SCI ENGINEERING, INC.
130 POINT WEST BOULEVARD
ST. CHARLES, MISSOURI 63301
636•949•8200 FAX 636•949•8269
www.sciengineering.com

March 7, 2008

Mr. John Madera
US NRC Region III
2443 Warrenville Road
Suite 210
Lisle, Illinois 60532-4352

RE: Incident Involving Nuclear Density Gauge
NRC Material License No. 24-20039-01
NRC Event No. 43978

Dear Mr. Madera:

Please be advised that we had an incident with a Humboldt Model 5001 Moisture Density Gauge (Serial No. 1564) on February 11, 2008. We are enclosing the following documents which describe the incident.

- Memorandum dated February 11, 2008 from Mr. Shawn Sternfels, SCI Engineering, Inc. field technician, operating the moisture density gauge.
- Memorandum dated March 7, 2008 from Mr. Keith Slagle, SCI Engineering, Inc. dispatcher, operating the moisture density gauge.
- Report from R.M. Wester and Associates, Inc. dated February 13, 2008.
- Event Notification Report No. 43978 from the NRC website.

Our manager, Mr. Keith Slagle arrived at the construction site and observed that the appropriate emergency procedures had been implemented. A review of the standard operating and emergency procedures by both Mr. Slagle and later by the undersigned, with the SCI Engineering, Inc. field representative Shawn Sternfels, revealed no discrepancies or violations. The equipment operator apparently did not see that the field technician was obtaining tests. The weather at the time of the incident was cold, overcast and it had begun to sleet. Our field representative started to pull the moisture density gauge out of the test area prior to being run over by the construction equipment but was unable to, due to the close proximity of the construction equipment. Apparently, any further delay by our personnel in evacuating the area would likely have resulted in physical harm to the field representative.

We believe the root cause of the incident is related to the inclement weather as the technician had clothing covering his ears as well as distraction due to the sleet beginning to fall.

If you have any concerning this matter please contact me at your earliest convenience.

Respectfully,

SCI ENGINEERING, INC.

William J. Guerdan, P.E.
Senior Vice President/ Radiation Safety Officer

Enclosures

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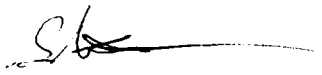
ST. CHARLES, MISSOURI
O'FALLON, ILLINOIS
ST. LOUIS, MISSOURI
UNION, MISSOURI
SPRINGFIELD, MISSOURI

February 11, 2008

At 2:30pm, I got out of my truck to take a compaction test. I made sure that all the equipment was not coming back. I watched as they were working 50 feet in front of me. I then proceeded to place my nuke next to me and I started driving my pin into the ground. I had just started to drive my pin in the ground when I happened to look up and noticed that the dozer was backing up and wasn't stopping. For my own safety I moved out of the way and didn't have time to grab the nuke. At approximately 2:40 pm, the handle of the nuke was caught by the dozer blade and ripped in half. I informed the operator that he needed to not move and shut his equipment down. I also made sure the area was secure and no one came around it. I called Keith Slagle (SCI dispatcher) and informed him. Keith said he would call R.M.Wester to have a radiation survey done. Keith was nearby and showed up about 10 minutes later.

Shawn Sternfels



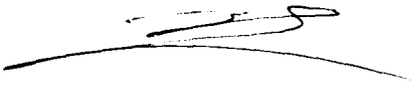
March 7, 2008

On the date of Monday 2/11/2008 at approx. 2:40p.m. I received a call from SCI Engineering Field Technician Mr. Shawn M. Sternfels informing me that his nuclear moisture dosimeter had been damaged by construction equipment. I informed Shawn that all equip in the area and anyone working near or around the area where the nuke was struck needed to be stopped immediately and needs to remain there until R.M. Wester can clear them via a survey meter. Shawn told me that he had immediately informed the equipment operator that he and his dozer needed to stop and remain where they were at until cleared to continue work by us or R.M. Wester. I happened to be in the area of the job Shawn was covering called 'Riverport #7' located in Maryland Heights Missouri. After discussing the procedures and checking to make sure that Shawn was ok over the phone I proceeded to the job site and attempted to contact SCI Engineering's Radiation Safety Officer Bill Guerdan via Nextel, mobile and lan phone, when I discovered that Mr. Guerdan was not available I contacted SCI Senior Engineer Mr. David P. Nolan and made him aware of the situation and to inform him that I was en route to the job site.

