

Radon Testing Results - Sherman County School

Action Level is 4.0 pCi/L

Site Name	Building Name	Room Description (per floor plan)	Kit serial #	Date sampled	Type of test	Results (pCi/L)
Sherman County School	Main Building	Elem Office	3753757	2/4/2019	Detector Kit	1.4
Sherman County School	Main Building	Classroom 19	3753730	2/4/2019	Detector Kit	1.4
Sherman County School	Main Building	Classroom 20	3753756	2/4/2019	Detector Kit	2.5
Sherman County School	Main Building	Classroom 21	3753737	2/4/2019	Detector Kit	2.9
Sherman County School	Main Building	Gym (End)	3753759	2/4/2019	Detector Kit	1.2
Sherman County School	Main Building	Gym (Mid)	3753755	2/4/2019	Detector Kit	3.4
Sherman County School	Main Building	Gym (End)	3753727	2/4/2019	Detector Kit	1.6
Sherman County School	Main Building	Cafeteria	4547350	2/4/2019	Detector Kit	0.5
Sherman County School	Main Building	Cafeteria	4547041	2/4/2019	Detector Kit	0.6
Sherman County School	Main Building	Cafeteria	4525798	2/4/2019	Detector Kit	1.5
Sherman County School	Main Building	Elem Office	4176158	2/4/2019	Detector Kit	2.5
Sherman County School	Main Building	SHS	4547479	2/4/2019	Detector Kit	1.4
Sherman County School	Main Building	Office (speech)	4547563	2/4/2019	Detector Kit	1.8
Sherman County School	Main Building	Library Programs	4547221	2/4/2019	Detector Kit	3.2
Sherman County School	Main Building	Library	4547678	2/4/2019	Detector Kit	2.1
Sherman County School	Main Building	Library	4547056	2/4/2019	Detector Kit	1.6
Sherman County School	Main Building	Library	457185	2/4/2019	Detector Kit	1.8
Sherman County School	Main Building	Comp. Lab	4547633	2/4/2019	Detector Kit	3.2
Sherman County School	Main Building	Office (speech)	4547033	2/4/2019	Detector Kit	1.6
Sherman County School	Main Building	Study Room	4713644	2/4/2019	Detector Kit	2.2
Sherman County School	Main Building	Conference room	4212216	2/4/2019	Detector Kit	0.8
Sherman County School	Main Building	Superintendent	4547091	2/4/2019	Detector Kit	0.9
Sherman County School	Main Building	Athletic Office	4547205	2/4/2019	Detector Kit	0.9
Sherman County School	Main Building	Business Office	4547089	2/4/2019	Detector Kit	1.1
Sherman County School	Main Building	Principal Office	4547065	2/4/2019	Detector Kit	0.8
Sherman County School	Main Building	HS Front Desk	4547089	2/4/2019	Detector Kit	0.6
Sherman County School	Main Building	Secretary	4713796	2/4/2019	Detector Kit	0.7
Sherman County School	Main Building	Room 22	4575988	2/4/2019	Detector Kit	1.4

Radon Testing Results - Sherman County School

Action Level is 4.0 pCi/L

Site Name	Building Name	Room Description (per floor plan)	Kit serial #	Date sampled	Type of test	Results (pCi/L)
Sherman County School	Main Building	Room 17	4547345	2/4/2019	Detector Kit	2.2
Sherman County School	Main Building	Room 16	4547253	2/4/2019	Detector Kit	2.2
Sherman County School	Main Building	Room 15	4547389	2/4/2019	Detector Kit	3.3
Sherman County School	Main Building	Room 13	4337190	2/4/2019	Detector Kit	3.0
Sherman County School	Main Building	Gym	4547718	2/4/2019	Detector Kit	0.7
Sherman County School	Main Building	Gym	4547151	2/4/2019	Detector Kit	0.6
Sherman County School	Main Building	Ag Class	4547252	2/4/2019	Detector Kit	1.0
Sherman County School	Main Building	Shop	4547274	2/4/2019	Detector Kit	1.4
Sherman County School	Main Building	Room 22	4713600	2/4/2019	Detector Kit	1.4
Sherman County School	Main Building	Room 4	4545947	2/4/2019	Detector Kit	1.0
Sherman County School	Main Building	Room 3	4547059	2/4/2019	Detector Kit	1.0
Sherman County School	Main Building	Room 5	4547296	2/4/2019	Detector Kit	1.3
Sherman County School	Main Building	Room 6	4547585	2/4/2019	Detector Kit	1.3
Sherman County School	Main Building	Room 7	4547321	2/4/2019	Detector Kit	1.3
Sherman County School	Main Building	Room 9	4547682	2/4/2019	Detector Kit	0.6
Sherman County School	Main Building	Room 12	4547740	2/4/2019	Detector Kit	0.4



