From: Davis, Reginald D
To: Ryan Craffey
Subject: [External_Sender] RE: NRC Inspection Follow-Up
Date: Thursday, November 10, 2022 12:01:09 PM
Attachments: Leak Test.pdf
Hazmat (DOT) Training Cert.pdf
Radiation Safety Program.pdf
NRC Annual Audit.pdf
Operating and Emergency Procedures.pdf

Good morning Mr. Craffey.

I have completed all the open items that were listed from your inspection. I have included attachments for the completed items.

Sealed Source Leak Test

Leak Test was performed on September 16th 2022. Leak Test will be performed once a year. Reminder has been added to my calendar.

Hazmat (DOT) Training

Hazmat (DOT) Training was taken by all employees on October 5th 2022. Training will be conducted every three (3) years. Reminder has been added to my calendar.

Radiation Protection Program Review

Radiation Protection Program Review was performed on August 1st 2022. Review will be conducted yearly. Reminder has been added to my calendar.

Program Audits

Program Audit was conducted on October1st 2022. Audit will be conducted annually. Reminder has been added to my calendar.

Operating and Emergency Procedures

Operating and Emergency Procedures discussed and handed out to all employees on November 4th 2022.

Physical Inventory

Physical Inventory was conducted on August 1st 2022. Physical Inventory will be conducted every six (6) months. Reminder has been added to my calendar.

TROXLER®
The Leader in Construction Testing Equipment

Troxler Electronic Laboratories, Inc.
3008 Cornwallis Rd., P.O. Box 12057
Research Triangle Park, NC 27709
Tel: (877) 876-9537 Fax: (866) 391-2759
License: NC 032-0182-1

REGGIE DAVIS
KCMO PUBLIC WORKS
4721 E Coal Mine Rd,
KCMO,MO 64130

Cust Id: 14946

LEAK TEST CERTIFICATE

DEVICE:

Model: 3430P **Serial No:** 75161

SEALED SOURCES:

Serial No.	Measure Date	Nuclide	GBq	mCi
77-16934	08/28/2018	Cs-137	0.296	8
78-12176	07/20/2018	Am-241:Be	1.480	40

LEAK TEST ANALYSIS:

Sample collected on: 09/16/2022
Sample analyzed on: 10/04/2022 **Position:** 80
Analyzed by: TH

	ALPHA	BETA-GAMMA
Conversion factor (cpm/Bq)	1.72E+001	2.30E+001
Background measurement (cpm)	0	2
Sample measurement (cpm)	0	2
Activity (Bq)	< MDA	< MDA
Min. Detectable Activity (Bq)	1.7E-001	7.3E-001

This certifies that the leak test results are:

☑ **Less than 185 Bq (0.005 uCi)** ☐ **Greater than 185 Bq (0.005 uCi)**

10/5/2022 5:04:16 PM

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REGGIE DAVIS
KCMO PUBLIC WORKS
4721 E Coal Mine Rd,
KCMO,MO 64130

Cust Id: 14946

LEAK TEST CERTIFICATE

DEVICE:

Model: 3430 **Serial No:** 68583

SEALED SOURCES:

Serial No.	Measure Date	Nuclide	GBq	mCi
77-13144	01/03/2014	Cs-137	0.296	8
78-9034	02/20/2014	Am-241:Be	1.480	40

LEAK TEST ANALYSIS:

Sample collected on: 09/16/2022
Sample analyzed on: 10/04/2022 **Position:** 81
Analyzed by: TH

	ALPHA	BETA-GAMMA
Conversion factor (cpm/Bq)	1.72E+001	2.30E+001
Background measurement (cpm)	0	2
Sample measurement (cpm)	0	6
Activity (Bq)	< MDA	< MDA
Min. Detectable Activity (Bq)	1.7E-001	7.3E-001

This certifies that the leak test results are:

☑ **Less than 185 Bq (0.005 uCi)** ☐ **Greater than 185 Bq (0.005 uCi)**

10/5/2022 5:04:16 PM

Certificate ID: 2E437F01A8C9B3B1

Hazmat Certification

as required by U.S DOT and IATA

This certifies that

Reggie Davis

has been trained and tested in accordance with the U.S. Department of Transportation and International Air Transport Association (IATA) hazardous material requirements for general awareness/familiarization, function-specific, safety and security awareness training as related to the transportation of nuclear gauges. A description of the training course materials is available from Troxler Electronic Laboratories, Inc.

