

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 030-32176
License: 15-27070-01

Report: 030-32176/96-02

Licensee: The Terracon Companies, Inc.

Facility: Boise, Idaho field office

Location: Boise, Idaho

Dates: September 17-20 and October 10, 1996

Inspector: R. A. Brown, Sr. Radiation Specialist

Approved: L. L. Howell, Chief Nuclear Materials Inspection and
Fuel Cycle/Decommissioning Branch
Division of Nuclear Materials Safety

Attachment: Partial List of Persons Contacted; inspection Procedures
Used; Items Opened, Closed and Discussed

EXECUTIVE SUMMARY

The Terracon Companies, Inc.
Lenexa, Kansas
NRC Inspection Report 030-32176/96-02

This reactive inspection was conducted in response to the licensee's notification of an incident involving damage to a portable moisture/density gauge at a temporary jobsite in Boise, Idaho.

Use of Portable Moisture/Density Gauge at a Temporary Jobsite

The inspection included a review of circumstances relating to an incident on August 29, 1996, involving damage to a portable moisture density gauge. Based on interviews with license personnel, it appeared that the gauge user walked some distance from the gauge to his vehicle. Although the gauge user observed a construction vehicle approaching the gauge and attempted to retrieve it, the user was unable to do so and a truck struck the gauge and damaged it. The failure to maintain surveillance of licensed material left in an unrestricted area was identified as an apparent violation of 10 CFR 20.1801 and 20.1802.

Corrective Actions

Corrective actions taken after the event consisted of providing additional training to the Boise, Idaho, staff to emphasize the importance of maintaining security of gauges at temporary jobsites. In addition, the licensee indicated that training will be conducted at other field offices in the near future. An inspection in August 1995 also identified a failure to maintain security or surveillance of a gauge. Terracon implemented corrective actions in response to the 1995 inspection findings, which consisted of providing further instruction to gauge users regarding the need to secure portable gauges at temporary jobsites when a gauge was not in use. Because the circumstances associated with the 1995 inspection findings differ from those associated with the 1996 incident, it was not clear that corrective actions taken for the previous incident would or should have prevented the August 1996 event.

Report Details

1 Program Overview (87100, 87103)

1.1 Inspection Scope

The inspector reviewed the license application, supporting documents, and other records maintained by the licensee. Collectively, these documents describe the licensee's radiation safety program. Interviews with the licensee's district radiation safety officer and other personnel concerning the August 29, 1996, incident were also conducted.

1.2 Observations and Findings

The Terracon Companies, Inc., (Terracon) is authorized under NRC License 15-27070-01 to possess and use portable moisture/density gauges containing byproduct material at temporary jobsites anywhere that the NRC maintains jurisdiction and at specified field offices in non-Agreement States. Terracon's corporate office is located in Lenexa, Kansas, and the licensee is authorized to store, use, and possess byproduct material at field offices in Billings, Montana; Cheyenne, Wyoming; Boise, Idaho; Oklahoma City, Oklahoma; and Tulsa, Oklahoma.

The Boise, Idaho, office is managed by a regional manager who has five employees trained and authorized to use moisture/density gauges. The licensee had maintained three portable moisture/density gauges at the Boise field office. A review of records indicated that all gauge users had been trained in accordance with procedures described in the license application, which consisted of attendance at a course provided by an outside consultant.

2 Use of Portable Moisture/Density Gauges at Temporary Jobsites (87100, 83822)

2.1 Inspection Scope

The inspector's review included the preliminary information reported telephonically to NRC on August 29, 1996, discussions with licensee personnel and review of pertinent records, including the licensee's written report dated October 3, 1996.

2.2 Observations and Findings

Based on interviews with the district radiation safety officer and the gauge user involved in the incident, the inspector determined that on August 29, 1996, a Troxler Model 3430 portable moisture/density gauge (Serial No. 24858, containing 8.0 millicuries of cesium-137 and 40.0 millicuries of americium-241) was used to perform measurements at a construction site in Boise, Idaho. Licensee representatives described the job site area as congested and noisy, with heavy vehicular traffic.

The gauge user stated that after he completed a measurement, he retracted the source to the locked, shielded position. The user then turned and walked to his company truck, which was 15 to 20 feet away, to record information on a data sheet. Licensee personnel noted that there was only one Terracon employee at this construction site. As he turned from the truck toward where he left the gauge, the gauge user observed a large water truck backing up towards the gauge. With the gauge in sight, the user whistled to the truck driver and ran to grab the gauge but could not reach it in time. The truck ran over the side of the gauge breaking the handle and part of the case, causing internal damage to the gauge. The gauge user described the water truck's contact with the gauge as "side-swiping;" therefore, felt confident the sources were not damaged.

The inspector discussed surveillance of gauges at temporary jobsites with the gauge user who appeared to be generally aware of the need to maintain surveillance of gauges. The user stated that he had specifically parked his truck as close to the actual work area as possible so that he would not have to move too far from the gauge.

Following emergency procedures as described in the license application, the gauge user instructed construction workers to move out of the area. He inspected the gauge and determined that the part of the gauge containing the sources appeared intact and that the sources were in their shielded and locked position. The gauge was placed in its shipping case and returned to the licensee's office in Boise, Idaho. Upon return to the office, the user promptly notified the district radiation safety officer, the corporate radiation safety officer in Lenexa, Kansas, and the NRC Operations Center. The district radiation safety officer performed a survey of the gauge which indicated normal radiation levels.

