



## CONVERSATION RECORD

02/12/2015

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

Greg Nehring, Owner and proposed Radiation Safety Officer

DATE OF CONTACT

02/12/2015

TYPE OF CONVERSATION

☐ E-MAIL☒ TELEPHONE☐ INCOMING☒ OUTGOING

E-MAIL ADDRESS

greg@grameng.com

TELEPHONE NUMBER

(660) 851-1214

ORGANIZATION

GRAM Engineering and Design, LLC

DOCKET NUMBER(S)

030-38805

LICENSE NUMBER(S)

N/A

CONTROL NUMBER(S)

585832

SUBJECT

Our review of your new license application dated January 21, 2015.

Resubmission in the entirety requested below is expected on or before March 13, 2015.

## SUMMARY AND ACTION REQUIRED:

To complete your new license application, please resubmit your application as noted below. Refer to NUREG 1556, Vol. 1, rev. 1, "Program-Specific Guidance About Portable Gauge Licenses," found at the website, <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v1/r1/sr1556v1r1.pdf>. For your convenience, applicable pages from the guidance volume are attached.

## PLEASE NOTE THE FOLLOWING WHEN PREPARING YOUR RESPONSE:

- Submit requested information within 30 days of this record, as listed at the top of this memo.
- Direct any questions you have to me at (630) 829-9892 or [sara.forster@nrc.gov](mailto:sara.forster@nrc.gov).
- Provide your response on typed 8.5" x 11" sheets, or by completing the applicable portions of the Appendix B checklist.
- Include a signed and dated cover letter with your response; reference Control No. 585832 in that response.
- Please FAX your response to my attention at (630) 515-1078 OR scan your response and send to me via email, as a pdf file.

## ADDITIONAL INFORMATION NEEDED:

1. Concerning authorized materials, for gauges to be used and/or possessed in NRC jurisdiction, please provide the following items:

- 1.1. Confirm that only Troxler 3440 and/or Instrotek 3500 Xplorer portable gauges will be possessed and/or used under the requested new license, and radionuclides to be authorized are cesium-137 and americium-241, with total overall possession limits of 44 and 200 millicuries, respectively.
- 1.2. Confirm that the radioactive quantity to be possessed will not exceed either the maximum activity per source or maximum activity per device, as specified in the Sealed Source and Device (SS&D) Registration Certificate, and that any use will be in accordance with use(s) listed on that certificate.

NAME OF PERSON DOCUMENTING CONVERSATION

Sara A. Forster, Materials Licensing Branch, Region III Office, 2443 Warrenville Road, Suite 210, Lisle, Illinois 60532

SIGNATURE

02/12/2015



CONVERSATION RECORD (continued)

G. Nehring

SUMMARY AND ACTION REQUIRED - ADDITIONAL INFORMATION NEEDED (Continued from page 1):

2. For the proposal to list you as the licensee's Radiation Safety Officer (RSO), please provide the following items:

2.1. Current written memorandum of understanding/delegation of authority (MOU/DOA), signed by both you and a management representative, including specific duties, as included in the model MOU/DOA, taken from the draft NUREG 1556, Vol.4,rev.1, Appendix C (attached). In responding, you may use this model MOU/DOA, or create a custom document. For duties relevant to a portable gauge program, see NUREG 1556 Vol. 1, rev. 1, Appendix E, attached.

2.2. Documentation of your training & experience, in accordance with criteria outlined in NUREG 1556 Vol. 1, rev. 1.

3. Confirm the statement: "Before using licensed materials, authorized users will have successfully completed one of the training courses described in Criteria in the section entitled, 'Training for Individuals Working In or Frequenting Restricted Areas' in NUREG-1556, Vol. 1, Rev. 1, dated November 2001."

4. List the 1016 W. Broadway Blvd., Sedalia, MO 65301 mailing address and location where material will be used or possessed.

5. Submit a Radiation Safety Program, in accordance with responses suggested in NUREG 1556, Vol. 1, rev. 1. Please confirm statements as noted below, or provide alternative procedures. Any alternative response should clearly specify steps the licensee will take to assure radioactive materials are used, stored, and handled in accordance with the U.S. NRC's requirements.

