionizing radiation.

A1.2. Thermal Luminescent Dosimeters (TLD) (Added) Monitoring devices, worn by personnel who must frequent radiation-restricted areas and who may exceed certain predetermined levels of exposure to ionizing radiation.

A1.3. Radiation Safety Officer (RSO) Synonymous with Radiation Protection Officer (RPO). An individual who provides consultation and advice on the hazards associated with radiation and effectiveness of measures to control these hazards. There are three categories of RSOs on the base:

A1.3.1. Base RSO. An individual designated by the installation commander to manage the base radiation protection program.

A1.3.2. Permit RSO. An individual approved by the USAF Radioisotope Committee to manage the radiation protection aspects associated with the use of radioactive materials for which a specific USAF Radioactive Material Permit (RMP) has been issued. This is not typically the base RSO.

A1.3.3. Unit RSO. An individual designated by each unit commander to act as the single focal point for the unit on radiation protection matters. Each unit that operates radiation-producing equipment or uses radioactive materials appoints a unit RSO.

A1.4. Decommission (Added)--For the purpose of this supplement, decommission means to remove safely from service any radioactive source and reduce the amount residual radioactivity that permits the release of a facility for unrestricted use and termination of the removal plan for all generally licensed Radioluminescent Exit Signs from Cannon AFB.

ATTACHMENT 11 (ADDED)**Management Plan for Control, Disposition, and Transfer of Radioluminescent Exit Signs**

A11.1. This plan is pursuant of the requirements set forward by the USAF Radioisotope Committee and the requirements listed in Title 10 Code of Federal Regulations, Part 30.36, Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas.

A11.1.1. This decommissioning plan includes the condition of the facilities and the signs, where these are located, planned decommissioning activities, and descriptions to minimize the radiation hazards to workers and the environment during the decommissioning process.

A11.1.2. This plan also includes:

A11.1.2.1. The locally required radiation awareness training for facility managers and abatement workers.

A11.1.2.2. Justification for completion of the decommissioning program later than 24 months after plan approval.

A11.2.1. Prioritization of facilities:

A11.2.1.1. The priority factors for sign removal will be based on maintaining exposures As Low As Reasonably Achievable (ALARA), potential for damage, loss, or theft, funding availability, and availability of electrical services. These factors will be determined using the matrix in Attachment 12. These factors will be assigned by the base RSO, 27 CE Operations Flight Commander, and 27 CE Environmental Flight RSO. All factors will have a range from zero (0) (Lowest) to ten (10) (Highest). All factors will be added together and the sum will indicate the total risk number. Those facilities with a higher risk factor (6 or higher) will be completed first. The time frame for removal and the phase of completion of the plan will depend on the risk factor determined. Risk Factors with a score of seven to ten (7-10) will be given a High Risk, those with a score of four to six (4-6) will be given a Medium Risk, and those with a score of zero to three (0-3) will be given a Low Risk priority.

A11.2.1.2. Factors to be considered:

A11.2.1.2.1. Occupancy Level: The main concern is to minimize any potential for exposure to the occupants of the facility. The more occupants the facility has, the higher the risk factors.

A11.2.1.2.2. Duration of Use or Purpose of the Facility: The longer occupants utilize the facility, the higher the risk factor. Facilities used as sleeping quarters (dormitories) will have a higher risk than facilities utilized as storage facilities.

A11.2.1.2.3. Accessibility of the Signs: Signs that can be easily accessed by individuals (therefore, higher chance for theft) will receive a higher risk factor.

A11.2.1.2.4. Facility Utilization: Signs located in facility where there is a higher potential for damage of the signs because of the facility mission will receive a higher risk factor.

A11.2.1.2.5. Availability of Electricity: Signs located in facilities with pre-existing emergency electrical services will be given a higher priority since the cost of removal will be minimized.

A11.2.1.2.6. Funding Availability: The 27 Civil Engineer will request funding for this project to HQ ACC. Once the funding is obtained, removal of the signs based on the priority factor will be initiated. Meanwhile, signs will be removed using in-house resources as schedules permit.

A11.2.2. Disposition of Exit Signs:

A11.2.2.1. All of the radioluminescent exit signs will be disposed of IAW 10 CFR 30.41, AFI 40-201, paragraph 3.14, through the Base Radiation Safety Officer (RSO), Bioenvironmental Engineering Flight (27 ADOS/SGGB) and the 27 CE Removal Plan.

A11.2.2.1.1. Personnel removing the signs will develop a comprehensive schedule plan. A copy of this plan will be provided to Bioenvironmental Engineering (27 ADOS/SGGB). This plan will be forward to HQ AFMOA/SGPR for coordination and approval and to the Air Force Radioactive and Mixed Waste Management Office (AFIERA/SDRH), Brooks AFB, Texas, for coordination and final disposition guidance.

A11.2.2.1.2. 27 ADOS/SGGB will be contacted at least 48 hours prior to removal of the signs so that coordination with the AFIERA/SDRH can be accomplished. Due to disposal costs, the first choice for disposal will be through the Environmental Management Office, Radiation Section, Wright-Patterson AFB, Ohio. The second choice for disposal will be through the manufacturer of the sign with a current disposal cost of \$50.00 per sign.

