



FMC & Associates, LLC.

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03121

Date: July 21, 2008

From: Fadil M. Abdelfatah, P.E.

To: **License Assistant Section**

(45-31324-01)

Attached to this cover sheet FMC's application for material license along with the fee of \$1400. We would like to inform you that our RSO certificate of Mr. Yousif S. Mohamed will be faxed later and kindly requested to add the certificate document to the attached application.

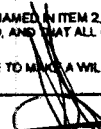
Thanks,

Fadil M. Abdelfatah, P.E.

2008 JUL 23 PM 12:16

RECEIVED  
MATERIALS

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<p><b>NRC FORM 313</b> (8-1988) 10 CFR 30, 32, 33 34, 35, 36, 38 and 40</p> <p align="center"><b>U. S. NUCLEAR REGULATORY COMMISSION</b></p> <p align="center"><b>APPLICATION FOR MATERIAL LICENSE</b></p>	<p>APPROVED BY OMB: NO. 3160-0120 EXPIRES:08/31/2002</p> <p>Estimated burden per response to comply with this mandatory information collection request 7.4 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records Management Branch (T-8 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to <a href="mailto:by1@nrc.gov">by1@nrc.gov</a>, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.</p>																
<p><b>INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.</b></p>																	
<p><b>APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:</b> DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555-0001</p> <p><b>ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:</b> <b>IF YOU ARE LOCATED IN:</b> CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:  LICENSING ASSISTANT SECTION NUCLEAR MATERIALS SAFETY BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION I 475 ALLENDALE ROAD KING OF PRUSSIA, PA 19405-1415</p> <p>ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIORN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:  SAM MURN ATLANTA FEDERAL CENTER U.S. NUCLEAR REGULATORY COMMISSION, REGION II 61 FORSYTH STREET, S.W., SUITE 23785 ATLANTA, GEORGIA 30303-8931</p>	<p><b>IF YOU ARE LOCATED IN:</b> ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:  MATERIALS LICENSING SECTION U.S. NUCLEAR REGULATORY COMMISSION, REGION III 801 WARRENVILLE RD. LISLE, IL 60532-4351</p> <p>ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:  NUCLEAR MATERIALS LICENSING SECTION U.S. NUCLEAR REGULATORY COMMISSION, REGION IV 811 RYAN PLAZA DRIVE, SUITE 800 ARLINGTON, TX 76011-8064</p> <p align="center"><i>LL 31324 03037805 03121 (45-31324-C1)</i></p>																
<p>PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.</p>																	
<p>1. THIS IS AN APPLICATION FOR (Check appropriate item)</p> <p><input checked="" type="checkbox"/> A NEW LICENSE</p> <p><input type="checkbox"/> B AMENDMENT TO LICENSE NUMBER _____</p> <p><input type="checkbox"/> C RENEWAL OF LICENSE NUMBER _____</p>	<p>2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip code)</p> <p>FMC &amp; Associates, LLC P.O. Box 222395 Chantilly, VA 20153</p>																
<p>3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED</p> <p>515 M Street, SE, Suite 106, Washington, DC 20003</p>	<p>4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION</p> <p>Fadil M. Abdefatah</p> <p>TELEPHONE NUMBER 202-863-0911 or cell 703-244-5115</p>																
<p><b>SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.</b></p>																	
<p>5. RADIOACTIVE MATERIAL a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time</p>	<p>6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED</p>																
<p>7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE</p>	<p>8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS</p>																
<p>9. FACILITIES AND EQUIPMENT</p>	<p>10. RADIATION SAFETY PROGRAM</p>																
<p>11. WASTE MANAGEMENT</p>	<p>12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)</p> <p>FEE CATEGORY <b>3P</b>   AMOUNT ENCLOSED <b>\$ 1400</b></p>																
<p>13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.</p> <p>THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 38 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CONFORM TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.</p> <p>WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 748 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.</p>																	
<p>CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE <b>Yousif S. Mohamed</b></p>	<p>SIGNATURE  DATE <b>7/21/2008</b></p>																
<p><b>FOR NRC USE ONLY</b></p>																	
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:15%;">TYPE OF FEE</th> <th style="width:15%;">FEE LOG</th> <th style="width:15%;">FEE CATEGORY</th> <th style="width:15%;">AMOUNT RECEIVED</th> <th style="width:15%;">CHECK NUMBER</th> <th style="width:20%;">COMMENTS</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td align="center">\$</td> <td> </td> <td> </td> </tr> </table>	TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS				\$			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:50%;">APPROVED BY</th> <th style="width:50%;">DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	APPROVED BY	DATE		
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			\$														
APPROVED BY	DATE																

