

KRUGER TECHNOLOGIES, INC.

GEOTECHNICAL ■ ENVIRONMENTAL ■ TESTING ■ INSPECTION
8271 MELROSE DRIVE ■ LENEXA, KANSAS 66214 ■ VOICE 913-498-1114 ■ FAX 913-498-1116 ■ EMAIL KTIKC@KTIONLINE.COM

Darrell J. Roberts
Nuclear Regulatory Commission
Region III
2443 Warrenville Rd. Suite 210
Lisle, IL 60532-4352

January 11, 2017
Radioactive Materials License No License No. 15-35082-01

Dear Mr. Roberts,

In accordance with the confirmatory order of October 20, 2014, we are writing to provide a point-by-point status report on our conformance to the terms of that order.

A.1. The company-wide nuclear gauge policy continues to be reviewed in order to maintain a high level of safety and security. The current version is attached.

A.2. All authorized users have been trained in nuclear gauge safety and D.O.T. hazardous material transport. The dates of their current certifications are attached.

A.3. Completion of this training is a pre-requisite to certification as an authorized gauge user. A process has been put in place to ensure that all authorized users will go through the D.O.T. hazardous material transport training every three years.

B.1.a. KTI continues to use an inspection form for field inspections of portable gauges in use. The form is included in the attached policy.

B.1.b. At least annually, random, unannounced observations of the permanent storage facilities are conducted.

B.1.c. The KTI process ensures that each gauge technician is observed at least annually. While many of these observations are conducted in the field, because several of our authorized users do not regularly operate nuclear gauges in the field, they were observed in the context of safety meetings.

B.1.d. These observations were conducted by our Radiation Safety Officer.

B.1.e. The KTI corporate Radiation Safety Officer inspects each facility at least annually.

B.2. Quarterly inspections are conducted. Inspections of the Lenexa facility were conducted on 1/15/2016, 3/11/2016, 5/16/16, 8/29/2016, and 12/29/2016. Inspections of the Knob Noster facility were conducted 1/3/2016, 3/18/2016, 4/1/2016, 7/1/2016, and 10/5/2016.

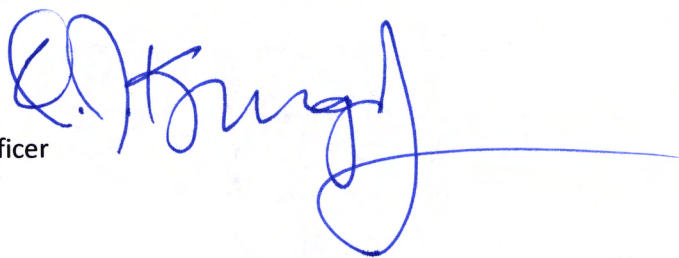
B.3. Records of those inspections are retained.

B.4. Issues discovered during inspections are promptly resolved and discussed during the routinely scheduled annual safety meeting. No issues were discovered.

B.5. Mike Zumwalt completed in-person Radiation Safety Officer training on February 18th, 2016 in Arlington, TX. A copy of the certificate from that training was provided to Aaron McCraw on March 16, 2016.

Sincerely,

Otto J. Kruger
Radiation Safety Officer



Sincerely,

Otto J. Kruger
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Kruger Technologies, Inc.

Kansas City | Whiteman Air Force Base | Fort Riley | Fort Leonard Wood | Wichita

KTI RADIATION SAFETY PROGRAM

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FIRM LOCATION

A. Addresses

**Corporate Headquarters
8271 Melrose Dr.
Lenexa, KS 66214**

**219B N State Street
Knob Noster, MO 65336
913-498-1114**

RADIATION SAFETY OFFICERS

Otto J. Kruger is the designated Radiation Safety Officer (RSO) for the company and for the Lenexa offices. Mike Zumwalt is the site RSO for the Knob Noster facility. Should change of RSO occur, governing agencies will be notified in writing. The RSO will assume the duties and responsibilities that include the following:

- To ensure that all terms and conditions of the license are being met and that the information contained in the license is up to date.
- To ensure that the equipment has been leak tested in the required timely manner and that the leak test is performed in the manner prescribed by the equipment manufacturer.
- To ensure that the use of the equipment is only by individuals that have been authorized by the RSO.
- To maintain the records as required by the license and the regulations. These records shall include personnel exposure records, leak test records and training certificates for all users.
- To serve as a point of contact and give assistance in case of emergency such as equipment damaged in the field or theft and to notify the proper authorities in case of emergency.
- To ensure that all users have read and understand the radiation safety, operating and emergency procedures.

