Rec'd 7/30/97

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Reply to a Notice of Violation

Oklahoma State University
Stillwater, Oklahoma 74078

Docket No: 030-00945
License No: 35-00237-03

This correspondence is in regard to a Notice of Violation (Dated July 2, 1997) received as the result of an unannounced inspection of our By-Product Material License on May 22, 1997.

Item A(1)

Training Deficiency for the Veterinary Nuclear Medicine Staff

The license application dated November 20, 1995 indicated that "technicians and graduate students" would be trained before allowing entrance to the area where radioisotopes are used. The term "technician", as used here, refers to an individual who normally does general laboratory procedures but has no specialized training in the radiation area. On the other hand a "radiological technologist" would have specialized training in the radiation area. This terminology is well established in medical and industrial areas nation-wide.

The term "graduate student", as used here, refers to an individual pursuing an advanced research degree such as an M.S. or Ph.D as opposed to a Doctorate in Veterinary Medicine, which is an applied or professional degree.

Also, the term "Evaluated Clinical Foreign Veterinary Graduate" would not fall under the term graduate student as used here. They would be classified as "interns" or possibly as post-doctoral students. This type of student was unknown at the time of the license application and were not classified as such. They would not be classified with graduate students since they mostly observe procedures but may sometimes steady animals on the gamma detector and transport them to holding pens. They are never allowed to perform procedures with radioactive material and never work unsupervised. They are provided personnel monitors in the form of film badges.

Thus from February of 1996 (start of radioisotope use) until the present no "technicians" or "graduate students", as

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describe in the license application, worked in the area where radioisotopes are used.

In addition, The license application dated November 20, 1996 stated that the University Radiological Safety Officer and the Radiological Safety Committee would evaluate the veterinary radiologist and the radiological technologist on the basis of training and experience.

The only individuals in the Nuclear Medicine Program who perform procedures with radioactive material and would fall within this classification are as follows:

Dr. G. Henry - Associate Professor of Veterinary Radiology
Dr. T. Drost - Assistant Professor of Veterinary Radiology
C. Rodebush - Certified Radiological Technologist (ASRT) and a Certified Medical Technologist (AMT) with several years experience in Hospital Nuclear Medicine.

The program is evaluated on an annual basis and the Radiological Safety Committee is well aware of the training and experience of the above individuals and approves of their training for the type and quantity of radioactive material used. A current member of the Radiological Safety Committee, Dr. Robert Bahr, is the former Chief of the Veterinary Radiology Section and is very familiar with their training and experience.

However, in-house radiation safety training was actually provided for them and began approximately six months prior to the license approval (June 1995). Dr. Henry was provided with a copy of a text entitled "Principles of Radiological Safety" which he made available to Dr. Drost and C. Rodebush for self-study. The content of the text included introduction to radioactivity, interaction of radiation, radiation biology, radiation instrumentation, radiation protection, and regulatory compliance.

Shortly before the license approval (December 1995) for use of Tc-99m these individuals were each provided with a text entitled "Radiological Safety for Research Personnel" which covers radiation safety as well as NRC and University regulations. They were instructed to study the material and prepare for an exam. All have taken the exam and passed with a 70% or above.

The "Evaluated Clinical Foreign Veterinary Graduate" are trained in radiation safety by the faculty and staff of the College of Radiology.

All of the individuals mentioned above are provided with Landauer film badges to measure the shallow and the deep-dose. Area badges are also placed at strategic locations

within the lab. Individuals who are likely to receive a dose to the hands are provided finger rings to measure the extremity dose. Since January 1996 no measurable doses have been detected on any of the film badges.

Item B(2)(a)

Failure to Monitor Hands for Possible Contamination After Work With Radioisotopes.