5.1. SURVEY INSTRUMENTS: Confirm the statement, "We will either possess and use, or have access to and use, a radiation survey meter that meets the Criteria in the section entitled 'Radiation Safety Program - Instruments,' in NUREG-1556, Vol. 1, Rev. 1, dated November 2001."

5.2. MATERIAL RECEIPT AND ACCOUNTABILITY: Confirm the statement, "Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license."

5.3. OCCUPATIONAL DOSIMETRY: Confirm the statement, "Either we will maintain, for inspection by NRC, documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of 10 percent of the allowable limits in 10 CFR Part 20, or we will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor."

5.4. OPERATING AND EMERGENCY PROCEDURES: Confirm one of the following 2 statements. Any alternative response must be contain details as discussed in NUREG 1556, Vol. 1, Rev. 1, Appendix H.

"We will implement and maintain the operating and emergency procedures in Appendix H of NUREG-1556, Vol. 1, Rev. 1, dated November 2001, and provide copies of these procedures to all gauge users and at each job site." OR

"Operating and emergency procedures will be developed, implemented, and maintained and will meet the criteria in the section entitled 'Radiation Safety Program - Operating and Emergency Procedures' in NUREG-1556, Vol. 1, Rev. 1, dated November 2001."

5.5. LEAK TEST: Confirm the statement, "Leak tests will be performed at intervals approved by NRC or an Agreement State and specified in the Sealed Source and Device Registration Sheet. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the kit supplier's instructions."

5.6. ROUTINE CLEANING AND LUBRICATION: Confirm the statement, "We will implement and maintain procedures for routine maintenance of our gauges according to each manufacturer's recommendations and instructions."

5.7. NON-ROUTINE MAINTENANCE: Confirm the statement, "We will send the gauge to the manufacturer or other person licensed by the NRC or an Agreement State to perform non-routine maintenance or repair operations that require detaching the source or source rod from the gauge."



# ITEMS 7 THROUGH 11: TRAINING AND EXPERIENCE, FACILITIES AND EQUIPMENT, RADIATION SAFETY PROGRAM, AND WASTE DISPOSAL

Item No. And Title	Suggested Response	Yes	Alternative Procedures Attached
<b>7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE - RADIATION SAFETY OFFICER</b>  Name: _____	<del>Before obtaining licensed materials, the proposed RSO will have successfully completed one of the training courses described in Criteria in the section entitled "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience - Radiation Safety Officer" in NUREG-1556, Vol. 1, Rev. 1, dated November 2001.</del> (include specific documentation of proposed RSO's training and experience)	<input type="checkbox"/>	<input type="checkbox"/>
<b>8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS</b>	Before using licensed materials, authorized users will have successfully completed one of the training course described in Criteria in the section entitled "Training for Individuals Working In or Frequenting Restricted Areas" in NUREG-1556, Vol. 1, Rev 1, dated November 2001.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>9. FACILITIES AND EQUIPMENT</b>	No information needs to be submitted in response to this item; key issues are addressed under "Radiation Safety Program - Public Dose" and "Radiation Safety Program - Operating and Emergency Procedures."		Separate Item 9 Response Need Not Be Submitted With Application
<b>10. RADIATION SAFETY PROGRAM - AUDIT PROGRAM</b>	The applicant is <del>not</del> required to, and should not, submit its audit program to NRC for review during the licensing phase.		Need Not Be Submitted With Application
<b>10. RADIATION SAFETY PROGRAM - TERMINATION OF ACTIVITIES</b>	The applicant is <del>not</del> required to submit a response to the termination of activities section during the initial application. However, when the license expires when the licensee ceases operation, NRC Form 314 must be submitted.		Need Not Be Submitted With Application
<b>10. RADIATION SAFETY PROGRAM - SURVEY INSTRUMENTS</b>	We will either possess and use, or have access to and use, a radiation survey meter that meets the Criteria in the section entitled "Radiation Safety Program - Instruments" in NUREG-1556, Vol. 1, Rev. 1, dated November 2001.	<input type="checkbox"/>	<input type="checkbox"/>



Item No. And Title	Suggested Response	Yes	Alternative Procedures Attached
→ 10. RADIATION SAFETY PROGRAM – MATERIAL RECEIPT AND ACCOUNTABILITY	Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
→ 10. RADIATION SAFETY PROGRAM – OCCUPATIONAL DOSIMETRY	Either we will maintain, for inspection by NRC, documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of 10 percent of the allowable limits in 10 CFR Part 20, or we will provide dosimetry processed and evaluated by an NVLAP-approved processor that is exchanged at a frequency recommended by the processor.	<input type="checkbox"/>	<input type="checkbox"/>
10. RADIATION SAFETY PROGRAM – PUBLIC DOSE	The applicant is <i>not</i> required to submit a response to the public dose section during the licensing phase. This matter will be examined during an inspection.	Need Not Be Submitted With Application	
→ 10. RADIATION SAFETY PROGRAM – OPERATING AND EMERGENCY PROCEDURES	We will implement and maintain the operating and emergency procedures in Appendix H of NUREG-1556, Vol. 1, Rev. 1, dated November 2001, and provide copies of these procedures to all gauge users and at each job site.  OR  Operating and emergency procedures will be developed, implemented, and maintained and will meet the criteria in the section entitled "Radiation Safety Program – Operating and Emergency Procedures" in NUREG-1556, Vol. 1, Rev. 1, dated November 2001.	<input checked="" type="checkbox"/>     <input checked="" type="checkbox"/>	<input type="checkbox"/>
→ 10. RADIATION SAFETY PROGRAM – LEAK TEST	Leak tests will be performed at intervals approved by NRC or an Agreement State and specified in the Sealed Source and Device Registration Sheet. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services for other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the kit supplier's instructions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>  The information in Appendix J supporting a request to perform leak testing and sample analysis is attached.



Item No. And Title	Suggested Response	Yes	Alternative Procedures Attached
10. RADIATION SAFETY PROGRAM – MAINTENANCE	<p><i>Routine Cleaning and Lubrication</i></p> <p>We will implement and maintain procedures for routine maintenance of our gauges according to each manufacturer's recommendations and instructions.</p> <p><i>Non-Routine Maintenance</i></p> <p>We will send the gauge to the manufacturer or other person authorized by NRC or an Agreement State to perform non-routine maintenance or repair operations that require the removal of the source or source rod from the gauge.</p>	<p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p>The information listed in Appendix G supporting a request to perform non-routine maintenance in-house is attached.</p>
10. RADIATION SAFETY PROGRAM – TRANSPORTATION	The applicant is <u>not</u> required to submit its response to transportation during the licensing process. However, this issue will be reviewed during inspection.		<b><u>Need Not Be Submitted With Application</u></b>
11. WASTE MANAGEMENT – GAUGE DISPOSAL AND TRANSFER	The applicant is <u>not</u> required to submit a response to waste management during the licensing process. However, the licensee should develop, implement, and maintain gauge transfer and disposal procedures in its radiation protection program.		<b><u>Need Not Be Submitted With Application</u></b>



**COURSE CONTENT** RSO training documentation should demonstrate completion of a course that meets the following criteria:

- 1.5 to 2 hours of radiation safety and regulatory requirements, emphasizing practical subjects important to safe use of the gauge; radiation vs. contamination; internal vs. external exposure; concept of time, distance, and shielding to minimize exposure; control and surveillance of gauges; location of sealed source within the portable gauge; inventory; recordkeeping; incidents; licensing and inspection by regulatory agency; need for complete and accurate information; employee protection; deliberate misconduct.
- 1.5 to 2 hours of practical explanation of portable gauge theory and operation; operating, emergency, maintenance, and transportation procedures; and field training emphasizing radiation safety and including test runs of setting up and making measurements with the gauge, controlling and maintaining surveillance over the portable gauge, performing routine cleaning and lubrication, packaging and transporting the gauge, storing the gauge, and following emergency procedures.

### COURSE EXAMINATION

- At least a 70-percent score on a 25-to-50-question, closed-book written test
  - Emphasis on radiation safety of portable gauge storage, use, sealed source location, maintenance, and transportation, rather than the theory and art of making portable gauge measurements;
  - Review of correct answers to missed questions with prospective gauge user immediately following the scoring of the test.

