



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

June 1, 2005

Docket No. 03036556
EA No. 05-092

License No. 37-28297-02

Joseph Hughes
President/RSO
David Blackmore & Associates
3335 West Ridge Pike
Pottstown, PA 19464

SUBJECT: INSPECTION 03036556/2005002, DAVID BLACKMORE & ASSOCIATES,
TEMPORARY JOB SITE IN UPPER PROVIDENCE TOWNSHIP,
PENNSYLVANIA

Dear Mr. Hughes:

On April 5 and 11, 2005, Sattar Lodhi of this office conducted a safety inspection at your temporary job site located on Egypt Road, in Upper Providence Township, Pennsylvania, of activities authorized by the above listed NRC license. The inspection was limited to review the circumstances associated with the damage to a CPN Model MC-3 portable nuclear gauge, that occurred on April 5, 2005. The findings of the inspection were discussed with you at the conclusion of the inspection. The enclosed report presents the results of this inspection.

Based on the results of this inspection, one apparent violation was identified and is being considered for escalated enforcement in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at www.nrc.gov; select **What We Do, Enforcement**, then **Enforcement Policy**. Accordingly, no Notice of Violation is presently being issued for this inspection finding. This apparent violation is of particular concern because a similar violation was identified in a previous inspection of your licensed activities and documented in a Notice of Violation enclosed with our letter dated May 17, 2000. From this inspection, it appears that your corrective actions were not effective since this item has recurred. In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review.

A predecisional enforcement conference, open to the public, to discuss the apparent violation, has been scheduled for June 16, 2005, at 1:00 p.m., at the Region I office in King of Prussia, Pennsylvania. The NRC announces enforcement conferences to the public by issuing a press release. The decision to hold a predecisional enforcement conference does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference is being held to obtain information to enable the NRC to make an enforcement decision, such as a common understanding of the facts, root causes, missed opportunities to identify the apparent violation sooner, corrective actions, significance of the issues, and the need for lasting and effective corrective action. In particular, we expect you to address the item identified as a recurrent violation. You should be prepared to discuss those actions taken or planned to ensure that the identified item of noncompliance will be completely corrected and will

not recur. In addition, this is an opportunity for you to point out any errors in our inspection report and for you to provide any information concerning your perspectives on 1) the severity of the violation, 2) the application of the factors that the NRC considers when it determines the amount of a civil penalty that may be assessed in accordance with Section VI.C.2 of the Enforcement Policy, and 3) any other application of the Enforcement Policy to this case, including the exercise of discretion in accordance with Section VII. 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 the enclosed NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLEMENTATION OF CORRECTIVE ACTION," may be helpful.

You will be advised by separate correspondence of the results of our deliberations on this matter. No response regarding this apparent violation is required at this time.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter (and its enclosure(s)) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/ada.s.html> (The Public Electronic Reading Room).

Sincerely,

Original signed by George Pangburn

George Pangburn, Director
Division of Nuclear Materials Safety

Enclosure:

1. Inspection Report No. 03036556/2005002
2. NRC Information Notice 96-28

cc:

Commonwealth of Pennsylvania

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EXECUTIVE SUMMARY

David Blackmore & Associates
NRC Inspection Report No. 03036556/2005002

The licensee is an engineering consulting company and provides geotechnical and environmental services at construction sites. The licensee uses portable nuclear gauges to provide these services at temporary job sites. The licensee uses licensed material authorized by NRC license no. 37-28297-02 issued on April 21, 2004. Until March 31, 2004, the licensee had used the licensed material under NRC license 37-28297-01. The gauges contain 50 millicuries of americium-241 and 10 millicuries of cesium-137. The licensee possesses 16 gauges that are used by approximately 15 authorized users.

On April 5, 2005, the licensee was using one of the gauges (a CPN International Model MC-3) at a construction site to measure the density and moisture content of the soil. At approximately 11 a.m., the gauge was crushed by a bulldozer when the gauge user left it unattended. The licensee immediately notified the NRC of the incident. Region I sent an inspector to the site to review the circumstances of the incident and the licensee's actions to secure the licensed material, and to control exposure of members of the public to radiation. The licensee's actions were prompt and in accordance with its approved emergency procedures. The licensee effectively controlled the area where the incident had occurred and immediately implemented procedures to minimize radiation dose to members of the public.

The inspection was limited to review of the incident and identified one violation of NRC requirements, namely, the licensee failed to control and maintain constant surveillance of licensed material in an unrestricted area.

REPORT DETAILS

I. Organization and Scope of the Program

a. Inspection Scope

The inspection was limited to a review of the scope of licensed activities.

b. Observations and Findings

David Blackmore & Associates (the licensee) is an engineering consulting company. The President of the company is also the Radiation Safety Officer (RSO). The licensee holds NRC license no. 37-28297-02 that was issued on April 21, 2004. The license authorizes possession and use of sealed sources of 10 millicuries of cesium-137 and 50 millicuries of americium-241 contained in portable nuclear density gauges. Until March 31, 2004, the licensee used these materials under NRC license 37-28297-01. The gauges are authorized for use at temporary job sites anywhere within the NRC jurisdiction. The licensee uses the gauges to measure degree of compaction, and soil and moisture density at construction sites. The licensee possesses 16 gauges that are used by approximately 15 authorized users.

c. Conclusions

The inspection did not identify any violations.

II. The Event

a. Inspection Scope

The inspection was limited to a review of the incident in which a nuclear gauge was damaged by a bulldozer, and to review the licensee's actions subsequent to the incident.

b. Observations and Findings

At approximately 11:30 a.m., on April 5, 2005, the licensee's RSO called the Region I office to report that a portable nuclear gauge had been damaged by heavy equipment at a temporary job site in Upper Providence Township, Pennsylvania. The RSO stated that the gauge user at the site had cordoned off the area surrounding the damaged gauge and had implemented emergency procedures. The RSO also stated that radiological surveys did not indicate radioactive contamination in the area or on the tracks of the bulldozer.

Upon arrival at the site the inspector noted that the licensee had enclosed the area surrounding the damaged gauge with yellow caution tape. The upper part of the gauge was crushed by a bulldozer and the source rod was snapped off from the gauge. The inspector verified that the rod was in locked position. The lower part of the gauge was embedded into the soil. The transport container was near the gauge and the licensee

had placed a few parts of the gauge in a nearby bucket, including the gauge's electronic circuit board. The bulldozer was also parked approximately 15 feet from the damaged gauge. The inspector used NRC survey meter, a Ludlum Model 14C (serial number 44052), to confirm that the radiation exposure rates did not exceed 2 milliroentgen/hour (mR/hr) outside the perimeter of the cordoned off area.

The licensee removed the embedded part of the gauge and it did not appear that the incident had damaged the part of the gauge that contained the sources. The sources in the gauge appeared to have remained intact. The plug at the bottom of the gauge had also remained in place. The licensee had used a Troxler geiger counter to survey the area and the bulldozer tracks and did not identify any radioactive contamination either in the soil or on the tracks of bulldozer. The inspector used the Ludlum 14C survey meter to confirm that the sources were still in the body of the gauge that was embedded in the soil. The inspector observed the licensee remove the damaged gauge and placed it in its transport container. The inspector surveyed the bottom of the gauge and noted that the maximum dose rate on contact was approximately 50 mR/hr.

The inspector verified that the gauge was a CPN International Model CPN-MC3 with a serial number M300405564. The gauge was also marked #4 on the case. The licensee explained that it was their inventory number. Following the removal of the damaged gauge, the inspector surveyed the area where the gauge was embedded and the tracks of the bulldozer, and did not notice any evidence of radioactive contamination.

The gauge user stated that he had placed the gauge and his other equipment on the ground and had gone to another area at the site to check the cause of water seepage there. He also stated that the gauge was not in his direct line of sight while he was evaluating the water seepage. A bulldozer was removing excess soil from the area where the gauge was left on the ground. While he was evaluating the water seepage, the bulldozer moved back to remove more soil and its right track ran over the gauge. The bulldozer operator stated that there were two vehicles parked on his left side and while backing the bulldozer, his attention was focused only on the left side in order to avoid hitting those vehicles. He also stated that when he felt that he had run over a hard object, he stopped the bulldozer and informed the gauge user of the incident.

The gauge user promptly implemented the licensee's emergency procedures, cordoned off the area around the damaged gauge, notified other workers at the site of the incident, and called the RSO. The RSO then notified Region I of the incident and proceeded to the site to investigate the incident. The RSO surveyed the area around the gauge and the right track of the bulldozer, and did not find any evidence of radioactive contamination. The RSO stated that he plans to send the damaged gauge to CPN International for repair or replacement. The RSO stated that the gauge user was employed approximately eight months ago and had used gauges at several other job sites since completion of his user training, and has been using the gauge at this site for the last three weeks.

During a telephone conversation with the inspector on April 11, 2005, the RSO informed the inspector that the damaged gauge was returned to CPN International on April 5, 2005. He confirmed that he had notified NRC's Operations Center of the

incident (event number 41564). He also stated that on April 7, 2005, he held a training session with their gauge users, discussed the incident, and the importance of security of the gauges at temporary job sites was reemphasized. He stated that another similar session is scheduled for those gauge users who could not attend the first session.

c. Conclusions

The inspection identified one violation of NRC regulations. The inspector determined that contrary to the requirements in 10 CFR 20.1802, the licensee failed to maintain constant surveillance of licensed material that was in a controlled or unrestricted area and that was not in storage. As a result of lack of the required surveillance, a nuclear gauge containing 10 millicuries of cesium-137 and 50 millicuries of americium-241 was run over by a bulldozer at a temporary job site. The licensee's action following the incident were prompt and effective in securing the licensed material, and preventing exposure of members of the public to radiation. The licensee also provided additional training to its gauge users in the security of licensed material while at temporary job sites.

III. Training of Workers

a. Inspection Scope

The inspection was limited to a review of the licensee's training program and verification of the gauge user's training.

b. Observations and Findings

The licensee has committed to providing the training specified in NUREG 1556, Volume 1, Rev. 1, dated November 2001. Initial training is provided either by representatives of gauge manufacturers or other health physics entities. The RSO stated that in addition to the manufacturer's training, the gauge users are also provided additional training in the licensee's operating procedures. The gauge user at the temporary job site received his training on September 8, 2004, from Troxler Electronic Laboratories, and had a certificate of his training in his possession at the site. He had not used nuclear gauges prior to his current employment.

c. Conclusions

The inspection did not identify any violation.

IV. Transportation

a. Inspection Scope

The inspection was limited to a review of required documents pertaining to the transport of licensed material.

b. Observations and Findings

The inspector reviewed the documents that the gauge user carried to temporary job sites with the gauge. The documents included the shipping papers that contained the information required by the Department of Transportation's regulations. The licensee placed the gauge in its approved transport container and transported the container back to its storage location. The licensee shipped the gauge to the manufacturer by Federal Express the same day.

c. Conclusions

The inspection did not identify any violation.

V. Exit Meeting

The inspector discussed the findings with the licensee including the apparent violation related to the security of licensed material at the temporary job site.

LIST OF PERSONS CONTACTED

Licensee

Joseph Hughes, President/ RSO

Richard Kauffman, Laboratory Manager

Douglas Cummings, Gauge user

Joseph Brown, Bulldozer operator (not a licensee employee)