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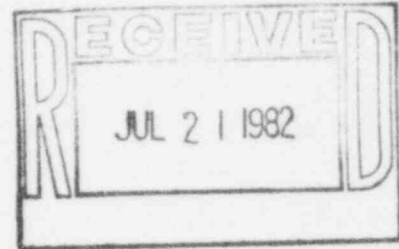
Assistant Director
C.V. Anderson, P.E.

UTAH DEPARTMENT OF TRANSPORTATION

4501 South 2700 West
Salt Lake City, Utah 84119

July 14, 1982

Mr. John T. Collins
Regional Administrator
United States Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012



Gentlemen:

In reply to your letter dated 6/29/82 and "Notice of Violation" Docket: 30-06475, License: 43-09517-01, we are submitting the following response to violations 1 thru 7 according to 10 CFR 2.201.

Violation 1

- a. The letter dated 5/18/82 from Heber Vlam to Paul Guinn referred to our license renewal and outlined our District Storage Areas together with our designation of UDOT District Radiation Protection Officers. Approval of these changes from our previous license was confirmed by telephone by Mr. Paul Guinn on July 14, 1982.
- b. During July, Mr. Pollock, the RPO, inspected each storage area to insure compliance with necessary regulations. These inspections will be repeated on a frequent periodic basis. Each District is required to obtain a Radiation Survey Meter for individual use at this area.
- c. Full compliance will be achieved by 8/1/82.

Violation 2

- a. With the renewal of our license, we submitted the following procedure on 5/18/82:

Procedure for Source Removal From Gauge

- (1) Record source S/N, gauge S/N, source activity and source type in log book.
- (2) Take reading with survey meter (before removal of source) one foot (12") from right side and center of gauge: record reading in log book.

- (3) Remove roll pin, using a 3/32 drift punch and tapping punch lightly with a ball peen hammer thus driving roll pin out.
 - (4) After roll pin has been removed, unscrew index rod cap.
 - (5) Grasping source rod handle firmly, release indexes by pushing forward, at the same time gently lifting source and rod from gauge, keeping at arms length put in lead storage shield, at least 6 feet from work area.
 - (6) Take reading at surface of lead shield and record reading in log book.
 - (7) Take reading at 3 ft. from lead shield and record reading in log book.
 - (8) Do necessary repairs to gauge.
 - (9) Grasping source rod handle firmly, keeping at arms length, reinstall source back in gauge. Position handle over index rod.
 - (10) Replae index rod cap, line up key ways with a 3/32" pin punch and reinstall roll pin. If old roll pin is damaged replace with new roll pin. Grasping index rod cap turn to right then turn left, making sure that cap and pin is securely installed.
 - (11) Take a meter reading (survey) one foot (12") from right side and center of gauge. Record reading in log book. This is to insure that the source is back in the correct position in gauge and is properly shielded. Date and sign log book.
- b. We obtained telephone confirmation on 6/17/82 of approval of this procedure by Mrs. Martin of Material Licensing Branch, US NRC for our license renewal.
- c. No source removal will be performed until we actually receive our renewed license.

Violation 3a

- a. Survey meter and calibration certificate were picked up from Stabro Laboratories on 5/24/82.
- b. Purchased second XETEX Survey Meter model 305B2 on 6/18/82.
- c. As of 6/23/82, two survey meters are now available.

Violation 3b

- a. Records of all operations are being reproduced as far as possible for the years 79, 80 and 81. This is being done through individual, district and central lab. records.

- b. RPO is currently recertifying all operators.
- c. All operators will be certified by 8/1/82.

Violation 3c

- a. Renewed license states that radiological safety lectures and exams will be given immediately to every new operator. Certified operators will be required to be recertified (with exam) every other year.
- b. The enclosed memo to all District Materials Engineers and designated District Radiation Protection Officers, dated 5/25/82, outlines our requirements for certification.
- c. All operators will have current Certification (including Radiological Safety Lecture and Exam) by 8/1/82.

Violation 4

- a. A permanent record of physical inventory of the sealed sources was organized and started on 5/10/82.
- b. Mr. Pollock is maintaining these records. Mr. Brox is reviewing all records on a monthly basis.
- c. Full compliance (ie., complete records) will be achieved by 8/1/82.

