

November 27, 2012

Kirk Nelson  
Superintendent  
Jordan Public Schools  
500 Sunset Drive  
Jordan, MN 55352



**RE: Jordan Public Schools Long-Term Radon Sample Results  
IEA Project #201210086**

Dear Mr. Nelson:

As requested by Jordan Public Schools, IBA placed alpha track radon detectors for the purpose of evaluating radon levels in specific areas throughout the district. The radon detectors were deployed for a period of nine months.

**INTRODUCTION**

Radon is a colorless, odorless, radioactive gas that occurs naturally in soil, rocks, underground water supplies, and in the ambient air. According to the U.S. Environmental Protection Agency (EPA) and other scientific organizations, naturally-occurring radon gas has been associated with an increased risk of developing lung cancer. The chances of developing lung cancer from radon exposure are dependent on several factors, including individual susceptibility and, perhaps more importantly, the dose and duration of exposure. The Minnesota Department of Health (MOH) and EPA recommend that schools test radon levels every five years.

IBA placed alpha track detectors in frequently occupied areas throughout the district for the purpose of sampling for radon in accordance with the EPA's *Radon Measurement in Schools (Revised Edition 1993)*. A total of 93 detectors were placed from February 17, 2012 through November 5, 2012. The detectors were analyzed by Landauer, Inc. The sampling and analysis methodologies are provided in Appendix A.

**EVALUATION CRITERIA**

The MOH and the EPA have established a recommended action level in frequently occupied areas of 4.0 picoCuries per liter (pCi/L) for an annual average. Samples were deployed for a period of approximately nine months. Since sampling occurred over three seasons, both "open" and "closed" building conditions were present due to the configuration of the heating, ventilation, and air-conditioning system. Consequently, sampling under these conditions led to an overall case result. MOH recommends follow-up testing for sampling results at certain levels. Please refer to the following MOH chart for guidelines:

RESULTS (pCi/L)	RECOMMENDED ACTION
LESSTHAN2	Consider performing a sampling period such as a three season long-term test
2TO 10	Perform long-term test over three seasons
GREATER THAN 10	Perform a three season long-term test.

INSITUTE FOR ENVIRONMENTAL ASSESSMENT, rNC  
11•11-11:ieains/i/1/e.com

BROOKLYN PARK  
9201 West Broadway, #600  
Brooklyn Park, MN 55445  
763-315-7900 /FAX 763-315-7920  
800-233-9513

MANKATO  
610North Rh-erfront Drive  
Mankato, MN 56001  
507-345-8818 /FAX 507-345-5301  
800-872-1260

ROCHESTER  
210 Woodlake Drive SE  
Rochester, MN 55904  
507-281-6664 IF AX 507-281-6695  
800-233-9513

OMAHA  
7887 "L" Street  
Ralston, NE: 68127  
402-339-6240 IF AX 402-339-7504  
800-233-9513

## RESULTS & DISCUSSION

The laboratory report, which includes sampling locations, is provided in Appendix B. The Chain of Custody is provided in Appendix C. Following are summary results for each building.

### *Jordan High School*

A total of 26 detectors were placed throughout Jordan High School. The results indicated that radon levels were below the action level of 4 pCi/L. See Table 1 below for a summary of the results:

<b>TABLE 1: JORDAN HIGH SCHOOL RANGE OF RESULTS</b>				
	<b>0.0 - 1.9 pCi/L</b>	<b>2.0 - 2.9 pCi/L</b>	<b>3.0 - 3.9 pCi/L</b>	<b>&gt;4.0 pCi/L</b>
<b>Number of Tests</b>	24	2	0	0
Rooms between 2.0 and 3.9 nCi/L: NI03 and S503				

pCi/L: picocuries per liter

### *Jordan Middle School*

A total of 32 detectors were placed throughout Jordan Middle School. The results indicated that radon levels were below the action level of 4 pCi/L. See Table 2 below for a summary of the results:

<b>TABLE 2: JORDAN MIDDLE SCHOOL RANGE OF RESULTS</b>				
	<b>0.0 - 1.9 pCi/L</b>	<b>2.0 - 2.9 pCi/L</b>	<b>3.0 - 3.9 pCi/L</b>	<b>&gt;4.0 pCi/L</b>
<b>Number of Tests</b>	32	0	0	0

pCi/L: picocuries per liter

### *Jordan Elementary School*

A total of 35 detectors were placed throughout Jordan Elementary School. The results indicated that radon levels were below the action level of 4 pCi/L. See Table 3 below for a summary of the results:

