



May 17, 2019

Mr. James Thompson, Chief, Nuclear Materials Licensing and Inspection Branch
United States Nuclear Regulatory Commission, Region IV
1600 East Lamar Boulevard
Arlington, TX 76011

VIA E-MAIL

Re: EA-18-106

Dear Mr. Thompson:

The purpose of this letter is to respond to the NRC's notice from December 20, 2018 ("Notice"). In response to the Notice, Terracon and the NRC participated in an ADR session at the Region IV offices on April 17, 2019. The parties had a very productive exchange of information during the session. We very much appreciate the willingness of the NRC to meet with us and discuss these issues with us to move toward our shared goal of greater safety when using density gauges. From our standpoint, it was extremely beneficial for us to hear the NRC's perspective and we appreciate having the opportunity to share more about Terracon's already-robust safety program.

At the end of the mediation, Terracon decided to move forward with the process outlined by the NRC in the Notice and to respond to the Notice with additional information about corrective actions Terracon has taken already or is exploring. This letter is that response.

1. Prior Corrective Actions

a. Corrective Actions Relating to the Individual Employee (Training)

As noted in the September 24, 2018 response letter from Adam Maier ("Response"), Terracon undertook a number of corrective actions in response to the incident.¹ This list was focused primarily—though not exclusively—on corrective actions taken with regard to the individual at issue. As noted in the Response, he was suspended without pay and underwent retraining for gauge safety. After retraining, he was forbidden from operating a gauge without observation by another trained user for the following 30 days.

b. Corrective Actions Relating to the Company (Communication)

The list of corrective actions detailed in our Response also included an emailed "Safety Share" issued by Jim Wright in August 2018. This written update—provided to all Terracon employees—described the incident and similar incidents by other companies where gauge

¹ The Response in its entirety is hereby incorporated by reference into this letter.



safety/control was compromised. The purpose of this company-wide communication was to use the incident and others to reiterate to our employees the importance of having control of their gauges.

The Safety Share also explained how following Terracon's Incident and Injury Free Core Safety Rules 9 and 12 would have prevented this occurrence. Unfortunately, our employee failed to comply with both rules. Rule 9 requires employees to properly secure their loads. Rule 12 requires the placement of a cone in front of a truck, which precipitates a walkaround of the vehicle before operating it.² As is clear, had our employee properly stowed their gauge, this incident would not have occurred. Likewise, a walkaround the vehicle before departing would have made clear to our employee that the gauge was not properly secured.

In addition to the Safety Share which highlighted our core rules and the specific failures that led to this incident, our Response to the NRC provided information regarding our standing RSO update call. This call is held every 45 days with all RSOs company-wide. In August 2018, the standing RSO call focused on this event and on the need to maintain constant control of gauges.

2. Preestablished Preventative Measures

As noted in the ADR session, Terracon's original Response did not include significant detail regarding our already-robust safety and training program. This omission was by no means intentional as we are very proud of our culture of striving to be Incident and Injury Free (IIF). Instead, our Response was focused—perhaps overly-focused—on the new actions taken specifically in response to this particular incident. In so doing, it did inadvertently overlook the strong efforts we make every day to perform our work safely and avoid these types of occurrences. During the ADR session, we provided additional information below regarding our IIF program, our Safety Check-In program, and specific training for gauge users. That information is summarized below.

a. IIF Rules to Live By

Every Terracon employee receives extensive training regarding our IIF Safety Program. This is true of both a brand new materials technician and a new accountant in our Corporate Headquarters. At the core of IIF are Our Rules to Live By. We have 13 Core Safety Rules and an additional 9 Core Safety Practices. To demonstrate how seriously we take these Rules and Practices, even in our Corporate office, it is worth noting Core Safety Practice Number 9 which states:

While conducting company business or on company property, park company or personal vehicle to prevent the need for backing to exit the space or work area.

Below is a picture taken on May 3, 2019 of the Corporate parking lot. You will note that every single vehicle is parked in accordance with Core Safety Practice Number 9.

² A copy of Terracon's IIF Core Safety Rules has been attached as Exhibit A.



Living IIF is more than a slogan and it is more than onboarding training. It is a core component of Terracon's culture and it is reinforced on a daily basis. At the ADR session, Jim Wright asked at the beginning of the meeting if he could share an "IIF Moment" with the group. This is part of our culture and it is for many people a force of habit. Before any meeting of three or more Terracon employees begins, we are encouraged to have an IIF Moment to talk about one relevant or recent safety issue. Again, this is true of people in the Corporate office as well as our extensive staff that operates regularly in the field.

b. Safety Check-In and Spot Bonus Program (Field Audit)

As discussed in the ADR session, Terracon has an extensive, technology-based field audit safety system in place. This system—called Safety Check-In—is used extensively throughout Terracon. Managers and supervisors are encouraged to visit employees in the field and to utilize our proprietary phone app to answer a series of questions regarding an employee's adherence to our IIF rules and practices.

