



December 15, 2010

Mr. Steven A. Reynolds, Director
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region III
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690 (FAX) 317-273-2250

4310-C Technology Drive
South Bend, IN 46628
574-233-6820 (FAX) 574-233-8242

Re: Response to Confirmatory Order IA-09-044
Quarterly Radiation Safety Activities -Report No. 5
Fourth Quarter - 2010

Dear Mr. Reynolds:

As per a Confirmatory Order by the Nuclear Regulatory Commission (NRC), which was a result of an agreement reached during an Alternative Dispute Resolution mediation conducted at your facility August 25, 2009, I am submitting the fifth report of our documentation of radiation safety activities (RSA) performed by Earth Exploration, Inc., during the course of the fourth quarter of 2010, as required by the confirmatory order referenced above. Activity this past quarter included:

Dosimetry

Submittal to Landauer of dosimetry for our gauge operators by both office locations was made just past the end of the third quarter in October, 2010, for the wear period from July 1 to September 30, 2010. Upon receipt of these dosimetry reports from Landauer, we noted no unusual results of radiation exposure to our employees. We also noted that the quarterly dose equivalent for our area badge posted at our South Bend office location returned to a more typical level after Landauer reported a dose equivalent of almost 400 (mrem) for this badge for the previous quarter. Significant discussion was made in our third quarter report regarding this condition and we will continue to closely monitor future test results of the area dosimetry in order to fully understand exposure at this part-time (e.g., 1 to 2 hours/day) work station at our South Bend office. Copies of the Landauer dosimetry test results are included with this report.

In closing of discussions related to dosimetry, new dosimetry has been provided to the gauge operators for the fourth quarter of 2010. Results of the fourth quarter dosimetry testing will be discussed and provided in our first quarter report for 2011.

Leak Testing of Portable Gauges

We have prepared (i.e., purchased leak test kits) for performing annual and bi-annual (Troxler Model 3411 gauges) leak testing for our gauges at the beginning of January, 2011. Copies of the leak test certificates will be included with our first quarter report of 2011.

Security and Surveillance of Portable Gauges

We wish to note that we believe we have been diligent in practicing constant surveillance and security of our gauges over the last several years. Security during transportation has been

improved by EEI purchasing several steel "job boxes" which are bolted to our truck beds. Two protected locks secure the lid of the "job box". The portable gauges and their Type 'A' transport box fit inside of this security measure. Subsequently, in order to thief one of our gauges protected in this manner, a perpetrator would have to cut the bolts of the "job box" from the truck, then compromise the two locks to the lid of the steel box and then have to remove the lock from the lid of the Troxler Type 'A' transport container in order to access the gauge. We are ordering three more of these "job boxes" to further improve the security of our gauges during transportation and on the jobsite. Photographs of one of these "job boxes" are included at the end of this report. We understand our methods of securing gauges in the open beds of our company trucks with chains, cables and locks is not preferred by the NRC. Subsequently, we are executing measures that we committed to the NRC in earlier correspondence via our quarterly reports.

Surveillance and security of our gauges of course, begins in the secured storage rooms at our two offices. The gauges are still being secured with chains and cables and are locked to a steel bar grouted to the floor slab when they are kept in the locked storage room. Close monitoring of the removal of the gauges from the storage room for work in the field is maintained and documented with our Nuclear Gauge Use Logs. Copies of some of the logs for gauges used during the third and fourth quarters are included with this report.

Radiation Safety Activities for 2011

We anticipate first quarter activities for 2011 will be busy as we will be performing leak tests, physical inventories, and the distribution of personnel dosimetry during January of 2011. In addition, we will be performing our in-house audits of both offices during the month of January. As committed, we also are making plans to have another yearly independent audit of our radiation safety program, performed by InstroTek in January, 2011. Discussion of these radiation safety activities will be included with our first quarter report to your firm at the end of March 2011.

We trust this information provides adequate documentation of our previous quarter radiation safety activities. Should you have any questions, please contact me at your convenience.

Sincerely,

EARTH EXPLORATION, INC.



Christopher S. Loyd
Radiation Safety Officer

Attachments: Photos of Rigid "Job Box" for Portable Gauge Transportation and Security
 Quarterly Radiation Safety Activity Checklist – Report No. 5
 Quarterly Radiation Safety Activity Guideline
 Dosimetry Reports for Indianapolis and South Bend Offices – 3rd Qtr. 2010
 Copies of Nuclear Gauge Use Logs



Photo depicting Rigid brand job box for portable gauge mounted to bed of truck.



