



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

November 2, 2021

EA-21-134

Mr. Rami Anabtawi
President
Geotechnical and Materials Engineers, Inc.
3517 Focus Drive
Fort Wayne, IN 46818

SUBJECT: NRC ROUTINE INSPECTION REPORT NO. 03035029/2021001(DNMS) –
GEOTECHNICAL AND MATERIALS ENGINEERS, INC.

Dear Mr. Anabtawi:

On June 24, 2021, an inspector from the U.S. Nuclear Regulatory Commission (NRC) conducted a routine inspection at your Fort Wayne, Indiana, facility, with continued in-office review through September 23, 2021. The purpose of the inspection was to review activities performed under your NRC license to ensure that activities were being performed in accordance with NRC requirements. The in-office review included a review of leak test, transfer, and periodic program review records that were not available at the time of the on-site inspection. Mr. Jason Draper of my staff conducted a preliminary exit meeting by telephone with you on October 7, 2021, and a final exit meeting by telephone with you on November 1, 2021, to discuss the inspection findings.

During this inspection, the NRC staff examined activities conducted under your license related to public health and safety. Additionally, the staff examined your compliance with the NRC's rules and regulations as well as the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, three apparent violations of NRC requirements were identified, and the first two apparent violations are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>.

The first apparent violation concerned your failure to confine your possession of byproduct material to the locations authorized by your license, as required by Title 10 of the *Code of Federal Regulations* (CFR) 30.34(c). Specifically, between January 15, 2021, and August 16, 2021, you stored a Seaman Nuclear Corporation Model 75 portable moisture density gauge containing a nominal 4.5-millicurie radium-226 source at a location not authorized by the license in License Condition 10.

The second apparent violation concerned your failure to secure that gauge from unauthorized removal with a minimum of two independent physical controls that form tangible barriers when

the portable gauge was not under the control and constant surveillance of your employees, as required by 10 CFR 30.34(i). Specifically, between January 15, 2021, and June 24, 2021, you stored the Seaman Nuclear Corporation Model 75 portable moisture density gauge in a storage unit and the gauge was secured with only one tangible barrier to prevent unauthorized removal, the locked door of the storage unit.

The third apparent violation concerned your failure to limit your possession to the maximum amount authorized by Conditions 8.A and 8.B of Amendment 9 of NRC License 13-32182-01. Specifically, between February 20, 2020, and August 11, 2021, you possessed six portable nuclear gauges containing a total of 48 mCi of Cs-137 and 240 mCi of Am-241 when your amended license only authorized you for a maximum activity of 27 mCi of Cs-137 and 132 mCi of Am-241.

Because the NRC has not made a final determination in these matters, the NRC is not issuing a Notice of Violation for these inspection findings at this time. The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective actions were discussed with you on October 7, 2021.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either: (1) respond in writing to the apparent violations addressed in this inspection report within 30 days of the date of this letter; (2) request a Predecisional Enforcement Conference (PEC); or (3) request Alternative Dispute Resolution (ADR). **Please contact Michael Kunowski, Chief, Materials Inspection Branch, at 630-829-9618 or Michael.Kunowski@nrc.gov within ten days of the date of this letter to notify the NRC of your intended response.**

If you choose to provide a written response, it should be clearly marked as "Response to the Apparent Violations in NRC Inspection Report No. 03035029/2021001(DNMS); EA-21-134," and should include, for each apparent violation: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance was or will be achieved. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violation. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be useful in preparing your response. You can find the information notice on the NRC's website at: <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1996/in96028.html>. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on the apparent violations and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during the conference may include the following: information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned to be taken. If a PEC is held, it will be open for public observation, and the NRC will issue a press release to announce the time and date of the conference.

You may also request ADR with the NRC in an attempt to resolve this issue. ADR is a general term encompassing various techniques for resolving conflicts using a third party neutral. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal

process in which a trained neutral (the "mediator") works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral third party. **Please contact ICR at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of these issues through ADR. If you choose ADR, also please contact Mr. Kunowski at the telephone number or email address listed above.**

In addition, please be advised that the number and characterization of the apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made publicly available without redaction.

Please feel free to contact Jason Draper of my staff if you have any questions regarding this inspection. Mr. Draper can be reached at 630-829-9839.