On August 30, 1996, a leak test was performed and analyzed the same day. No removable contamination was detected. On September 5, 1996, the gauge was returned to the manufacturer for a damage assessment. The manufacturer stated

that the gauge could not be repaired. The primary damage was to internal electronic components; the sources were not damaged.

10 CFR 20.1801 requires that a licensee secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas. 10 CFR 20.1802 requires the licensee to maintain control and constant surveillance of licensed material that is in a controlled or unrestricted area and not in storage. The gauge user's failure to maintain control and constant surveillance of licensed material was identified as an apparent violation of 10 CFR 20.1801 and 20.1802 (030-32176/9602-01).

2.3 Conclusions

Based on the findings of the inspection, an apparent violation was identified involving a failure to maintain control and constant surveillance of licensed material located in an unrestricted area as required by 10 CFR 20.1801 and 20.1802. A gauge user's failure to maintain constant surveillance of a portable moisture/density gauge at a temporary jobsite contributed to an incident in which the gauge was damaged.

3 **CORRECTIVE ACTIONS AND FOLLOWUP ON PREVIOUS INSPECTION FINDINGS (87100, 92702)**

3.1 Inspection Scope

The inspector discussed training provided to gauge users and possible corrective actions with the district radiation safety officer during the inspection. Corrective actions proposed on a corporate basis were discussed the corporate radiation safety officer during a telephone conversation on October 10, 1996.

3.2 Observations and Findings

The inspector interviewed the district radiation safety officer concerning previous training provided to gauge users. The district radiation safety officer stated that all gauge users had been trained by a private firm as required by Condition 11 of Terracon's NRC license. This training included instructions in operation of the gauges and emergency procedures. Training certificates documenting the training had been maintained by the district radiation safety officer. The gauge user stated to the inspector that he had been instructed to maintain surveillance of the gauge at temporary jobsites, but the level of surveillance was not specified.

The inspector noted that an inspection conducted on August 14-15, 1995, identified a violation of 10 CFR 20.1801 and 1802. A Notice of Violation was issued citing a failure to secure from unauthorized removal or access licensed material stored in an unrestricted area and failure to control and maintain visual surveillance of a portable moisture/density gauge that was located in an unrestricted area (030-32176/9501-01). The circumstances associated with the previous violation were noted to differ from those related to the incident on August 29, 1996. Specifically, the 1995 inspection determined that the licensee failed to secure from unauthorized removal or limit access to a portable moisture density gauge that was located in the open bed of a pickup truck parked in a residential parking lot. The inspection also determined that the licensee failed to maintain constant surveillance of the gauge while the gauge was left unattended in the vehicle.

The licensee described its corrective actions for this violation in letters to NRC dated September 11 and 26, 1995. The corrective actions consisted of issuing a memorandum to all gauge users reiterating the importance of locking up gauges when not in use. The licensee's corrective actions for the 1995 violation were focused on ensuring that gauge users were aware of the need to place gauges in appropriate, locked shipping containers and to secure them within or to the vehicle when not in use. Although corrective actions were taken in response to the violation identified in 1995, this violation is not being closed because of the present inspection findings. Because the circumstances associated with the August 1996 incident differed from those identified in 1995, it was not clear that actions taken by the licensee in response to the 1995 violation would or should have prevented the 1996 incident.

During a telephonic exit briefing on October 10, and in a written report dated October 3, 1996, the corporate radiation safety officer stated that in-service training had been provided to the employees of the Boise, Idaho, office subsequent to the August 1996 incident to emphasize the importance of maintaining adequate security at job sites. The corporate radiation safety officer noted that training will also be conducted at other Terracon field offices in the near future.

3.3 Conclusions

Training provided to gauge users was conducted in accordance with the license application and supporting documents. Although the licensee had recently issued a memorandum to gauge users emphasizing the importance of securing gauges when not in use at temporary jobsites in response to a violation identified in 1995, it was not clear that the licensee had provided specific detailed instruction as to what level

of surveillance or monitoring of portable gauges was expected at a temporary jobsite. The long term effectiveness of the in-service training provided in response to this event will be evaluated during future inspections.

4 Exit Meeting Summary

The inspection findings, as noted in the report, were discussed with the licensee during a telephonic exit briefing conducted on October 10, 1996. Licensee representatives acknowledged the findings as presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Jerry Peterson, Regional Manager
Michael Merhar, District Radiation Safety Officer
Brad Buehler, Technician
*Gary Bradley, Corporate Radiation Safety Officer

*Indicates those personnel contacted by telephone only.

INSPECTION PROCEDURES USED

IP 87100: Licensed Materials Program
IP 87103: Inspection of Incidents at Nuclear Materials Facilities
IP 83822: Radiation Protection
IP 92702: Followup on Corrective Actions for Violations and Deviations

ITEMS OPENED AND DISCUSSED

Opened

030-32176/9602-01	APV	Failure to maintain control and constant surveillance of licensed material was identified as an apparent violation of 10 CFR 20.1801 and 1802.
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Discussed

030-32176/9501-01	VIO	Corrective actions for a violation identified in 1995 involving a failure to secure from unauthorized removal or access or to provide constant surveillance of a portable gauge were discussed. The violation could not be closed during this inspection.
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