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

FEB 20 2008

MEMORANDUM FOR U.S. NUCLEAR REGULATORY COMMISSION
ATTN: DOCUMENT CONTROL DESK
WASHINGTON, DC 20555-0001

FROM: AFMOA/SG3PR
110 Luke Avenue, Room 405
Bolling AFB DC 20032-7050

SUBJECT: Reply to a Notice of Violation, NRC Inspection Report Number 30-28641/2007006 (USNRC Region IV Letter, 10 January 2008)

Attached is the permittee's final report documenting his corrective actions for the non-compliance identified in the subject Notice of Violation regarding permit number NV-00333-01/07AFP.

If you have any additional questions, then please contact either Lt Col Scott Nichelson at 210-925-5250 (electronic mail: scott.nichelson@brooks.af.mil) or Maj Robert Rodgers at 202-767-4309 (electronic mail: robert.rodgers-02@pentagon.af.mil).

Robert F. Todaro

ROBERT F. TODARO, Col, USAF, MC, CFS
Chair, USAF Radioisotope Committee
Office of the Surgeon General

Attachment:
99 MDG/CD Memo, 31 January 2008

cc:
HQ AFIA/SGI (Lt Col Adams)
NRC Region IV (Ms. Rachel Browder)

IE07
RGN-IV

DEPARTMENT OF THE AIR FORCE AND
DEPARTMENT OF VETERANS AFFAIRS
MIKE O'CALLAGHAN FEDERAL HOSPITAL
NELLIS AIR FORCE BASE, NEVADA

31 January 2008

MEMORANDUM FOR HQ AFMOA/SG3PR

FROM: 99 MDG/CD
4700 Las Vegas Blvd North
Nellis AFB NV 89191

SUBJECT: Reply to Notice of Violation to Radioactive Material Permit No. NV- 00333-01/07AFP

1. The following is a response to the single Notice of Violation during the inspection conducted by the Nuclear Regulatory Commission at the 99th Medical Group on 27 September 2007.

a. 10 CFR 20.1302 (a) requires, in part, that the licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in 10 CFR 20.1301. 10 CFR 20.1003 states in part, that survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal or presence of radioactive material or other sources of radiation and member of the public means any individual except when that individual is receiving an occupational dose and occupational dose means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material.

b. Contrary to the above, from approximately 8 May 2006 to 31 July 2006 (exact dates could not be established), the licensee failed to make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in 10 CFR 20.1301. Specifically, the licensee operated a mobile nuclear medicine unit adjacent to the parking lot of the licensee's facility, an area accessible by members of the public. During the time period, byproduct material was used and stored within the mobile nuclear medicine unit. The licensee failed to make or cause to be made, as appropriate, surveys of radiation levels in the vicinity of the mobile nuclear medicine unit to demonstrate compliance with the dose limits for individual members of the public in 10 CFR 20.1301 as required by 10 CPR 20.1302 (a).

2. During the time period of 8 May to 31 July 2006, while the clinic's sole gamma camera was being upgraded/replaced, the Nuclear Medicine Department contracted and utilized a temporary mobile nuclear medicine unit (i.e., gamma camera in a trailer) at Mike O'Callaghan Federal Hospital. All sealed radioactive sources were moved from the clinic to the mobile unit, and the radiopharmacy delivered all patient unit doses to the mobile unit during this time. Prior to clinically using the mobile unit, as confirmed by the inspector, all dose calibrator and gamma camera quality control tests were performed. In addition, an exposure survey to determine public dose was conducted on 10 May 2006 and the results (27 mRem/yr, Atch 1) were within the limits (100 mRem/yr and less than 2 mRem in any one hour) as specified in 10 CFR 20.1301-1302. A diagram of the mobile trailer is provided at attachment 2. These survey measurements were taken post injection with all sealed sources (Inventory at Atch 3) and one additional patient dose, 25 mCi of Tc-99m (MDP) each, located within the mobile unit to ensure a representative exposure measurement. The annual public dose was calculated using gross exposure measurements, background was not subtracted. The instrument calibration certificate is provided as

attachment 4. Two patients were dosed and imaged on the day that the exposure surveys were performed. A typical patient scanning day consisted of two to three patients per day during May and increased to four to five patients per day during July. The mobile trailer did not have a waiting room, which allowed for only one patient to be dosed and imaged at a time. Therefore the public dose measurement performed on 10 May during a low patient load is representative of the public dose during July when the daily patient load had doubled.