Photo depicting recessed protected locks.



Photo depicting locked swivel mount for box.



Photo of lock for other swivel pin for box.

**QUARTERLY RADIATION SAFETY ACTIVITIES
REPORT NO. 5 – FOURTH QUARTER – 2010
DATE: 12-15-10**

Quarterly Radiation Safety Activities
Report No.: 5 (4th Qtr. 2010)
Date: 12-15-10

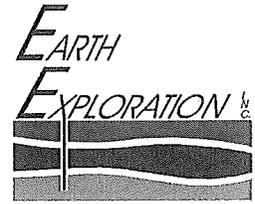


Activity	Yes	No	Footnote
RSO Responsibilities			
All terms and conditions of the materials license are being adhered to.	x		
All gauges have been leak tested in accordance with the required time frames and documentation of such testing is made, recorded and filed in an orderly manner (bi-quarterly or annually).	x		
All gauge operators have been provided with, and have worn their personnel monitoring equipment (dosimeters) while operating or servicing the portable gauges and the dosimeters have been submitted to Landauer® on a quarterly basis for required testing.	x		1
Records of the gauge operators radiation exposure based on the test results provided by Landauer® have been posted and any exposure perceived as being in excess of typical exposure has been discussed and documented with the gauge operators .	x		
All gauges are properly secured and protected at all times, when not in use by the individual gauge operators.	x		
The RSO has reviewed the gauge operator's usage of equipment and has assured that any unsafe practices are stopped immediately and has developed, implemented or documented corrective actions when violations of the program have been identified.	x		
Gauge Operator Responsibilities			
The portable gauges have been inspected and adequately logged in and out of the designated storage area of our facilities each day they are used.	x		
The transportation documents are in order and the equipment is secured in the transporting vehicle as required by our radiation safety program and DOT requirements.	x		
The gauges have been maintained in their control at all times.	x		



Activity	Yes	No	Footnote
Respective personnel monitoring devices have been worn at all times.	x		
The following have been in the possession of the gauge operators at all times when they are using the gauges in the field:			
Copy of the License	x		
Authorization card from RSO	x		
Copy of the Radiation Safety Plan	x		
Copy of the equipment operations manual	x		
Copy of current Leak Test Certificate	x		
Copy of Emergency Procedures	x		
Footnote No. 1 - Exposure level for Techs for 3rd Quarter typical.			

**OUTLINE OF QUARTERLY
RADIATION SAFETY ACTIVITIES
REPORT NO. 5 – FOURTH QUARTER – 2010
DATE: 12-15-10**



7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690 (FAX) 317-273-2250

4310-C Technology Drive
South Bend, IN 46628
574-233-6820 (FAX) 574-233-8242

**Earth Exploration, Inc.
Quarterly Radiation Safety Activities
For 2010 and 2011**

A. The following shall serve as a guideline and checklist for radiation safety activities to be performed by the Radiation Safety Officer (RSO) and individual gauge operators on a quarterly basis throughout the time period noted above:

1. The RSO shall assure that all terms and conditions of the materials license are being adhered to.
2. The RSO shall verify that the gauges have been leak tested in accordance with the required time frames and that documentation of such testing is made and recorded and filed in an orderly manner (bi-quarterly or annually).
3. The RSO shall assure that gauge operators are provided with and wear their personnel monitoring equipment (dosimeters) while operating or servicing the portable gauges and that the dosimeters are submitted to Landauer® on a quarterly basis for required testing.
4. The RSO shall post records of the gauge operators radiation exposure based on the test results provided by Landauer®, discuss and document with the gauge operators any exposure perceived as being in excess of typical exposure.
5. The RSO shall assure that the gauges are properly secured and protected at all times when not in use by the individual gauge operators.
6. The RSO will review the gauge operator's usage of equipment and assure that any unsafe practices are stopped immediately and develop, implement and document corrective actions when violations of the program are identified.