I arrived at the job site in Maryland Heights Missouri at approximately 2:50p.m. Mr. Sternfels and the SCI work truck were still in the vicinity "approx 30 ft." from where the nuke and field equipment was when the nuke was damaged. I spoke with Mr. Sternfels on site and had him give me a brief description of the events that happened. I helped to secure the area and also reviewed the operating and emergengy procedures with Shawn and found that everything had been followed. I called R.M. Wester to request an on site visit to perform a survey of the area. R.M. Wester showed up on site at approximately 3:00 p.m. The equipment was cleared and the employees of Kirkwood excavating were cleared to leave. R.M. Wester performed a survey of the immediate area where the nuke was struck and the surrounding area as well as Shawn and myself just to make sure. The two representatives from R.M. Wester shielded the nuke and some of the nuke tools that were right next to the nuke itself and loaded them up into their vehicle.We discussed the area that needed to be left undisturbed until R.M. Wester cleared the soil with Duke Construction and Kirkwood Excavating before our departure from the job site.

It is my understanding that Shawn was out of his truck with his nuke and nuke tools safely out of the way of any operating equipment and was driving the pin in preparation to take his nuke test. The equipment operator proceeded to back up further than he had been for most of the day when rolling the area being tested and Mr. Sternfels didn't realize it until the last minute giving him just enough time to get himself out of the way while yelling at the operator to stop but not enough time to grab the nuke too. The operator did not acknowledge Shawn's warning until the blade of the equipment had struck the nuke shearing the guide rod out of the nuke base.

Keith Slagle
Field Manager



R. M. WESTER *and ASSOCIATES, INC.*
215 INDACOM DRIVE - ST. PETERS, MISSOURI 63376
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RMWester.com

FEB 19 2008

February 13, 2008

Bill Guerdan
Radiation Safety Officer
SCI Engineering, Inc.
130 Point West Boulevard
St. Charles, MO 63301
(636)949-8200

Dear Mr. Guerdan,

At about 2:30 on the afternoon of February 11th, 2008 R. M. Wester and Associates, Inc. received a call from SCI Engineering, Inc. regarding the Humboldt 5001(SN: 1564) that had been damaged by a bulldozer. Health Physicists Kevin McCann and I, Kenneth Barnes, traveled to the construction site located at the Riverport 7 construction site, near the cross roads of Riverport Drive and Riverport Lane in Maryland Heights, Missouri.

We arrived about 3:00 in the afternoon to find the area guarded by Keith Slagle who was posted at a safe distance and making sure no one approached the broken device. We surveyed the site of the accident with two Ludlum Model 3 survey meters(SN: 74292, calibrated April 10, 2007, and SN: 158589, calibrated October 10, 2007, both calibration checked daily) the first was equipped with a 44-10 probe(2"x2" NaI scintillator, SN: PR075942) and the second was equipped with a 44-9 pancake probe(SN: PR163380). This survey showed only background radiation levels (1,200 cpm with the 44-10 and 15 microR/hr with the 44-9) as verified by taking readings some distance from the accident site in the construction area. Five composite soil samples were taken from the location where the device was damaged. The central sampling grid element was the location where the Humboldt 5001 has sitting when it was damaged and the other grid elements were the adjacent sides of where the device lay. All grid elements covered approximately one square meter each. An additional survey of the bulldozer blade that struck the device was made, but found only background levels of radiation.

The Humboldt moisture/density gauge was examined in detail. The manipulator rod and positioning rods were sheared off and there was some damage to the housing as shown in the picture on the next page. The shutter was stuck in the half open position. Due to the high radiation levels(up to 70 mR/hr on contact) the device had to be packaged with additional lead shielding before transporting back to our laboratory.

At our laboratory the soil samples were analyzed for contamination by Cesium-137 and Americium-241. No contamination was indicated. A leak test was performed on the Humboldt moisture/density gauge. After leak test indicated that there was no contamination of Cs-137 or Am-241 on the device the shutter was manual closed at our laboratory.

SCI has reported the incident to the NRC(incident number: 43978) and the device was shipped by us to Humboldt on February 13, 2008.

Please feel free to contact Mr. McCann or myself if you have any question or we can be of any further service.