LICENSING INFORMATION NECESSARY FOR OPERATION

A. Utilization Log maintained at facility:

1. Model and serial number
2. Date and time of day gauge is removed from and returned to storage
3. Name of operator
4. Destination
5. Signature of operator

6. Standard counts of gauge

B. Bill of Lading – kept with gauge within reach of user:

1. Important phone numbers in the event of malfunction or accident with gauge
2. Model and serial number
3. Copy of license issued by Department of Labor with amendments
4. Personal identification
5. Notices of radioactive materials
6. Gauge operator's manual

STORAGE FACILITY

FIRE PROTECTION

- A. Building is of non-combustible construction.
- C. The ceiling and floors are reinforced concrete.
- D. Fire extinguishers are mounted on nearby walls.
- E. Building conforms to existing State regulations and Codes.

LOCATIONS

A. Permanent Location

1. The building is rigidly constructed, with adequate fire safety equipment and located in a commercially zoned area.
2. The gauges are stored in a separate room. The area is kept locked and secured at all times with keys available only to licensed operators. In addition, the gauge's source rod is kept locked when not in use.
3. The room is posted with appropriate radiation warning signs.
4. The building is locked and secured during non-working hours.
5. The facility meets with the approval of the Radiation Safety Officer.
6. The facility shall always be subject to inspection for compliance to these requirements.

B. Temporary Location (not anticipated)

1. The building shall be rigidly constructed, with adequate fire safety equipment and located in a commercially zoned area.
2. The gauge(s) will be stored in a separate room, if possible. If this is not possible, the storage cabinet will be located in a remote area where only occasional personnel use is anticipated. In either case, the area will be kept locked and secured at all times with keys available only to licensed operators. In addition, the gauge's source rod is kept locked when not in use.
3. The room will be posted with appropriate radiation warning signs.
4. The building will be locked and secured during non-working hours.
5. The facility will be inspected by and meet with the approval of the Radiation Safety Officer.
6. The facility shall always be subject to inspection for compliance to these requirements.

OPERATOR'S QUALIFICATIONS

To become an authorized user, the individual must be an employee of KTI and have satisfactorily completed training, undergo annual observation, and attend the annual safety meeting as able. The list of authorized users is attached in *Addendum B*.

Radiation Safety Training:

Each authorized user will have completed portable nuclear gauge use and safety training and hazardous materials D.O.T. Training. The hazardous materials D.O.T. training will be repeated at intervals not to exceed three (3) years.

Observation:

Each authorized user will be observed annually. These observations will utilize the inspection form in *Addendum A*.

Safety meeting:

There will be an annual safety meeting.

Unauthorized Use of Gauge

1. Only certified operators have keys for access to gauges.
2. The building is locked and secured during non-working hours.
3. The storage area, where gauges are located, is kept locked at all times.

EXPOSURE MONITORING PROCEDURES

Under average conditions, at a distance of 2 ft. (0.6 m) from gauge a full-time operator working a 40 hour week can expect to receive about 20 MREM's per week (gamma and neutron) or 260 MREM's (gamma and neutron) per 13 weeks for his whole body. This dose is well within the limits prescribed in Code Rule 38 under Section 38.21.

