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General

This radiation safety plan covers the procedures for the safe and proper use and possession of radioactive material contained in portable moisture/density gauges. The gauges will be used to measure properties of engineering materials. The radioactive materials present no hazards to the licensee's employees, customers or the general public when they are handled in accordance with this plan.

Radiation Safety Officer

All use and possession is under the direction and supervision of the Radiation Safety Officer (RSO). The RSO is a single point of accountability and responsibility between the Regulatory Agency and the Licensee. The RSO is responsible for all aspects of the Radiation Safety Plan, including the following duties:

1. Any activities considered unsafe or jeopardize the security of portable gauges are stopped immediately and addressed.
2. All persons using, transporting or handling the portable density gauges are properly trained and the storage and maintenance of the gauge sources are consistent with the limitations of the license.
3. Gauges are properly secured against unauthorized removal at all times when gauges are not in use. Appendix H of NUREG 1556 vol.1, rev.1 is adhered to during storage- temporary or otherwise.
4. Proper authorities are notified in the event of an accident, damage to gauges, fire or theft. Unusual occurrences involving the gauge are investigated, cause and appropriate corrective action are identified, and corrective action is taken
5. At a minimum, audits are performed annually to ensure that all applicable regulations are adhered to, the licensee's radiation protection program uses procedures and controls that achieve doses to approved users and members of the public that are As Low As Reasonably Achievable (ALARA), and the licensee maintains all required documentation for licensed materials and users. The results of audits are documented as well as any corrective action taken.
6. Audit results and corrective actions are communicated to all personnel who use licensed material.
7. Licensed gauges are transported in accordance with DOT requirements.
8. The RSO's on the license have current copies of operating and emergency procedures, review policy updates implemented by the NRC or the license(e) and take all appropriate steps to comply with regulations.

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9. Licensed material is disposed of properly.
10. Leak testing is performed at the required intervals. Results of leak tests are documented.
11. A current license is maintained and amended whenever there are changes in: licensed activities, responsible individuals, or information or commitments provided to the NRC during the previous licensing process.
12. Posting all required signs and documents at locations where gauges will be stored (e.g., RH-2364 "Notice to Employees", a sign stating "Caution, Radioactive Material" and international symbol for radioactive materials and a notice of where the organization's license, this plan and NRC regulations can be reviewed).

Operation

1. Before removing the portable gauge from the storage location, ensure the gauge and source are locked and secured within the transportation container.
2. Sign the instrument out on the sign-out sheet. Complete all fields on the sheet.
3. Transport the gauge in accordance with DOT regulations.
4. Maintain constant surveillance and control over the gauge at all times. At no time may the gauge be left unattended or in the possession of unauthorized persons. Always keep unauthorized persons away from the area where the gauge is being used.
5. Use highly visible markers appropriate for the job-site to assist equipment operators in their awareness of the gauge location.
6. Do not touch any part of the source or source rod for any reason. For direct transmission (DT) gauges, do not look under the gauge when the source rod is in the unshielded position (while it is being lowered into the ground)
7. Always return the source to the shielded position after each use and return the gauge to the locked storage case in a secured storage location when not being used for field measurements.
8. The gauge should be returned as soon as possible, after testing is complete, to its permanent storage location and logged in on the sign-out sheet.
9. Observe ALARA principles at all times to minimize any dose received.
10. While in the possession of a nuclear gauge, you must have:
 - a. A current copy of the Material License

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- b. A copy of this plan (Radiation Safety Plan) with a call down list
- c. Copy of letter of Authorized users
- d. Copy of Gauge Operating Manual
- e. Copy of the Current Leak Test Certificate for that gauge.