Sincerely,

R. M. Wester and Associates, Inc.

Kenneth Barnes
Health Physicist

Enclosure:
Soil Analysis Report
Leak Test Report

R. M. Wester and Associates, Inc.

Humboldt 2100 Accident Site
Soil Analysis Report
Maryland Heights, MO
February 13, 2008

Samples:

Collection Date: February 11, 2008
Collector: Kenneth Barnes–Health Physicist
Location: Riverport 7 Construction Site, Maryland Heights, MO

Gamma Spectrum Analysis:

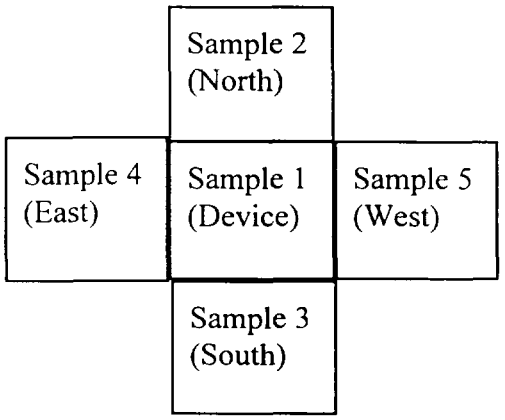
Instrument: Perkin Elmer 1480 Automatic Gamma Counter(SN: 4800614, Calibration checked daily)

Efficiencies:

Standard	Energy KeV	Photopeak cpm	Standard dpm	Photopeak Efficiency
Am-241	60	2268599	12511185	18.1%
Cs-137	662	1896916	9410533	20.2%

Samples:

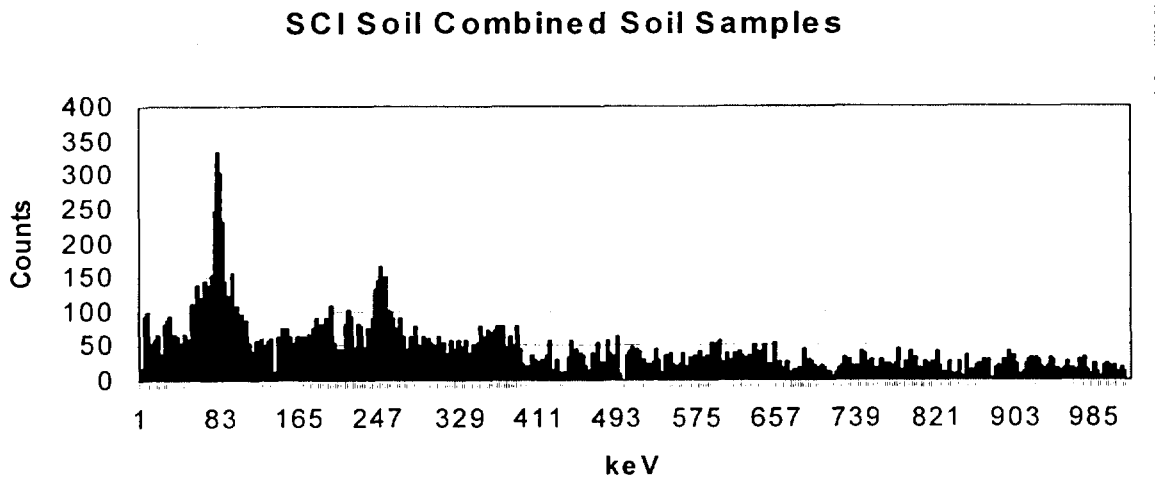
Soil samples were taken at the location of the damaged device and at the cardinal points as shown in the diagram below:



Sample	Mass (g)	Energy (keV)	Nuclide	Count Time (min)	cpm	Background cpm	Net Activity	Specific Activity (dpm/g)
1	14.7							
		60	Am-241	1	88.4	72.5	< 99 pCi*	< 6.7 pCi/g*
		662	Cs-137	1	50	64.1	<83 pCi*	< 5.6 pCi/g*
1	13.1							
		60	Am-241	1	87.1	72.5	< 99 pCi*	< 7.6 pCi/g*
		662	Cs-137	1	60	64.1	<83 pCi*	< 6.3 pCi/g*
1	15.9							
		60	Am-241	1	86.3	72.5	< 99 pCi*	< 6.2 pCi/g*
		662	Cs-137	1	81	64.1	<83 pCi*	< 5.2 pCi/g*
1	13.9							
		60	Am-241	1	84.3	72.5	< 99 pCi*	< 7.1 pCi/g*
		662	Cs-137	1	61	64.1	<83 pCi*	< 6.0 pCi/g*
1	16.8							
		60	Am-241	1	90.1	72.5	< 99 pCi*	< 5.9 pCi/g*
		662	Cs-137	1	64.5	64.1	<83 pCi*	< 4.9 pCi/g*

* Based on MDA values.

The spectra combined from all the soil samples after a 50 minute run time gives a typical NORM(Naturally Occurring Radioactive Material) spectra containing isotopes of the Thorium-232 and Uranium-238 decay chains.



