



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

November 8, 2023

EA 23-123
EN 56445
NMED No. 230141 (Closed)

Rami Anabtawi
Owner
Geotechnical and Materials Engineers, Inc.
3517 Focus Dr.
Fort Wayne, IN 46818

SUBJECT: NRC NON-ROUTINE INSPECTION REPORT NO. 03035029/2023001(DRSS) –
GEOTECHNICAL AND MATERIALS ENGINEERS, INC.

Dear Rami Anabtawi:

On August 24, 2023, an inspector from the U.S. Nuclear Regulatory Commission (NRC) conducted a non-routine inspection at your Fort Wayne, IN, facility with continued in-office review through October 19, 2023. 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 training records and additional information that was not available during the on-site inspection. The enclosed inspection report presents the results of the inspection. The inspector discussed the preliminary inspection findings with Dina Slijivo of your staff at the conclusion of the on-site portion of the inspection. A final exit meeting was conducted virtually with you and your staff on October 19, 2023.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions in your license. Within these areas, the inspection consisted of an examination of selected procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, one apparent violation of NRC requirements was identified and is 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 apparent violation concerned the licensee's failure to control and maintain constant surveillance of a portable gauge or use two barriers on a gauge as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20.1802 and 10 CFR 30.34(i). The circumstances surrounding the apparent violation, the significance of the issues, and the need for lasting and effective corrective action were discussed with you and your staff at the inspection exit meeting conducted by Elizabeth Tindle-Engelmann on October 19, 2023.

Before the NRC makes its enforcement decision, we are providing you an opportunity to (1) respond to the apparent violation addressed in this inspection report within 30 days of the date of this letter, (2) request a Pre-decisional Enforcement Conference (PEC), or (3) request Alternative Dispute Resolution. 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.

Please contact Rhex Edwards at (630) 829-9722 or Rhex.Edwards@nrc.gov within 10 days of the date of this letter to notify the NRC of your intended response or request. A PEC should be held within 30 days and an ADR session within 45 days of the date of this letter.

If you choose to provide a written response, it should be clearly marked as "Response to the Apparent Violation in Inspection Report No. 03035029/2023001(DRSS); EA-23-123," and should include, for the 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. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. Your response should be sent to the NRC's Document Control Desk, Washington, DC 20555-0001, with a copy mailed to the NRC Region III Office, 2443 Warrenville Road, Suite 210, Lisle, Illinois 60532, within 30 days of the date of this letter. 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 these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a pre-decisional enforcement conference does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include 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. In presenting your corrective action, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. The guidance in the enclosed excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful.

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 neutral third-party. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained neutral party (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 this issue through ADR. In addition, if you choose ADR, please also contact Rhex Edwards 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 the NRC's "Agency Rules of Practice and Procedure" in 10 CFR 2.390, a copy of this letter, its enclosure, and your response, if you choose to provide one, 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, any 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 Elizabeth Tindle-Engelmann of my staff if you have any questions regarding this inspection. Elizabeth can be reached at 630-829-9681 or Elizabeth.Tindle-Engelmann@nrc.gov.

Sincerely,



Heck, Jared signing on behalf
of Curtis, David
on 11/08/23

David Curtis, Director
Division of Radiological Safety and Security

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

Enclosure:
Inspection Report No. 03035029/2023001(DRSS)

cc w/encl: Sam Abbasi, VP Operations
Dina Sljivo, RSO
State of Indiana

Letter to R. Anabtawi from D. Curtis dated November 8, 2023.

SUBJECT: NRC NON-ROUTINE INSPECTION REPORT NO. 03035029/2023001(DRSS) – GEOTECHNICAL AND MATERIALS ENGINEERS, INC.

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NAME	DBetancourt	DCurtis:JHeck concur behalf of		
DATE	11/7/23	11/8/23		

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

Docket No. 030-35029

License No. 13-32182-01

Report No. 03035029/2023001(DRSS)

EA No. EA-23-123

EN No./NMED No. EN 56445/230141

Licensee: Geotechnical and Materials Engineers, Inc.