<b>TABLE 3: JORDAN ELEMENTARY SCHOOL RANGE OF RESULTS</b>				
	<b>0.0 - 1.9 pCi/L</b>	<b>2.0 - 2.9 pCi/L</b>	<b>3.0 - 3.9 pCi/L</b>	<b>&gt;4.0 pCi/L</b>
<b>Number of Tests</b>	35	0	0	0

pCi/L: picocuries per liter

## CONCLUSIONS & RECOMMENDATIONS

The radon levels in the sampled locations were below the EPA action level of 4 pCi/L; therefore, no further action is required at this time.

## GENERAL COMMENTS

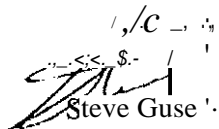
The analysis and opinions expressed in this report are based upon data obtained from radon sampling at Jordan Public Schools and are representative of the locations and time period sampled. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become evident without further assessment.

The report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted indoor air quality practices. Other than as provided in the preceding sentence and in our Proposal #2233 dated January 24, 2012 regarding radon sampling throughout the district, including the General Conditions attached thereto, no warranties are extended or made.

IEA appreciates the opportunity to submit this analysis to Jordan Public Schools. Should you require additional radon testing or have any questions regarding radon or any other environmental, health, or safety-related concerns please do not hesitate to contact our office.

Sincerely,

IEA, INC.



Steve Guse

Environmental Consultant

SG/slj 112712

# **Appendix A**

## *Methodology*

# Sampling Methodology

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IEA placed alpha track radon detectors designed specifically for the detection of alpha particle activity caused by the decay of Radon-222 and its daughter products. The detector is made of an electrically conductive material and contains an alpha-particle sensitive registration material or foil. The detector has a cylindrical shape and completely encloses the foil. Air and radon gas can diffuse into the detector chamber through a cellulose filter. Individual detectors are uniquely identified with a number and corresponding bar code.

Upon receipt at the analytical laboratory, detectors are logged in and unique numbers assigned to each detector foil. Sample preparation is by an etching process. The foils are chemically etched after being loaded into a multi-cell etching chamber.

All foils are checked for both background and sensitivity before being used, with rejected material being discarded to prevent it from being used accidentally. During processing, a blank is included with each run. Monitors exposed to known concentration are processed weekly. Blind tests, with monitors exposed to an unknown level, are run twice each month with six (6) replicates.

For each foil/monitor, the dose calculation program calculates the number of days the monitor was exposed in the field. The program calculates the average track density (tracks per square millimeter) subtracts a background track density and then multiplies by the calibration factor to give total integrated exposure. This number is divided by the number of days used to derive the average radon concentration. The minimum value reported is 0.1 pCi/L.

Any unusual conditions are noted on the processing form and shown on the exposure report. All exposure reports are reviewed by the QA vice-president before being mailed to IEA.

Results received by IEA are again reviewed for completeness by the Laboratory Quality Manager.

# **Appendix B**

*Analytical Results and  
Sampling Locations*

# Radon Monitoring Report

INSTITUTE FOR ENVIRONMENTAL  
 RADIATION MONITORING  
 ATTENTION: DENISE: 612-833-1111  
 9201 INDUSTRIAL BROADWAY STE 600  
 BLOOMINGTON PARK, MN 55425

## LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0408080

PROGRAM NAME: JORDAN HIGH

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l
4854-444	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL S5111	350.7 ±16.7	1.3 ±0.06
4-85/f-44-7	DRN	1-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL OFFICE TOP OF MAILBOXES	318.0 ±15.7	1.2 ±0.06
4854449	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL BAND OFFICE	309.7 ±15.5	1.2 ±0.06
48544.10	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL 11104	918.6 ±28.5	3.5 ±0.11
4854454	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL E401	289.2 ±14.9	1.1 ±0.06
4854-456	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL N100	340.4 ±16.4	1.3 ±0.06
48544!57	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL S511D	415.3 ±18.4	1.6 ±0.07
4854462	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL N102	396.6 ±17.9	1.5 ±0.07
4854463	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL N102	295.7 ±15.1	1.1 ±0.06
4854463	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL N102	182.7 ±11.3	0.7 ±0.04

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 ATTN• DEI'HCE KUCHTIV  
 9201 W. BROADWAY BTE 600  
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## LA...JfDAUER