B. The gauge operators during each quarter shall be responsible for:

1. Ensuring the portable gauges have been inspected and adequately logged in and out of the designated storage area of our facilities each day they are used.
2. Ensuring the transportation documents are in order and that the equipment is secured in the transporting vehicle as required by our radiation safety program and DOT requirements.
3. Maintain control over the gauge at all times.
4. Wear their respective personnel monitoring device.
5. Have the following in their possession during gauge use:
 - a. Copy of the License
 - b. Authorization card from RSO
 - c. Copy of the Radiation Safety Plan
 - d. Copy of the equipment operations manual
 - e. Copy of current Leak Test Certificate
 - f. Copy of Emergency Procedures

**INDIANAPOLIS OFFICE
DOSIMETRY REPORTS
THIRD QUARTER - 2010
DATE: 12-15-10**

EARTH EXPLORATION INC
CHRISTOPHER LOYD
7770 WEST NEW YORK ST
INDIANAPOLIS IN 46214

LANDAUER®

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (708) 755-7000 Facsimile: (708) 755-7016
Customer Service: (800) 323-8830 Customer Service Technical: (800) 438-3241
www.landauerinc.com

200 ✓



RADIATION DOSIMETRY REPORT

ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
179781	IND	1028020111	10/12/10	10/07/10	3	1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							07/01/10 - 09/30/10			2010							
00IND	CONTROL			Pa	CNTRL		M	M	M								
00005	LOYD C S			Pa	WHBODY		M	M	M	M	M	M	82	82	159	3	09/03
			12/23/1952	M												3	04/93
00009	SCHUSTER G M			Pa	WHBODY	P	7	9	12	14	19	25	542	558	584	3	06/93
			07/21/1968	M													
00013	EGOLD KIRK			Pa	WHBODY		M	M	M	1	1	M	25	28	31	3	05/94
				M													
00032	TROUTMAN DAN			Pa	WHBODY	P	2	3	3	4	8	13	219	229	246	3	05/00
			06/20/1969	M													
00040	TINCHER T M			Pa	WHBODY	P	3	3	1	10	11	10	320	325	324	3	05/01
			09/24/1969	M													
00054	LOYD ROSS			Pa	WHBODY		M	M	M	1	1	1	94	96	102	3	09/02
			06/04/1984	M													
00084	KING LEWIS			Pa	WHBODY		M	M	M	3	4	5	122	125	131	3	01/06
			01/09/1966	M													
00090	SMITH MATT			Pa	CHEST					10	10	7	173	173	159	3	07/06
			10/11/1980	M	NOTE	UNUSED											
00091	SIMISON RON			Pa	WHBODY	P	4	4	4	14	14	13	118	124	142	3	07/06
			12/30/1974	M													
00094	ROOSA SCOTT			Pa	WHBODY		M	M	M	M	M	M	1	1	2	3	07/07
			07/27/1981	M													
00099	SAWYER TOM			Pa	WHBODY	P	15	16	16	31	34	36	91	95	100	3	07/07
			12/19/1986	M													

M: MINIMAL REPORTING SERVICE OF 1 MREM

QUALITY CONTROL RELEASE: RCH

1 - PR 9611 - RPT1318- N1

- 28011

*Reviewed by Christopher Loyd 10-18-10
3rd QTR - 2010*



NVLAP LAB CODE 100518-0**

EARTH EXPLORATION INC
CHRISTOPHER LOYD
7770 WEST NEW YORK ST
INDIANAPOLIS IN 46214

LANDAUER®

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (708) 755-7000 Facsimile: (708) 755-7016
Customer Service: (800) 323-8830 Customer Service Technical: (800) 438-3241
www.landauerinc.com



RADIATION DOSIMETRY REPORT

ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
179781	IND	1028020111	10/12/10	10/07/10	3	2

** LAST PAGE **

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							07/01/10 - 09/30/10			2010							
00103	SOIL LAB			Pa	AREA	P	26	26	23	67	68	65	149	150	143	3	01/09

M: MINIMAL REPORTING SERVICE OF 1 MREM

QUALITY CONTROL RELEASE: RCH

1 - PR 9611 - RPT1318- N1

- 28011

Written by Analyst Sgt 10-18-10



NVLAP LAB CODE 100518-0**

**SOUTH BEND OFFICE
DOSIMETRY REPORTS
THIRD QUARTER - 2010
DATE: 12-15-10**

200 ✓

EARTH EXPLORATION INC
KENNETH P MILLER
4310 C TECHNOLOGY DR
SOUTH BEND IN 46628

LANDAUER®

Landauer, Inc. 2 Science Plaza Glenwood, Illinois 60425-1586
Telephone: (708) 755-7000 Facsimile: (708) 755-7016
Customer Service: (800) 323-8330 Customer Service Technical: (800) 438-3241
www.landauerinc.com



luxel®

RADIATION DOSIMETRY REPORT

ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME #1 WORK DAYS	PAGE NO.
179781	SB	1030030123	11/03/10	10/27/10	5	1 OF 1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							07/01/10	-	09/30/10	2010							
00055	CONTROL			Pd	CTRL		M	M	N							3	09/03
00012	MCALISTER JIM			Pd	WHBODY		M	M	M	M		1	922	922	931	3	10/83
00092	MILLER MARK			Pd	WHBODY	P	4	6	9	13	16	20	172	174	188	3	04/07
00104	STINE CHRISTOPHER			Pd	WHBODY	P	M	?	2	17	18	19	17	18	18	3	11/10
00105	CYLINDER LOG-IN			Pd	AREA	PR	52	58	27	442	454	454	442	454	454	3	01/10