February 12, 2019
EIS JOB No. 2019007

Craig Wood, Facility Manager
Sherman County School District
65912 High School Loop
Moro, Oregon 97039

RE: Radon testing of The Sherman High School Building
located at 65912 High School Loop in Moro, Oregon 97039

Dear Mr. Craig Wood,

The radon testing of the subject property improvements collectively referred to as the Sherman County District building located at 65912 High School loop in Moro, Oregon was performed by Charles A. Spear, field representative of Environmental Inspection Services (EIS) with a thorough custodian escort thru the entire building by Craig Wood on Friday, February 1, 2019. All radon detection concentrations were below 4.0 picocuries per liter (pCi/L). The average radon reading varied from 1.4 pCi/L to 2.05 pCi/L. EIS noted no additional short term radon measurement testing for the subject school at this time based on the radon short term analytical test results.

A total of thirty-nine (39) radon test units supplied by Pro-lab were placed within functional student and office areas of the high school on Friday, February 1, 2019. Additionally, a total of seven (7) radon test units supplied by Environmental Hazards Services LLC were placed within functional student and office areas of the high school on Friday, February 1, 2019.

The total of forty-six (46) short term samplers were capped and submitted to the two laboratories for radon analysis on Tuesday, February 5, 2019 and received by the laboratories on Thursday, February 7, 2019. Radon concentrations varied from a low of 0.4 pCi/L to the highest readings of 3.3 pCi/L. No radon detected concentrations exceed the action limit of 4.0 pCi/L.

February 12, 2019
EIS JOB No. 2019007

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Sherman County School District
65912 High School Loop
Moro, Oregon 97039

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The total of forty-six (46) short term samplers were capped and submitted to the two laboratories for radon analysis on Tuesday, February 5, 2019 and received by the laboratories on Thursday, February 7, 2019. Radon concentrations varied from a low of 0.4 pCi/L to the highest readings of 3.3 pCi/L. No radon detected concentrations exceed the action limit of 4.0 pCi/L.

Radon measurement levels varied from a low of 0.4 pCi/L in a single test positions to a high measurement of one sampler at the gymnasium of 3.4 pCi/L. The average radon test levels varied from 1.42 pCi/L to 2.05 pCi/L. EIS noted additional short term radon measurement requirements for the school building at this time based on the radon test results for samples submitted for independent radon analysis by two licensed laboratories. No samples exceeded 4 pCi/L. Radon concentrations approaching four (4) picocuries per liter (pCi/L) with radon concentrations between 3.0 pCi/L and 3.4 pCi/L were analytically confirmed in a total of five (5) samples. The following samples approached 4 pCi/L :

<u>Sample serial No.</u>	<u>Sample location</u>	<u>Sample test result</u>
3753755	Gymnasium	3.4 pCi/L
4547221	Library Programs	3.2 pCi/L
4547633	Computer lab	3.2 pCi/L
4547502	Room 15	3.3 pCi/L
4547718	Room 13	3.0 pCi/L

EIS noted no additional radon measurement requirements for the Sherman School District building at this time based on the radon test results for samples submitted for independent radon analysis.

The radon was measured at the Pro-Lab Laboratory located at 1675 North Commerce Parkway in Weston, Florida and Environmental Hazards Services LLC at 7469 White Pine Road in Richmond, Virginia using the liquid scintillation Method (EPA 402-R-92-004).

The selected radon sampler devices utilized at the Sherman school is described as passive activated charcoal adsorption devices (AC). The selected passive radon tester devices do not uniformly adsorb radon during the testing episode and are not described as integrating devices). The radon samplers were opened on Friday, February 1, 2019 and capped on Monday, February 4, 2019. The radon samplers were received by the laboratories on Thursday, February 7, 2019 and actual analytical test results were received by EIS on Friday, February 8, 2019.

The passive radon samplers were placed in the center and at the edges the all the test areas to include all classrooms, shops, library, gymnasium, cafeteria, support rooms and office areas. The capped radon samplers were packaged; logged on a chain of custody form; and shipped to both ProLab Laboratories and EHS.