3. The NRC inspector requested documentation for the exposure surveys conducted on the mobile unit. Unfortunately, the senior technologist was not able to locate the document at the time of the inspection. During late spring 2007, the permit RSO began retirement leave and the replacement RSO was geographically separated from the clinic (i.e., lived in a different state, California). During this RSO transition period, the nuclear medicine staff re-filed/re-located historical records, to include the mobile unit survey data, to a new location within the clinic proper. A week before the inspection, the former RSO returned to duty status choosing not to retire. He was not appointed as RSO at the time of the inspection, however, he assisted during the inspection to supplement the permit RSO who was physically located in California. Unfortunately, the mobile unit exposure survey records could not be located during the inspection. The unit exposure survey records were found on 28 Jan 2008 by the senior technologist. A binder labeled, Operation of a Mobile Nuclear Medicine Trailer, was immediately created specifically to file all documents related to the nuclear medicine mobile unit. Attachment 5 is a Memorandum for Record which outlines requirements for a mobile nuclear medicine trailer operation. The binder was added to the Nuclear Medicine file plan which also includes the location where the binder will be kept. The minimum documentation kept in the binder includes a copy of the nuclear medicine radioactive material permit allowing use of a mobile trailer, exposure surveys, swipe surveys, and operating instructions. Appropriate steps were also taken to ensure documentation is in the specified location at all times. Furthermore, the nuclear medicine staff was briefed on the location of the binder. All corrective actions were implemented by 31 Jan 2008.

4. Please call my point of contact, MSgt John Bustamante, at (702) 653-2843 or DSN 348-2843 if there are any questions. Thank you for giving us the opportunity to respond to this notice.

CHRISTIAN R. BENJAMIN
Colonel, USAF, MC, CFS
Commander

5 Attachments:
1. Dose Limit to Individual Members of the Public
2. Diagram of Mobile Nuclear Medicine Trailer
3. Inventory of Sealed Sources
4. Certificate of Instrument Calibration
5. Memorandum For Record, dated 1 Feb 08

Att 1

DOSE LIMIT TO INDIVIDUAL MEMBERS OF THE PUBLIC

IAW 10 CFR 20.1301-1302 the Nuclear Medicine department is obligated to show that the dose equivalent to individual members of the public does not exceed (100 mR/yr) 0.1rem/year and that the dose in unrestricted areas from external sources does not exceed (2 mR/hr) 0.002 rem in one hour.

AREA	READING mr/hr	DATE/TIME
1. North Wall	0.012	10 May 06 @ 0830hrs
2. South Wall	0.012	10 May 06 @ 0833hrs
3. East Wall	0.012	10 May 06 @ 0838hrs
4. West Wall	0.013	10 May 06 @ 0845hrs

ANNUAL LIMIT ((0.013 mR/hr* 8 hr/day * 261 (365-weekends) days/year)→FORMULA
= 27 mR/yr >>>>>Less than Max Limit of 0.1 rem/yr

HOURLY Dept. Reading- **0.013 mR/hr is Less than Max Limit of 2 mr in one hour.**

METER # 128153 Ludlum

BACKGROUND READING 0.013mR/hr

MAXIMUM READING 0.013mR/hr

TECHNOLOGIST SIGNATURE: _____

RSO SIGNATURE: _____ ANTONIO CORREA, LT COL, USAFR, MC
DIAGNOSTIC IMAGING

Readings were taken on a routine day, post injections, when we suspected maximum readings.
BASED ON THE ABOVE SURVEYS--BOTH THE ANNUAL LIMIT AND THE HOURLY LIMIT ARE WELL BELOW MAXIMUM DOSE STANDARDS SET IN 10 CFR 20.1301-1302