OPERATING AND EMERGENCY PROCEDURES

A. Transportation of Equipment

1. All possible means shall be provided to ensure that the equipment is fully secured in the transporting vehicle and the equipment is away from the passenger compartment. When transporting in a car, the gauge must be locked in the trunk. When transporting the gauge in a van, the gauge must be stored in the cargo area and not adjacent to the driver or any passengers. The vehicle should be locked if left unattended. When transporting in an open bed vehicle, the gauge should be securely fastened and locked to the truck bed in the following manner: Lock the nuclear density meter storage box using at least two locks. Two box latches are sufficient, but if two latches are not available, secure the chain to the top and side handles in such a way as to prevent opening the box lid. Secure the box with a chain through all three handles to two points on the truck.

2. The gauge will be transported in the manufacturer's transportation case. The U.S. Department of Transportation requires that the gauge be transported in a properly labeled carrying case.
3. At all times during transport, the operator will have a properly completed Bill of Lading for the gauge, in addition to the Emergency Procedures package. These materials shall be within reach of the operator at all times during transportation.

B. Operating Procedures.

1. Keep the source in the "safe" or stored position when not in use (this includes from one test location to another).
2. While exposure dose levels are well within limits for radiation workers, never expose yourself to the bare source.
3. Keep all unauthorized persons out of operating area. Suggested distance 15 ft. (4.5 m).
4. Maintain security of the instrument at all times. The source lock shall be in place any time the gauge is not in use.
5. The gauge shall be kept in carrying case (shipping case – DOT 7A, Type A, Yellow II Label, 0.1 Transport Index) with source rod locked while in transit. It must be transported only by a certified operator in an approved vehicle.
6. The gauge while being transported in a vehicle shall be located in an area as far away from any person(s) as possible (trunk of sedan, back of station or suburban).
7. The vehicle, transporting the gauge, must be kept locked when unoccupied.
8. If an accident occurs with vehicle while transporting gauge, follow conditions under Emergency Procedures.

EMERGENCY PROCEDURES

A. In the event of physical damage to the gauge, the following will be performed:

1. Immediately cordon off an area around the gauge. An area radius of 15 feet will be sufficient.
2. If a vehicle is involved, it must be stopped until the extent of contamination, if any, can be established.
3. A visual inspection of the gauge is to be made to determine if the source housing and/or shielding has been damaged.
4. At the earliest possible time, when the situation is under control, you must contact O.J. Kruger at home (913) 685-4830 or by cell (816) 305-3030. Describe the present conditions and follow the instructions of the Radiation Safety Officer. If immediate contact cannot be made with the RSO, you must make contact with the next emergency number as outlined in the Emergency Procedures package and the Bill of Lading.

B. In the event the gauge is lost or stolen, immediately notify the Radiation Safety Officer as listed above in Item 4.

INVENTORY CONTROL

- A. A record is kept by Radiation Safety Officer showing where gauges are located at all times.
- B. Annually, a thorough inventory is done (this coincides with leak testing schedule) to check gauges for usage and condition.

MAINTENANCE AND LEAK TEST

- A. Periodic maintenance will include cleaning the gauge.
- B. No maintenance will be performed in which the radioactive source is removed from the gauge. For this type of maintenance, the gauge will be returned to the manufacturer.
- C. The leak test will be performed by the RSO using the TROXLER Model 3880 or equivalent Leak Test Kit. Refer to the manufacturer's instruction booklet for more detail. Gauges will be leak tested at intervals not to exceed twelve (12) months.

GAUGE SHIPMENT PROCEDURES

- A. Shipment of gauges shall be accomplished by an approved hazardous materials carrier. R+L Carriers shall be the accepted carrier unless special circumstances dictate differently.
- B. Shipment for routine maintenance or calibration shall be done in accordance with verbal directions from the receiving agency. All directions given shall be followed concerning the correct packaging, labels and shipping papers.
- C. Shipment of damaged gauges shall be accomplished in accordance with written instructions from the receiving agency.
- D. The appropriate agency, e.g. Troxler, shall be contacted by telephone so that a description of the damage can be given to their Radiation Safety Department.
- E. If recommended by the receiving agency, photographs and a written description will also be provided so that an informed decision can be made concerning any special provisions necessary to insure safe shipment of the gauge. At this time, request that written recommendations be sent to KTI from the receiving agency.
- F. The gauge shall then be shipped in strict accordance with the written recommendations.
- G. Prior to shipment of any gauge in any condition, approval shall be given by the RSO regarding all procedures followed.