## **Appendix B**

### **Suggested Format for Providing Information Requested in Items 5 through 11**

**ITEMS 5 AND 6: MATERIALS TO BE POSSESSED AND PROPOSED USES**

Yes	No	Radioisotope	Manufacturer or Distributor Model No.	Quantity	Use As Listed on SSD Certificate	Specify Other Uses Not Listed on SSD Certificate
X		Cesium-137	Sealed source manufacturer or distributor and model number: Troxler Dwg. 102112  Device manufacturer or distributor and model number: _____	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input checked="" type="checkbox"/> Specific description of the gauge use: measurement  of physical properties of materials _____ _____ _____	<input checked="" type="checkbox"/> Not applicable  <input type="checkbox"/> Uses are: _____  (Submit safety analysis supporting safe use)
X		Americium-241	Sealed source manufacturer or distributor and model number: Troxler Dwg. 102451  Device manufacturer or distributor and model number: _____	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input checked="" type="checkbox"/> Specific description of the gauge use: measurement  of physical properties of materials _____ _____ _____	<input checked="" type="checkbox"/> Not applicable  <input type="checkbox"/> Uses are: _____  (Submit safety analysis supporting safe use)

APPENDIX B

Yes	No	Radioisotope	Manufacturer or Distributor Model No.	Quantity	Use As Listed on SSD Certificate	Specify Other Uses Not Listed on SSD Certificate
X		Californium-252	Sealed source manufacturer or distributor and model number: Troxler Dwg. 105560  Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input checked="" type="checkbox"/> Specific description of the gauge use: measurement of physical properties of materials	<input checked="" type="checkbox"/> Not applicable  <input type="checkbox"/> Uses are:  (Submit safety analysis supporting safe use)
	X	Other Isotope (Specify):	Sealed source manufacturer or distributor and model number:  Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input type="checkbox"/> Specific description of the gauge use:	<input type="checkbox"/> Not applicable  <input type="checkbox"/> Uses are:  (Submit safety analysis supporting safe use)
<i>Financial Assurance Required and Evidence of Financial Assurance Provided</i>						

**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
<p><b>7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE – RADIATION SAFETY OFFICER</b></p> <p>Yousif S. Mohamed Name: _____</p>	<p>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.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><b>8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS</b></p>	<p>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.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><b>9. FACILITIES AND EQUIPMENT</b></p>	<p>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."</p>	<p><b>Separate Item 9 Response</b> <b>Need Not Be Submitted With Application</b></p>	
<p><b>10. RADIATION SAFETY PROGRAM – AUDIT PROGRAM</b></p>	<p>The applicant is <i>not</i> required to, and should not, submit its audit program to NRC for review during the licensing phase.</p>	<p><b>Need Not Be Submitted With Application</b></p>	
<p><b>10. RADIATION SAFETY PROGRAM – TERMINATION OF ACTIVITIES</b></p>	<p>The applicant is <i>not</i> 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.</p>	<p><b>Need Not Be Submitted With Application</b></p>	
<p><b>10. RADIATION SAFETY PROGRAM – SURVEY INSTRUMENTS</b></p>	<p>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.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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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 checked="" 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	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 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.

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Item No. And Title	Suggested Response	Yes	Alternative Procedures Attached
<p><b>10. RADIATION SAFETY PROGRAM – MAINTENANCE</b></p>	<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 checked="" 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>
<p><b>10. RADIATION SAFETY PROGRAM – TRANSPORTATION</b></p>	<p>The applicant is <i>not</i> required to submit its response to transportation during the licensing process. However, this issue will be reviewed during inspection.</p>		<p><b>Need Not Be Submitted With Application</b></p>
<p><b>11. WASTE MANAGEMENT – GAUGE DISPOSAL AND TRANSFER</b></p>	<p>The applicant is <i>not</i> 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.</p>		<p><b>Need Not Be Submitted With Application</b></p>



## **RADIATION SAFETY PLAN FMC & ASSOCIATES, LLC**

This plan is intended to be an integral component in the overall Safety Program to ensure that portable nuclear gauges are properly stored, secured, used, transported, maintained, and controlled at all times. It restates the key items from the relevant Nuclear Regulatory Commission (NRC) and Department of Transportation (DOT) Regulations and the FMC Radiation Safety Program.