Date **Oct 05, 2022** Expires **Oct 04, 2025**

EMPLOYER CERTIFICATION

I certify that the hazmat employee identified on this certificate has been trained and tested as required by U.S. DOT Hazardous Material Regulations (49 CFR 172 Subpart H).

Signature Reggie Davis Title P.E.T. Lab Manager Date 10-6-22

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Certificate ID: AF3997FBC145BEDA

Hazmat Certification

as required by U.S DOT and IATA

This certifies that

Rydel Van Dyke

has been trained and tested in accordance with the U.S. Department of Transportation and International Air Transport Association (IATA) hazardous material requirements for general awareness/familiarization, function-specific, safety and security awareness training as related to the transportation of nuclear gauges. A description of the training course materials is available from Troxler Electronic Laboratories, Inc.

Date **Oct 05, 2022** Expires **Oct 04, 2025**

EMPLOYER CERTIFICATION

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Signature Reggie Davis Title P.E.T. Lab Manager Date 10-6-22

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Certificate ID: 62DF49CA08688A9F

Hazmat Certification

as required by U.S DOT and IATA

This certifies that

Serge Bellassai

has been trained and tested in accordance with the U.S. Department of Transportation and International Air Transport Association (IATA) hazardous material requirements for general awareness/familiarization, function-specific, safety and security awareness training as related to the transportation of nuclear gauges. A description of the training course materials is available from Troxler Electronic Laboratories, Inc.

Date **Oct 05, 2022** Expires **Oct 04, 2025**

EMPLOYER CERTIFICATION

I certify that the hazmat employee identified on this certificate has been trained and tested as required by U.S. DOT Hazardous Material Regulations (49 CFR 172 Subpart H).

Signature Reggie Davis Title P.E.T. Lab Manager Date 10-6-22

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Certificate ID: BC1C02B05CF418A8

Hazmat Certification

as required by U.S DOT and IATA

This certifies that

James Smelcer

has been trained and tested in accordance with the U.S. Department of Transportation and International Air Transport Association (IATA) hazardous material requirements for general awareness/familiarization, function-specific, safety and security awareness training as related to the transportation of nuclear gauges. A description of the training course materials is available from Troxler Electronic Laboratories, Inc.

Date **Oct 06, 2022** Expires **Oct 05, 2025**

EMPLOYER CERTIFICATION

I certify that the hazmat employee identified on this certificate has been trained and tested as required by U.S. DOT Hazardous Material Regulations (49 CFR 172 Subpart H).

Signature Reggie Davis Title P.E.T. Lab Manager Date 10-6-22

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Certificate ID: F023004D0B5F3B4C

Hazmat Certification

as required by U.S DOT and IATA

This certifies that

Guillermo Torregrosa

has been trained and tested in accordance with the U.S. Department of Transportation and International Air Transport Association (IATA) hazardous material requirements for general awareness/familiarization, function-specific, safety and security awareness training as related to the transportation of nuclear gauges. A description of the training course materials is available from Troxler Electronic Laboratories, Inc.

Date **Oct 05, 2022** Expires **Oct 04, 2025**

EMPLOYER CERTIFICATION

I certify that the hazmat employee identified on this certificate has been trained and tested as required by U.S. DOT Hazardous Material Regulations (49 CFR 172 Subpart H).

Signature Reggie Davis Title P.E.T. Lab Manager Date 10-6-22

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Certificate ID: 5272A3E5E3AB4E3D

Hazmat Certification

as required by U.S DOT and IATA

This certifies that

Dale Starks

has been trained and tested in accordance with the U.S. Department of Transportation and International Air Transport Association (IATA) hazardous material requirements for general awareness/familiarization, function-specific, safety and security awareness training as related to the transportation of nuclear gauges. A description of the training course materials is available from Troxler Electronic Laboratories, Inc.