Sincerely,



Signed by Pelton, David
on 11/02/21

David L. Pelton, Director
Division of Nuclear Materials Safety

Docket No. 030-35029
License No. 13-32182-01

Enclosure: IR No. 03035029/2021001(DNMS)

cc w/encl: State of Indiana

Letter to Rami Anabtawi from David Pelton, dated November 2, 2021.

SUBJECT: NRC ROUTINE INSPECTION REPORT NO. 03035029/2021001(DNMS) –
GEOTECHNICAL AND MATERIALS ENGINEERS, INC.

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**U.S. Nuclear Regulatory Commission
Region III**

Docket No.:	030-35029
License No.:	13-32182-01
Report No.:	03035029/2021001(DNMS)
EA No.:	EA-21-134
Licensee:	Geotechnical and Materials Engineers, Inc.
Facility:	3517 Focus Drive Fort Wayne, Indiana
Inspection Dates:	June 24, 2021 with in office review through September 23, 2021
Exit Meeting Date:	November 1, 2021
Inspector:	Jason Draper, Health Physicist
Approved By:	Michael Kunowski, Chief Materials Inspection Branch Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Geotechnical and Materials Engineers, Inc. NRC Inspection Report 03035029/2021001(DNMS)

This was a routine inspection of licensed activities involving the use of byproduct material (cesium-137, americium-241, and radium-226) for measuring physical properties of materials with portable nuclear gauging devices. Geotechnical and Materials Engineers, Inc. (GME) is an engineering company located in Fort Wayne, Indiana. The U.S. Nuclear Regulatory Commission (NRC) License No. 13-32182-01 authorizes GME to use Troxler Model 3400 Series and Seaman Nuclear Corporation Model 75 portable density gauges for measuring physical properties of construction materials.

On June 24, 2021, the inspector identified three apparent violations of NRC requirements. The first was an apparent violation of Title 10 of the *Code of Federal Regulations* (CFR) 30.34(c) involving the licensee's failure to confine its possession of byproduct material to the locations authorized by the license. Specifically, the inspector identified that since January 15, 2021, the licensee had been storing its Seaman Model 75 portable gauge containing a nominal 4.5-millicurie radium-226 source (Serial Number 7504) at a location not listed in License Condition 10 of the license, a storage unit under the control of the licensee.

As corrective action for this apparent violation, on August 16, 2021, after performing a leak test to verify the source was not leaking, the licensee transported the gauge back to the authorized storage location.

The second apparent violation was an apparent violation of 10 CFR 30.34(i) involving the licensee's failure to use a minimum of two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal, when the gauge was not under the control and constant surveillance of the licensee. Specifically, the inspector identified that when the licensee moved the Seaman Model 75 portable gauge to the storage unit, the licensee secured the gauge with only one tangible barrier to prevent unauthorized removal, the locked door of the storage unit.

As corrective action for this apparent violation, on June 24, 2021, the licensee added a lock to secure the lid of the gauge case closed as well as a chain to secure the gauge case to a robust structure in the storage unit.

The third apparent violation was an apparent violation of Conditions 8.A. and 8.B. of Amendment 9 of NRC License 13-32182-01 for the licensee's failure to limit its possession of byproduct material to the maximum authorized on the license. Specifically, the inspector identified that due to an error in the licensee's renewal application, the amended license issued February 20, 2020, authorized less material than the licensee possessed, which the licensee did not identify until it was discovered by the inspector on June 24, 2021.

As corrective action for this apparent violation, on June 29, 2021, the licensee submitted a license amendment request to increase its possession limits, and on August 11, 2021, the licensee received an amended license authorizing this increase.

REPORT DETAILS

1 Program Overview and Inspection History

Geotechnical and Materials Engineers, Inc., is authorized under NRC Materials License No. 13-32182-01 to use licensed material for measuring physical properties of materials with portable nuclear gauging devices. Licensed material is authorized to be used at the licensee's facility in Fort Wayne, Indiana, as well as at temporary job sites anywhere in the United States in areas of NRC jurisdiction. The licensee used the gauges on a daily basis for construction engineering projects throughout the Indiana area. The licensee possessed six Troxler Model 3400 Series portable gauges containing cesium-137 and americium-241 and a Seaman Model 75 portable gauge containing radium-226.