### **Radiation Safety Officer**

Use and possession of portable nuclear gauges is under the direction and supervision of the Radiation Safety Officer (RSO). As a designated and trained representative of the office manager, the RSO is the single point of accountability and responsibility between the NRC and FMC. The RSO is responsible for implementation of this Radiation Safety Plan.

Typical duties of the RSO are listed in the Radiation Safety Program. The following responsibilities are repeated or restated for emphasis:

1. Ensure that all authorized users are properly trained and proficient in gauge use, cleaning, accountability controls, transportation, security, and emergency procedures. Schedules refresher and recurrent training as required, and maintains required training records.
2. Coordinates or completes formal semi-annual inventories, annual calibration, semi-annual leak tests, and annual audits. Actions are to be completed, documented, and archived in accordance with this Plan and the Radiation Safety Program.
3. Functions as a point of contact and gives assistance in case of an emergency. Notifies the NRC and FMC immediately of incidents or accidents that could result in a release of radioactive material.
4. Maintains and monitors individual exposure records or authorized users. Highlights restricted levels for minors and declared pregnant women, and investigates exposures in excess of FMC administrative dose limit for a quarter.
5. Maintains copies of and ensures compliance with a current NRC and DOT regulations
6. Ensures that individuals or agencies receiving or being shipped gauges for calibration, maintenance, or disposal are properly licensed for that activity. This includes commercial shippers being used to transport gauges.
7. Establishes controls and procedures to ensure a reasonable degree of security and accountability for all gauges at all times.

### **Individual Gauge Operator**

1. Before removing the gauge from its place of storage, checks to make sure that the gauge source is in the shielded, locked position, and the transport case is locked.
2. Signs the gauge out on the sign out sheet including the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary jobsite(s) where the gauge will be used.
3. Completes a standardization check and the utilization log for the gauge being used.
4. Follows applicable Department of Transportation (DOT) requirements when transporting the gauge. This includes both proper blocking and bracing to prevent the shipping case from moving and the proper display of transportation documents.
5. Exercises required control over the gauge at all times and maintains constant surveillance. At no time is the gauge to be left unattended or in the possession of an unauthorized person. Always keep unauthorized persons away from the area where the gauge is to be used.

6. Assists operators of heavy equipment in seeing gauges and operators at construction sites. Reflective vests are required.
7. Understands that operator should not look under the gauge when the source rod is being lowered into the ground.
8. Does not touch the source rod with fingers, hands, or any part of the body, and always makes sure the source rod is in the shielded position and locked after each measurement is made.
9. When not being used for field measurements, returning the gauge to its storage/transportation case in a secured storage location. Ensure that two independent and proper locking systems separate from the transportation case lock are being used .
10. Wipes the gauge and case clean of any dirt, dust or mud prior to returning to the permanent storage location as soon as possible. Notifies the RSO of any maintenance issues/needs, and logs the gauge back in on the utilization log.
11. When using the equipment, wears the personnel monitoring device (dosimeter) assigned. Never wears another person's film badge. Never stores dosimeter near the gauge. When the operator is not using the equipment, the dosimeter will be kept in a radiation free, low heat area.
12. At all times, observes ALARA principles to minimize any dose received: As Low As Reasonably Achievable.
13. While the equipment is in the operator's possession, the operator will have the following documentation. Packets of these materials have been assembled and are stored with each gauge. Do not sign out a gauge if it's appropriate packet of documents is not complete; notify the RSO if documents are missing.
  - a. Copy of the "Bill of Lading."
  - b. Copy of the Office's License.
  - c. Copy of this Radiation Safety Plan that includes emergency procedures and a telephone "call-down" list.
  - d. Copy of Letter of Authorization from the RSO.
  - e. Copy of the Gauge Operating Manual.
  - f. Copy of the Current Leak Test Certificate.

### **Personnel Monitoring**

As part of in-processing, all technicians who will likely be using a portable nuclear gauge will be issued an individual dosimeter. The possession of a valid and current dosimeter is an absolute requirement for the use of a gauge.

The RSO will establish a management system to confirm that applicable individuals are issued dosimeters, that all dosimeters are exchanged quarterly, that individual exposure records are properly reviewed, that appropriate investigatory and explanatory documents are produced, and that understandable files are permanently maintained.

Some of the incidents or actions that need to be concisely addressed to support the integrity of our documentation include:

1. Investigation and corrective action if an employee exceeds the administrative dose limit of 250mRem in any quarter.
2. Memo listing terminated employees to support why they are no longer on the monitoring program.
3. Memo indicating if terminated employees requested and were provided a copy of their exposure reports while employed by FMC.
4. Memo documenting lost or missing dosimeters to explain a break in the chronological sequence of reports.