Date **Oct 05, 2022** Expires **Oct 04, 2025**

EMPLOYER CERTIFICATION

I certify that the hazmat employee identified on this certificate has been trained and tested as required by U.S. DOT Hazardous Material Regulations (49 CFR 172 Subpart H).

Signature Reggie Davis Title P.E.T. Lab Manager Date 10-6-22

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KCMO-Public Works Department – Capital Projects Division
Materials Testing Laboratory
Radiation Safety Program
2022

Intro

Some of the overall goals of the radiation safety program are:

a) Protecting the general public and environment from unnecessary exposure to radiation
b) Proper training and instruction to workers includes:
    1) The ALARA program and personnel radiation monitoring
    2) Safely and securely operating the gauge at the worksite
    3) Workers knowledge of emergency procedures and radiation detection equipment
    4) Safely and securely transporting gauges
    5) Maintenance and leak tests
c) Inventory and disposal recordkeeping
d) Self-reporting, corrections and enforcement of the program
e) Annual Audits and inspections

The RSO – Manager of the gauge safety program.

I, Marty Ambriz, have been designated as the Radiation Safety Officer for The City of KCMO-PW and will carry out the duties and enforce the conditions of the license including:

The Annual Audit

I, along with senior management, will annually conduct an audit of the gauge safety program, as well as checking, reviewing and correcting any deficiencies. All copies of audits will be retained. I will conduct periodic internal inspections, including in person observations of worker actions with gauges during transport and transportation.

Organization & Scope of Program

I will ensure that the original conditions and information on the license stays current, or when needed, file for timely amendments including address changes, new ownership (in advance), bankruptcies, and notice of a new and properly trained RSO.

I will review the license to ensure that gauge models match and source quantities have not been exceeded and will ensure that the Sealed Source and Device (SSD) Certificate or Sheet for each type of gauge are on file.

I will check to make sure that manufacturer operation & maintenance manuals are on hand for each type of gauge.

I will make sure the gauges are used for the way they are intended.

RSO Responsibilities

I will stop activities that are considered unsafe.

I will review the license and Sealed Source and Device Registration and manufacturer's recommendations and instructions. I will make sure the conditions match up regarding the model/type of gauge, number of gauges allowed, the type of operations licensed for, storage requirements, and maintenance restrictions and schedule.

I will make sure all employees are thoroughly trained and training certificates are on file.

I will make sure all necessary personnel are using personnel monitoring devices (film badges, TLD's) and records is on file.

I will make sure all gauges are locked and secured during storage and transportation.

I, and all gauge workers, will have contact information on hand (including on file, in the storage area, and in gauge cases) for proper authorities (RSO, licensing agency, police) in case of accident, damage, fire or theft.

I will investigate all unusual occurrences involving the gauge (accident, damage, theft, oversights), determine the cause, identify corrective actions and implement such actions.

I will make sure gauges that are transported meet all USDOT Hazardous Materials requirements.

I will make sure that gauge transfers and disposals are properly documented.

I will make sure all records are accounted for and maintained.

I will keep the license up-to-date, check the expiration date, request renewals and amendments in a timely manner.

I will give advance notice of reciprocity.

I will give advance notice of desire to terminate the license.

Training & Instructions to Workers

I will make sure that all employees working with gauges and preparing gauges for transport or transporting gauges are properly trained.

