APPENDIX L
Nuclear Gauge Documents
VDOT Security Guidance

VDH 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. “Control and maintain constant surveillance” of portable gauges means being immediately present or remaining in close proximity to the portable gauge 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.

The following security requirements apply to portable gauge licensees regardless of the location, situation, and activities involving the portable gauge. Licensees are required to either maintain control and constant surveillance of the portable gauge when in use or 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. Using two chains is not the preferred method; licensees are encouraged to use other combinations.

As long as the licensee maintains constant control and surveillance while transporting the portable gauges, the licensees 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 12VAC5-481-840 D.

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, examples of two independent physical controls are provided below.
NOTICE TO EMPLOYEES

The Virginia Department of Health (VDH) has established standards to protect you from hazards associated with radioactive materials and radiation emitting machines and has established certain provisions for the options of workers engaged in work under a VDH license or registration. In particular, the following information is available for your review:

Virginia Radiation Protection Regulations 12VAC5-481; Part IV - Standards for Protection Against Radiation;
Virginia Radiation Protection Regulations 12VAC5-481; Part X - Notices, Instructions and Reports to Workers; Inspections; and

Any other documents your employer must provide, as listed in “Your Employer’s Responsibility” below.

A copy of the regulations specified above and the documents listed in Item 2 of “Your Employer’s Responsibility” may be found at the following locations:

Virginia Department of Transportation; License No.: 760-437-1, 1401 East Broad Street, Richmond, VA 23219
Radiation Safety Officer for this License is: Paul M. Baldwin, Jr. (804) 328.3142

YOUR EMPLOYER’S RESPONSIBILITY

1. Apply the provisions of Virginia Radiation Protection Regulations to work involving radiation sources.
2. Post or otherwise make available to you a copy of the license, certificate of registration, conditions or documents incorporated into the license by reference and amendments thereto, and the operating procedures applicable to activities under the license or registration.
3. Post any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued pursuant to the Virginia Radiation Protection Regulations, and any response from the licensee or registrant.

YOUR RESPONSIBILITY AS A WORKER

1. Know the provisions of the Virginia Radiation Protection Regulations and the precautions, operating procedures, and emergency procedures applicable to the work in which you are engaged.
2. Observe the provisions for your own protection and protection of your co-workers.
3. Report unsafe working conditions or violations of the license or registration conditions or regulations to your employer or VDH.

WHAT IS COVERED BY THESE REGULATIONS

1. Limits on exposure to radiation and radioactive material in restricted and unrestricted areas;
2. Measures to be taken after accidental exposure;
3. Personnel monitoring, surveys, and equipment;
4. Caution signs, labels, and safety interlock equipment;
5. Exposure records and reports;
6. Options for workers regarding VDH inspections; and
7. Related matters.

REPORTS ON YOUR OCCUPATIONAL RADIATION DOSE HISTORY

1. 12VAC5-481 Sections 640, 700, and 710 establish limits for occupational dose resulting from exposure to radiation and concentrations of radioactive material in air and water. 12VAC5-481-2280 requires your employer to provide you a written report if you receive a dose in excess of those limits. While these are your maximum allowable limits, your employer is required to take steps to keep your radiation dose as far below limits as is reasonably achievable.
2. If the monitoring of your radiation dose is required by 12VAC5-481-760, your employer must provide a written report of your radiation dose:
   a. Annually.
   b. At your request, for the current year upon your termination of employment in work involving radiation or radioactive material.

INSPECTIONS

All licensed or registered activities are subject to inspection by VDH. Any worker or representative of workers who believes that a violation of Virginia Radiation Protection Regulations or license conditions has occurred in work under a license or registration with regard to radiological working conditions may request an inspection. The request must be in writing and sent to the address listed below. The request must describe the alleged violation in detail and must be signed by the worker or representative of workers. During inspections, VDH inspectors may confer privately with workers, and any worker may bring to the attention of the inspectors any past or present condition believed to have contributed to or to have caused a violation. Refer to 12VAC5-481-2310.

Direct all inquiries on matters outlined above to:
Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219. Phone: (804) 864-8150

POSTING REQUIREMENTS

Copies of this notice must be posted in a sufficient number of places to permit individuals engaged in work under the license or registration to observe them on the way to or from the work location. Each posted copy must be conspicuous and replaced if defaced or altered. Refer to 12VAC5-481-2260.
Nuclear Gauge Transferal and Transporter’s Log

rev. 09/10/2013

I (the undersigned) have assumed responsibility for the care and safekeeping of the following equipment for the recorded time.

<table>
<thead>
<tr>
<th>Location of Assigned Storage Area</th>
<th>Gauge Model Number</th>
<th>Serial Number</th>
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<tr>
<th>Date</th>
<th>Materials Lic. #</th>
<th>Time Out</th>
<th>* Verification / OUT</th>
<th>Veh. Lic. No.</th>
<th>* Verification / IN</th>
<th>Time In</th>
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* Verification - Print name and sign for gauge transfer from VDOT to Consultant witnessing gauge transfer and when returned are required in these sections.
**EMERGENCY NOTIFICATION CONTACT LIST**

Rev. Date: 07/26/2013

*Follow these steps in case of Emergency:*

- From list below Notify Personnel in your respective District (if can’t be reached, go to next step).
- Central Office Materials Division (if can’t be reached, go to next step).
- The VDH Radiological Health & Safety unless none of the other contacts listed below can not be reached.

<table>
<thead>
<tr>
<th>Districts</th>
<th>District Nuclear Technician</th>
<th>Business Phone No.</th>
<th>Cell Phone</th>
</tr>
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<tbody>
<tr>
<td>Bristol</td>
<td>Mike Austin</td>
<td>276-645-1607</td>
<td>423-502-4606</td>
</tr>
<tr>
<td></td>
<td>P. A. (Trish) Miller</td>
<td>276-645-1693</td>
<td>423-571-4382</td>
</tr>
<tr>
<td></td>
<td>Brian Truelove</td>
<td>276-645-1647</td>
<td>423-360-5426</td>
</tr>
<tr>
<td>Salem</td>
<td>Jeff Padgett</td>
<td></td>
<td>540-312-3451</td>
</tr>
<tr>
<td>Lynchburg</td>
<td>Bill Wise</td>
<td>434-856-8105</td>
<td>434-841-7079</td>
</tr>
<tr>
<td></td>
<td>Roger Falls</td>
<td>434-856-8358</td>
<td>434-907-1030</td>
</tr>
<tr>
<td>Richmond</td>
<td>Danny Morris</td>
<td>804-524-6200</td>
<td>804-720-6428</td>
</tr>
<tr>
<td>Hampton Roads</td>
<td>T. E. Bazemore</td>
<td>757-925-2687</td>
<td>757-334-1562</td>
</tr>
<tr>
<td></td>
<td>W. B. Jenkins</td>
<td>757-925-2277</td>
<td>757-334-2812</td>
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<tr>
<td>Fredericksburg</td>
<td>Michael Whanger</td>
<td>540-899-4243</td>
<td>540-207-6855</td>
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<tr>
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<td>Brian Buckle</td>
<td>540-899-4243</td>
<td>540-907-6047</td>
</tr>
<tr>
<td>Culpeper</td>
<td>John (Dicky) Finks</td>
<td>540-829-7580</td>
<td>540-718-7412</td>
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<tr>
<td>Staunton</td>
<td>Darren Galford</td>
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<td>540-280-3591</td>
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<tr>
<td>NOVA</td>
<td>John Russell</td>
<td>703-259-1955</td>
<td>703-975-0185</td>
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<td>Ronnie Seale</td>
<td>703-259-1987</td>
<td>703-409-0030</td>
</tr>
</tbody>
</table>

**Richmond Central Office**

Paul M. Baldwin, Jr.
VDOT Radiation Safety Officer
paul.baldwin@vdot.virginia.gov

**VDH Radiological Health & Safety**

During normal business hours: **804-864-8150**
www.vdh.virginia.gov

**VA Department of Emergency Management**

After normal business hours
24-Hour Emergency No.: **800-468-8892**

**VA Department of Radiological Health**

Mike Welling, Program Manager
Phone number: (804) 864-8168
Fax number: (804)-864-8155
Mike.Welling@vdh.virginia.gov
Portable Nuclear Gauge Emergency Procedures

These emergency instructions apply whenever a nuclear gauge is involved in an event that might cause damage to the source or its shielding or prevent the return of the source to the shielded position (e.g. when the gauge is struck by a piece of equipment, is contained in a vehicle involved in an accident or involved in a fire).

- **Gauge User / Operator:**
  Immediately cordon off the area around the gauge (approximately 15 foot radius) and prevent unauthorized personnel from entering the area to minimize personnel exposure. The gauge operator should stand by outside the cordoned area and maintain constant surveillance of the gauge until emergency response personnel arrive.

- Detain any equipment or vehicle involved in the accident and the operator until it is determined that no contamination is present. Gauge users and other potentially contaminated personnel should not leave the scene until they have been checked for contamination by emergency response personnel.