In the opinion of EIS, no additional short term radon retesting is required at the Sherman School building. In the opinion of EIS, the satisfactory radon test results are indicative of generally satisfactory radon conditions in the functional classrooms and other student and staff occupied spaces of the subject building and no radon mitigation is required at the school building based on these radon measurement test results at this time.

The sample analytical position and result tables are listed in Appendix 2.0 of this report and no elevated radon concentrations levels exceeding 4 pCi/l were analytically detected in the Sherman school. The average radon measurement varied from 1.42 to 2.05 pCi/L. All forty-six (46) passive radon tester results analytical results were below the action limit of 4 pCi/L. The radon analytical test results ranged from a low measurement of 0.4 pCi/L to a single high measurement of 3.4 pCi/L.

EIS recommends no additional placements of additional short term test units in all areas at the subject Sherman School District building based on these analytical test results. No data gaps remain concerning radon risk at the subject property were observed based on current analytical radon test results. Actual radon analytical test results are included as listed in Appendix 2.0 of this report.

RADON

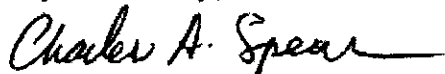
Radon gas is an extremely toxic, chemically inert, odorless, colorless, and tasteless naturally-occurring radioactive element having the symbol Rn. Radon has the atomic number 86; an atomic weight of 222; a melting point of -71 degrees Celsius; a boiling point of -62 degrees; and 18 radioactive isotopes. It is derived from the radioactive decay of radium and is used in cancer treatment; as a tracer in leak detection; and in radiology.

Sherman school district buildings radon Average range 1.42 to 2.05 pCi/L and all- (below 4pCi/L). The concentrations of radon in a building are dependent on factors to include the concentration of uranium and radium in the soil; the type of underlying geology; soil permeability; available migration pathways such as subsurface utilities; foundation openings; air temperature and pressure differentials and building ventilation.

Radon may migrate into a study area by either a pressure driven transport or no pressure differentials. The subject school was built on concrete foundation and slab on slab foundations. Radon may migrate through foundations by the availability of expansion joints and cracks in the foundation. Radon may also migrate into a building through basements, utility trenches, pipe runs, HVAC systems, and other building ventilation systems. Radon contributions from building materials off-gassing are not often the source of measurable radon.

In the opinion of EIS, based on actual extensive passive radon testing at the subject buildings no additional short term radon retesting is recommended at the Sherman School District building located at 65912 High School Loop in Moro, Oregon 97039 at this time. In the opinion of EIS, the satisfactory radon test results are indicative of a generally satisfactory radon conditions at the Sherman School building and no additional short term radon testing is required based on these test results. If there any questions feel free to contact me at (503) 680-6398.

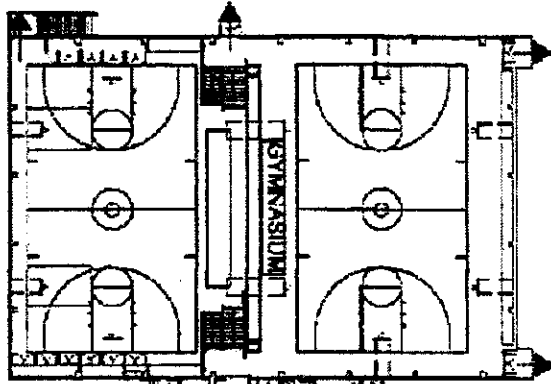
Respectfully,

A handwritten signature in cursive script that reads "Charles A. Spear". The signature is written in dark ink and is positioned above the printed name.