I will ensure, per Code of Federal Regulation (CFR) 19.12, that all employees expected to receive an excess of 100 mrem/yr occupational dose be given special instructions. Although gauge users typically receive less than this amount it is assumed that they may exceed this limit and are therefore subject to these instructions:

- storage, transfer & uses of gauges
- exposure issues and ALARA
- required safety training
- how to report overexposure concerns

- workers know how to receive exposure reports
- workers receive emergency procedures training
- workers receive annual refresher training on these topics (The APNGA Annual Refresher Training Module can be used to guide you with this training – it is included with your annual dues)
- each gauge operator completes an approved gauge safety course before using the gauge. (The APNGA Gauge Safety Training Course is approved in most states & is included in annual dues – check the list for your state's status)
- I will have training certificates on file for each worker, including Initial Gauge Safety Training, HAZMAT Training and Annual Refresher.
- I will conduct interviews with each worker to determine if they are knowledgeable of emergency procedures (see the "Emergency Procedures" section under the "Regulatory" heading on the "APNGA homepage" and your regulatory agency for guidance).
- I will observe each worker operating the gauge in the field.
- I will observe each worker performing routine cleaning & lubrication.
- I will observe each worker transporting the gauge.
- I will observe each worker checking a gauge in and out of storage.
- I will make sure each worker demonstrates safe handling and security during operation, transportation and storage of the gauge.
- I will make sure USDOT HAZMAT (CFR 172.700-704) training is provided for each worker involved in preparing and/or transporting a gauge? (APNGA annual dues include a USDOT HAZMAT course that is accepted in every state).
- I will make sure HAZMAT training records are kept on file.

Radiation Survey Instruments

I will make sure the company owns a radiation survey meter. In the event of an accident it will
be used to detect the location of a dislodged source, determine the Transport Index of a damaged gauge or determine the radiation levels around a storage area. It will also be used to determine if the gauge sliding block is malfunctioning.

I will make sure the survey meter meets the criteria of the regulatory agency. Typically this requires a survey meter that is able to detect gamma radiation and be recalibrated annually.

If we do not own your own a survey meter I will arrange for immediate access to one. I will have a plan for accessing a survey meter.

If we are licensed for and performing non-routine maintenance, I will own a survey meter that is calibrated annually. I recognize that non-routine maintenance would include removal of the source rod. I will ensure that the source rod will not be removed if we do not have a special license to do so.

I will keep survey meter calibration records on file.

Gauge Inventory

I will complete an inventory of gauges every 6 months. I will keep an inventory sheet attached to a clipboard and place it at the storage area with the date of the next inventory. I will complete a hands-on inventory of each gauge and keep the completed document on file.

I will have a receipt for each gauge in inventory that shows the date each gauge was obtained and entered into your inventory?

Personnel Radiation Protection

I will provide, if required, personnel dosimetry to all gauge employees.

I understand that the dosimetry, typically in the form of a film badge, TLD (Thermoluminescent Dosimeter), or OSL (Optically Stimulated Luminescence) ensures that ALARA practices are being met and also creates a record that documents employees are receiving minimal exposure levels.

I understand that the key component of a sound Radiation Protection Program is a solid adherence to ALARA considerations. I will make sure that ALARA considerations (time, distance & shielding) are being taught and practiced and incorporated into the Radiation Protection Program.

I will make sure, that if any gauge workers are not provided dosimetry, documentation is provided confirming that they are receiving less than 500 mrem per year.

I will continually check to see if conditions of the activities of gauge workers not wearing dosimetry changed to where the possibility of receiving greater than 500 mrem per year exists.

If they did change I will perform a new evaluation.

If in use I will ensure that dosimetry is provided for gauge workers.
I will check if any workers are receiving more than 500 mrem.
I will make sure that the dosimetry supplier is NVLAP approved.
I will make sure that dosimetry is changed on time.
I will review the dosimetry reports as they are received.
I will make sure that NRC or equivalent Agreement State forms are being used:

NRC-4 "Cumulative Occupational Exposure History
NRC-5 "Occupational Exposure Record for a Monitoring Period"
Examples of these forms can be found in the appendices.

I will make sure that if a worker declared her pregnancy she was limited to a maximum of 500 mrem for the term of the pregnancy. I will make sure embryo/fetus dose records were kept on file.

I will make sure all exposure, survey, monitoring and evaluation records kept on file.

Public Dose

I will take steps to protect the general public (non-gauge workers) from exposure to radiation.

I will ensure that exposure levels to the general public are below 100mrem in a year or 2mrem in any 1 hour.