As a result of a routine inspection performed on November 9, 2010, the licensee received a Severity Level III violation of 10 CFR 30.34(i) for its failure to secure portable gauges with a minimum of two independent physical controls that formed tangible barriers while the gauges were being stored in the open beds of pickup trucks while these gauges were not under the control and constant surveillance of the licensee. The licensee implemented corrective actions to secure the gauges and train gauge users on the requirements to secure gauges during transport and at temporary job sites. An enforcement follow-up inspection was performed on May 18, 2011, which closed this violation and noted no additional violations.

During the next routine inspection performed on July 20, 2015, the inspector identified three Severity Level IV violations. The first was a violation of Condition 12 of the license for the licensee's failure to ensure that licensed material was only used by, or under the supervision and in the physical presence of, individuals who had received the training described in the license application. Specifically, the licensee allowed an individual to use a portable gauge without supervision at a temporary job site when the individual had not completed the specified training. As corrective actions, the licensee ensured the individual received the required training and implemented internal procedures to prevent recurrence.

The second violation was a violation of Conditions 8.A. and 8.B. of the license for the licensee's failure to limit its possession of licensed material to the maximum activity specified on the license when the licensee obtained additional gauges such that they exceeded the maximum activity of cesium-137 and americium-241 specified on the license, as well as obtained gauges of a make and model not specifically authorized on the license. As corrective actions, the licensee submitted a request for and received a license amendment to increase its possession limit and add authorization for possession and use of the additional gauge make and model. The licensee also adopted procedures to ensure that prior to acquiring additional gauges, they will verify the gauge is authorized by the license.

The third violation was a violation of 10 CFR 71.5(a) for the licensee's failure to provide recurrent hazmat training to hazmat employees. Specifically, the licensee had not provided hazmat training for two hazmat employees since 2008. As corrective actions, the licensee ensured the two employees completed hazmat training and implemented a schedule to ensure that employees receive training at the required frequency.

These three Severity Level IV violations were closed during this current inspection as the inspector verified that the licensee restored compliance and implemented the proposed corrective actions.

2 Licensee Facilities

2.1 Inspection Scope

On June 24, 2021, the inspector reviewed the licensee's facilities to ensure material was being used and stored safely, securely, and in accordance with the license.

2.2 Observations and Findings

During this inspection, the inspector identified an apparent violation of 10 CFR 30.34(c) for the licensee's failure to confine its possession of byproduct material to the locations authorized by the license. Specifically, between January 15, 2021, and August 16, 2021, the licensee stored a Seaman Nuclear Corporation Model 75 portable nuclear density gauge (Serial Number 7504), containing a nominal 4.5-millicurie radium-226 source at a storage unit under the licensee's control, a location not authorized in License Condition 10 of the license.

The inspector identified that since January 15, 2021, the licensee had stored this gauge at a commercial storage unit in Fort Wayne, Indiana, controlled by the licensee. This location was not listed as an authorized storage location on the license. The licensee stated that they moved this gauge to the newly rented storage unit because the licensee had not used this gauge for many years.

The inspector toured the storage unit and identified that the gauge was stored safely in the unit. The inspector also took independent radiation surveys and verified that individuals were not likely to exceed public exposure limits as a result of the gauge being stored in that location. As a corrective action, the licensee leak tested the gauge to verify it was not leaking and transported the gauge back to the authorized storage location on August 16, 2021.

The inspector also identified an apparent violation of 10 CFR 30.34(i) for the licensee's failure to use a minimum of two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal when this portable gauge was not under the control and constant supervision of the licensee. Specifically, between January 15, 2021, and June 24, 2021, the licensee stored a gauge in a storage unit secured with only one tangible barrier, the locked door of the storage unit, to prevent unauthorized removal.

The inspector noted that the overhead door of the storage unit was secured with one padlock, but the gauge was in its unlocked transportation case on a shelf in the storage unit. The inspector noted that the storage unit itself was located in a facility that limited vehicular access to its customers and had security camera surveillance. Pedestrian access, however, was not similarly limited, the other customers of the facility were not authorized to access the gauge, and the camera surveillance was not constantly surveilled by the licensee. As a corrective action, on June 24, 2021, the licensee locked the transportation case with a padlock and secured the transportation case to a robust structure in the storage unit with a chain and padlock.