5. Notation of current employees who are removed from the dosimeter program due to extended assignments not involving the use of portable nuclear gauges.
6. Documentation if female employees indicate that they are pregnant in order to cause review criteria to be modified.

### **Storage**

1. Portable nuclear gauges for the office are primarily stored in the locked nuclear storage room at the FMC office in Washington, DC. Nuclear density gauges may be stored at job-site storage locations **only** if approved in writing by the Radiation Safety Officer.
2. Portable nuclear gauges **shall not** be taken to an individual's home or storage in any other unapproved location to include being in a vehicle overnight.
3. Whenever off-site storage is desired or required, the project engineer for the particular site should make a written request to the RSO.
4. Post required signs and notices adjacent to the storage area:
  - a. NRC Form – 3, Notice to Employees
  - b. A sign with "Caution – Radioactive Material" and the international symbol.
  - c. A copy of the office's radiation license, radiation safety plan, and a copy of applicable regulations or a notice as to where these documents are located.

### **Control, Accountability, and Security**

It is essential that individuals involved with portable nuclear gauges be aware of and comply with all of the requirements for the control, accountability, and security of portable nuclear gauges.

The actual or approximate location of each gauge should be known at all times. The use and transportation of gauges shall be done with full regard for the possibility of loss or damage to the gauge and in compliance with the use and transportation requirements of the DOT and the NRC. Additionally, documentation must be thorough regarding the disposition of each gauge and who is responsible for each gauge.

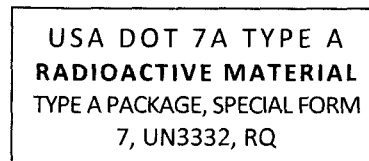
1. The first step in this process is the requirement for a daily inventory of gauges each morning.
  - a. This will be completed by the RSO or his or her representative.
  - b. All "on-hand" gauges should be in their assigned position in the storage room and properly signed in. gauge clip boards at vacant positions should clearly indicated gauges approved for job-site storage, gauges at approved agencies for calibration or repair, or other approved dispositions.
  - c. Any deficiencies noted will immediately brought to the attention of the RSO, the Field Service Manager, and the Construction Services Group Manager for investigation and resolution.
2. As gauges are signed out for the day, operators shall be extremely attentive in ensuring that proper procedures are complied with and that the required documentation is properly completed.
  - a. The operator must first gain access to the storage room and to the key for the assigned gauge. The required codes/keys will only be provided to operators who are authorized to use portable nuclear gauges and who possess and are wearing individual dosimeters.
  - b. The master sign out log which documents a day's activities will first be completed.

1. This log records each gauge that is signed out by identification number, the name of the technician signing it out, the time it was obtained, the location or locations where the gauge will be used, and the estimated time of its return.
2. One additional column is for signing in the gauge when it is actually returned.
3. A set of sign out/in logs will be used for each calendar day.
  - c. The individual gauge utilization log shall also be completed.
  - d. Deviations from these procedures will not be tolerated.
3. To repeat what is stated in other sections of this plan, gauges shall be properly secured in vehicles while being transported and the vehicles will be locked when the driver is not with the vehicle.
  - a. To the maximum extent reasonable, unattended vehicles containing properly secured portable nuclear gauges will be kept under surveillance.
  - b. If surveillance of unattended vehicles is not practicable, the operator is expected to use a high degree of caution so as to park his or her vehicle in a reasonably secure area.
  - c. Proper security includes two independent locking systems that prevent removal of the case containing the gauge by unauthorized individuals. One system must also prevent the case from being opened.
  - d. In addition to security requirements, transportation cases will be properly blocked and crated to prevent movement during shipping.
4. Control is also required while using portable nuclear gauges on job sites.
  - a. Gauges shall **never** be left unattended on job sites for **any** reason unless they are properly secured in an approved location.
  - b. Operators should have gauges under constant visual control and be within 10 feet of a gauge.
  - c. Reasonable actions must be taken to alert heavy equipment operators as to the location of a gauge. This is essential to avoid gauges being damaged by heavy equipment. The wearing of reflective vests to increase visibility is mandatory.
  - d. When gauges are not being used for a short period of time, they shall be placed and locked in their approved shipping containers.
  - e. If the use of a gauge is complete, but the operator must remain on the site for other tasks, the gauge, will be properly secured in its locked shipping container and properly secured in its locked shipping container and properly locked in the operators' vehicle.
5. On return to the office the operator will:
  - a. Confirm the cleanliness of the gauge and its case.
  - b. Inform the RSO of any maintenance issues that must be resolved.
  - c. Record the gauge as "returned" on both the Master Sign Out/In Log and the gauge's Utilization Log.
  - d. Ensure the case is locked and the locked case is then locked in its designated position in the storage room.
6. The Master Sign Out/In Log for a given day and a visual inspection will be the means by which the RSO will conduct his or her daily inventory the next morning or the next duty day. These forms with any discrepancies noted and resolved will be retained for a minimum of three years.
7. Gauge Utilization Logs will be completed each day prior to a gauge being taken to a jobsite. All columns will be completed to include the "Standard Count" information.