I will make sure that gauges are stored in a manner to keep doses to the public below 100mrem in a year.

I will conduct a survey or evaluation of public access areas around the storage area to ensure that exposure levels are below 100mrem per year.

I will monitor any gauge additions or changes to the storage area, security or use of the surrounding areas that would necessitate a new survey or evaluation.

I will monitor public access area radiation levels to determine if any areas have exceeded 2mrem in any one hour.

I will make sure that gauges are stored in a manner that prevents unauthorized use or removal.

I will keep storage survey and evaluation records on file.

Operating & Emergency Procedures

I will develop, implement and maintain Company Operating & Emergency Procedures.

All workers will have a copy of these procedures and know what steps to take in the event of an emergency. (Please refer to Appendix H of the NRC's NUREG Guide 1556 Vol 1, "Operating & Emergency Procedures" for an outline or use your Agreement State procedures). The APNGA website also contains information to complement your regulatory agency requirements. Procedures should include these instructions:

- Using & maintaining the gauge
- Security during transport and storage
- Control & surveillance during use
- Keep exposures ALARA
- Constant accountability during use
- How to deny access to a damaged gauge
- Steps to take and who to contact when a gauge is damaged

I will make sure the above required elements, as specified by the regulatory agency, are part of the procedures.

I will make sure each gauge worker and gauge case have a current copy of the operating & emergency procedures, including RSO office, cell & home telephone numbers as well as the manufacturer's and regulatory agency emergency contact numbers.

Leak Tests

I will make sure each sealed source on each gauge leak will be tested on time (per the time interval stated on the license) and make sure the leak test was performed per the descriptions and requirements of the regulatory agency and the license.

I will make sure all gauges have a current leak test before being removed from storage.

I will make sure leak test results are kept on file.

I will make sure that, if any sources are found to be leaking, the gauge will be pulled from service and the regulatory agency notified.

Maintenance of Gauges

I will make sure the gauges are routinely cleaned and lubricated per the manufacturer's procedures, thereby allowing optimum safety and performance. I will make sure that the source rod is not removed during cleaning, unless specifically licensed to do so.

If so, I will make sure to adhere to the special requirements pertaining to procedures, dosimetry, survey instruments, individuals and compliance.

Transportation

To assure proper compliance of transportation regulations I will on occasion accompany each worker while they transport a gauge and assure that HAZMAT requirements are understood and met.

The evaluation will commence at the storage area and conclude upon return to the storage area.

I will make sure that only undamaged, manufacturer-provided and approved, Type A package gauge cases are used during every transport of a gauge.

I will make sure that Type "A" Package test results for every different type of gauge case in use is kept on file.

I will make sure that a "Certificate of Competent Authority" is kept on file for each different type of source used in the gauge. (This will satisfy the requirement for documenting special form certificates. These special form certificates can be obtained through the manufacturer and can usually be downloaded off their website).

I will make sure that every gauge case displays 2 Radioactive II labels that **legibly** show the Transport Index (TI), source types & activities, and hazard class (7).

I will make sure that each gauge case displays a Type A package label denoting UN3332, "Radioactive Material", "Special Form" and "RQ" requirements.

I will instruct workers that every gauge case will be closed and locked for every transport.

I will instruct that applicable bill of lading and emergency response sheets are to be used during every shipment.

I will assure that the shipping papers contain the proper entries: (Shipping name (Radioactive Materials), Hazard Class (7), UN ID Number (3332), Total Quantity (number of gauges), Package Type (Type A), Nuclides (Cesium137 and/or Am241), RQ (if necessary), Description (Radioactive Material), Special Form, Activity (in Becquerels and Millicuries), Yellow II labels, Transport Index (TI), Shipper's name, Certification and signature, Emergency Response Telephone number, Cargo Aircraft Only label.

I will instruct the workers to have the gauge case secured against movement during transport.

I will ensure that double, independent, locked cables, chains or other security devices are used during transport.

I will instruct the workers to have the gauge concealed while transported in a vehicle.