IT IS MANDATORY THAT THESE SURVEYS BE PERFORMED ANNUALLY

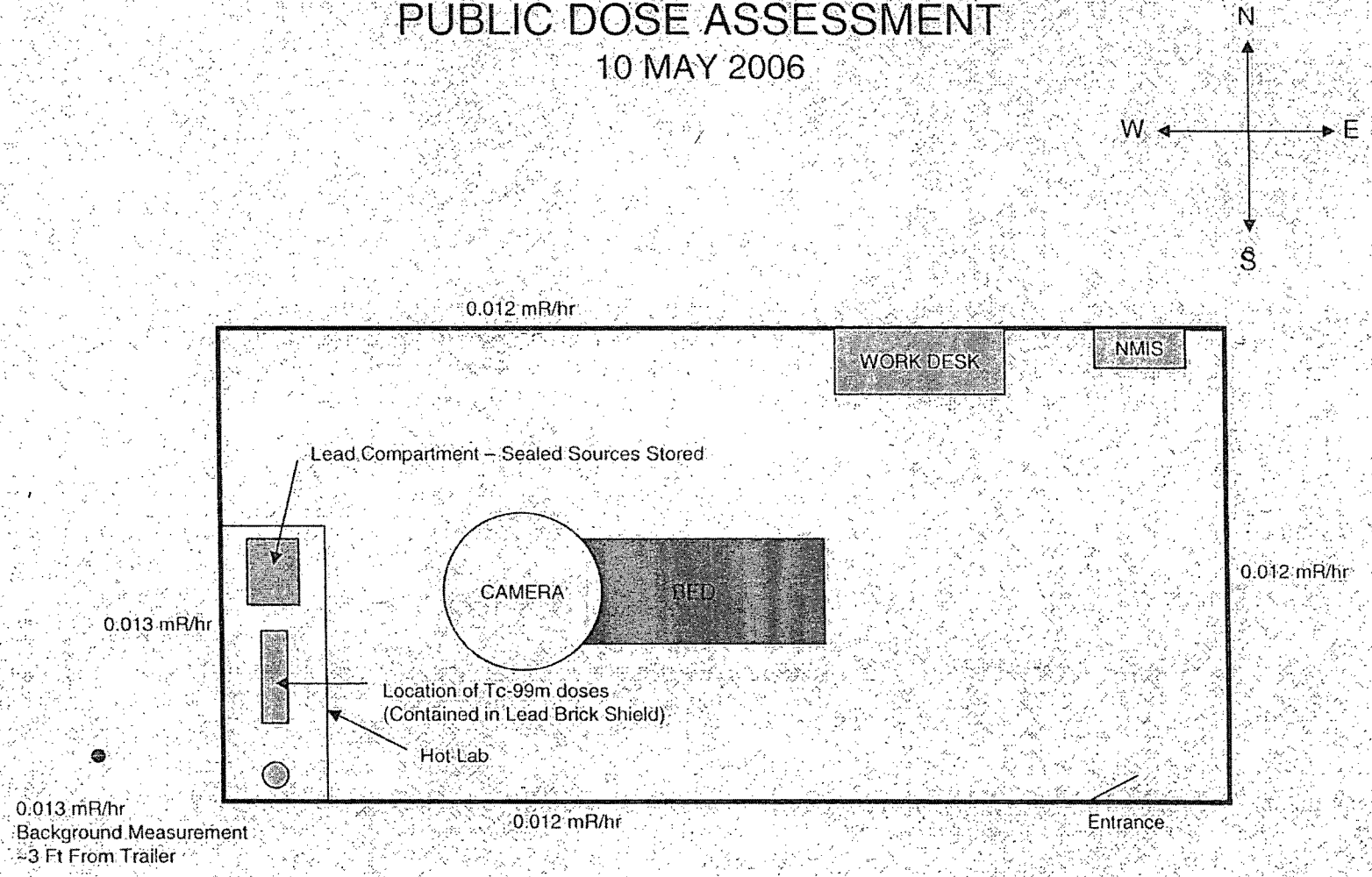
JOHN E. BUSTAMANTE, TSgt, USAF
NCOIC, Nuclear Medicine Service