DISPOSAL

- A. Any gauge which is no longer of any use to KTI will be returned to the manufacturer for disposal.

Addendum A: Training Checklist

Nuclear Density Meter Check Out, Transportation, and Usage

Technician _____

Signatory/Date _____

Check out

1. Unlock nuclear storage area. _____
2. Remove nuclear density meter box from storage area. _____
3. Unlock the storage box and remove the nuclear density meter. _____
4. Power-up nuclear density meter. _____
5. Standardize meter on one of the locations painted on the floor of the lab. _____
6. Write the standard counts for moisture and density, destination, and technician name on the utilization log. Notify RSO if standard counts are outside of the allowable range. _____
7. Get transport papers. _____
8. Close storage area door and lock the two locks. _____
9. Lock the nuclear density meter inside the storage box. _____
10. Inspect the condition of chains, locks, or other equipment used to secure the box in the vehicle to ensure it is in working order. _____
11. Place the nuclear density meter storage box in the back of the truck bed. _____
12. Lock the nuclear density meter storage box using at least two locks. Two box latches are sufficient, but if two latches are not available, secure the chain to the top and side handles in such a way as to prevent opening the box lid. Secure the box with a chain through all three handles to two points on the truck. _____
13. Place the transport papers that go with the nuclear density meter on the dashboard of the vehicle or have transport documents in tech binder. _____
14. Check to verify that backup locks are transported with the gauge. _____

Field Operation

1. Notify any surrounding individuals that the recommended safe distance from the gauge for a non-operator is 15 ft. _____
2. Standardize the gauge in the field;
Record values in gauge book and on test sheet. _____
3. Set maximum density (Proctor for soils; Marshal for asphalt) _____
4. Set test time. _____
5. Set test depth. _____
6. Unlock trigger. _____
7. Using the base plate, rod and hammer pound a test hole to the desired depth. _____
8. Use silica sand to fill in voids in the test surface. _____
9. Place the gauge over the hole and advance the rod to the desired depth. _____
10. Seat the rod in the hole by pulling the gauge backwards so probe is in contact with rear side of hole. _____
11. Start the test. _____
12. Wait for the test to end and pull the rod up to the safe position. _____

13. Scroll through the data and write numbers and locations on the test form. _____
14. At end of testing power down, replace trigger lock, place in box and lock in truck bed as described in Checkout item #10. _____
15. Technician has stakes and caution tape in case of emergency and is familiar with emergency procedures. _____

Check in

1. Unlock nuclear density meter storage box from truck bed. _____
2. Unlock storage area and place nuclear density meter storage box inside. _____
3. If necessary, take the nuclear density meter out of the box and place on the charger. Record time charging begins. . _____
4. Return transport papers, sign the gauge back in. _____
5. Close storage area door and lock the two locks. _____
6. Notify the RSO of any defects or questionable readings from the nuclear density meter. _____

Approved by: _____ (written) _____ (signed)

Addendum B: Authorized Users as of December 31, 2016

Employees	Portable Gauge Safety Training	Haz Mat (Exp date)	KTI Nuke Obs.
Akalu, Tadele M	7/19/2009	12/19/2018	12/13/2016
Aubin, Christopher S	3/21/2006	12/29/2018	12/1/2016
Baltzell, Scott W	10/29/2013	12/23/2019	11/8/2016
Freeman, Michael	2/23/2016	2/24/2019	11/8/2016
Guthrie, Michael W	7/14/2009	12/30/2018	12/13/2016
Knowlton, Caleb	11/21/2013	12/29/2019	12/13/2016
Neece, Lucas C	10/6/2015	10/6/2018	12/13/2016
Sothers, Nicolas R.	4/24/2013	4/26/2019	11/8/2016
Stilwell, Mark S	12/15/2015	12/15/2018	11/8/2016
Zumwalt, Michael L	02/12/13	2/23/2019	12/13/2016