The inspector determined that the gauges that the licensee stored at the authorized storage location were stored in a location free from hazards and they were secured with a minimum of two independent physical controls that formed tangible barriers.

2.3 Conclusions

As a result of this inspection, the inspector identified two apparent violations on NRC requirements. First, the inspector identified an apparent violation of 10 CFR 30.34(c) for the licensee's failure to confine its possession of byproduct material to the locations authorized by the license. Second, the inspector identified an apparent violation of 10 CFR 30.34(i) for the licensee's failure to use a minimum of two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal, when the portable gauge was not under the control and constant surveillance of the licensee.

3 **Possession of Byproduct Material**

3.1 Inspection Scope

During the routine inspection, the inspector verified the license limited its possession of byproduct material to the isotopes, forms, amounts, and uses authorized on the license.

3.2 Observations and Findings

During the inspection, the inspector identified that the licensee possessed six Troxler Electronic Laboratories, Inc., Model 3400 Series portable gauges, each containing a nominal 8 mCi cesium-137 source and a nominal 40 mCi americium-241 source. The inspector noted that the NRC License 13-32182-01, Amendment No. 9, issued on February 20, 2020, limited the licensee's total possession to 27 mCi of Cs-137, and 132 mCi of Am-241. Upon further review, the inspector identified that these limits were set based on information provided by the licensee in its renewal application dated October 18, 2019. In this application, as well as additional information provided on October 25, 2019, to support the renewal application, the licensee requested authorization for possession of three Troxler Model 3400 Series gauges when the licensee actually possessed six. This appears to have been a result of the licensee duplicating portions of its 2009 license renewal application that were no longer representative of the licensee's activities.

After the inspector pointed this issue out to the licensee, the licensee promptly submitted a request to the NRC on June 29, 2021, to amend its license, in part, to increase its authorized possession limit to allow seven Troxler Model 3400 Series gauges. On August 11, 2021, the NRC issued Amendment No. 10 of the license, authorizing the licensee to possess a total of 63 mCi of Cs-137 and 308 mCi of Am-241. To prevent recurrence, the Radiation Safety Officer acknowledged the need to promptly review license amendments issued by the NRC to verify that license conditions of the amendments are understood and accurately reflect the current program for possessing and using radioactive material. The Radiation Safety Officer acknowledged the responsibility to inform the NRC of the need for any corrections to these amendments.

3.3 Conclusions

As a result of the inspection, the inspector identified one apparent violation of Conditions 8.A. and 8.B. of NRC License 13-32182-01, Amendment No. 9 for the licensee's failure to limit its total possession of Cs-137 to 27 mCi and Am-241 to 132 mCi.

4 **Other Areas Inspected**

4.1 Inspection Scope

The inspector performed a routine inspection of the licensee's activities through observing licensee performance, interviewing licensee staff, and reviewing a variety of records concerning the licensee's activities.

4.2 Observations and Findings

Aside from the observations noted above, the inspector determined that the licensee appropriately secured gauges while in storage at the authorized location as well as during transport and at temporary job sites. The licensee also implemented a radiation dosimetry program that accurately measured and recorded radiation doses received by workers as well as performed leak tests of the gauges at an appropriate frequency to verify that the sealed sources in the gauges were not leaking. In addition, the licensee ensured that gauge users completed the required training before using gauges and maintained up-to-date hazmat training prior to transporting gauges. The inspector also noted that the licensee performed periodic radiation safety program reviews at least annually and documented the results of these reviews.

4.3 Conclusions

The inspector reviewed elements of the licensee's radiation safety program and did not identify any additional findings in these areas.

5 **Exit Meeting Summary**

The NRC inspector presented preliminary inspection findings during a preliminary exit meeting via teleconference on October 7, 2021, and updated inspection findings during a final exit meeting via teleconference on November 1, 2021. The licensee did not identify any documents or processes reviewed by the inspectors as proprietary. The licensee acknowledged the findings presented.

LIST OF PERSONNEL CONTACTED

- # Rami Anabtawi, President, Former Radiation Safety Officer
- # Tara Estep, Radiation Safety Officer

- # Attended preliminary exit meeting on October 7, 2021
- * Attended final exit meeting on November 1, 2021

INSPECTION PROCEDURES USED

87124: Fixed and Portable Gauge Programs