MINIMAL REPORTING SERVICE BY: WHEM

QUALITY CONTROL RELEASE: JAS

1 - PR 9627 - RPT1318- H

30023

Reviewed by *Chris S. G...* TCSO, 11-9-10

NVLAQ

NVLAQ LAB CODE 110115-01

**NUCLEAR GAUGE
USE LOGS
FOURTH QUARTER – 2010**

NUCLEAR GAUGE DATE OF SHIPMENT, INSPECTION AND USE LOG

**GAUGE NO. 6
(SN: 27261)**

This is to certify that the portable nuclear moisture density gauge described on this document is properly classified, described, packaged, marked, labeled, has been inspected, and is in proper condition for transportation according to the applicable regulations of the Department of Transportation.

DATE	PROJECT LOCATION	OPERATOR	OUT	IN
6/30/10	BEAMOUNT	PC	✓	✓
07-01-10	Mt. Comfort IN	AM	✓	✓
10-5-10	NEW ORL. DIST.	GMS	✓	✓
10-7-10	T3 ^R & Enterprise	GMS	✓	✓
10-12-10	29 th & Innovation Dr	GMS	✓	✓
10-13-10	"	TS	✓	✓
10-14-10	"	TS	✓	✓
10-15-10	"	TS	✓	✓
10-16-10	"	TS	✓	✓
10-18-10	"	TS	✓	✓
10-19-10	"	TS	✓	✓
10-20-10	"	TS	✓	✓
10-21-10	"	TS	✓	✓
10-22-10	"	TS	✓	✓
10-23-10	"	TS	✓	✓
10-25-10	"	TS	✓	✓
11-1-10	"	TS	✓	✓
11-2-10	"	TS	✓	✓
11-3-10	"	TS	✓	✓
11-4-10	Tipp. U-209	TS hpa	✓	✓
11-5-10	"	TS	✓	✓
11-8-10	"	TS	✓	✓
11-9-10	"	TS	✓	✓
11-10-10	"	TS	✓	✓
11-11-10	"	TS	✓	✓

NUCLEAR GAUGE DATE OF SHIPMENT, INSPECTION AND USE LOG

**GAUGE NO. 8
(SN: 19641)**

This is to certify that the portable nuclear moisture density gauge described on this document is properly classified, described, packaged, marked, labeled, has been inspected, and is in proper condition for transportation according to the applicable regulations of the Department of Transportation.

FULL CHA

DATE	PROJECT LOCATION	OPERATOR	OUT	IN
7-2-10	DEER PATH	LK	✓	✓
10-5-10	BURNSIDE CO. 300 S	TS	✓	✓
10-6-10	"	TS	✓	✓
10-7-10	"	TS	✓	✓
10-8-10	"	TS	✓	✓
10-9-10	"	TS	✓	✓
10-11-10	"	TS	✓	✓
10-12-10	"	TS	✓	✓
10-19-10	"	MT	✓	✓
10-20-10	"	MT	✓	✓
10-21-10	"	MT	✓	✓
10-22-10	"	MT	✓	✓
10-23-10	"	MT	✓	✓
10-25-10	"	MT	✓	✓
10-27-10	"	MT	✓	✓
10-28-10	"	MT	✓	✓
10-29-10	"	MT	✓	✓
11-10-10	FRANKFORT WTP	MT	✓	✓
11-11-10	FRANKFORT WTP	MT	✓	✓
11-12-10	AIT	LK	✓	✓
11-15-10	REAGAN / AIT	LK	✓	✓

NUCLEAR GAUGE DATE OF SHIPMENT, INSPECTION AND USE LOG

GAUGE NO. 9
(SN: 18314)

This is to certify that the portable nuclear moisture density gauge described on this document is properly classified, described, packaged, marked, labeled, has been inspected, and is in proper condition for transportation according to the applicable regulations of the Department of Transportation.