### COURSE INSTRUCTOR QUALIFICATIONS

Instructor should have either:

- Bachelor's degree in a physical or life science or engineering;
- Successful completion of a portable gauge user course;
- Successful completion of an 8-hour radiation safety course; and
- 8 hours hands-on experience with portable gauges.

**OR**

- Successful completion of portable gauge user course;
- Successful completion of 40-hour radiation safety course; and
- 30 hours of hands-on experience with portable gauges.

**Note:** Licensees should maintain records of training.

The RSO's duties and responsibilities are illustrated in Figure 8.1 and typically include ensuring the following:

- Licensed activities that the RSO considers unsafe are stopped;
- Possession, use, storage, and maintenance of sources and gauges are consistent with the limitations in the license, the Sealed Source and Device Registration sheet(s), and the manufacturer's recommendations and instructions;
- Individuals who use gauges are properly trained;
- When necessary, personnel monitoring devices are used and exchanged at the proper intervals; records of the results of such monitoring are maintained;
- Gauges are properly secured;
- Proper authorities are notified in case of accident, damage to gauges, fire, or theft;
- Unusual occurrences involving the gauge (e.g., accident, damage) are investigated, cause(s) and appropriate corrective action are identified, and corrective action is taken;
- Audits are performed at least annually and documented, and corrective actions are taken;
- Licensed material is transported in accordance with all applicable DOT requirements;
- Licensed material is disposed of properly;
- Appropriate records are maintained;
- An up-to-date license is maintained and amendment and renewal requests are submitted in a timely manner;
- Up-to-date operating and emergency procedures are developed, maintained, distributed, and implemented;
- Non-routine operations are performed by the manufacturer, distributor, or person specifically authorized by NRC or an Agreement State;
- Documentation is maintained to demonstrate, by measurement or calculation, that the TEDE to the individual member of the public likely to receive the highest dose from the licensed operation does not exceed the annual limit in 10 CFR 20.1301;
- When the licensee identifies violations of regulations or license conditions or program weaknesses, corrective actions are developed, implemented, and documented;
- Posting of documents required by 10 CFR 19.11 (Parts 19 and 20, license documents, operating procedures, NRC Form 3, "Notice to Employees"), and 10 CFR 21.6 (Part 21, Section 206 of Energy Reorganization Act of 1974, procedures adopted pursuant to Part 21) or posting a notice indicating where these documents can be examined.



Please provide a signed copy of a model MOU/DOA document. You may use the sample, below, taken from the draft NUREG 1556, Vol. 4, rev. 1, volume (available at the NRC website), or create

**Model Delegation of Authority to RSO**

a custom document specific to your organization.

Memo To: Radiation Safety Officer

From: Chief Executive Officer

Subject: Delegation of Authority

You, \_\_\_\_\_, have been appointed radiation safety officer and are responsible for ensuring the safe use of radiation. You are responsible for managing the Radiation Protection Program, identifying radiation protection problems, initiating, recommending, or providing corrective actions, verifying implementation of corrective actions, stopping unsafe activities, and ensuring compliance with regulations. You are hereby delegated the authority necessary to meet those responsibilities, including prohibiting the use of byproduct material by employees who do not meet the necessary requirements and shutting down operations, when justified, to maintain radiation safety. You are required to notify management if staff does not cooperate and does not address radiation safety issues. In addition, you are free to raise issues with the U.S. Nuclear Regulatory Commission at any time. It is estimated that you will spend \_\_\_\_\_ hours per week conducting radiation protection activities.

\_\_\_\_\_  
Signature of Management Representative

\_\_\_\_\_  
Date

I accept the above responsibilities,

\_\_\_\_\_  
Signature of Radiation Safety Officer

\_\_\_\_\_  
Date

**cc: Affected department heads**



NUREG 1556, Vol.1, rev.1, Appendix H (errata dated July 5, 2005), "Operating, Emergency, and Security Procedures."  
**Operating Procedures**

If expanding your descriptions of your Operating, Emergency, and Security procedures, include any relevant items listed below in your response.