Charles A. Spear
Environmental Professional

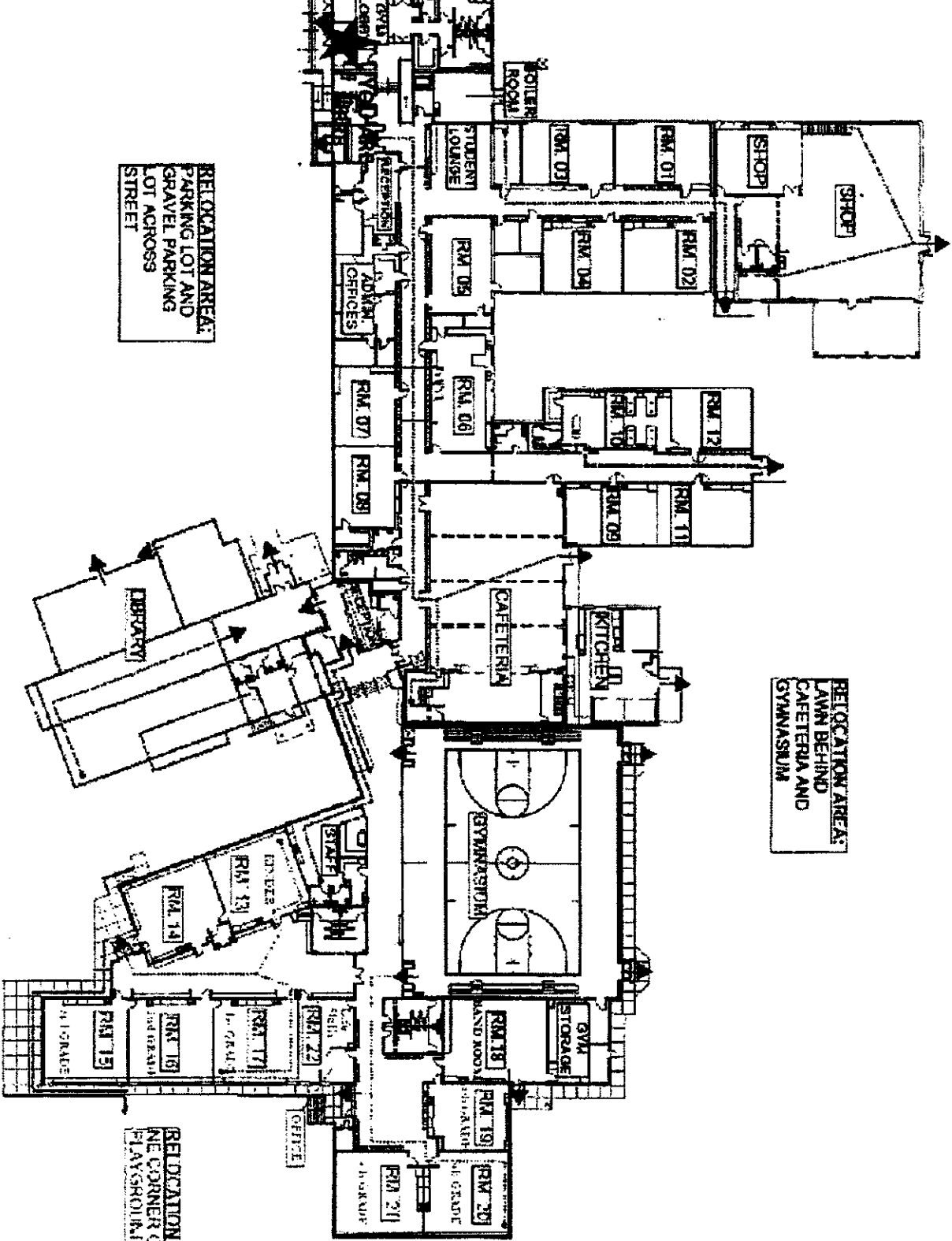
APPENDIX 1.0
SCHOOL FLOOR PLAN

RELOCATION AREA:
FOOTBALL FIELD



RELOCATION AREA:
PARKING LOT AND
GRAVEL PARKING
LOT ACROSS
STREET

RELOCATION AREA:
LAWN BEHIND
CAFETERIA AND
GYMNASIUM



RELOCATION AREA:
ONE CORNER OF
PLAYGROUND

SHERMAN SCHOOL EXITING PLAN

APPENDIX 2.0
RADON ANALYTICAL TEST RESULTS



Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Radon In Air Analysis Report

Client: Environmental Inspection Services
11981 Fargo Road, NE
Aurora, OR 97002

Report Number: 19-02-01152

Received Date: 02/07/2019

Reported Date: 02/08/2019

Analysis By: AccuStar Labs

Project/Test Address: Sherman Elementary; 65912 High School Loop; Moro, Oregon 97039