I will make sure that any qualified transport incidents are reported to the USDOT.

Auditor's Independent Survey Measurements (if made)

If any independent auditor is used I will make sure that the survey measurements describe the type, location and result of measurements. I will note if any radiation levels exceed regulatory levels.

Notification & Reports

I will assure that required notifications of incidents are made to the regulatory agencies. This does not include non-emergency oversights that must be noted and corrected in your Radiation Safety Program.

I will make notifications of any lost or stolen gauges and make appropriate reports.

I will report any overexposures or high radiation levels and note the causes and take corrective actions.

In the event of any of the above occurrences I will contact the NRC Emergency Operations Center at 301-816-5100 as well as the Agreement State, if appropriate.

Posting & Labeling

I will post or make available certain documents and/or posters for public viewing. I will make sure I am familiar with the regulatory agency's requirements, be it NRC or Agreement State.

I will keep all originals under lock and key and only post copies of the documents and posters.

I will post the "Notice to Employees" poster in an area accessible to all employees.

I will post all regulations and license documents or post a notice as to where these documents can be viewed (post copies in a publicly viewable area).

I will be aware and post any documents required by the regulatory agency or other state or local authorities.

Recordkeeping for Decommissioning

I will be aware that regulatory agencies require a minimum of 60 days notice before terminating the license and transferring or disposing of all gauges. I will be aware of requirements and maintain all decommissioning, transfer and disposal documents.

I will maintain records important for decommissioning.

Bulletins & Information Notices

I will make sure that I am on the mailing list or email list for documents issued by the NRC and/or Agreement State. (Go to www.nrc.gov to sign up for NRC Bulletins, Information Notices and NMSS Newsletters. Do the same for your Agreement State).

I will make sure that appropriate training and actions are taken in response to these notices.

Special License Conditions or Issues

I will make sure to review any special license conditions or issues pertaining to your license (e.g., non-routine maintenance).

Deficiencies Identified in Audit and Corrective Actions Planned

If I discover any deficiencies or oversights during the year I will investigate, report, summarize and take corrective actions to rectify the issue. I will document the corrective actions. I will make sure that corrective actions will be taken at all licensed facilities. I will likewise provide any recommendations for improvements.

Evaluation of Other Factors

I will ensure that senior management is constructively involved and informed about the radiation safety program.

Senior management will assure that the RSO has sufficient time to perform Radiation Safety Duties.

Senior management will assure that the RSO has sufficient staff to support the Radiation Safety Program.

Senior Management and RSO Commitment to the Radiation Safety Program

I duly commit to upholding the Radiation Safety Program:

Title	Name	Date
RSO	Reggie Davis RD.	8-1-22
Senior Manager	Mark Montgomery MM	8-1-22

NRC Annual Audit (Checklist)

City of KCMO-PW Department - Capital Projects Division - **Materials Testing Laboratory**

Stanley Palmer Engineering Center, 4721 Coal Mine Road, KCMO 64130

Ref.			Ref.		
3.	License No.:	24-15241-01	Form 374	Amendment No.:	13
3.	Application/Renewal Date:	June 7, 2013	4.	Expiration Date:	December 31, 2023
12.	RSO Name:	Reggie Davis	-	Contact:	816-513-4712
9.	Gauge Manufacturer:	Troxler	-	Emergency No.:	919-549-9539
9.	Stated Authorized use:	*In Troxler Model Nos. 3400 Series, 3411-B and 4640-B portable gauging devices for measuring physical properties of materials.*			