Violation 5

- a. Troxler Moisture-Density Gauge #5841 was returned to the Materials and Research Section 5/10/82.
- b. We will maintain possession of this gauge until such time as the Division of Water Resources is able to obtain a separate license and furnish us a copy of such.
- c. Full compliance has been achieved.

Violation 6 (a thru c)

The enclosed memo was sent on 5/11/82 from Mr. Hurley to all District Directors, District Materials Engineers and Project Engineers emphasizing transportation and storage requirements for the gauges. All personnel are required to observe these regulations and Mr. Pollock and Mr. Brox are authorized thru periodic inspections to insure full compliance.

Violation 6a

- a. Field books describing the hazardous material were made up and distributed to all District Materials Labs.

- b. Field books are currently being inspected and will continue to be inspected on a periodic basis. No gauge will be transported without proper shipping papers.

Violation 6b

- a. All gauges (including Troxler #7517) were inspected during June and July and were furnished proper containers, if not so equipped.
- b. No gauge will be packaged and transported without the proper containers.
- c. Full compliance has been achieved.

Violation 6c

- a. Gauge manufacturer was notified to provide package certification for Type A, Quantities of Licensed Materials. This was received on 6/4/82.
- b. No future manufacturer will be allowed to provide the UDOT with Moisture Density Gauges without the proper containers and package certifications.
- c. Full compliance has been achieved.

Violation 6d

- a. Certificates for special form licensed material were made up and inserted into a log book for each gauge.
- b. Mr. Pollock is currently reviewing each log book, and will periodically inspect each log book for inclusion of this form.
- c. Full compliance has been achieved.

Violation 6e

- a. All personnel were notified that each truck involved in the transportation of the gauges must have the proper tie-downs. The required modifications are being made.
- b. Periodic inspections will insure that only approved tie-downs will be used.
- c. Full compliance will be achieved by 8/1/82.

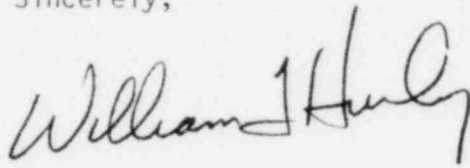
Violation 7

- a. NRC-4 Forms were made for each individual operator, regardless of the dosage received. Those eight employees, who received an excess of the 25% standard specified dose, stated that none had any prior occupational dose.

- b. Each new employee will complete the NRC-4 Form which will become part of their permanent record.
- c. Full compliance has been achieved.

In regard to organization of this function and in order to insure compliance with necessary regulations, Mr. Brox, under the direction of Mr. Vlam, will conduct periodic inspections of transportation and storage areas, source records and individual radiation and certification records. Mr. Brox will also make reviews of general policies and procedures of the Nuclear Gauge Section.

Sincerely,

A handwritten signature in cursive script that reads "William D. Hurley". The signature is written in dark ink and is positioned above the typed name.

William D. Hurley,
Director

Enclosures

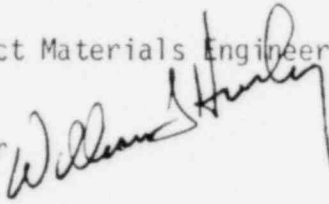
Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

DATE: May 11, 1982

TO : District Directors, District Materials Engineers,
Project Engineers

FROM : William D. Hurley, Director



SUBJECT: NRC Inspection and Requirements

On May 5, and 6, 1982, a team of Nuclear Regulatory Commission inspectors reviewed the central lab and two district laboratory's Nuclear Gauge facilities. Their inspection showed us to be in violation of NRC regulations concerning the transportation and storage of the portable nuclear gauges.

We are required to take corrective action immediately and to indicate when full compliance will be achieved. Failure to do this could result in requiring us to show cause why our license should not be revoked. Therefore attached procedures for transportation and storage of Nuclear Gauges will apply to all district and field personnel.

The Materials and Research Radiation Protection Officer will be authorized to pick up and return to an authorized storage area, any gauge not found to be properly stored or transported. The personnel using the gauge will be required to furnish written explanation thru the District Director before the gauge will be returned.

Enclosure
GBrox/nmt

PROCEDURES FOR TRANSPORTATION AND STORAGE
OF NUCLEAR MOISTURE-DENSITY GAUGES

All gauges shall be locked when not in actual use. Key for lock shall be placed with log book.

Only NRC authorized containers shall be used for transportation of gauges. No custom built box will be used. The central lab will have on file the manufacturers specifications and test results showing NRC approval for each authorized type of transportation container.

All vehicles shall have facilities to tie down the gauge transportation box in case of an accident.

Individual log books (field books) shall be used for each gauge. These will show:

Example

Gauge No.
Source and Activity
Date and Time Left Storage
Destination (construction work area, project, etc.)
Date and Time Left to Return to Storage
Date and Time Returned to Authorized Storage Area.

Individual vehicles shall not be signed with radiation signs. Gauge container shall have the proper class II stickers attached.

Storage areas shall be locked and properly posted with required signs.


TO BE POSTED AT STORAGE AREA

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

DATE: May 25, 1982

TO : District Materials Engineers
District Radiation Protection Officers

FROM : George S. Brox, Materials Engineer 

SUBJECT: Duties and Responsibilities of District Radiation Protection Officers

The enclosed material is intended to furnish additional information and to be used as a guide in conforming to NRC Rules and Regulations. Each potential female operator of a moisture-density gauge must fill out the enclosed form in duplicate. Please return one copy to the Central Lab. to be filed with the permanent exposure records.

Enclosure
GBrox/nmt

Duties and Responsibilities of the Radiation Protection Officer

- (1) To assure that byproduct materials possessed under the license conform to the materials listed on the license.
- (2) To assure that use of the devices, particularly in the field, is only by individuals authorized by the license.
- (3) To assure that all users wear personnel monitoring equipment, such as film badges.
- (4) To assure that gauges are properly secured against unauthorized removal at all times when they are not in use.
- (5) To serve as a point of contact and give assistance in case of emergency (gauge damage in the field, fire, theft, etc.) to assure that proper authorities, for example, NRC, local police, and State personnel, are notified promptly in case of accident or damage to gauges.
- (6) To assure that the terms and conditions of the license, such as periodic leak tests, are met and that the required records, such as personnel exposure records, leak test records, etc., are periodically reviewed for compliance with Nuclear Regulatory Commission regulations, requirements and license conditions.

In addition he will insure the following personnel maintain their duties as UDOT District Radiation Protection Officers:

District 1 - Alvin F. Wells
District 2 - John Degrazio
District 3 - Bruce Allred
District 4 - Dale Jewkes
District 5 - Vee Wadsworth
District 6 - Sylvan Tanner

It will be their responsibility, under supervision of the Radiation Protection Officer, to insure that the project personnel comply with radiation safety rules and regulations concerning storage, transportation, use, and safety precautions with the Nuclear Moisture Density Gauges. They will insure that all operators are adequately safeguarded and certified in the use of these gauges. In the event of an NRC inspection of district and/or field labs, these District RPOs will assist in documenting necessary regulations. Of specific importance will be secure storage areas and daily log of transportation and use of the gauges.

In the event of an accident involving a nuclear source, these people will be notified as soon as possible and will then notify the Central Lab. as required.

Individual protection devices such as film badges will be maintained and closely monitored for all operators of the gauges. Of specific importance will be the accumulated yearly dosage records.

Safety Procedures

Instrument security shall be maintained at all times with the following procedures:

- (1) No one is to operate or transport a Nuclear Gauge without proper safety equipment (i.e. film-badge). Unauthorized persons are to be kept out of the working area. A suggested distance is 15 feet. Every operator is required to have the proper Radiological Safety schooling as well as certification.
- (2) Storage should be in a securely locked area approved by the Central Lab radiation protection officer as required by NRC. The source should be in the SAFE or stored position with the source lock in place. These locks have been provided by the Central Lab. Keys shall be placed with log books.
- (3) Transportation of the gauges should be with the gauge locked in its approved container, in a locked vehicle, well away from any passengers and secured to vehicle.
- (4) A log shall be maintained for every individual Nuclear source that is transported over a federal highway. That also means that now a field book log will be required for every gauge. This will contain the gauge number, source, form, and maximum radiation. For example:

Troxler 3401, No. 43-0128, Cesium 137 - not to exceed 10 millicuries, Americium 241 - not to exceed 50 millicuries.

This log will show the date and time the gauge left the storage area, its destination, and the time and date it left work area and returned to storage.

- (5) All radiation areas will be conspicuously posted with signs bearing the radiation caution symbol and the words: CAUTION RADIATION AREA.
- (6) Notice to Employees (Form AEC-3) and a notice describing Regulations and Documents and stating that they may be examined at the Central Materials Lab must be posted within each District Lab. These have been furnished in each District Lab.
- (7) A copy of the Emergency Procedures to follow in case of damage to the Nuclear Gauge is posted in each storage area. Operators should become familiar with these NRC required procedures.
- (8) Operators should never become exposed to the nuclear source.
- (9) No dismantling, adjustment or repair of the gauge is to be done by the operator in the field. The central lab is equipped to maintain, repair and calibrate the gauges and defective equipment should be sent to them. Each gauge is resealed after calibration or minor repair.

- (10) All gauges are to be leak tested every 6 months.
- (11) Operators are expected to provide proper care and security to the gauges.

Accidents Involving Radioactive Materials

The possibility of radioactive materials contained in UDOT Moisture-Density gauges creating a hazardous situation as the result of an accident involving a vehicle carrying such material is remote, but must be considered. In the event of an accident the recommended safety procedures must be followed as outlined below.

1.0 Potential Hazards

Both unsealed and sealed radioactivity must be considered in the event of a road accident. If our sealed sources are undamaged and the seal of the source is still intact, then the hazard is limited to possible external radiation exposure. However, with unsealed tracer material or a source in which the seal has been broken, the spreading or contamination resulting in possible internal exposure must be considered.

A quick survey of the situation will normally reveal the source of hazard, if any. If there is a doubt as to whether or not a seal on a sealed source is broken, contact Central Lab., and they will perform a quick wipe test and detect any leakage. If the source concerned is an AM241-BE and there is any doubt whatsoever as to the intactness of the seal, then the scene of the accident must be considered as contaminated until neutron monitoring equipment has been brought in and the area surveyed.

In any event, if contamination is found, the contaminated area should be "roped off" and posted as contaminated until cleaned up.

2.0 Specific Instructions and Regulations

If an accident occurs involving vehicle carrying radioactive material and the situation indicates a possible radiation hazard (as described in paragraph 1.0 above), then the following must be observed:

- 2.1 Notify immediately, George Brox, or Dan Pollock - 965-4196
Brox - Home: 561-8655, Pollock - Home: 262-0787
- 2.2 See that local authorities concerned (state police, local police, health authorities, etc.) are alerted to the potential hazard.
- 2.3 Keep all unauthorized persons away from the scene of the accident.

- 2.4 If the radioactive material (either sealed source or tracer material) is intact, remove it from immediate area to a safe (either locked or guarded) place.
- 2.5 If there is the slightest possibility of contamination, use a survey meter to carefully survey the area and equipment.

License No. 43-09517-01 and amendments are posted at Materials and Research Section - 4501 South 2700 West, Salt Lake City, 84119

Training Program Outline.

Dan Pollock (RPO) is the instructor. Each individual user prior to operating a gauge or receiving a film badge, is required to take a 1 (one) day radiological safety and gauge operations class covering these basic items:

- 1) Principles and practices of radiation protection.
- 2) Leak testing procedure.
- 3) Mathematics and calculations basic to the use and measurement of radioactivity.
- 4) Biological effects of radiation.
- 5) Radioactivity measurement standardization and monitoring techniques and instruments.
- 6) Accident and incident procedures.
- 7) Procedures for Nuclear Gauge storage and transportation.
- 8) General safety precautions.
- 9) Basic gauge operation and theory.
- 10) Basic gauge procedures and field application.

Upon completion of the course the user must pass the written exam as well as the field test in order to be certified, he can then operate the gauge and obtain a film badge. Each operator is re-certified every other year.

UTAH DEPARTMENT OF TRANSPORTATION
Prenatal Radiation Exposure Statement

In accordance with U.S. Nuclear Regulatory Commission Regulatory Guide 8.13, I have been notified of possible risks to embryo or fetus by prenatal radiation exposure. The maximum permissible dose equivalent should never exceed 0.5 rem to an expectant mother.

Signature

Date

To be signed in duplicate with one copy remaining in individuals radiation exposure file.