DATE	PROJECT LOCATION	OPERATOR	OUT	IN
8-11-10	WESTERN BOONIE H.S.	R.S.	✓	✓
8-16-2010	WILLIAMSBURG VILLAGE	RS	✓	✓
8-19-2010	DEER HUNT	RS	✓	✓
8-31-10	To WEST	TS	✓	✓
9-1-10	" "	TS	✓	✓
9-9-10	" "	TS	✓	✓
FULL CHARGE 9-9-10				
10-1-10	REAGAN X-ING	UK	✓	✓
10-2-10	" "	"	✓	✓
10-4-10	" "	"	✓	✓
10-5-10	" "	"	✓	✓
10-6-10	" "	"	✓	✓
10-11-10	" "	"	✓	✓
10-12-10	" "	"	✓	✓
10-13-10	" "	"	✓	✓
10-14-10	" "	"	✓	✓
10-15-10	" "	"	✓	✓
10-18-10	" "	"	✓	✓
10-20-10	" "	"	✓	✓
10-22-10	" "	"	✓	✓
10-29-10	" "	"	✓	✓
10-28-10	" "	"	✓	✓
10-29-10	" "	"	✓	✓
11-1-10	" "	DT	✓	✓

WEIGHT

**NUCLEAR GAUGE DATE OF SHIPMENT,
INSPECTION AND USE LOG**

**GAUGE NO. 11
(SN: 39113)**

This is to certify that the portable nuclear moisture density gauge described on this document is properly classified, described, packaged, marked, labeled, has been inspected, and is in proper condition for transportation according to the applicable regulations of the Department of Transportation.

DATE	PROJECT LOCATION	OPERATOR	OUT	IN
8-13-10	CR 700 E, BOONE CO.	GMS	✓	✓
8-17-10	Williamsburg Village	DT	✓	✓
8-31-10	LAKE @ PRAIRIE X'ING	MT	✓	✓
9-1	VERSACOLD	DT	✓	✓
9-2	"	DT	✓	✓
9-3	Heritage 10 th St.	GMS	✓	✓
9-7	" "	GMS	✓	✓
9-8	" "	GMS	✓	✓
9-9	Reagan Crossing	GMS	✓	✓
9-9	70 WEST	LK	✓	✓
9-10	Heritage 10 th St.	GMS	✓	✓
9-13	" " "	GMS	✓	✓
9-14	" " "	GMS	✓	✓
9-14	Reagan Crossing	LK	✓	✓
9-15	Heritage 10 th St	GMS	✓	✓
9-16	" " "	GMS	✓	✓
9-17	" " "	GMS	✓	✓
9-28-10	Reagan Crossing	GMS	✓	✓
9-30-10	INSTROTEK - GRAND RAPIDS, MI - (CALIBRATION)		✓	
10-7-10	RECEIVED FROM INSTROTEK			✓
11-4-10	CO. RD. 300 SOUTH	DT	✓	✓
11-5	Ann Arbor	DT	✓	✓

NUCLEAR GAUGE DATE OF SHIPMENT, INSPECTION AND USE LOG

**GAUGE NO. 12
(SN: 39114)**

This is to certify that the portable nuclear moisture density gauge described on this document is properly classified, described, packaged, marked, labeled, has been inspected, and is in proper condition for transportation according to the applicable regulations of the Department of Transportation.

DATE	PROJECT LOCATION	OPERATOR	OUT	IN
10-5-10	FRANKFORT WTP	MT	✓	✓
10-6-10	FRANKFORT WTP	MT	✓	✓
10-7-10	FRANKFORT WTP	MT	✓	✓
10-12-10	FRANKFORT WTP	MT	✓	✓
10-22-10	23 RD & Enterprise	GMS	✓	✓
10-27-10	VLO Dist Unit	GMS	✓	✓
11-1-10	VLO Dist Unit	GMS	✓	✓
11-02-10	VLO Dist Unit	GMS	✓	✓
11-03-10	VLO Dist Unit	GMS	✓	✓
11-04-10	VLO Dist Unit	GMS	✓	✓
11-05-10	✓ ✓ ✓	GMS	✓	✓
11-08-10	✓ ✓ ✓	GMS	✓	✓
11-9-10	✓ ✓ ✓	GMS	✓	✓
11-10-10	✓ ✓ ✓	GMS	✓	✓
11-11-10	Nashville WWTP	GMS	✓	✓
11-12-10	VLO Dist Unit	GMS	✓	✓
11-15-10	VLO Dist Unit	GMS	✓	✓