Facility: 3517 Focus Dr.
Fort Wayne, IN

Inspection Dates: On-site inspection August 24, 2023;
in-office review through October 19, 2023

Exit Meeting Date: October 19, 2023

Inspector: Elizabeth Tindle-Engelmann, Health Physicist

Approved By: Rhex Edwards, Chief
Materials Inspection Branch
Division of Radiological Safety and Security

Enclosure

EXECUTIVE SUMMARY

Geotechnical and Materials Engineers, Inc. NRC Inspection Report (IR) 03035029/2023001(DRSS)

This was a non-routine inspection of licensed activities involving the use of byproduct material. 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 authorized GME to use americium-241 (Am-241), cesium-137 (Cs-137), and radium-226 (Ra-226) for use in portable gauging devices for the measurement of physical properties of materials.

The scope of the inspection was limited to the review of the circumstances surrounding an event that was reported to the NRC on March 22, 2023, and the licensed activities associated with the use of portable gauges. The event involved a portable gauge that was struck by a bulldozer at a temporary job site (TJS) on March 22, 2023. The licensee made a telephone notification to the NRC on March 22, 2023, and submitted a written report to the NRC on March 31, 2023.

On August 24, 2023, the inspector identified an apparent violation of Title 10 of the *Code of Federal Regulations* (10 CFR) 20.1802 and 10 CFR 30.34(i) for the licensee's failure to control and maintain constant surveillance of a portable gauge or use two barriers on a gauge that was left unattended at a temporary job site and consequently struck by a bulldozer.

REPORT DETAILS

1 Program Overview and Inspection History

1.1 Inspection Scope

The scope of the inspection was limited to the review of the circumstances surrounding an event that occurred on March 22, 2023, where a portable gauge was struck by a bulldozer at a TJS.

The inspector reviewed the license application and supporting documents within the scope of the inspection. Additional information was gathered through interviews with the licensee's staff.

1.2 Observations and Findings

GME was authorized under NRC Materials License No. 13-32182-01 to use licensed material for measuring physical properties of materials with nuclear gauging devices. Specifically, the licensee, a testing and engineering firm, possessed and used Troxler Electronic Laboratories, Inc., Model 3400 Series portable gauges, containing Am-241 and Cs-137, and Seaman Nuclear Corporation Model 75 portable gauges, containing Ra-226. The licensee had one facility located in Fort Wayne, Indiana. The gauges were used at TJSs on a daily basis. The devices were stored in a secure location at their facility when not in use. The licensee's Radiation Safety Officer (RSO) was on-site daily.

The licensee's inspection history is summarized below:

- A non-routine inspection was conducted on December 12, 2022, through January 12, 2023, to follow up on previous escalated enforcement and the corrective actions associated with IR 03035029/2021001. No violations were identified.
- A routine inspection was conducted on June 24, 2021, through September 23, 2021. IR 03035029/2021001 identified one Severity Level III problem and one Severity Level IV violation. The violations included the licensee's failure to: (1) confine the possession of NRC regulated byproduct material to the locations authorized by the license; (2) secure a portable moisture density 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 the licensee; and (3) limit the possession of Cs-137 to the maximum amount listed on the license.
- A routine inspection was conducted on July 20, 2015. IR 03035029/2015001 identified two Severity Level IV violations. The violations included the licensee's failure to: (1) train gauge users in accordance with the license; and (2) provide training to hazmat employees at least once every three years as required by Title 49 of the *Code of Federal Regulations* Part 172 through 10 CFR 71.5(a).

2 Portable Gauge Event

2.1 Inspection Scope

From August 24, 2023, through October 19, 2023, the inspector reviewed the circumstances surrounding an event involving a portable gauge that was struck by a bulldozer on March 22, 2023, and the licensed activities associated with the licensee's use of portable gauges. The inspector toured the facility, conducted interviews, and reviewed selected records. Selected records included: dosimetry, event chronology,

notifications, policies and procedures, sealed source certifications, sealed source leak tests, surveys, and training.

2.2 Observations and Findings

Event Overview

On March 22, 2023, at a TJS in Fort Wayne, IN, the licensee's authorized gauge user (technician) was waiting to perform testing at the job site. There were several active pieces of heavy equipment at the jobsite, including a large excavator, a bulldozer, a skid steer loader, a large smooth drum roller, and multiple dump trucks. While waiting to perform a measurement, the technician placed the source in the shielded position and locked the source rod. The technician turned away from the portable gauge and walked approximately 10 feet away to inspect an excavation spot. At the same time, a bulldozer operator reversed the bulldozer and headed towards the gauge. The technician heard the bulldozer moving closer and turned to retrieve the gauge. However, the technician was unable to stop the bulldozer or retrieve the gauge prior to the bulldozer's back tread striking the gauge.