- If personnel dosimetry is provided:

- Always wear your assigned National Voluntary Laboratory Accreditation Program (NVAP) approved thermoluminescent dosimeter (TLD), optical stimulated dosimeter (OSL), or film badge when using the portable gauge;
- Never wear another person's TLD, OSL, or film badge;
- Never store your TLD, OSL, or film badge near the portable gauge.
- Before removing the portable gauge from its place of storage, ensure that, where applicable, each portable gauge sealed source is in the fully shielded position and that in portable gauges with a movable rod containing a sealed source, the source rod is locked (e.g., keyed lock, padlock, mechanical control) in the shielded position. Place the portable gauge in the transport case and lock the case.
- Use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever the portable gauges are not under the licensee's control and constant surveillance (i.e., in storage). Guidance regarding this requirement is discussed below in the "Security Procedures" section of this Appendix.
- Sign out the portable gauge in a log book (that remains at the storage location) including the date(s) of use, name(s) of the authorized users who will be responsible for the portable gauge, and the temporary job site(s) where the portable gauge will be used.
- Block and brace the portable gauge to prevent movement during transport and lock the portable gauge in or to the vehicle. Follow all applicable Department of Transportation (DOT) requirements when transporting the portable gauge.
- Use the portable gauge according to the manufacturer's instructions and recommendations.
- Do not touch the unshielded source rod with your fingers, hands, or any part of your body.
- Do not place hands, fingers, feet, or other body parts in the radiation field from an unshielded source.
- Unless absolutely necessary, do not look under the portable gauge when the source rod is being lowered into the ground. If you must look under the portable gauge to align the source rod with the hole, follow the manufacturer's procedures to minimize radiation exposure.
- After completing each measurement in which the source is unshielded, immediately return the source to the shielded position.



- Always maintain constant surveillance and immediate control of the portable gauge when it is not in storage. At job sites, do not walk away from the portable gauge when it is left on the ground. Take action necessary to protect the portable gauge and yourself from danger of moving heavy equipment.
- When the portable gauge is not in use at a temporary job site, place the portable gauge in a secured storage location with two independent physical controls. Examples of two independent physical controls are: (1) securing the portable gauge in a locked storage facility located in a separate secured area in a warehouse; (2) securing the portable gauge inside a locked van and secured to the vehicle with a steel cable; (3) or storing the portable gauge inside a locked, nonremovable box and further securing the box with a steel cable or chain. If chains or cables are used as a method of providing security, one of the two chains or cables used, should be substantially more robust and more difficult to cut than the other. Simply having two chains or cables with locks would not satisfy the security rule unless each chain and lock combination were physically robust enough to provide both a deterrence and a reasonable delay mechanism.
- Always keep unauthorized persons away from the portable gauge.
- Perform routine cleaning and maintenance according to the manufacturer's instructions and recommendations.
- Before transporting the portable gauge, ensure that, where applicable, each portable gauge source is in the fully shielded position. Ensure that in portable gauges with a movable source rod, the source rod is locked in the shielded position (e.g., keyed lock, padlock, mechanical control). Place the portable gauge in the transport case and lock the case. Block and brace the case to prevent movement during transportation. Lock the case in or to the vehicle, preferably in a closed compartment.
- Return the portable gauge to its proper locked storage location at the end of the work shift.
- Log the portable gauge into the daily use log when it is returned to storage.
- If portable gauges are used for measurements with the unshielded source extended more than 3 feet beneath the surface, use piping, tubing, or other casing material to line the hole from the lowest depth to 12 inches above the surface. If the piping, tubing, or other casing material cannot extend 12 inches above the surface, cap the hole liner or take other steps to ensure that the hole is free of debris (and it is unlikely that debris will re-enter the cased hole) so that the unshielded source can move freely (e.g., use a dummy probe to verify that the hole is free of obstructions).
- After making changes affecting the portable gauge storage area (e.g., changing the location of portable gauges within the storage area, removing shielding, adding portable gauges, changing the occupancy of adjacent areas, moving the storage area to a new location), reevaluate compliance with public dose limits and ensure proper security of portable gauges.



**Emergency Procedures**

If the source fails to return to the shielded position (e.g., as a result of being damaged, source becomes stuck below the surface), or if any other emergency or unusual situation arises (e.g., the portable gauge is struck by a moving vehicle, is dropped, is in a vehicle involved in an accident):

- Immediately secure the area and keep people at least 15 feet away from the portable gauge until the situation is assessed and radiation levels are known. However, perform first aid for any injured individuals and remove them from the area only when medically safe to do so.
- If any heavy equipment is involved, detain the equipment and operator until it is determined there is no contamination present.
- Portable gauge users and other potentially contaminated individuals should not leave the scene until emergency assistance arrives.
- Notify the following persons, in the order listed below, of the situation:

NAME <sup>1</sup>	WORK PHONE NUMBER <sup>1</sup>	HOME PHONE NUMBER <sup>1</sup>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Follow the directions provided by the person contacted above.

**RSO and Licensee Management**

- Arrange for a radiation survey to be conducted as soon as possible by a knowledgeable person using appropriate radiation detection instrumentation. This person could be a licensee employee using a survey meter located at the job site or a consultant. To accurately assess the radiation danger or potential contamination, it is essential that the person performing the survey be competent in the use of the survey meter.
- If portable gauges are used for measurements with the unshielded source extended more than 3 feet below the surface, contact persons listed on the emergency procedures need to know the steps to be followed to retrieve a stuck source and to convey those steps to the staff on site.

<sup>1</sup> Fill in with (and update, as needed) the names and telephone numbers of appropriate personnel (e.g., the RSO or other knowledgeable licensee staff, licensee's consultant, portable gauge manufacturer) to be contacted in the event of an emergency.



- Make necessary and timely notifications to local authorities as well as to NRC as required. (Even if it is not required, you may report *any* incident to NRC by calling NRC's Emergency Operations Center at (301) 816-5100, which is staffed 24 hours a day and accepts collect calls.) NRC notification is required when portable gauges containing licensed material are lost or stolen, when portable gauges are damaged or involved in incidents that result in doses in excess of 10 CFR Part 20.2203 limits, and when it becomes apparent that attempts to recover a sealed source stuck below the surface will be unsuccessful.
- Reports to NRC must be made within the reporting time frames specified by the regulations.
- Reporting requirements to NRC are found in 10 CFR Parts 20.2201-2203 and 10 CFR Part 30.50.

### Security Procedures

NRC regulations require a portable gauge licensee to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever the portable gauge is not under the control and constant surveillance by the licensee.

**Note:** The NRC staff interprets "control and maintain constant surveillance" of portable gauges to mean being immediately present or remaining in close proximity to the portable gauge so as to be able to prevent unauthorized removal of the portable gauge.

The objective of the security guidance is to reduce the opportunity for unauthorized removal and/or theft by providing a delay and deterrent mechanism. By following this guidance, it will become more difficult and time-consuming to defeat security measures.

The following security requirements apply to portable gauge licensees regardless of the location, situation, and activities involving the portable gauge. **The security requirements apply to: (1) storage on vehicles; (2) storage at temporary facilities (e.g., residence, hotel, job site trailer); and (3) storage at permanent facilities.** At all times, licensees are required to either maintain control and constant surveillance of the portable gauge when in use and, at a minimum, use two independent physical controls to secure the portable gauge from unauthorized removal while in storage. The physical controls used must be designed and constructed of materials suitable for securing the portable gauge from unauthorized removal, and both physical controls must be defeated in order for the portable gauge to be removed. The construction and design of the physical controls used must be such that they will deter theft by requiring a more determined effort to remove the portable gauge. The security procedures used must ensure that the two physical barriers chosen clearly increase the deterrence value over that of a single barrier and the two physical barriers would make unauthorized removal of the portable gauge more difficult.



Using two chains is not the preferred method. To provide adequate security licensees are encouraged to use other combinations. The security rule permits the usage of two chains under certain circumstances in order to allow licensees flexibility; however, having two chains with locks would not satisfy the NRC's requirement unless each chain and lock combination used is physically robust enough to provide both a deterrence, and a reasonable delay mechanism. When two chains or cables are used, the second chain or cable should be substantially more robust and more difficult to cut than the first chain or cable.