### **Local Transportation**

1. During transportation, the equipment shall be fully secured in the transporting vehicle and located away from personnel.
  - a. When transported in a closed vehicle (car or van), the case shall be locked, the case will be locked to the vehicle in a manner that prevents the lid from being opened and the vehicle will be locked when the operator is not with the vehicle.

- b. When transported in an open bed vehicle (pick-up truck), the case shall be locked and the case securely fastened and locked to the truck bed during transport and when the operator is not with vehicle. Two independent locking systems are required to prevent removal of the shipping container or the gauge by unauthorized persons.
  - c. Unless there is no reasonable alternative, nuclear gauges shall only be transported in the trunk of standard passenger vehicles or in the cargo area of SUV's.
2. In addition to security, the gauge in its transportation case will be properly blocked and braced to prevent movements.
3. The equipment will only be transported in an approved DOT Type A shipping container with all the required labels and markings (see diagram).



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  4. During transportation the operator shall have Shipping Papers on the seat adjacent to the driver describing the radioactive material with the proper nomenclature. The operator shall also carry proof of completion of a current radiation safety class.
  5. When shipping by common carrier, the package shall be in compliance with 49 CFR 170-179.

### **Maintenance**

1. Daily operator maintenance is limited to the exterior cleaning of the gauge as previously discussed. The operator will have received proper instruction on how to clean the gauge and will wear his/her assigned monitoring device when accomplishing this task.
2. No maintenance shall be performed in which the radioactive source is removed from the gauge. The gauge shall be returned to the manufacturer or an approved service center for this type of service.
3. The shipping case shall be periodically checked for damage, and to verify that all labels are present and readable.

### **Records**

The RSO shall maintain records sufficient to document implementation of the program and to demonstrate compliance with applicable requirements as described in appropriate Federal and state regulations. These records will be maintained for the duration specified in NRC regulations or as specified in this plan, whichever is longer.

The RSO should maintain a complete set of files documenting compliance with the requirements and intent of this Program.

1. Current required publications:
  - a. NUREG-1556, Vol. 1, Rev. 1
  - b. Federal regulations listed on page 4-1 of NUREG-1556
  - c. A copy of the current Radiation Safety Program.
2. Copy of current license and all previous amendments.
3. Individual gauge equipment folders. A separate folder shall be permanently maintained for each portable nuclear gauge that is or was in the office's inventory. As a minimum, the folder shall

document the gauges history from acquisition to ultimate disposal. If desired, maintenance after disposal. Required documents include:

- a. The initial bill of sale and shipping documents.
  - b. All calibration reports.
  - c. All maintenance and/or repair records.
  - d. All leak test reports.
  - e. Copies of the gauge's FMC "Calibration Record" as required by the office's "Quality Systems Manual".
  - f. Daily standardization or "Standard Count" logs (ASTM D 2922).
  - g. If applicable, disposal or transfer documentation.
4. Dosimetry records and any documentation on exposure limits being exceeded, on badges being replaced, and on terminated employees.
  5. Shipping records confirming proper disposition of dosimeter.
  6. RSO and user training records (may be stored with individual training documentation) (3 years).
  7. Calibration/leak test control records (3 years).
  8. Certificated of Type A shipping container performance tests (current).
  9. Annual audits to include reports of corrective action (3 years).
  10. Copies of daily sign-out sheets showing gauge identification, operator signing out, time and date, destination(s), estimated time of return, and actual return time (3 years).
  11. Copies of formal, semi-annual inventories (3 years).
  12. Copies of shipping documents and authorizing licenses of all individuals or agencies receiving gauges for maintenance, calibration, or repair (3 years).
  13. Copy of Sealed Source and Device (SSD) Registration Certificate (Permanent).
  14. Documentation for approved, job-specific storage locations.