Lrnd,1ucr, Inc. 2 Science Road Glenwood, Illinois 60425- 1 586  
 Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0408080

PROGRr-AM N. MEi JORDAN HIGH

Detector Number	Detector Type	Starting Date	Ending Date	Field Data I Comments	Exposure pCi-in-days	Avg. Radon Cone. pCi/l
4854471	DRN	17--FEB-12	05 - NOV--12	JORDAN HIGH SCHOOL N103	518.1 ±20.8	2.0 ±0.08
-41354.II-72	DHN	17-FEB-12	05-NOV--12	JORDAN HIGH SCHOOL S509	320.8 ±15.8	1.2 ±0.00
4•854473	DRN	17 --FEB-12	05--NOV--12	JORDAN HIGH SCHOOL S513	374.1 ±17.3	1.4 ±0.07
4854475	DRN	17--FEB--12	05--!-IOV-12	JORDAN HIGH SCHOOL 5503	680.0 ±24.2	2.6 ±0.09
4854.!({-76	DRN	11--F"EB-1::	o;s--NOV-12	JORDAN HIGH SCHOOL N11.5	447.3 ±19.1	1.7 ±0.07
485447H	DRN	.17-FED--1::	05--NOV--12	JORDAN HIGH SCHOOL CUST.OFFICE	155.1 ±10.2	0.6 ±0.04
48544.fJ.9	DRN	17-F"E:II-12	05--NOV--12	JORDAN HIGH SCHOOL S505	418.2 ±18.4	1.6 ±0.07
48'54497	DRN	17-F"EB--12	05-NDV-12	JORDAN HIGH SCHOOL S517	305.9 ±15.4	1.2 ±0.06
4-8544-99	DI N	1,7...n:B-12	05--NOV--12	JORDAN HIGH SCHOOL E406	354.4 ±16.8	1.4 ±0.06

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# Radon Monitoring Report

INSTITUTE FOR ENVIRONMENTAL  
ASSESSMENT  
ATTENTION DEMONSTRATION  
9201 W. BROADWAY STE 600  
BROOKLYN PARK, MN 55443

## LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0408080

PROJECT NAME: JORDAN HIGH SCHOOL

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l
4 4964	DHN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL S502	366.6 ±17.1	1.4 ±0.07
4 4967	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL 5515	320.8 ±15.7	1.2 ±0.06
4 4985	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL LOUNGE	251.7 ±13.6	1.0 ±0.05
4 4989	DRN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL N108	448.1 ±19.0	1.7 ±0.07
4 4990	DHN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL N109 TOP OF 'RUMBLE HOOB	174.9 ±10.9	0.7 ±0.04
4 4990	DHN	17-FEB-12	05-NOV-12	JORDAN HIGH SCHOOL MEDIA CENTER/BEHIND BY PILLAR	331.1 ±16.0	1.3 ±0.06

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# Radon Monitoring Report

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Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Tckphone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 04-08080

PROGHf-,f"! N1\ME: JORDAN MI DOLE

Detector Number	Detector Type	Starting Date	Ending Date	Field Data/ Comments	Exposure pCi/l-days	Avg. Radon Cone. pCi/l
48544S2	DHN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL BAND OF 'F'ICE TOP OF CABINET	140.4 ±9.5	0.5 ±0.04
48544H3	DP.N	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 108	74.4 ±6.20	0.3 ±0.02
485441:18	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 201	74.4 ±6.20	0.3 ±0.02
4854491	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 406	146.8 ±9.8	0.6 ±0.04
48544-49	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 301	66.6 ±5.4-0	0.2 ±0.02
48544"18	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 107	72.5 ±6.09	0.3 ±0.02
4854500	DR.N	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 206	92.7 ±7.24	0.4 ±0.03
4854502	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 415	78.0 ±6.41	0.3 ±0.02
4854504	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 511	123.8 ±8.8	0.5 ±0.03

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# Radon Monitoring Report

INSTITUTE FOR ENVIRONMENTAL  
 SCIENCE & TECHNOLOGY  
 DENICE KUCHTA  
 901 J. BROAD JAY STE 600  
 BROOKLYN PARK, MN 5544-5

## LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0408080

PROGRAM NAME: JORDAN MIDDLE

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	EXP. SURVEY pCi/1-days	Avg. Radon Conc. pCi/l
4854511	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL STAFF LOUNGE 507 ABOVE SINK	91.7 ±7.19	0.4 ±0.03
4854512	DHN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 413	57.9 ±5.16	0.2 ±0.02
4854517	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 307	51.5 ±4.72	0.2 ±0.02
4854518	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL OFFICE TOP OF MAILBOXES	67.1 ±5.75	0.3 ±0.02
4854519	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 404	40.6 ±3.9	0.2 ±0.01
4854521	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 314	40.6 ±3.92	0.2 ±0.01
4854528	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 411	57.0 ±5.10	0.2 ±0.02
4854529	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 412	119.2 ±8.6	0.3 ±0.03
4854536	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 311	72.5 ±6.09	0.3 ±0.02

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# Radon Monitoring Report

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT  
 ATTN: DEMICE KUCHTA  
 9201 S. BROADWAY, JAY STREET: 600  
 BROOKLYN PARK, MN 55445

## LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Telephone: (800) 528-8327 facsimile: (708) 755-7048

Acct. No. 0408080

PHOTOGRAPH NAME: JJR.DAVID MIDDLE

Detector Number	Detector Type	Starting Date	Ending Date	Field Data/ Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4854541	W...	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL SHOP CLASSROOM TOP OF CABINET	100.0 ±7.62	0.4 ±0.03	
4854544	DHN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 417	72.5 ±6.09	0.3 ±0.02	
4854943	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 210	46.9 ±4.40	0.2 ±0.02	
4854949	DHN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 310 TOP OF P.A.	105.8 ±7.9	0.4 ±0.03	
4854951	DHN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 309	51.2 ±4.72	0.2 ±0.02	
4854966	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 418	69.1 ±8.8	0.3 ±0.02	
4854971	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 111	62.0 ±5.43	0.2 ±0.02	
4854972	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 204	56.6 ±5.08	0.2 ±0.02	
4854980	DRN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL LAUNDRY ROOM BY ICE MACHINE	166.6 ±10.6	0.5 ±0.04	
485-4983	ORN	17-FEB-12	05-NOV-12	JORDAN MIDDLE SCHOOL 102	91.4 ±7.16	0.3 ±0.03	

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# Radon Monitoring Report

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 ANALYSIS & TESTING  
 1000 DENICEN DRIVE, UCHTA  
 % 01. 1. J. B. OADWAY STE 600  
 BROOKLYN PARK, MN 55415

## LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 1040soeo

PROJECT NAME: JORDAN MIDDLE

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l
4854992	ERN	17-NOV-12	05-NOV-12	JORDAN MIDDLE SCHOOL 318	50.4 ±4.66	0.2 ±0.02

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## Radon Monitoring Report

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## LANDAUER

Landauer, Inc. 2 Science Roud Glenwood, Illinois (i042S-1:i86  
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

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Acct. No. 0408080

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Detector Number	Detector Type	Starting Date	Ending Date	Field Data f Comments	Exposure pCi/l-days	Avg. Radon Cone. pCi/l
485411-46	DHIN	17--Ft:B--12	05--NOV-12	JORDAN ELEMENTARY 83	460.00 ±19.5	1.8 ±(i.07)
4854459	DRIN	17--FEB--12	05--NOV-12	JORDAN ELEMENTARY 61	224.3 ±12.8	0.9 ±0.05
485411-b0	DFLN	17--FEB--12	05--NOV--12	JORDAN ELEMENTARY 79	241.8 ±13.4	0.9 ±0.05
4854465	DRIN	17--FEB--12	05--NOV-12	JORDAN ELEMENTARY 57	161.5 ±10.4	0.6 ±0.04
4854467	DRIN	17--FEB--12	05--NOV--12	JORDAN ELEMENTARY 21	176.5 ±11.2	0.8 ±0.05
48544-69	DRN	17-FEB--12	05-NOV--12	JORDAN ELEMENTARY 23	141.3 ±9.6	0.5 ±0.04
4854470	DRN	17--FEB--12	05--NOV--12	JORDAN ELEMENTARY 30	167.0 ±10.7	0.6 ±0.04
4854477	DRN	17--FEB--12	05--NOV--12	JORDAN ELEMENTARY 48	268.7 ±14.3	1.0 ±0.05
4854479	DRN	17--FEB--12	05--NOV--12	JORDAN ELEMENTARY 26	198.4 ±11.9	0.8 ±0.05

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# Radon Monitoring Report

## LANDAUER

INSTITUTE FOR ENVIRONMENTAL  
 SCIENCE  
 ATTENTION: DENISE  
 1000 UCHTIG  
 600 STEADWAY, BROADWAY  
 201 W. BROADWAY, STE 600  
 MINNETONKA, MN 55445

Landamer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Telephone: (800) 523-8327 Facsimile: (708) 755-7048

Acct. No. 0408080

PROGRAM: AMI-JL; MEASUREMENTS: JHDHAN EL

Detector Number	Detector Type	Starting Date	Bidding Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Cone. pCi/l
S	1FRN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 85	348.8 ±16.6	1.3 ±0.06
4B544.S6	DH1	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 85	253.0 ±13.8	1.0 ±0.05
1-854487	DRN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 66 ABOVE SINK	182.7 ±11.3	0.7 ±0.04
4854-4'10	ORM	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 7	132.1 ±9.2	0.5 ±0.04
4.8 54495	DHN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 71	213.2 ±12.4	0.5 ±0.05
4854496	DRN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 64	165.2 ±10.6	0.6 ±0.04
4854505	DHN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 75	296.6 ±15.1	1.1 ±0.06
48545(16	DHN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 31	158.7 ±10.3	0.6 ±0.04
011-854507	DfLN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 50	253.9 ±13.8	1.0 ±0.05
4854509	DHN	17-FEB-12	05 NOV-12	JORDAN ELEMENTARY 72	210.4 ±12.7	0.8 ±0.05

RESULTS RELATED ONLY TO MONITORS  
 AS RECEIVED BY LANDAUER.

Release	Process No.	Report Date	Date Received
LMR	A22551	14-NOV-12	07-NOV-12

0 PAGE 2 OF 4



# Radon Monitoring Report

INSTITUTION FOR ENVIRONMENTAL ASSESSMENT  
 ATTENTION: DEWICHA KUCHTA  
 920.1 L BROADWAY STE 600  
 BOSTON, MA 02118

# LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
 Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 10400001

PROGRAM NAME: JOHDAN EJ

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l
4854514	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 37	188.2 ±11.5	0.7 ±0.04
4854515	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 42	183.6 ±11.3	0.7 ±0.04
4854516	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 41	137.6 ±9.4	0.5 ±0.04
4854517	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 73	218.7 ±12.6	0.8 ±0.05
4854523	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 67	156.0 ±10.2	0.6 ±0.04
4854526	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 24	231.7 ±13.1	0.7 ±0.05
4854527	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 44	184.5 ±11.4	0.7 ±0.04
4854528	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 25	192.8 ±11.7	0.7 ±0.04
4854548	DRM	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 46	313.4 ±15.6	1.2 ±0.06
4854519	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 36	165.2 ±10.6	0.7 ±0.04

RESULTS RELATED ONLY TO MONITORS AS RECEIVED BY LANDAUER.

Q.C. Release LMR Process No. AZ2551 Report Date 14-NOV-12 Date Received 07-NOV-12

# Radon Monitoring Report

INSTITUTE FOR ENVIRONMENTAL  
ASSESSMENT  
100 DENVER BLVD., SUITE 100  
DENVER, CO 80202  
TEL: 303.733.1545 FAX: 303.733.1546

## LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0408080

PROJECT: JORDAN ELEMENTARY

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	EXP. OSUre pCi/l-days	Avg. Radon Conc. pCi/l
14E5455r	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 65	223.3 ±12.8	0.9 ±0.05
4854554	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 69	175.1 ±11.0	0.7 ±0.04
1-854882	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 68	165.0 ±10.5	0.6 ±0.04
4854979	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 29	201.1 ±11.9	0.2 ±0.05
1-854613-8	DRN	17-FEB-12	05-NOV-12	JORDAN ELEMENTARY 6 STAFF WORKROOM	174.9 ±10.9	0.7 ±0.04

RESULTS RELATED ONLY TO MONITORS  
AS RECEIVED BY LANDAUER.

a.c. Release Process No. Report Date | Date Received  
LMR A22551 14-NOV-12 07-NOV-12

**Appendix C**  
*Chain of Custody*

# Aroha Tra k Detector Log

School/Organiz: ilsml: ...:kClal mck "i w8 .4' /r/;: ... )C"-  
 TeleQone: (<(S) :Lf1-lu... .lg.. ?."0"0  
 Addr : \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Contact Person: ==fii.,. V.2l"+- TO & crle  
 Position: Please circle all that •Pf;IX- -----:.....:-----  
 Superintendent Principal. Buildings & Grounds Super Nisor  
 ERK Coordinator Asbestos Program Manager  
 Other: \_\_\_\_\_

Date Package Shipped: 11-6-12 IEA Project #: 201210086  
 Carrier Fed Ex (U.S. Mail, Fed. Express, UPS, Other)  
 Package Shipped From: \_\_\_\_\_

**if IIAID Tra Irv Use DDII**  
 Date of Package Delivery: \_\_\_\_\_  
 Condition of Package on Receipt: \_\_\_\_\_  
 Signature of Package Recipient: \_\_\_\_\_

Detector Number	Installation Date	Removal Date	Sampling Location			Notes Potential influencing factors (i.e. construction, maintenance)
			Building	CAD #	Room & Position in Room	
<u>4854456</u>	<u>2/17/12</u>	<u>11/5/12</u>	<u>Jordan High School</u>		<u>A1 100/</u>	
<u>4854462</u>					<u>A1IDJ-J</u>	
<u>J/(') [IJIJ6,8</u>					<u>AJ ID3j</u>	
<u>U I/H'.O</u>					<u>A1/O'-/ I</u>	
<u>!,1-146,7-</u>					<u>N105 ✓</u>	<u>Top of Fume Hood</u>
<u>UQC:: /q/lq</u>					<u>N109 ✓</u>	<u>Top of Fume Hood</u>
<u>,!:/f( q7J</u>					<u>AJ111 I</u>	
<u>!j. r;L/Qic;</u>					<u>N108 ✓</u>	
<u>4/?SJ.lu-..&lt;.</u>					<u>A1il6 J</u>	
<u>4es4.. /r;-1,</u>					<u>f4nl /</u>	
<u>l/tK•/4qq</u>					<u>E406 ✓</u>	
<u>1/85&lt; /l/q7</u>					<u>S517 ✓</u>	
<u>R 4Cf6'1/</u>					<u>55/S' j</u>	
<u>1/ r;l/473</u>					<u>&lt;;c;13 j</u>	

Detector Installed by: (/e:r. & <v (  
 Logbook Completed by: Slc<d' Cu.5e

Detector Removed by: !Jeve 6" <As.e.



**IIA, Inc.**  
 9201 West Broadway, #600  
 Brooklyn Park, MN 55445  
 163-315-1900  
 Toll Free 1-800-233-9513

# Alpha Track Detector Log

(Return original to IEA with sample) Page \_\_\_\_ of --A.

School/Organization: Jq, doo P., bh Schools  
 Telephone: ( 5) 1-92 - ) DO  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Contact Person: Ine :fo, ei TM g;6?k  
 Position: Please circle all that apply. -----  
 Superintendent    Princip    Buildings & Grounds Su  
 ERK Coordinator    Asbestos rogram Manager  
 Other: \_\_\_\_\_

Date Package Shipped: 11-10-10 IEA Project #: 20121008  
 Carrier: ---X-  
 Package Shipped From: \_\_\_\_\_

**III TEANBRAT, n, ISI DDIII**  
 Date of package Delivery: ..  
 Condition of Package on Receipt  
 Signature of Package Recipient:  
smb1111111: iiau-

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L/}>. 'i'lt.i"o				'tL. J 11r.,
luq,; •-rn,	<b>I</b>	<b>I</b>		...,/. 11/r,c,

Detector Installed by: Jrve.- Cu ul      Detector Removed by: flcv<. Ot u K

Logbook Completed by: 5/Ck:t' c: u e  
 O:\EPDM\LABORATORY\BOILER PLATE DOCUMENTS\ALPHA TRACK DETECTOR LOG.DOC



© IEA, 2005      IEA.Inc.

**163-315-1900**

**9201 West BIDIdWIV, #600  
Brooklvn Park.MN 55445**

**Toll Free 1-800-233-9513**

# Alpha Track Detector. Ldg

School/Organization: Jccla-, Pull- Jc J oa i  
 C  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Contact Person: To & v'::j t- L....[3.13 k.  
 Position: *Please circle all that apply.* -----  
 Superintendent    Principal    Buildings & Grounds Superviso  
 ERK Coordinator    Asbestos Program Manager  
 Other: \_\_\_\_\_

Date Package Shipped: \_\_\_\_\_ IEA Project#: 201210086  
 Carrier: \_\_\_\_\_ (U.S. Mail, Fed. Express, UPS, Other)  
 Package Shipped From: \_\_\_\_\_

**For IEA Internal Use Only**  
 Date of Package Delivery: \_\_\_\_\_  
 Condition of Package on Receipt: \_\_\_\_\_  
 Signature of Package Recipient: \_\_\_\_\_

Detector ID	Location	Installation Date	Removal Date	Notes
1	Insullat 11, a			Hites >
w '51'1	?-117/1)	..V/(, 11	I'''T,:_r_L" ;t S.AI-	<rl,,,:A/
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IJ9("L',')q				y /   -I
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54 fl				YT3
I/ 4t;Jjl				L-/t; I
1,1--Q				YI7 j
4S54c;04				L\L9J
ll./ t¼t/74				Sol I
'i9S"lf<i				1:lo,J
l./9t;"/ql)				fflct' /
5!.iC'V..J				31 ;
				31tc j
				3I L-f ✓
				--31')_ I

Detector Installed by: 5/-cur. C...

Detector Removed by: S'/ccc (>.c.51!)

Logbook Completed by: Sf cue- /' lc2c



163-315-1900  
Toll Free 1-B00-233-9513







# AlphaTrack Detector Log

School/Organization: J. J. Dao P.I.B.C. Schaal

Telephone: (508) 232-6111

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

Contact Person: John J. Dao

Position: Principal

Superintendent \_\_\_\_\_  
 Principal \_\_\_\_\_  
 Ings & Grounds Su \_\_\_\_\_  
 ERK Coordinator \_\_\_\_\_  
 Asbes \_\_\_\_\_  
 Other \_\_\_\_\_

Date Package Shipped: \_\_\_\_\_ IEA Project#: 2005/10086

Carrier: Fed Ex (U.S. Mail, Fed. Express, UPS, Other)

Package Shipped From: \_\_\_\_\_

**For IEA Labar Use ONLY**

Date of Package Delivery: \_\_\_\_\_

Condition of Package on Receipt: \_\_\_\_\_

Signature of Package Recipient: \_\_\_\_\_

Detector Number	Installation Date	Removal Date	Sampling Location			Notes Potential influencing factors (i.e. construction, maintenance)
			Building	CAD #	Room & Position in Room	
<u>455492</u>	<u>2/17/12</u>	<u>11/5/12</u>	<u>Jordan Middle School</u>		<u>102</u> ✓ <u>tec, re</u>	
<u>455451</u>	<u>✓</u>				<u>1001</u> <u>Office /</u>	<u>To fall</u> <u>130yes</u>

Detector Installed by: SJ / 61

Detector Removed by: f/M / 4u2fc.c

Logbook Completed by: 9fv / &



IEA, Inc.  
 201 west Broad Way, #600  
 Brookdvn Park, MN 551145  
 163-315-1900  
 TollFree 1-800-233-9513

# Alpha Track Detector Log

(Return original to IEA with sample) Page 1 of 1

School/Organization: JOCD?.., p...bl Schools  
 Telephone: f1'5!)"5'l/f:l C:..oo  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Contact Person: .....nb1C>:..l:=11e6:dll:j# - /- , c: "Ytt. ' fje'k  
 Position: Please circle all that apply, ----- "" ==:-----  
 Superintendent    Principal    Buildings & Grounds Supervisor  
 ERK Coordinator    Asbestos Program Manager  
 Other: \_\_\_\_\_

Date Package Shipped: 11-6-12 IEA Project #: 201210086  
 Carrier: FedEx (U.S. Mail, Fed. Express, UPS, Other)  
 Package Shipped From: \_\_\_\_\_

**FarIEAllbor11rvusa Only**  
 Date of Package Delivery: \_\_\_\_\_  
 Condition of Package on Receipt: \_\_\_\_\_  
 Signature of Package Recipient: \_\_\_\_\_

01t1c11r -11aaiilr i	IIIS8II1U1n, Diii	111111101	Win11111,ciiii11:c	Niles Potential influencing, fact(S (i.e. construction, -- maintenance) --
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<u>8\1.fq51g</u>				<u>51.,lf / l - ,rKuJd.</u>
<u>lifts'flftJ(c</u>				<u>0 0 j</u>
<u>J c:'IL/(;j</u>				<u>J 1 j</u>
<u>I-/9!; Lf,q</u>				<u>9.3 J</u>
<u>"54C::J.3</u>				<u>r;)L/ j</u>
<u>l/f.,5V/47q</u>				<u>J.C. J</u>
<u>IMrl./C-1Ji</u>				<u>'15 j</u>
<u>/,JI,} li)/7Cl</u>				<u>30 j</u>
<u>14"51../50&lt;;,</u>				<u>'31 ./</u>
<u>4f51./171</u>				<u>29 j</u>
<u>4'95 l/c:Ti</u>				<u>37 -</u>
<u>l./ 545tfl</u>				<u>lu, I</u>
<u>ugsl./515</u>				<u>1./1 I</u>
<u>L/SSL/51</u>				<u>yd- J</u>

Detector Installed by: <hi--e. /...-" Detector Removed by: 5, f, V- / C, .f.e  
 Logbook Completed by: s-lo, ... / r, f

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IEA, Inc.  
 9201 West Broadway, #600  
 Brooklyn Park, MN 55445  
 163-315-1900  
 Toll Free 1-800-233-9513

# Alpha Track Detector log

School/Organization: Joedo. P. 1. & / .oals  
 Telephone: &. :1) "J-J91 .1 ? .co  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Contact Person: fim 1&j - .M E-sd. :.  
 Position: *Please circle all that apply*  
 Superintendent Principal Buildinru. If. iounds Supervisor  
 ERK Coordinator Asbestos Program Manager  
 Other: \_\_\_\_\_

Date Package Shipped: 11-26-08 IEA Project #: 201210086  
 Carrier: FedEx (U.S. Mail, Fed. Express, UPS, Other)  
 Package Shipped From: \_\_\_\_\_

JIFIEAIBIratIn,US18DIV  
 Date of Package Delivery: . .  
 Condition of Package ON Receipt  
 Signature of Package Recipient: \_\_\_\_\_

						Notes Potential Influencing factors (i.e. construction, maintenance)
<u>i54C2</u>	<u>)/77/J..</u>	<u>V(111.</u>	<u>r,.) °'''</u>	<u>r/PM" + O, r γ</u>	<u>Y'-1 j</u>	
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<u>48£' -/5:ll</u>					<u>t,7 j</u>	
<u>4151:iJ/59,</u>					<u>t(l I</u>	
<u>4'&gt;1"; 1./Cfl</u>					<u>7L ,j</u>	
<u>4f?S 45'CA</u>					<u>77:., /</u>	
<u>3S S'!</u>					<u>73 .i</u>	
<u>1/5"/, JL(O</u>					<u>7'1 J</u>	
<u>L/x'54!iD5</u>	<u>I</u>	<u>I</u>	<u>/</u>	<u>/</u>	<u>.75J</u>	

Detector Installed by: 9etH fuuaC  
 Logbook Completed by: 5lew Gu2f

Detector Removed by: 5J.....n. " e-& = '-"-2f-



IEA, Inc.  
 9201 West BroadWav, #600  
 Brooklvn Parle. MN 551145  
 163-315-1900  
 Toll Free 1-800-233-9513

# Alpha Track Detector Log

School/Organization: \_\_\_\_\_  
 Telephone: A51-1-92 \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_, Zip: \_\_\_\_\_  
 Contact Person: T. M. R. K  
 Position: Please circle all that apply. \_\_\_\_\_  
 Superintendent Principal Buildings & Grounds Supervisor  
 ERK Coordinator Asbestos Program Manager  
 other: \_\_\_\_\_

IEA Laboratory Use Only  
 Date of Package Delivery: \_\_\_\_\_  
 Condition of Package on Receipt: \_\_\_\_\_  
 Signature of Packager: Piert

Detector Number	Installation Date	Removal Date	Sampling Location			Notes Potential influencing factors (i.e. construction, maintenance)
			Building	CAD #	Room & Position in Room	
<u>4854460</u>	<u>7-17/02</u>	<u>11/11/02</u>	<u>Jordan</u>	<u>f/eNle/l+W t</u>	<u>77</u>	
<u>4854459</u>					<u>79</u>	<u>✓</u>
<u>4854446</u>					<u>&amp;11</u>	<u>j</u>
<u>4854485</u>					<u>3</u>	<u>j</u>
<u>4854465</u>					<u>85</u>	<u>f</u>
<u>4854465</u>					<u>57</u>	<u>✓</u>

Detector Installed by: Vr 1-i: 1ef (1)  
 Logbook Completed by: Yee e Gir 5s

Detector Removed by: \_\_\_\_\_