A11.2.2.1.3. A chain-of-custody form will be developed so tracking of the signs can be accomplished.

A11.2.2.1.4. 27 ADOS/SGGB will ensure that these devices may only be transferred to persons specifically licensed by USNRC or Agreement State to receive such devices.

A11.2.2.1.5. 27 ADOS/SGGB will notify the Director of Nuclear Material Safety and Safeguards, US Nuclear Regulatory Commission (NRC), Washington DC 20555-0001 within 30 days of transferring the devices. This notification includes the manufacturer, name, model, and serial number of the device and the name and address of the receiving person. No report to the NRC will be required for devices returned to the manufacturer.

A11.2.2.2. All devices awaiting disposal will be stored under lock and key in an area properly labeled IAW AFI 40-201, paragraph 3.9. A complete inventory of all items in storage will be maintained by the RSO. This area will be posted IAW 10 CFR.

A11.3. Accountability of the signs:

A11.3.1. 27 CE Removal Plan Radiation Safety Officer or his appointee will maintain the master inventory of all exit signs. This inventory will list the sign's manufacturer, serial number, and disposal date.

A11.3.2. These signs will be inventoried on a semi-annual basis, one performed by 27 CE and one by 27 ADOS/SGGB. Any discrepancies in the inventory will be promptly notified to the base RSO.

A11.4. Awareness Training will be conducted by the base RSO and will include:

A11.4.1. Radiological hazards associated with the signs.

A11.4.2. Specific requirements listed under this regulation.

A11.4.3. Reporting and notification procedures.

A11.4.4. Duty to report all incidents/accidents associated with the signs.

ATTACHMENT 12 (ADDED)

PRIORITIZATION MATRIXES

A12.1. Occupancy Matrix: This matrix will be used to prioritize building radio luminescent exit sign removal based on the occupancy level of the facility. The number of people reflects the actual number of employees working in a specific building (for example: in building 600 only, the employees working in the facility will be considered instead of all the customers visiting the building).

No. People/No. of Hours	Less than 8 hr	More than 8 hrs	More than 12 hrs
0-10	1	2	3
10-20	2	3	4
20-30	3	4	5
>30	4	5	6

A12.2. Purpose of the Building Matrix: Buildings will be assessed based on their purpose and accessibility of the signs. Higher points will be given to buildings with pre-existing electric connections or potential for damage or loss of possession

Purpose of the Facility	Points Assessed
Dormitory	4-6
Administrative Facility	3-5
Industrial Maintenance Facility (occupied)	3-4
Industrial Maintenance Facility (unoccupied)	2-3
Sport/Recreational Facility	3-4
Storage Facility	1



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE NEW MEXICO

MEMORANDUM FOR 27 FW FACILITY MANAGERS

FROM: CC

SUBJECT: Compliance with Radioactive Material Reporting Rules (Duty to Report)

1. The facility that you are assigned to, Building _____, has _____ Radioluminescent Exit Signs. These signs contain Tritium Gas (the radioactive isotope of Hydrogen) as a primary component. The Nuclear Regulatory Commission (NRC) regulates these signs under Title 10, Code of Federal Regulations, Part 30, Generally Licensed Items. There is only one point of contact in the Air Force for issues related to NRC Compliance, the AF Radioisotope Committee.
2. As a building manager of a building with these signs, you need to ensure that the warning label remains affixed to the sign as part of inspections you will be required to perform. Also, in the event any of these signs in your facility turn up missing, you need to immediately report it to Bioenvironmental Engineering. During normal duty hours, contact Bioenvironmental Engineering at extension 4-4063 and, after hours, notify the technician on call at the Extended -Hours Clinic at 4-4033. It is important that any missing signs be reported as quickly as possible to assist us in complying with federal regulations. Because there have been some concerns with mission signs in the past, I am requesting that you sign this letter of understanding of reporting procedures. Return your acknowledgment to 27 ADOS/SGGB.
3. Your assistance in this matter is important and appreciated. Direct any questions or requests for assistance to Bioenvironmental Engineering at the numbers provided above.

JEFFREY A. REMINGTON, Colonel, USAF
Commander

1st Ind, _____

MEMORANDUM FOR 27 ADOS/SGGB

I certify that I have read and understand the requirements set forward by this letter, the briefing provided by Bioenvironmental Engineering and local reporting requirements in the event that signs containing radioactive materials turn up missing. I further acknowledge that I have a responsibility to obey the above reporting requirements and that I must inspect the signs in my facility on a routine basis.

DISTRIBUTION LIST

HQ ACC/SGOP
AFIA/SGO
27 MDG/CC
27 SPTG/CC
27 FW/JA
27 FW/SE
27 CES/CC
27 CES/CEV
27 SFS/CC
US Corp of Engineers
Det 224, AFOSI/CC
88 ABW/EMO (Mr. Mark Mays)