The bulldozer struck the licensee's Troxler Model 3430 portable moisture/density gauge containing 38.5 millicuries (1424.5 megabecquerels) of Am-241:beryllium and 4.8 millicuries (177.6 megabecquerels) of Cs-137. As a result, the gauge sustained visible damage. Specifically, the yellow plastic shell cracked and the source rod fell over sideways onto the ground. The source remained in the locked and shielded position after impact.

The technician cleared the area, restricted access to the damaged gauge by setting up a 15-foot perimeter, notified the RSO, and waited for the RSO to bring a survey instrument. After the RSO arrived on site, an area survey was performed. No readings above background were observed. The licensee surveyed the gauge and compared the readings to the vendor's radiation profile to verify the source was still within the shield. The licensee placed the damaged gauge into its transport container and released the area where the event occurred. The gauge was transported to the licensee's facility. The licensee performed a leak test on the gauge which was analyzed by a licensed entity. Leak test results of the gauge were negative, indicating that the source was not compromised as a result of the event. The licensee returned the gauge to the vendor for disposal.

The licensee notified the NRC by telephone on March 22, 2023, that a gauge was damaged. EN Number 56445 and NMED number 230141 were assigned. The licensee submitted a written report on March 31, 2023. The inspector determined that the licensee's notifications and the written report met the content and timeliness requirements of 10 CFR 30.50.

Apparent Violation of 10 CFR 20.1802 and 10 CFR 30.34(i)

Title 10 of the Code of Federal Regulations (10 CFR) 20.1802 requires, in part, that the licensee control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

Title 10 CFR 30.34(i) requires that each portable gauge licensee use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever portable gauges are not under the control and constant surveillance of the licensee.

Based on a review of the event, it was determined that the gauge was left unsecured and unattended with no tangible barriers at a TJS while the technician left the vicinity of the gauge. This is an apparent violation of 10 CFR 20.1802 for failure to control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage, and 10 CFR 30.34(i) for the failure to maintain two independent physical controls that form tangible barriers of the gauge.

Corrective Actions and Preventative Measures

As a corrective action, the licensee conducted remedial training with all of their gauge users on the security requirements for portable gauges.

2.3 Conclusions

The inspector reviewed the applicable risk modules and focus elements. One apparent violation of 10 CFR 20.1802 and 10 CFR 30.34(i) was identified for the licensee's failure to control and maintain constant surveillance of licensed material that is in an unrestricted area and that is not in storage or to maintain two barriers of the gauge.

3 **Independent Radiation Measurements**

Independent radiation surveys were conducted at the inspected facility. The survey results were consistent with the licensee's postings, the licensee's survey results, and applicable regulatory limits.

Instrumentation: Model: RadEye G
 Serial Number: 30653
 Calibration Expiration: May 9, 2023

4 **Exit Meeting Summary**

The NRC inspector presented preliminary inspection findings following the on-site inspection on August 24, 2023. Upon completion of in-office review, a virtual exit meeting was held on October 19, 2023, with the licensee. The licensee did not identify any documents or processes reviewed by the inspector as proprietary. The licensee acknowledged the findings presented.

LIST OF PERSONNEL CONTACTED

- # Sam Abbasi, VP Operations
- # Rami Anabtawi, Owner
- # Dina Sljivo, RSO

- # Attended exit meeting on October 19, 2023.

LIST OF ACRONYMS AND ABBREVIATIONS USED

Am-241	americium-241
Cs-137	cesium-137
GME	Geotechnical and Materials Engineers, Inc
IR	Inspection Report
NRC	Nuclear Regulatory Commission

RSO	Radiation Safety Officer
Ra-226	radium-226
TJS	Temporary Job Site
Technician	authorized gauge user
10 CFR	Title 10 of the <i>Code of Federal Regulations</i>

INSPECTION PROCEDURES USED

IP 87103 – Inspection of Materials Licensees Involved in an Incident or Bankruptcy Filing
IP 87139 – Portable Nuclear Gauge Programs