Client Number:
38-1916

Laboratory Results

Fax Number:
503-678-5063

Lab Sample Number	Device Number	Test Began	Test Ended	Collection Location	Concentration pCi/L	Narrative ID
19-02-01152-001	3753757	02/01/2019 10:12:00 AM	02/04/2019 12:45:00 PM	ELEM OFFICE	1.4	
19-02-01152-002	3753730	02/01/2019 10:15:00 AM	02/04/2019 12:49:00 PM	CLASS 19	1.4	
19-02-01152-003	3753756	02/01/2019 10:17:00 AM	02/04/2019 12:47:00 PM	CLASS 20	2.5	
19-02-01152-004	3753737	02/01/2019 10:18:00 AM	02/04/2019 12:47:00 PM	CLASS 21	2.9	
19-02-01152-005	3753759	02/01/2019 10:22:00 AM	02/04/2019 12:47:00 PM	GYM (END)	1.2	
19-02-01152-006	3753755	02/01/2019 10:22:00 AM	02/04/2019 12:47:00 PM	GYM (MID)	3.4	
19-02-01152-007	3753727	02/01/2019 10:22:00 AM	02/04/2019 12:48:00 PM	GYM (END)	1.6	

TOTAL TESTERS - 7
LOW READING - 1.2
HIGH READING - 3.4
AVG. READING - 2.05 pCi/L

Environmental Hazards Services, L.L.C

Client Number: 38-1916

Report Number: 19-02-01152

Project/Test Address: Sherman Elementary; 65912 High School Loop; Moro,
Oregon 97039

Lab Sample Number	Device Number	Test Began	Test Ended	Collection Location	Concentration pCi/L	Narrative ID
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Method: EPA Method #402-R-92-004

Reviewed By Authorized Signatory:



Deborah Britt

QA/QC Clerk

The EPA action level for Radon in Air is 4.0 pCi/L. The national average indoor radon level is 1.3 pCi/L. Sample Results denoted with a "less than" (<) sign contains less than 0.4 pCi/L.

The uncertainty of this radon measurement is $\pm 10\%$. Factors contributing to uncertainty include: statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques, and operation of the dwelling. Interference with test conditions may influence the test results.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, testing dates, etc., was provided by the client. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C.

LEGEND

pCi/L = picocuries per liter

	A	B	C	D	E	F	G
1	ENVIROMENTAL INSPECTION SERVICES						
2				AURORA, OR 97002			
3				503.680.6398			
4	charles_a_spear@ymodo.com						
5				SHERMAN SCHOOLS			
6				65912 HIGH SCHOOL LOOP. MORO, OR 97039			
7							
8	Vial #	Location	Start Date	Start Time	End Date	End Time	LEVEL
9	4547350	CAFETERIA	2/1/2019	10:33AM	2/4/2019	12:15PM	0.5
10	4547041	CAFETERIA	2/1/2019	10:33AM	2/4/2019	12:15PM	0.6
11	4525798	CAFETERIA	2/1/2019	10:33AM	2/4/2019	12:15PM	1.5
12	4547380	STAFF LOUNGE	2/1/2019	10:38AM	2/4/2019	12:31PM	1.5
13	4176158	ELEMENTARY OFFICE	2/1/2019	10:43AM	2/4/2019	12:16PM	2.5
14	4547479	SHS	2/1/2019	10:45AM	2/4/2019	12:19PM	1.4
15	4547563	OFFICE (SPEECH)	2/1/2019	10:45AM	2/4/2019	12:16PM	1.8
16	4547221	LIBRARY PROGRAMS	2/1/2019	10:46AM	2/4/2019	12:20PM	3.2
17	4547678	LIBRARY	2/1/2019	10:50AM	2/4/2019	12:24PM	2.1
18	4547056	LIBRARY	2/1/2019	10:50AM	2/4/2019	12:23PM	1.6
19	4547185	LIBRARY	2/1/2019	10:50AM	2/4/2019	12:26PM	1.8
20	4547633	COMP LAB	2/1/2019	10:55AM	2/4/2019	12:23PM	3.2
21	4547033	OFFICE (SPEECH)	2/1/2019	10:55AM	2/4/2019	12:22PM	1.6
22	4713644	STUDY ROOM	2/1/2019	10:57AM	2/4/2019	12:22PM	2.2
23	4212216	CONFERENCE ROOM	2/1/2019	11:05AM	2/4/2019	11:49AM	0.8
24	4547091	SUPER INTENDENT	2/1/2019	11:06AM	2/4/2019	11:49AM	0.9
25	4547205	ATHLETIC OFFICE	2/1/2019	11:08AM	2/4/2019	11:47AM	0.9
26	4547089	BUSINESS OFFICE	2/1/2019	11:10AM	2/4/2019	11:45AM	1.1
27	4547065	PRINCIPLE OFFICE	2/1/2019	11:10AM	2/4/2019	11:44AM	0.8
28	4547089	HS FRONT DESK	2/1/2019	11:12AM	2/4/2019	11:43AM	0.6
29	4713796	SECRETARY	2/1/2019	11:13AM	2/4/2019	12:58PM	0.7
30	4575988	ROOM 22	2/1/2019	11:17AM	2/4/2019	12:33PM	1.4
31	4547345	ROOM 17	2/1/2019	11:19AM	2/4/2019	12:34PM	2.2
32	4547253	ROOM 16	2/1/2019	11:20AM	2/4/2019	12:35PM	2.2
33	4547389	ROOM 15	2/1/2019	11:21AM	2/4/2019	12:36PM	3.3
34	4547502	ROOM 14	2/1/2019	11:24AM	2/4/2019		
35	4337190	ROOM 13	2/1/2019	11:26AM	2/4/2019	12:33PM	3
36	4547718	GYM	2/1/2019	11:35AM	2/4/2019	11:51AM	0.7
37	4547151	GYM	2/1/2019	11:35AM	2/4/2019	11:51AM	0.6
38	4547252	AG. CLASS	2/1/2019	11:45AM	2/4/2019	11:57AM	1
39	4547274	SHOP	2/1/2019	11:47AM	2/4/2019	11:58AM	1.4
40	4713600	ROOM 22	2/1/2019	11:50AM	2/4/2019	12:00PM	1.4
41	4545947	ROOM 4	2/1/2019	11:51AM	2/4/2019	12:03PM	1
42	4547059	ROOM 3	2/1/2019	11:53AM	2/4/2019	12:01PM	1
43	4547296	ROOM 5	2/1/2019	11:55AM	2/4/2019	12:04PM	1.3
44	4547585	ROOM 6	2/1/2019	11:57AM	2/4/2019	12:06PM	1.3
45	4547321	ROOM 7	2/1/2019	11:59AM	2/4/2019	12:07PM	1.3
46	4547682	ROOM 9	2/1/2019	12:03PM	2/4/2019	12:09PM	0.6
47	4547740	ROOM 12	2/1/2019	12:05PM	2/4/2019	12:11PM	0.4