No. of Gauges currently in use in Lab operations:	2	No. of Gauges counted in most recent Inventory:	2

nuclear-sourced moisture-density test gauge safety and operation

Ref.		Compliance Audit Checklist
6.	✓	Licensed byproduct, source and/or special nuclear **material is current** (up-to-date)
10.	✓	Licensed **material is stored** in the approved location and used at temporary jobsites
11.	✓	Licensed materials used only by individuals having **training** described in application dated September 11, 2013
12.		**RSO** is as named on License check and update
13.	✓	Sealed sources are **tested for leaks** and/or contamination at intervals established on certificate of registration
13.	✓	Leak and/or contamination test **reports are maintained** for 3 years
14.	✓	Sealed sources or source rods are **not opened, sources removed or detached** from source rods or gauges
15.	✓	**Physical Inventory** is conducted every 6 months
16.	✓	**Changes to sealed sources**, devices or source rods have not been made without authorization from NRC
17.	✓	Each portable **gauge has lock** or outer locked container to maintain sealed source in its shielded position
17.	✓	The gauge or its container is **locked when in transport**
17.	✓	A minimum of **two independent barriers** are utilized to prevent unauthorized access/removal
18.	✓	**Detachment of source** or source rod performed only by persons specifically licensed by NCR to perfom such tasks
19.	✓	**Transport of licensed materials** is done in accordance with provision 10 CFR Part 71
20.	✓	Licensee's **program is conducted in accordance with NRC regulations**
Lab Mgr	✓	*Physical Inventory template is prepared for current year* 2022
Lab Mgr	✓	*Leak Test kits are on hand and ready for current year's leak testing* 9-16-22
Lab Mgr		*Next DOT Training* 10-25 3yrs

Signed: R. Davis
RSO

Date: 8-1-22

TROXLER NUCLEAR GAUGE OPERATING PROCEDURES

ACKNOWELEDGEMENT

	Employee	Initials	Date
1.	James Smelcer	JS	11/4/22
2.	Serge Bellassai	SB	11/4/22
3.	Rydel Van Dyke	RV	11/4/22
4.	Dale Starks	DS	11/4/22
5.	Guillermo Torregrosa	GT	11/4/22

Signed Reggie Davis
RSO

Date 11-5-22

Operating Procedures

- If personnel dosimetry is provided:
  - — Always wear your assigned thermoluminescent dosimeter (TLD) or film badge when using the gauge;
  - — Never wear another person's TLD or film badge;
  - — Never store your TLD or film badge near the gauge.
- Before removing the gauge from its place of storage, ensure that, where applicable, each gauge source is in the fully shielded position and that in 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 gauge in the transport case and lock the case.
- Sign out the 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 gauge, and the temporary job site(s) where the gauge will be used.
- Block and brace the gauge to prevent movement during transport and lock the gauge in or to the vehicle. Follow all applicable Department of Transportation (DOT) requirements when transporting the gauge.
- Use the 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 gauge when the source rod is being lowered into the ground. If you must look under the 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 gauge when it is not in storage. At job sites, do not walk away from the gauge when it is left on the ground. Take action necessary to protect the gauge and yourself from danger of moving heavy equipment.
- Always keep unauthorized persons away from the gauge.
- Perform routine cleaning and maintenance according to the manufacturer's instructions and recommendations.
- When the gauge is not in use at a temporary job site, place the gauge in a secured storage location (e.g., locked in the trunk of a car or locked in a storage shed).

- Before transporting the gauge, ensure that, where applicable, each gauge source is in the fully shielded position. Ensure that in gauges with a movable source rod, the source rod is locked in the shielded position (e.g., keyed lock, padlock, mechanical control). Place the 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 gauge to its proper locked storage location at the end of the work shift.
- Log the gauge into the daily use log when it is returned to storage.
- If 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 gauge storage area (e.g., changing the location of gauges within the storage area, removing shielding, adding 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 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 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 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.
- 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[2]	WORK PHONE NUMBER[2]	HOME PHONE NUMBER[2]
Reggie Davis	816-335-5118	816-616-7526
Mark Montgomery	816-256-6038	

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, it is essential that the person performing the survey be competent in the use of the survey meter.
- If 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.
- Make necessary 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 gauges containing licensed material are lost or stolen, when gauges are damaged or involved in incidents that result in doses in excess of 10 CFR 20.2203 limits, and when it becomes apparent that attempts to recover a 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 are found in 10 CFR 20.2201-2203 and 10 CFR 30.50.

[2] 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, gauge manufacturer) to be contacted in case of emergency.