Last year, we recorded approximately 6,500 safety check-ins across our four service lines. That means there were approximately 6,500 conversations between employees and supervisors that focused on the issue of project safety. In some circumstances, those conversations resulted in an IIF Spot Bonus where the supervisor can reward good performance with a gift card. In some circumstances, the conversations resulted in coaching the employee to improve their practices. In *all* circumstances, the information entered into the app was captured and used at the local and national level to track our safety performance.

This system creates accountability both for the employees in the field and their supervisors. The information obtained from these check-ins allows us to continue to monitor and tweak our performance to consistently perform our services safely in the field.

c. Gauge User Training



While our initial Response focused on the retraining our employee in response to the incident in question, we did not focus on our broader training efforts that we regularly undertake to avoid such occurrences. Again, this oversight was inadvertent.

All new gauge users undergo an initial training program that is offered through the American Technical Institute (ATI). This program is bolstered by hands-on training that is administered by the employee's department manager or office manager. Additionally, each user undergoes refresher training offered by ATI which includes training on proper storage and transportation of gauges, as well as the requirement that the operator maintain control over the gauge (as detailed in 10 CFR §§ 20.1801, 20.1802, and 30.34(i)).

3. Post-Response and Post-ADR Corrective Actions

a. Expanded RSO Calls

Since the time of our original Response, we have expanded the list of invited participants for our standing RSO calls. The list of invitees has been expanded to include Office Managers, Regional Managers (approximately 23 individuals who each oversee operations of multiple offices in a single region), and Division Managers (ten individuals who oversee operations in multiple states). We have expanded the audience for these calls in an effort to raise the issue of gauge safety and proper usage within a broader subset of company leadership.

b. Additional Communication from Senior Leadership

Following on our discussion last month, we have issued an additional communication from senior leadership to our gauge users, RSOs, Office Managers, Regional Managers, Division Managers, and Operating Group Managers (three individuals who each oversee operations in 1/3 of the country). The email was sent by Jim Wright, Terracon's Director of Safety.

In the email, Mr. Wright provided further background information regarding this incident and the role of the NRC in terms of enforcement. It stressed the need to continue to maintain control of gauges and warned of the potential consequences of a similar future incident. Our desire was to demonstrate to our employees and management the serious nature of these incidents and our sincere desire to avoid reoccurrences.³

4. Potential Prospective Actions

Also following on our discussion last month, we are exploring various additional means to bolster our gauge safety program. These include:

- a. Continued outreach and consultation with safety directors of similar companies, as described in-person last month by Jim Wright. The goal is to share best practices with other large-scale gauge users and learn from their experiences;

³ A copy of the communication is attached as Exhibit B.

- b. Outreach to and consultation with at least one gauge manufacturer, as described in-person last month by Jim Wright. Similar to the discussions with similar companies, our goal here is to learn from the manufacturer in terms of recommended best practices;
- c. Development of enhanced, technology-driven training regarding gauge safety, as described in-person last month by Jim Wright. The envisioned training program would supplement our current training and be tailored to Terracon's specific needs; and
- d. Potentially retaining an outside consultant to evaluate our current gauge safety program and provide recommendations for improvement.

5. Conclusion

As I hope we have made clear throughout this process, Terracon takes full responsibility for the actions of its employee. While we believe the employee was trained properly to avoid this type of incident—and indeed, he had to violate two of our Core Safety Rules in the process—it nevertheless happened while he was in our employ. As such, we recognize this is our issue to resolve and we intend to continue to work to strengthen our safety system in an effort to prevent similar occurrences.⁴

We appreciate the time and effort the NRC has expended in this matter and look forward to a continued, productive collaboration in the future.

Sincerely,

TERRACON CONSULTANTS, INC.



Aaron J. Mann
Senior Attorney



Jim Wright
Director of Safety

⁴ Enclosed is a check in the amount of the civil penalty assessed.