MOBILE NUCLEAR MEDICINE TRAILER

Mike O'CALLAGHAN FEDERAL HOSPITAL

PUBLIC DOSE ASSESSMENT

10 MAY 2006



A-17

ATT 3

BIOTECH Pharmacy

Inventory of Sealed Sources

Biotech Pharmacy
3940 South Eastern Av.
Las Vegas, Nevada 89119
702-791-3608
03-11-0332-01 Exp. 08/31/2010

2ND QTR 2006

Location: Mike O'Callaghan Federal Hospital
4700 Las Vegas Blvd.
Las Vegas, Nevada 89191

Performed By: Chuck Flores
Date: 04/03/2006
Time: 15:27

Sealed Source	Activity	Accounted For
Manufacturer: Dupont Product: Cs-137 Serial Number: S356033-097	209.000 uCi On: 08/16/1996 Location Stored: SOURCE LOCATED IN HOT LAB DRAWER	YES
Manufacturer: CIS-US Product: BA-133 Serial Number: A5937	0.285 mCi On: 11/01/1996 Location Stored: IN DRAWER IN HOT LAB (10.54MBq)	YES
Manufacturer: North American Scien Product: Co - 57 Serial Number: 16742	95.000 uCi On: 03/01/2002 Location Stored: SOURCE LOCATED IN DRAWER IN HOT LAB	YES
Manufacturer: North American Scien Product: Co - 57 Serial Number: 16743	95.000 uCi On: 03/01/2002 Location Stored: SOURCE LOCATED IN DRAWER IN HOT LAB	YES
Manufacturer: CIS-US Product: BA-133 Serial Number: A4638	0.113 uCi On: 03/01/1996 Location Stored: SOURCE LOCATED IN DRAWER IN HOT LAB (	YES
Manufacturer: IPL Product: Cs-137 Source Serial Number: 3277	1.000 uCi On: 12/01/1996 Location Stored: ON SURVEY METER # 133227	YES
Manufacturer: IPL Product: Cs-137 Source Serial Number: 3362	1.000 uCi On: 12/01/1996 Location Stored: ON SURVEY METER #133221	YES
Manufacturer: Ludlum Product: Cs-137 Source Serial Number: 0832	1.000 uCi On: 03/01/1997 Location Stored: ON SURVEY METER S/N 128153	YES
Manufacturer: IPL Product: Eu-152 Serial Number: 780-23-30	0.500 uCi On: 08/23/2003 Location Stored: IN HOT LAB DRAWER	YES
Manufacturer: NAS Product: Cs-137 Serial Number: A6361	333.020 KBq On: 02/01/1997 Location Stored: IN HOT LAB DRAWER	YES
Manufacturer: IPL Product: Cs-137 Serial Number: 780-16-98	1.000 uCi On: 07/01/2003 Location Stored: IN DRAWER IN HOT LAB	YES
Manufacturer: NAS Product: Co-57 Source Serial Number: 53740	5.672 mCi On: 10/01/2004 Location Stored: IN HOT LAB DRAWER	YES
Manufacturer: NAS Product: Co-57 Source Serial Number: 52292	119.600 uCi On: 07/01/2004 Location Stored: IN HOT LAB DRAWER	YES
Manufacturer: NAS Product: Co-57 Source Serial Number: 64096	20.000 mCi On: 04/20/2005 Location Stored: BEHIND INJECTION ROOM DOOR	YES

ST RESULTS

TEST DATA:
Performed by: Chuck Flores
CHUCK FLORES
RADIATION SAFETY CONSULTANT
Licensee: Biotech Pharmacy
Registration: 03-11-0332-01 Exp. 08/31/2010

ANTONIO CORREA, LT COL, USAFR, MC
DIAGNOSTIC IMAGING

ATT 4

Certificate of Instrument Calibration

Facility: Mike O'Callaghan Federal Hospital
Manufacturer: Ludlum
Model: 1900
ID #: 044
Serial No. 128153
Detector Type: Scintillation
Detector Model: Scintillation
Serial No. n/a
Temperature: 75.2 oF
Humidity: 47%
Pressure: 30.00 inHg
Battery Check: OK
Dedicated Check Source: 145 uR/hr
Calibration Geometry: Parallel
Window: Fixed