If possible, the licensee should consider storing their portable gauges inside a locked facility or other non-portable structure overnight, instead of storage in a vehicle.

As long as the licensee maintains constant control and surveillance while transporting the portable gauges, the licensee need only to comply with the DOT requirements for transportation (e.g., placarding, labeling, shipping papers, blocking and bracing). However, if the licensee leaves the vehicle and portable gauge unattended (e.g., while visiting a gas station, restaurant, store), the licensee needs to ensure that the portable gauge is secured by two independent controls in order to comply with the requirements of 10 CFR Part 30.34(i)

While transporting a portable gauge, a licensee should not modify the transportation case if it is being used as the Type A container for transporting the device. This includes, but is not limited to, drilling holes to mount the case to the vehicle or to mount brackets or other devices used for securing the case to the vehicle. In order to maintain its approval as a Type A shipping container, the modified package must be re-evaluated by any of the methods described in 49 CFR Part 178.350 or 173.461(a). The re-evaluation must be documented and maintained on file in accordance with DOT regulations.

Physical controls used may include, but are not limited to, a metal chain with a lock, a steel cable with a lock, a secured enclosure, a locked tool box, a locked camper, a locked trailer, a locked trunk of a car, inside a locked vehicle, a locked shelter, a secured fenced-in area, a locked garage, a locked non-portable cabinet, a locked room, or a secured building. To assist licensees, some common scenarios are illustrated and examples of two independent physical controls are provided below.

### **Securing a Portable Gauge at a Licensed Facility**

Long term storage of a portable gauge is usually at a permanent facility listed in the license or license application. Routine storage of a portable gauge in a vehicle or at temporary or permanent residential quarters is usually reviewed and may be authorized by NRC or the applicable Agreement State during the licensing process. In accordance with NRC security regulations, when a portable gauge is stored at a licensed facility, the licensee would be specifically required to use a minimum of two independent physical



controls to secure the gauge.

**Examples of two independent physical controls used by to secure a portable gauge when stored at a licensed facility are -**

1. The portable gauge or transportation case containing the portable gauge is stored inside a locked storage shed within a secured outdoor area, such as a fenced parking area with a locked gate;
2. The portable gauge or transportation case containing the portable gauge is stored in a room with a locked door within a secured building for which the licensee controls access by lock and key or by a security guard;
3. The portable gauge or transportation case containing the portable gauge is stored inside a locked, non-portable cabinet inside a room with a locked door, if the building is not secured;
4. The portable gauge or transportation case containing the portable gauge is stored in a separate secured area inside a secured mini-warehouse or storage facility; or
5. The portable gauge or transportation case containing the portable gauge is physically secured to the inside structure of a secured mini-warehouse or storage facility.

#### **Securing a Portable Gauge in a Vehicle**

Regulations in 10 CFR Part 71 requires that licensees who transport licensed material, or who may offer such material to a carrier for transport, must comply with the applicable requirements of the United States Department of Transportation (DOT) that are found in 49 CFR Parts 170 through 189.

Licensees commonly use a chain and a padlock to secure a portable gauge in its transportation case to the open bed of a pickup truck, while using the vehicle for storage. Because the transportation case is portable, a theft could occur if the chain is cut and the transportation case with the portable gauge is taken. If a licensee simply loops the chain through the handles of the transportation case, a thief could open the transportation case and take the portable gauge without removing the chain or the case. Similarly, because the transportation case is also portable, it must be protected by two independent physical controls if the portable gauge is inside. A lock on the transportation case, or a lock on the portable gauge source rod handle, is not sufficient because both the case and the gauge are portable.

A vehicle may be used for storage, however, it is recommended by NRC and DOT that this practice only be used for short periods of time or when a portable gauge is in



transit. A portable gauge should only be kept in a vehicle overnight if it is not practicable to provide temporary storage in a permanent structure. When a portable gauge is being stored in a vehicle, the licensee is specifically required to use a minimum of two independent physical controls to secure the portable gauge.