- Notify appropriate emergency response personnel (See Emergency Phone List) as soon as possible.

- **RSO and Licensee Management:**
  Evaluate the condition of the gauge. Determine if the source(s) are present and if they are in the shielded position (if applicable). If the source(s) are out of the gauge they must be located immediately.

- Arrange for a radiation survey to be conducted if necessary (ASAP) by a knowledgeable person using appropriate radiation detection instrumentation. This person could be a VDOT, emergency personnel or a consultant competent in the use of radiation survey meters. The Troxler gauge operation manual contains a radiation profile chart which gives the normal radiation levels near the gauge. The radiation survey readings can be compared to the radiation profile for the gauge contained in the gauge operation manual to determine if the readings are normal.

- The radioactive materials in Troxler gauges does not pose an immediate health hazard. However, prolonged direct contact with the sources should be kept to a minimal for potential radiation exposure.
BILLY LADING

Shipper: Virginia Department of Transportation
Materials Division, Elko
1401 East Broad Street
Richmond, Virginia 23219

Attn: Radiation Safety Officer

RADIOACTIVE MATERIAL, SPECIAL FORM 7, UN3332 RQ, TYPE "A"
PACKAGE, CONTAINING:

Cesium-137 8.0 mCi, (.30 GBq)
Americio-241 Be, 40 mCi, (1.48 GBq)

RADIOACTIVE YELLOW II LABEL, TI = 0.5

Gauge Model 3440  Gauge Serial No. 64740

EMERGENCY CONTACT: (804) 328-3142

THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED,
DESCRIBED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR
TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE
COMMONWEALTH OF VIRGINIA.

Radiation Safety Officer
NOTES:

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING, INSTALLING AND PROVIDING MAINTENANCE OF THE STORAGE FACILITY FOR NUCLEAR GAUGE AND THE PRICE THEREOF SHALL BE INCLUDED IN THE PRICE BID FOR FIELD OFFICE (TYPE) SPECIFIED IN ACCORDANCE WITH SECTION 54 OF THE CURRENT ROAD AND BRIDGE SPECIFICATIONS.

BOX TO BE CONSTRUCTED OF 20 GUAGE STEEL, 1/16" MIN. THICKNESS. WHEN WELDING TO FRAME USE 1/8" FILLET WELDS.

ALL FRAME WORK TO BE 20 GAUGE STEEL, ANGLE 2" X 2" X 1/4".

ALL FRAME WELDS ARE TO BE 1/8" FILLET OR BUTT WELDED ACCORDINGLY.

METAL SCREEN SHALL HAVE A MAXIMUM OF 50 SQUARES PER INCH TO A MINIMUM OF 20 SQUARES PER INCH AND BE SOFT WELDED TO INSIDE OF THE BOX OVER VENT OPENINGS.

THE HOOK SHALL BE WELDED TO THE CENTER OF THE TOP VENT OPENINGS SHALL BE PARTIALLY COVERED EXTERNALLY BY METAL VENT COVERS.

STORAGE UNIT SHALL BE PAINTED INTERNALLY AND EXTERNALLY WITH A ONE COAT ACRYLIC DIRECT TO METAL (D.T.M.) COATING, WITH A THICKNESS OF 4-6 MILS (HEE MIL THICKNESS). COLOR SHALL BE EQUAL TO FEDERAL STANDARD COLOR NO. 595-17586 (WHITE).

THE DESIGN IS TO BE 4" ID AND MOUNTED AT A 45° ANGLE OVER THE HASP OPENING IN THE DOOR.

OPTIONAL SHROUD DESIGN IS TO BE SUBMITTED FOR THE ENGINEER'S REVIEW AND APPROVAL.

CONTRASTING PAINT IS REQUIRED TO DEPICT STORAGE AREA.

STORAGE UNIT TO HAVE TWO (2) TAMPER-RESISTANT HASPS WITH A LOCK BOX EACH, OPEN ON THE BOTTOM AND TOP.

A STEEL EYEBOLT SHALL BE INSTALLED IN THE FLOOR INSIDE THE CONTAINER TO ACCOMMODATE A LINKED SECURITY CHAIN. THE EYEBOLT MAY BE THROUGH BOLTED OR WELDED TO THE FLOOR AND SHALL HAVE A MINIMUM 1/2" DIAMETER EYE TO ALLOW THE CHAIN TO BE CHAINED AND LOCKED TO THE FLOOR OF THE FACILITY.