Scale Multiplier	Distance (cm)	Calculated Reading	Measured Reading	Correction Factor
		mR/hr	mR/hr	
	263.0	8.0	8.07	0.99
	340.0	2.0	2.19	0.91
		uR/hr	uR/hr	
	174.1	800	751	1.07
	348.2	200	217	0.92
	168.3	80	75	1.07
	336.7	20	21	0.95

ANTONIO CORREA, LT COL, USAFR, MC
DIAGNOSTIC IMAGING

Mid-America Calibrations, Inc.
808 SW Nautica Court
Lee's Summit, Missouri 64082
816.537.4147

Calibrated By:

Date Calibrated: June 24, 2005
Date Due: June 24, 2006
NRC License # 24-32531-01

The above instrument was calibrated with a J.L. Shepherd Model 28-6A calibrator, serial #10018, 1.2 Ci Cs-137, 3M 4F6H, source serial # 2824 or a Ludlum Model 500-2 Pulser, serial #127533. The output is traceable to the NBS (N.I.S.T.) and all instruments are calibrated in accordance with MIL-STD 45662A and ANSI N323-1978.

ATT 5

DEPARTMENT OF THE AIR FORCE AND
DEPARTMENT OF VETERANS AFFAIRS
MIKE O'CALLAGHAN FEDERAL HOSPITAL
NELLIS AIR FORCE BASE, NEVADA

31 January 2008

MEMORANDUM FOR THE RECORD

FROM: Nuclear Medicine Department

SUBJECT: Mobile Nuclear Medicine Trailer Use Requirements

1. Upon delivery and set up of a mobile nuclear medicine trailer at Mike O'Callaghan Federal Hospital nuclear medicine personnel will do the following:

a. Perform an acceptance survey of the trailer. The acceptance survey will include a walk-through of the trailer to insure there was no damage to the trailer during transportation and set up. An exposure survey will be conducted inside the trailer to insure the trailer is radiologically clean. The acceptance survey will be conducted prior to final acceptance of the trailer by the hospital.

b. Draw or obtain a diagram of the mobile trailer. Indicate the location of the hot lab, the source storage location, the location of the Tc-99m doses prior to dosing, the camera location, etc.

c. The sealed sources will be moved from the nuclear medicine department and placed in the lead container located inside the mobile trailers' hot lab. The lead container will be surveyed at that time and the results of the survey documented and placed in the mobile trailer binder.

d. Move the Capintec CRC-15R dose calibrator from the nuclear medicine department to the mobile nuclear medicine trailer. After the dose calibrator is set up; run all the required tests on the dose calibrator and ensure it is ready for use. These tests include constancy, accuracy, linearity and geometry. Document the test data in the mobile trailer binder.

e. Ensure the radiopharmaceutical laboratory is informed where to delivery the radioactive material package during normal duty hours. Perform acceptance testing of the package according to nuclear medicine written procedures.

f. Place a copy of all nuclear medicine operating procedures in the mobile trailer.

g. Perform the weekly swipes and daily exposure surveys required by your radioactive material permit and permit application.

h. Perform a public dose survey of the exterior of the trailer after all radioactive sources, the Tc-99m doses are present, and/or a dosed patient is present. The measurement should be performed during a worst case scenario. First ensure the meter being used is within calibration and then take a background measurement approximately 10 to 15 feet from the side of the trailer away from the hot lab. Annotate the location of the background measurement on the trailer diagram. Then take measurements along the

outside of all four sides of the trailer and record the highest reading obtained from each side of the trailer and annotate all four values on the trailer diagram. Use the maximum gross exposure reading obtained from the four sides for the public dose measurement (do not subtract background). This provides a conservative estimate of the annual public dose. Multiply the maximum exposure reading times 8 hours in a day times 5 days a week times 52 weeks in a year. This will be the annual public dose in mRem/yr. The maximum exposure reading should also be less than 2 mRem/hr.

i. Contact the consulting medical physicist at Travis AFB prior to seeing patients for any additional requirements.

2. A copy of this Memorandum will be the first page in the Mobile Nuclear Medicine Binder. Directly under this page will be the Nuclear Medicine radioactive material permit.

JOHN E. BUSTAMANTE, MSgt, USAF
Flight Chief Diagnostic Imaging