Conclusion:

There is no indication of Americium-241 or Cesium-137 contamination in the soil.

Analysis Performed By:

R. M. Wester and Associates, Inc.

Kenneth Barnes
Health Physicist

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RMWester.com

FEB 19 2008

February 12, 2008

Bill Guerdan
Radiation Safety Officer
SCI Engineering, Inc.
130 Point West Boulevard
St. Charles, MO 63301

Dear Mr. Guerdan,

In the table below you will find the results of the Interior and exterior wipes of the damaged Humboldt Model 5001, SN: 1564 (containing a 10 mCi Cs-137 source, and a 40 mCi Am-241:Be source). The leak test wipes were taken on February 12th, 2008 and analyzed the same day. The analysis was performed using a Perkin Elmer Wizard 3" Gamma Counter(serial number 4800614, calibration checked daily).

Wipe Location	Am-241 (microCuries)	Cs-137 (microCuries)
interior of housing	$< 9.1*10^{-5}$	$< 6.2*10^{-5}$
exterior of housing	$< 9.1*10^{-5}$	$< 6.2*10^{-5}$

The device identified above have been tested for removable radioactive contamination as required by the United States Nuclear Regulatory Commission. The analysis of the wipes used in testing the sealed sources reveals that the device is acceptable for shipment according to DOT regulations.

Please feel free to call me if you have any questions or I can assist you with any other matters.

Thank you for choosing R. M. Wester and Associates for you radiological safety and environmental needs.

Sincerely,

R. M. Wester and Associates, Inc.

Kenneth Barnes, Health Physicist

Copy: Humboldt

Other Nuclear Material	Event Number: 43978
Rep Org: SCI ENGINEERING INC Licensee: SCI ENGINEERING INC Region: 3 City: SAINT CHARLES State: MO County: SAINT CHARLES License #: 24-20039-01 Agreement: N Docket: NRC Notified By: DAVID NOLAN HQ OPS Officer: KARL DIEDERICH	Notification Date: 02/11/2008 Notification Time: 16:41 [ET] Event Date: 02/11/2008 Event Time: 14:30 [CST] Last Update Date: 02/11/2008
Emergency Class: NON EMERGENCY 10 CFR Section: 30.50(b)(2) - SAFETY EQUIPMENT FAILURE	Person (Organization): ERIC DUNCAN (R3) ANDREW PERSINKO (FSME)

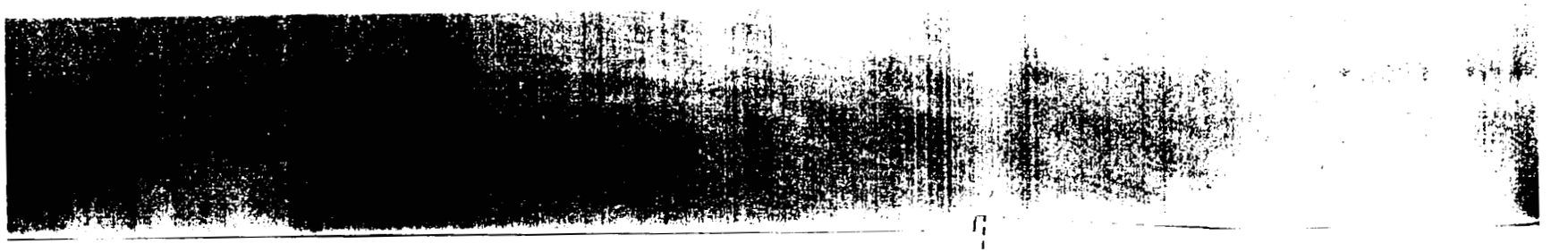
Event Text

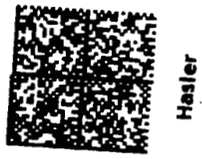
DAMAGED MOISTURE DENSITY GAUGE

At approximately 1430 CST, a moisture density gauge was damaged when it was run over by construction equipment at the Riverport 7 construction site, near the cross roads of Riverport Drive and Riverport Lane, in Maryland Heights, Saint Louis County, MO.

Make: Humboldt; Model: 5001; Serial Number: 1654C; Source: 10 millicuries Cs-137 and 40 millicuries Am-241:Be.

Consultants, RM Wester, have been contacted, and are in the process of taking surveys and taking possession of the gauge. There does not appear to be any damage to the source. The source is believed to be retracted and shielded. The rod on the top of the gauge was broken, and the source can not be readily moved in the normal manner.





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03/07/2008

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