The reason for the failure to monitor hands, clothing, and footwear before proceeding with other duties appeared to be that a meter was not readily available at a convenient location which was dedicated to this process. There were also no visual reminders that monitoring should be done before leaving the room or continuing with other duties

An additional meter is to be purchased and placed at the room exit where it will be readily accessible to workers returning to other duties. A visual display cautioning everyone to monitor for contamination will be posted by September 15, 1997.

Item A(2)(b)

Failure to Transport Small Animal Containing Radioisotopes in a Utility Cart Design for that Purpose.

During the early stages of the nuclear medicine program small animals were not used so an appropriate utility cart was not purchased. As the program developed the demand for scans on small animals increased suddenly and a specially designed utility cart was ordered but has been on backorder for several months.

The specifically designed utility cart will be used for all small animal transfers when it arrives. In the mean time, any small animal transfers will take place with a large container which will fulfill that function and lined with an absorbent material. This will be done immediately.

Item B(1)

Failure to Mark a Hazardous Substance in Shipment with "RQ".

The AmBe neutron moisture gauging sources were under the very able care of Dr. John Stone, a faculty member, and Harold Gray, a technician, for a number of years. Both individual retired in 1994 and a faculty member from the same department

reluctantly agreed to basically leak test the sources and maintain their security until they could be disposed of or reassigned.

Not understanding the transportation regulations, Dr. Nofziger permitted one AmBe (# 305) source to be transported to the OSU Altus Research Station on July 9, 1996 and another gauge (# 26) on May 15, 1996 without labeling them as reportable quantities, RQ.

The shipping papers were correctly prepared with the reportable quantity, RQ, indicated. The individual source cases were to have been labeled prior to transportation but this was not done.

All of the source cases have now been labeled as a reportable quantity, RQ.

Item B(2)

Lack of Hazmat Training by Hazmat Employee

The transport of the gauge in question (gauge #126) was by William Marshall an OSU employee. His radiation safety and transportation training and experience is indicated below:

William Marshall has a Masters Degree in Agricultural Engineering. He is employed as a research engineer in the Department of Agricultural and Biosystems Engineering. His training and experience include the following:

In 1993 he took the Troxler training course for nuclear gauge users which includes radiation safety and transportation. At this time he was employed by the Kentucky Department of Environmental Protection. He indicated that while employed in Kentucky he routinely used a neutron gauge in his work.

In 1994 he took a 20 hour Hazmat training course at the University of Louisville which he indicated covered general DOT Hazmat instructions.

In 1995 and 1997 at Oklahoma State University he took a 2 hour Hazardous Communication course which deals with general hazard recognition and awareness.

A record of training to satisfy Subpart H CFR 172.700 and experience will be available for employees who transport radiactive material off the OSU campus on to public roadways.

Item C

Failure to Monitor the External Surfaces of Incoming Labeled Packages

Oklahoma State University requires that all incoming packages be monitored for contamination at each level of containment, including the external surface. Records of the monitoring results are maintained by the Authorized User and are reviewed by the RSO during the audits.

Therefore, it is known that the Authorized User had been monitoring the external surface of incoming labeled packages prior to this. The individual unilaterally decided that it was not necessary, was time consuming, and ceased to do it.

The Authorized User now realizes that the monitoring is required by the NRC and by Oklahoma State University and is not a matter to be decided unilaterally.

Item D

Radioactive Contamination in Room NRC 350

The cause of the failure to detect P-32 on the sill of the hood area in NRC 350 is probably due the fact that the survey was performed by moving the meter probe too rapidly over the surface and using a pattern that was too wide-spread.

However, about a month after the inspection the meter which was used for the survey went totally nonfunctional. There is a possibility that the meter was malfunctioning when the survey was done.

To prevent this situation from reoccuring the meter will be checked with a radioactive source before use. The meter will be moved more slowly and methodically over the work area including the entire hood especially the front sill.

When monthly swipe are conducted, two swipes will be used to monitor the hood area to ensure detection of possible contamination. One will be used to monitor the work area per se, whereas the other will monitor the hood sill and the bench space immediately adjacent to the work area.

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