



## Materials Inspection Record

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| 1. Licensee Name:<br>Earth Exploration, Inc.   |  | 2. Docket Number(s):<br>030-32764  |  | 3. License Number(s)<br>13-26408-01   |  |
| 4. Report Number(s):<br>2021001  |  |  | 5. Date(s) of Inspection:<br>November 17, 2021, through February 2, 2022 |   |  |
| 6. Inspector(s):<br>Jason Draper   |  | 7. Program Code(s):<br>03121   |  | 8. Priority:<br>5   | 9. Inspection Guidance Used:<br>IP 87124 |
| 10. Licensee Contact Name(s):<br>Curtis Bradburn, RSO  |  | 11. Licensee E-mail Address:<br>ccbradburn@earthengr.com   |  | 12. Licensee Telephone Number(s):<br>317-746-7893   |  |
| 13. Inspection Type:<br><input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine<br><input type="checkbox"/> Initial <input checked="" type="checkbox"/> Unannounced |  | 14. Locations Inspected:<br><input checked="" type="checkbox"/> Main Office <input checked="" type="checkbox"/> Field Office<br><input checked="" type="checkbox"/> Temporary Job Site <input type="checkbox"/> Remote |  | 15. Next Inspection Date (MM/DD/YYYY):<br>N/A<br><input type="checkbox"/> Normal <input type="checkbox"/> Extended<br><input type="checkbox"/> Reduced <input type="checkbox"/> No change |  |

## 16. Scope and Observations:

This was an unannounced routine inspection of a construction materials testing company with its main office in Indianapolis, Indiana, authorized to use licensed material for measuring physical properties of materials with portable nuclear gauging devices. In addition to its main office, the license authorized two field offices, and authorized the use of licensed material 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 Indiana and Michigan. The licensee's Indianapolis field office is located next door to the main office, and at the time of the inspection, the licensee possessed at this location a total of 9 portable moisture density gauges for use during the construction season (primarily from April - November) for soils engineering projects. At the Indianapolis location, the licensee employed approximately 15 authorized gauge users. The licensee did not perform any service or maintenance activities on its gauges; these services were performed by a licensed service provider.

After the inspection but before the inspection report was issued, the Earth Exploration license was terminated and all licensed activities were transferred to the Terracon Consultants license 15-27070-01 (030-32176).

## PERFORMANCE OBSERVATIONS

The inspection consisted of a tour of the licensee's gauge storage area, interviews with licensee personnel (the RSO, the Senior Project Manager, and gauge users), observation of licensee staff performance, demonstrations, and discussions of procedures, and a review of select records. This inspection also included an observation of licensed activities at a temporary job site, the Dunn's Bridge Solar Farm near Wheatfield, Indiana, on November 19, 2021. The licensee's field office located in Niles, Michigan was not inspected during this inspection.

The inspector toured the licensee's Indianapolis facility and observed the storage location for the gauges. At the time of the inspection, all gauges were checked out for use at temporary job sites, but the inspector was able to interview the Radiation Safety Officer (RSO) and observe the controls the licensee had available to secure the gauges when they were in storage. The inspector confirmed that the licensee was capable of utilizing the required two independent physical barriers for gauge storage.

The inspector also reviewed a sample of records, including: utilization logs, annual program audits, leak tests and physical inventories, utilization logs, DOT hazmat training, and gauge user training. The licensee also possessed a calibrated radiation survey instrument.

## Materials Inspection Record (Continued)

The inspector interviewed the Senior Project Manager and the RSO regarding the licensee's recent change of RSO because the licensee indicated in their license amendment request that the previous RSO had been relieved of his duties prior to the licensee's March 12, 2021, request to change the RSO listed on the license. The licensee indicated that while the previous RSO was terminated on January 7, 2021, the licensee still employed a former RSO until late January 2021, who had continued to provide oversight over the program. The licensee had also provided the oncoming RSO with gauge user and RSO training prior to the termination of the RSO, and this individual signed a delegation of authority on January 31, 2021. Therefore, the inspector determined that there was no lapse in oversight of the licensee's radiation safety program by a qualified individual.

The inspector also interviewed licensee staff regarding the licensee's process for leak tests as the inspector identified that three of the gauges that were being used at temporary job sites had not had a leak test in the past 12 months as required by the certificate of registration. The licensee indicated that the normal practice was to have the licensee's vendor perform leak tests when the licensee sent them in for annual calibrations, but that gauges hadn't been sent in yet due to the high workload. The inspector explained to the licensee that License Condition 13.C. required the licensee to have a current leak test before transferring to another person. The licensee acknowledged that they have the ability to perform leak tests of the gauges without sending the gauges to the vendor, and performed leak tests of these gauges at the next opportunity. These leak tests did not identify any leaking sources.

The inspector also identified through records review that three gauge users from the Indianapolis field office who routinely transported gauges had not received DOT hazmat refresher training in the past three years. The licensee ensured these individuals received hazmat refresher training by December 2, 2021.

During the temporary jobsite inspection, the inspector observed the licensee's handling of the gauge. The inspector also reviewed the licensee's documents, including shipping papers, and interviewed the gauge users regarding gauge use, security, and emergency response procedures. While observing the gauge secured for transport in the truck, the inspector identified that the gauge was secured with only one physical control that formed a tangible barrier. The inspector interviewed the gauge user, however, and did not identify any occasion where the gauge was left in this condition while not under the control and constant supervision of the gauge user.

As a result of this inspection, the inspector identified three violations of NRC requirements:

- 1) License Condition 12 for the licensee's failure to have the individuals specified on the license as the RSO act as the RSO.
- 2) License Condition 13.A for the licensee's failure to test the sealed sources in three Troxler Model 3430 portable moisture density gauges at intervals not to exceed 12 months, the interval specified in the certificate of registration.
- 3) 10 CFR 71.5(a) and 49 CFR 172.704(c)(2) for the licensee's failure to ensure all hazmat employees received hazmat refresher training at least once every three years.