**Examples of two such independent physical controls approved by NRC to secure portable gauges in this situation are --**

1. The locked transportation case containing the portable gauge is physically secured to a vehicle with brackets, and a chain or steel cable (attached to the vehicle) is wrapped around the transportation case such that the case can not be opened unless the chain or cable is removed. In this example, the locked transportation case would count as one control because the brackets would prevent easy removal of the case. The chain or cable looped only through the transportation case handle is not acceptable;
2. The portable gauge or transportation case containing the portable gauge is stored in a box physically attached to a vehicle, and the box is secured with (1) two independent locks; (2) two separate chains or steel cables attached independently to the vehicle in such a manner that the box cannot be opened without the removal of the chains or cables; or (3) one lock and one chain or steel cable is attached to the vehicle in such a manner that the box cannot be opened without the removal of the chain or cable; or
3. The portable gauge or transportation case containing the portable gauge is stored in a locked trunk, camper shell, van, or other similar enclosure and is physically secured to the vehicle by a chain or steel cable in such a manner that one would not be able to open the case or remove the portable gauge without removal of the chain or cable.

#### **Securing a Portable Gauge at a Temporary Jobsite or at Locations Other Than a Licensed Facility**

When a job conducted requires storage of a portable gauge at a temporary jobsite or at a location other than a licensed facility, the licensee should use a permanent structure for storage, if practicable to do so. When storing a portable gauge in temporary or permanent residential quarters, the licensee should limit access by storing the gauge in a separate room away from residents and other members of the public. The licensee must also meet the radiation exposure limits specified in 10 CFR Part 20. When a portable gauge is stored at a temporary jobsite or at a location other than an authorized facility, the licensee is required to use a minimum of two independent physical controls to secure the portable gauge.

**Examples of two independent physical controls to secure portable gauges at these locations are --**



1. At a temporary job site, the portable gauge or transportation case containing the portable gauge is stored inside a locked building or in a locked non-portable structure (e.g., construction trailer, sea container, etc.); and is physically secured by a chain or steel cable to a non-portable structure in such a manner that an individual would not be able to open the transportation case or remove the portable gauge without removing the chain or cable. A lock on the transportation case or a lock on the portable gauge source rod handle would not be sufficient because the case and the portable gauge are portable;
2. The portable gauge or transportation case containing the portable gauge is stored inside a locked room within temporary or permanent residential quarters, and is physically secured by a chain or steel cable to a permanent or non-portable structure (e.g., large metal drain pipe, support column, etc.) such that an individual would not be able to open the transportation case or remove the portable gauge without removing the chain or cable;
3. The portable gauge or transportation case containing the portable gauge is stored in a locked garage, and is within a locked vehicle or is physically secured by a chain or steel cable to the vehicle in such a manner that an individual would not be able to open the transportation case or remove the portable gauge without removing the chain or cable; or
4. The portable gauge or transportation case containing the portable gauge is stored in a locked garage, and is within a locked enclosure or is physically secured by a chain or steel cable to a permanent or non-portable structure in such a manner that an individual would not be able to open the transportation case or remove the portable gauge without removing the chain or cable.



**Forster, Sara**

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**From:** Forster, Sara  
**Sent:** Thursday, February 12, 2015 4:17 PM  
**To:** 'greg@grameng.com'  
**Subject:** Additional Information Request for GRAM Engineering and Design, LLC, CN 585832  
**Attachments:** 03121.585832.New License telecon signed.pdf

Dear Mr. Nehring:

See the attached file for additional information needed to complete the review of the new license application for the above referenced entity. Note that additional information is requested on or before March 13, 2015. Once we have received all required information, we will contact you to schedule a pre-licensing site visit, which is generally required prior to issuing a new U.S. Nuclear Regulatory Commission (NRC) radioactive materials license. Additional guidance may be found in NUREG 1556, Vol. 1. rev.1, "Program Program-Specific Guidance About Portable Gauge Licenses," which may be found at:  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v1/r1>.

Submission of your response as a pdf file attached to an email or via facsimile will allow for the quickest processing. Do not hesitate to call me with any questions you may have, or if you will need additional time to complete your response.

Sincerely,

**Sara A. Forster, Health Physicist Licensing Reviewer**

U.S. Nuclear Regulatory Commission - Region III

Division of Nuclear Materials Safety

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Lisle, IL 60532-4352

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