Transportation

1. During transportation, the instrument shall be fully secured in the transporting vehicle and located as far away as possible from personnel. Secure the locked transportation case to the vehicle to prevent shifting during transport. When the vehicle is unattended, Secure the locked case using two **Independent controls** (one of which must also prevent the lid from being opened without removing it) to the vehicle
2. Only transport the gauge in the approved DOT Type A shipping container with all required labels and markers.
3. During transportation, shipping documents will be located within arm's reach of the driver without the removal of the seat belt. If the vehicle is left unattended, the documents will be placed on the driver's seat so they may be viewed from the window of the locked vehicle.
4. When shipping by common carrier, the package shall be in compliance with 49 CFR 170-179

Maintenance

1. Periodic maintenance will include checking and cleaning of moving parts on the gauge body (hinges, screws, etc.). If using a DT gauge, the shutter closure will be inspected and cleaned also. The operator will have had proper instruction on how to maintain and clean the gauge and will wear his/her assigned dosimeter badge.
2. No maintenance will be performed in which the radioactive source is removed from the gauge. The gauge will be serviced by an approved service center for this type of gauge.
3. Leak tests will be performed every six months. The operator will have had proper instruction on how to collect leak test samples.
4. The shipping container will be inspected periodically for overall condition and proper labeling.

Protection from the Elements

1. Every effort must be taken to protect the gauge and the container from moisture. Once the gauge becomes wet or moisture is allowed to collect on the electronics, it takes several days for the gauge to dry out completely and some components may be permanently damaged.
2. During periods of extreme heat, the gauge should not be exposed to direct sunlight for extended periods of time. The extreme heat can damage the electronics of the gauge.

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3. If the foam batting/packaging in the transportation case get wet, they should be removed from the case as soon as practical and allowed to dry completely before being used to transport the gauge.

Records

The Radiation Safety Officers will maintain records of Personal Monitoring, Leak Tests, Training, Gauge Inventory and Sign-out sheets for their respective location.

Training

All operators will complete a training course that meets the requirements of the license.

Physical Damage

1. If any moving equipment is involved, safely attempt to signal its operator to stop all movement until the situation can be evaluated.
2. Cordon off a radius of at least fifteen (15) feet and restrict access until a survey can be conducted.
3. Refer to the Call-list in this plan and contact the immediate RSO for the area. If the RSO is unavailable, continue down the list of personnel. Describe the conditions and follow the instructions of the individual contacted. The RSO or other appropriate individual will immediately notify the appropriate regulatory agency.

Emergency Telephone Numbers

Bryan L King	Office: (317) 576-8058 Mobile: (317) 784-3610
Greg Lacy – Principal	Office: (317) 576-8058 Mobile: (317) 716-3218
James Sherer President	Office (317) 576-8058 Mobile (317) 538-0813
Police or Fire	911
NRC Region III	(630) 829-9500

REMINDER TO LICENSEE MANAGEMENT AND RSO:

1. In the event that there is damage to a source or a gauge, arrange for a survey to be conducted as soon as possible to determine the appropriate actions to take.
2. Make necessary notifications to local authorities as well as the NRC as required. NRC notification is required when gauges containing licensed material are lost or stolen and when gauges are involved in incidents that result in doses in excess of 10 CFR 20.2203 limits.

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3. Timeliness of reports is critical.

4. Reporting requirements are found in 10CFR 20.2201-2203 and 10CFR 30.50.

Theft or Loss

Contact the RSO immediately. The RSO will contact the appropriate regulatory agency and police.

Fire

(This section is intended to SUPPLEMENT Patriot's Emergency Action and Fire Prevention Plan)

1. Call the Fire department or 911 immediately. Call the RSO.
2. Stand by to advise emergency response on the nature, location and potential hazards particular to radioactive material involved in the fire.

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

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

Disposal/Decommissioning

1. Disposal will only be performed by transferring to a properly licensed organization.

Radiation Safety Plan

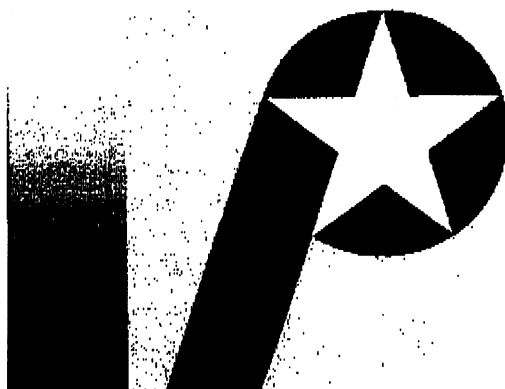
This plan will be implemented at all times. A copy of these procedures shall be maintained in the license file and as required by this plan.

Signed: James T. Hurst

Date: 5/27/2015

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Date: 5/27/2015



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Remarks: