U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No.	03030301/2010001
Docket No.	03030301
License No.	52-19885-02
EA No.	EA-10-060
Licensee:	Victor E. Rivera Associates Geotechnical Engineers
Address:	P. O. Box 198, Station #6 Ponce, Puerto Rico 00732
Locations Inspected:	Reparto Industrial El Turque, Ponce, Puerto Rico
Inspection Dates:	March 4 and 10, 2010

Inspector: **__/RA by Marie Miller For/**_____ _4/9/2010_____
Sattar Lodhi, Ph.D. date
Senior Health Physicist
Materials Security and Industrial Branch
Division of Nuclear Materials Safety

Approved By: **___/RA/_____** _____4/9/2010___
Marie Miller, Chief date
Materials Security and Industrial Branch
Division of Nuclear Materials Safety

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EXECUTIVE SUMMARY

Victor E. Rivera Associates
NRC Inspection Report No. 03030301/2010001

Victor E. Rivera Associates is an engineering company. At the time of the inspection, it maintained an NRC License that authorized the use of the CPN Model MC Series portable moisture/density gauges. Each gauge contained cesium 137 and americium 241 sealed sources. The licensee was authorized to use these gauges at its temporary job sites anywhere within NRC jurisdiction. The inspector determined that the RSO was actively involved in the program and maintained all records in an organized manner. However, two apparent violations were identified.

The inspector reviewed NRC Event No. 43295 that the licensee reported on April 10, 2007, which involved a portable gauge damaged by a compaction roller at a temporary job site. The inspector identified an apparent violation of NRC requirements; specifically, a failure to maintain control and constant surveillance of a gauge that contained americium-241, which was in excess of 1000 times the quantity specified in 10 CFR Part 20 that was in an unrestricted area, and failure to use at least two physical controls that formed tangible barriers to secure the portable gauge from unauthorized removal when not maintaining constant surveillance. The inspector determined that the authorized user (AU) and the licensee implemented immediate corrective actions to prevent exposure of personnel to radioactive material and spread of contamination. The inspector verified that the licensee provided additional training to the AU and later provided additional training to its other AUs.

The inspector also observed that the licensee had possessed at its storage facility a Troxler Model 3430 portable gauge for another NRC licensee since October 13, 2009. Condition No. 9 of NRC License No. 52-19885-02 (Amendment No.4) did not authorize this portable gauge model. The licensee promptly had the gauge removed from its storage location and requested an amendment to its license to include the Troxler Model 3430 gauge. The inspector identified an apparent violation of the license, a failure to confine the use of licensed material to the devices authorized on the license. The inspector confirmed that the other licensee promptly removed the Troxler gauge to its temporary job site; and that Victor E. Rivera Associates submitted a license amendment request to authorize possession and use of Troxler gauges.

REPORT DETAILS

I. Organization and Scope of the Program

a. Inspection Scope

The inspector reviewed the licensee's organization and scope of licensed activities.

b. Observations and Findings

The licensee is an engineering company that also provided support to construction companies. One of the owners is the President of the company. The licensee maintained an NRC license that authorized possession of Campbell Pacific Nuclear Corporation (CPN) Model CPN MC Series portable gauges. Each gauge contained a 10 millicuries cesium 137 sealed source and a 50 millicuries americium 241 sealed source. The amount of americium 241 in each of these gauges was in excess of 1000 times the quantity specified in Appendix C to 10 CFR Part 20. On the day of the inspection the licensee possessed 24 such gauges, six of which were being used at the licensee's temporary job sites in Puerto Rico, and 18 were in storage. The licensee had designated a senior project engineer as the Radiation Safety Officer (RSO), who was charged with the responsibility of implementing its radiation safety procedures, including training of authorized users (AUs), ensuring compliance with regulatory requirements, and maintenance of the records required by the regulations. In addition to the RSO, the licensee had contracted with an outside consultant to assist the RSO in the implementation of its radiation safety program. The licensee had 33 authorized users.

c. Conclusions

The inspector did not identify any violations or safety concerns.

II. Management Oversight of the Program

a. Inspection Scope

The inspector reviewed the oversight of licensed activities provided by the licensee's management by interviews and by reviewing representative records.

b. Observations and Findings

The inspector determined that the senior management was aware of its responsibilities associated with its NRC license and licensed activities. The RSO was a senior project engineer, who was given the necessary authority to implement the licensee's radiation safety program, and who had direct access to the President. The President stated that the RSO kept him informed of licensed activities and he depended on the RSO to ensure

that all activities were conducted in compliance with regulatory requirements. The RSO was responsible to maintain all records required by the regulations, and was authorized to communicate with the NRC in matters related to the licensed activities. The RSO maintained very organized records of licensed activities. All authorized users reported to the RSO. The annual audits of the radiation protection program were independently completed by a consultant. The most recent audit was completed on October 31, 2009. The RSO reviewed the audit findings and corrected any deficiencies identified in the annual audit.

c. Conclusions

The inspector did not identify any violations or safety concerns.

III. Follow up of NMED Item No. 070214

a. Inspection Scope

The inspector reviewed circumstances surrounding the event described in the Nuclear Materials Electronic Database (NMED) Item No. 070214, which was reported by the licensee to NRC Operations Center on April 10, 2007. The inspector discussed the event with the licensee and reviewed the licensee's records related to the event.

b. Observations and Findings

During a review of the licensee's records in preparation for the onsite inspection, the inspector had identified an event that had occurred on April 10, 2007, at a temporary job site. The event involved a CPN Model MC-1 (Serial No. M15096422) that was being used at a construction site (La Alborada Residential Development) in Ponce, Puerto Rico. The AU had left the gauge unattended at the site and had gone to inspect an area that was approximately 58 feet from where he had left the gauge. While he was inspecting the area, a compaction roller moved in reverse and its tire ran over the gauge. The event occurred at approximately 8:15 a.m. The licensee reported the event to NRC Operations Center (Event Number 43295) on April 10, 2007, at 12:14 p.m. The notification stated:

> "Soil compaction equipment ran over a CPN moisture density gauge. The sources were fully contained. A portable radiac verified no abnormal radiation and wipe test swipes will be read later to verify the sources are not leaking. The gauge will be shipped back to CPN International for repair and/or disposition."

The licensee stated that the notification to the Operations Center was made for information purposes only because there was no damage to the sources, or leakage of radioactive material and the sources had remained in the shielded position, so safety had not been affected. The licensee acknowledged that the AU had left the gauge unattended for a short time when he went to inspect an area approximately 58 ft from the gauge. The job site was an unrestricted area and there were other non-licensee personnel (members of the public) working in the area. The licensee had taken pictures of the damaged gauge, which indicated that the source rod was broken by the impact

and the upper part of the rod had separated from the gauge. The gauge housing did not appear to have been damaged. The lower part of the rod that contained the cesium 137 source remained inside the housing of the gauge. The pictures also indicated that the licensee had taped the opening left by the broken rod using a duct tape to ensure that the part of the source rod containing the cesium 137 source remained inside the gauge housing. The amermicium-241 source remained intact within the gauge housing.

10 CFR 20.1802 requires, in part, that a licensee control and maintain constant surveillance of licensed material that is in an unrestricted area and that is not in storage; and, 10 CFR 30.34(i) requires that each 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.

Failure to maintain constant surveillance of licensed material that is in an unrestricted area and that is not in storage, and failure to use a minimum of two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal is an apparent violation of 10 CFR 20.1802 and 10 CFR 30.34(i).

The licensee's records indicated that the AU at the job site was a qualified individual who had received the required radiation safety and HAZMAT training. He had immediately alerted other personnel at the site of the event and cordoned off the area surrounding the gauge. He then notified his immediate supervisor at the site who then called the RSO. The RSO immediately proceeded to the job site and also notified the consultant. The RSO performed radiological surveys of the site and the compaction roller. The RSO remained at the site until the consultant arrived and they again performed surveys near the gauge and did not notice any abnormal radiation levels. The consultant also collected leak test samples from the body of the gauge including the source aperture and the top of the body where the source rod penetrated to lower the source during measurements. The RSO then stored the damaged gauge and the broken rod in the transport container and transported it to the licensee's facility for transfer to CPN International for disposal. The gauge was then transferred to CPN on August 20, 2007.

The licensee's corrective actions included counseling of the AU and providing additional refresher training to the AU the same day. The licensee's records also indicated that the licensee had discussed the event with all AUs and the training specifically included a reminder to maintain constant surveillance of the gauges at job sites.

c. Conclusions

The inspector identified one apparent violation of NRC requirements; specifically, the failure to maintain control and constant surveillance of licensed material that was in an unrestricted area and failure to use at least two physical controls that formed tangible barriers to secure portable gauge from unauthorized removal. The inspector determined that the AU and the licensee implemented immediate corrective actions to prevent exposure of personnel to radioactive material and spread of contamination. The licensee provided additional training to the AU and later discussed the event with all authorized users and provided additional training to the users.

IV. Material Receipt, Use, Transfer, and Control

a. Inspection Scope

The inspector reviewed the licensee's procedures for receipt and transfer of licensed material.

b. Observations and Findings

The RSO is responsible for ordering new gauges or transferring gauges for disposal. The licensee's inventory records indicated that the licensee possessed 24 CPN International Model MC Series portable gauges as authorized in Condition 9 of the license. On the day of inspection the licensee had 18 of these gauges stored at its facility and six were in use at temporary job sites. The licensee's procedure indicated that a gauge was assigned to one authorized user who remained responsible for the gauge until it was transferred to another user. The licensee stated that assigning the gauge to an AU was helpful in keeping records of use of the gauges. The licensee maintained logs of use of the gauges and the location of use of each gauge was immediately available if needed.

The inspector also noted that there was a Troxler Model 3430 portable gauge stored in the storage location. Condition 9 of the license authorized use of byproduct material in Campbell Pacific Nuclear (CPN) Corporation Model MC Series portable gauging devices. The condition did not authorize the material for use in Troxler Model 3430 portable gauges.

Failure to confine licensed material to Campbell Pacific Nuclear Corporation Model MC Series portable gauges is an apparent violation of Condition 9 of the license.

The inspector noted that Troxler Model 3430 contained the same licensed material in the same form and in approximately the same quantities as in a CPN model MC Series, and the operation of the gauge was also similar to that of an MC series gauge. The licensee stated that the gauge was being used by a subcontractor and was stored at their facility. The licensee's records indicated that the gauge was transferred to the RSO of the licensee by Professional Service Industries' (PSI) office in Miami, Florida. The records also indicated that PSI had a byproduct materials license from the State of Florida. The inspector discussed the transfer with the representative of PSI who was at the licensee's facility and he stated that the gauge was transferred in early October 2009, and had been used at a site in Ponce, Puerto Rico since October 13, 2009 and was stored at the licensee's facility when not in use. The inspector discussed the transfer of the gauge with a representative of PSI at the PSI office in Miami who acknowledged that the gauge was transferred to the licensee from their office for use in Puerto Rico. The inspector reminded the PSI representative that a State of Florida licensee can not authorize use in NRC jurisdiction without first filing for reciprocity with NRC. The representative was not familiar with the requirement and requested that the inspector call the PSI corporate RSO. The corporate RSO told the inspector that PSI also had NRC license for use of

portable gauges and that the gauge was not authorized for storage at the Victor Rivera Associates' facility.

Following these discussions with the inspector, PSI promptly removed the Troxler gauge to its temporary job site; and the Victor E Rivera Associates submitted a license amendment request to authorize possession and use of Troxler gauges.

c. Conclusions

The inspector identified one apparent violation, the failure to confine use of licensed material in the gauges authorized in License Condition No. 9 of the license. The licensee implemented prompt corrective actions to comply with License Condition No. 9, by removing the unauthorized gauge from its storage location until the request for an amendment to its license was approved.

V. Training of Workers

a. Inspection Scope

The inspector reviewed the licensee's training program for its gauge users.

b. Observations and Findings

The licensee had a comprehensive training program for its AUs. Each new user was required to complete the gauge training and then hands on training under the supervision of another AU. The new user was not authorized to use gauges without supervision until he/she had satisfactorily completed this training. New users were also provided training in the licensee's operating and emergency procedures prior to using a gauge without supervision. The consultant provided the initial and refresher training to users. The training included the HAZMAT training. The licensee's training records indicated that the users had received the HAZMAT refresher training as required by Department of Transportation regulations.

c. Conclusions

The inspector did not identify any violations or safety concerns.

VI. Transportation

a. Inspection Scope

The inspector reviewed the licensee's procedure for transport of gauges to job sites.

b. Observations and Findings

The AUs used licensee-owned vehicles to transport the gauges to the job sites. The gauges were appropriately blocked and braced in the transport vehicles during transport. Each AU user was provided the required documents that included a Bill of Lading, and the licensee's operating and emergency procedures. The Bill of Lading contained all of the required information. These documents stayed in the vehicle during transport and were kept in the front seat of the vehicle during transport.

c. Conclusions

The inspector did not identify any violations or safety concerns.

VII. Exit Meeting

The inspector discussed the preliminary findings with the licensee's President and RSO on March 4, 2010, at the conclusion of site visit. As mentioned in Section IV of this report, the licensee had stored a portable gauge that belongs to PSI. The PSI user did not have correct documents with him and the corporate RSO had promised to provide the inspector with corrected documents. The inspector received the documents after the site visit was concluded and after reviewing these documents the inspector discussed the inspection findings with the RSO on March 10, 2010.

The inspector described the apparent violations to the RSO and explained the NRC enforcement policy. The President stated that they were committed to conduct their activities in full compliance with regulatory requirements, and that the AU had used poor judgment that resulted in the damage to the gauge. The RSO described the corrective actions that had already been implemented to address the violations.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Victor E. Rivera, President
José Rivera Nazario, RSO
Authorized Users