### **Training**

All training related to the control, use and transportation of portable nuclear gauges will comply with both the NRC and DOT requirements as summarized in the Radiation Safety Program. This training includes:

- a. Radiation safety for non-users.
- b. Initial radiation safety and regulatory requirement training. This is required of all employees who will be using portable nuclear gauges prior to use.
- c. Annual refresher training is required for all authorized users.
- d. Recurrent Hazmat training. The DOT requires recurrent refresher training on the hazmat and security issues associated with transporting portable nuclear gauges every three years.
- e. RSO training: see Appendix D of NUREG-1556.

### **Emergency Response**

#### 1. Physical Damage

- a. If any moving equipment is involved, stop equipment movement until the extent of contamination, if any, can be established.
- b. Cordon off an area with at least a 15 foot radius around the incident.
- c. Call the RSO immediately and keep everyone at least 15 feet away from the gauge.
- d. The RSO will visually check the gauge and use the survey meter to determine the extent of the damage to the source(s), source housing and shielding are intact and functional, the gauge can be removed from the site, returned to the shipping container, and shipped to the manufacturer for repair or replacement.
- e. If the integrity or location of the source(s) cannot be positively identified, the RSO will immediately notify the appropriate regulatory agency.

- f. The RSO shall follow the instructions of the regulatory agency.
- g. If the source rod is extended and bent, or the shield is damaged such that dose rates are likely to exceed those of an undamaged gauge, call the manufacturer for instructions before shipment.

**Theft or Loss**

- a. Immediately notify the RSO. The RSO will immediately notify the appropriate regulatory agency, the local police, and the FMA RSO.

**Fire**

- a. Call the Fire Department (911).
- b. Take action appropriate with a fire to protect personnel.
- c. Notify the RSO.
- d. The RSO (or the authorized user for off-site storage locations) remains available to advise the fire fighters as to the nature, locations, and potential hazards of the radioactive materials

<u>Melting Points</u>	<u>Degrees F</u>	<u>Degrees C</u>
Stainless Steel	2550	1400
Carbide	2000	1090
Aluminum	1005	540
Lead	620	327
Polyethylene	257	125

Temperatures in an industrial fire will normally range from 500 degrees Fahrenheit at floor level to a high at the ceiling of 1400 to 1800 degrees Fahrenheit. The polyethylene and lead would melt in most fires, the aluminum only in a severe fire. The stainless steel capsule would not reach its melting point.





# UTILIZATION LOG

Date: \_\_\_\_\_

GAUGE NO. \_\_\_\_\_

Date	NAME	DS	Dxl	MS	Mxj	PROJECT	TIME	
							OUT	IN
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
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27								
28								
29								
30								
31								

Keep the Utilization Sheet on the clip board and in the The Nuke Storage Room. Replace and file every month in each gauge's individual folder.

Note: Dxi and Mxi should be between 0.75 and 1.25

# NETS

North East Technical Services, Inc.

Certifies that

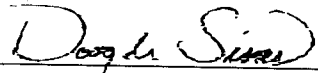
## Yousif Mohamed

Has successfully completed North East Technical Services, Inc. Radiation Safety Officer Training Course for Nuclear Gauges, in accordance with Nuclear Regulatory Commission and current US DOT regulations.

Training materials are maintained at:

North East Technical Services, Inc.  
75 Aileron Court, Suite 4  
Westminster, MD 21157

Date of Completion: July 23, 2008

  
Instructor: Douglas C. Sims

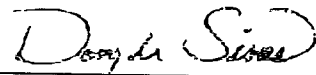
# NETS

North East Technical Services, Inc.

Certifies that

## Yousif Mohamed

Has successfully completed training in accordance with policies set forth by the following rules and Regulations governing Hazmat and refresher training requirements: 49CFR subpart H and IATA 1.5.2. Person Listed above has demonstrated a thorough understanding of all aspects needed for transportation and specific Emphasis was placed on portable nuclear density gauges. A closed book examination was administered And a passing score was achieved. Subjects included in this course were as follows: Radiological Safety – Principles and practices of radiation protection, leak-testing procedures, measurement of radioactivity, Biological effects of radiation, incident, storage, ALARA and emergency procedures.



Instructor – Douglas C. Sims

Date of Training: July 23, 2008

This is to acknowledge the receipt of your letter/application dated

7/21/08, and to inform you that the initial processing which includes an administrative review has been performed.

New License Application (03037805)  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

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A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 142642.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.