TOTAL PROLAB TESTS - 39
HIGH READING - 3.3 - Room 15
LOW READING - 0.4 - Room 12
AVE READING - 1.42 GC/L

APPENDIX 3.0
CHAIN'S OF CUSTODY (COC'S)

Sampers

CLIENT Environmental Inspection Services
11981 Fargo Road
Aurora, Oregon 97002

... ..

SCHOOL (Name) Sherman Elementary
(Address) 65912 High School Loop
MAD, Oregon 97039

Serial No.	Location	Start Date	Cap off time	Stop Date	Cap On Time	Result
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[illegible]

Recd: 8744 2/8/19

RADON TEST CHAIN OF CUSTODY

CLIENT _____

SCHOOL (Name) Sherman Elementary
 (Address) _____

Serial No. Location Start Date Cap off time Stop Date Cap On Time Result

4547350	cafeteria	2/1/19	10:33	2/4/19	12:15 PM	
4547041	↓	↓	↓		12:15 PM	
4525798	↓	↓	↓		12:15 PM	
4547380	staff lounge		10:33		12:15 PM	
417653	Elementary office		10:43		12:31 PM	
4547479	SHS		10:45		12:16 PM	
4547563	office (room)		10:45		12:19 PM	
4547721	Library Program		10:46		12:16 PM	
4547670	Library		10:50		12:20 PM	
4547056	↓		↓		12:24 PM	
4547185	↓		↓		12:23 PM	
4547633	complab		10:55		12:26 PM	
4547033	office		↓		12:23 PM	
4713644	Student Room		10:57		12:22 PM	
4212216	conference room		11:05		12:22 PM	
4547091	Superintendent		11:06		11:49	
4547205	Administrative		11:08		11:49	
4547089	Business office		11:10		11:47	
4547065	Principal's office		11:10		11:45	
4547704	HS front desk		11:12		11:44	
4713796	Security		11:13		11:43	
4525498	Room 22		11:17		12:58 PM	
4547345	Room 17		11:19		12:33 PM	
4547355	Room 16		11:20		12:34 PM	
4547389	Room 15		11:21		12:35 PM	
4547502	Room 14		11:24		12:36 PM	
4337190	Room 13		11:26		12:36 PM	P
4547718	Gym		11:35		12:33 PM	
4547151	↓		↓		11:51	
4547252	Ag. class	✓	11:45	✓	11:51	

Super-

CLIENT

SCHOOL (Name) Sherman Elementary
(Address) _____

[illegible]