Core Safety Rules

RULES

Personal Protective Equipment (PPE)

R1. Wear and maintain Terracon-approved PPE at project sites and in laboratories as required by project, task, and/or work environment, except when in a PPE-Free Zone. Your Core PPE Kit includes:

- Safety glasses with lateral protection
- Approved safety footwear
- Gloves when engaged in physical activity in accordance with the Hand Protection Chart
- Hard hat on construction sites, around drill rigs, and when overhead or projectile hazards are present
- High-visibility apparel on project sites (note: Minimum Class II)
- Hearing protection in high-noise areas

Exception: PPE-Free Zones

R2. Inspect approved PPE for defects before and during use. If defective, repair or discard and replace with defect-free PPE.

Equipment and Tools

R3. Inspect Terracon-approved tools, equipment, and safety devices for defects before and during use. If defective, repair, or tag with "do not use" and report to supervisor to remove from service.

R4. Use tools, equipment, and safety devices according to manufacturer's instructions only. Never modify or override safety devices.

R5. Never enter the swing radius of equipment until the operator has acknowledged you and brought movement to a full stop.

Working at Heights and Depths

R6. Work at heights:

- Only if trained in Terracon Fall Protection and Scaffold Safety requirements, and
- Always use fall protection when working on lifts or scaffolding at a height of 6 feet or more.

R7. Use Terracon-approved ladders and stepladders:

- Only if trained in Terracon Ladder Safety requirements, and
- After confirming which type has been approved for use according to project-specific requirements.

R8. Enter an excavation only if trained in Terracon Excavation Safety requirements.

Motorized Vehicles

R9. Secure loads, equipment, and tools with Terracon-approved methods.

R10. Wear seat belt while operating or riding in any motorized vehicle. Driver must ensure passengers fasten seatbelts before driver operates motorized vehicle.

R11. Do not use cell phone while driving on company business. Use of navigation feature is permitted so long as location information is entered while vehicle is safely stopped and not adjusted by the driver while driving.

R12. On project sites, use Terracon-approved cone when parked.

Reporting an injury

R13. Call WorkCare immediately in the event of an injury or as soon as injury becomes apparent; report an injury to your supervisor as soon as possible after contacting WorkCare.

Terracon

Exhibit A

Ref #: 006-2019

Event Date: June 2018

Type: Incident

Density Gauge Incident – Control and Proper Transport of Gauges



In June 2018, a Terracon technician left a density gauge along with the storage box on the tailgate of their truck while doing paperwork in the truck's cab. The gauge was not properly secured in its storage box. After completing their paperwork, and presumably without doing a walkaround of their truck, the technician drove off the site without properly stowing the gauge. After a few miles, the storage box (not the gauge itself) fell off the back of the truck. Our driver recovered the box but was missing the block and associated paperwork. This incident was reported to the Nuclear Regulatory Commission, which regulates the usage of density gauges.

The NRC investigated this event and determined that the technician had not maintained constant control of the gauge and had failed to properly store and transport the gauge. While the gauge was not damaged and there was not a release of the source material, the technician's actions nevertheless were deemed to four separate rules violations by the NRC. Based on the fact that Terracon had another incident in the prior two years where a technician had left a gauge unattended, the NRC assessed Terracon a civil penalty of \$29,000.

In April of this year, Terracon representatives traveled to meet with the NRC. The purpose of this day-long meeting was to discuss this most recent incident in greater detail and to identify areas where we can improve our gauge safety practices. We are looking to implement some of the ideas from that meeting in the future.

Needless to say, Terracon takes these types of events very seriously. Aside from the financial impact, it is important to remember that these gauges are very strictly regulated due to the nuclear material they contain. There are very stringent rules regarding their use, storage, and transportation and those rules must be followed at all times. Specifically, these gauges are never to be left unattended and they are to be transported only while properly secured in their case.

Action Items

- ✓ Control of Gauge – density gauges must be in the operator's control (within arm's reach) **at all times!** Even getting into your truck for a few minutes to cool off or take a call – the gauge must be **secured and locked** in the transport case.
- ✓ Paperwork must be periodically inspected. It must be accurate and legible. Your RSO is notified by Terracon Safety when paperwork requirements change. The most current paperwork is found [HERE](#) and is posted to the Safety Library mobile app. *Please note neither the DOT nor NRC accepts electronic copies of required paperwork.*
- ✓ Gauges are never to be stored at home. If it is necessary to store them overnight at a hotel the transport case must be left in the vehicle cab, chained to the steering wheel, covered with a blanket, and a "Club" type anti-theft device installed.
- ✓ Following R9 and R12 would have prevented the first incident. It's easy to get distracted at the end of a long day however we must stay focused to prevent incidents.

Hazards Present ?



Exhibit B