

Radon Testing Results - Falls City School District
Action Level is 4.0 pCi/L

Building Name	Room Description (per floor plan)	Canister #	Date sampled	Type of test	Results (pCi/L)
High School	Room 6	1441	12/13/2018	Detector kit	1.2
High School	Room 6 Duplicate	821	12/13/2018	Detector kit	1.1
High School	Room 1	1431A	12/13/2018	Detector kit	1.3
High School	Room B1	2040	12/13/2018	Detector kit	3.0
High School	Cafeteria	231	12/13/2018	Detector kit	2.2
High School	Cafeteria	1866	12/13/2018	Detector kit	4.2
Gym	Athletic Director	2089	12/13/2018	Detector kit	1.1
Gym	Athletic Director Duplicate	3235	12/13/2018	Detector kit	1.1
Gym	Gym	1671	12/13/2018	Detector kit	1.4
Gym	Gym	3036	12/13/2018	Detector kit	**
Gym	Team Room	1956	12/13/2018	Detector kit	1.4
Gym	Weight Room	1579	12/13/2018	Detector kit	1.1
Gym	Weight Room	2130	12/13/2018	Detector kit	1.5
Library/Science Bldg.	Science Room	2050	12/13/2018	Detector kit	2.3
Library/Science Bldg.	Reading Room	1921	12/13/2018	Detector kit	1.8
Library/Science Bldg.	Library	2112	12/13/2018	Detector kit	2.0
Library/Science Bldg.	Library Duplicate	589	12/13/2018	Detector kit	1.7
Elementary School	Art Room	2004	12/13/2018	Detector kit	1.6
Elementary School	Staff Lounge	2196	12/13/2018	Detector kit	1.3
Elementary School	Staff Lounge Duplicate	2133	12/13/2018	Detector kit	1.2
Elementary School	School Store	443	12/13/2018	Detector kit	1.4
Elementary School	FACES Office	1989	12/13/2018	Detector kit	1.1
Elementary School	Pre-K	112	12/13/2018	Detector kit	1.6
Elementary School	Pre-K	1970	12/13/2018	Detector kit	1.7
Elementary School	Multipurpose	2019	12/13/2018	Detector kit	1.8
Elementary School	Multipurpose	1816	12/13/2018	Detector kit	1.5
Elementary School	Cafeteria	2141	12/13/2018	Detector kit	1.2
Elementary School	Cafeteria	1867	12/13/2018	Detector kit	1.1
High School	Room B1	1876	12/14/2019	Retest	1.9
High School	Cafeteria	518	12/14/2019	Retest	3.9
High School	Cafeteria Duplicate	2013	12/14/2019	Retest	3.5

Step-by-step guide for planning radon testing in Oregon schools

Per ORS 332.166-167, Oregon school districts shall develop a plan for testing schools under their jurisdiction for elevated levels of radon. They shall submit it to the Oregon Health Authority on or before **Sept. 1, 2016**.

Below is a recommended step-by-step guide for planning for radon testing at a specific school site. It's intended to be used with the other information in this document.

By going through well thought-out “dry-run” on paper, staff (e.g., school radon measurement teams) will likely be able to identify timelines, costs (staff time and test kit costs) and unforeseen barriers. Knowing these, before testing begins, may result in more accurate test results and decreased costs.

1. Identify rooms to be tested

ORS 332.166-167 specifies that “at a minimum, any frequently occupied room in contact with the ground or located above a basement or a crawlspace” should be tested.

Examples of such rooms include offices, classrooms, computer rooms, conference rooms, gyms, auditoriums, cafeterias and break rooms. This does not mean storage rooms, bathrooms, stairways, hallways, kitchens or elevator shafts.

Staff should procure a copy of the school's emergency escape map. It can be used as the floor plan, since it usually provides the most accurate and up-to-date information. The map can be used to identify the frequently occupied rooms at a particular school site. As discussed below, that map can also be used to indicate which test kit types will go in which room.

Make sure all rooms in the building floor plan are individually labeled; create labels for them if they are not.

2. Determine the number of test kits needed.

- a) Count all frequently occupied rooms, as defined in ORS 332.166-167.

20 Total number of rooms

- b) Determine the number of test (detectors) kits needed to test the entire school site:

16 (number of rooms up to 2,000 sq ft) x 1 test kit = 16

4 (number of rooms between 2,001 and 4,000 sq ft) x 2 test kits = 8

0 (number of rooms between 4,001 and 6,000 sq ft) x 3 test kits = 0

0 (number of rooms over 6,000 sq ft) x 4 test kits = 0

Total number of detector kits needed to test the school site = 24

3. Determine the number of quality control measurements needed

- a) Determine the number of **duplicate** measurements that need to be deployed during measurement. Rooms to be tested (20) x 0.10 (10%) = 2
[NOTE: Round up to the next whole number. Remember, you need a minimum of one duplicate kit per building.]
- b) Determine the number of **blank** measurements that need to be deployed during measurement. Rooms to be tested (20) x 0.05 (5%) = 1
[NOTE: Round up to the next whole number. Remember, you need a minimum of one blank kit per building.]
- c) Determine the number of **spike** measurements that need to be deployed during measurement. Rooms to be tested (20) x 0.03 (3%) = 1
[NOTE: Round up to the next whole number. Remember, you need a minimum of one spike kit per school site.]

4. Determine total number of test kits needed to perform all required tasks.

- 24 Number of detector kits determined in Section 2b.
- 2 Number of duplicate tests determined in Section 3a.
- 1 Number of blank tests determined in Section 3b.
- 1 Number of spike tests determined in Section 3c.

TOTAL= 28 Number of test kits needed to test the school site

5. Use your school's floor plan to create a "Test Kit Placement Log(s)"

The school radon measurement teams can use a template of the school's emergency escape plan to decide in which rooms the different types of test kits (detectors, blanks and duplicates) will be placed. These documents will guide the planning of a radon testing effort as well as the actual testing itself.

Use your school's floor plan [see template on page 56 of "[Testing for Elevated Radon in Oregon Schools](#)" protocol and plan] to create "Test Kit Placement Log(s)" [see example on on page 54 of the "[Testing for Elevated Radon in Oregon Schools](#)" protocol and plan] for the school, which indicates where the detectors, duplicates and blanks are to be placed when initial testing of the school for elevated radon begins.

Important: Because each building on a school site should have a minimum of one detector, one duplicate and one blank, a separate "Test Kit Placement Log" should be created for each building on the school site.

Radon test placement protocol checklist

Note: This document has been prepared to help schools and school districts conduct radon measurements in schools. The step-wise approach is aimed at helping school districts determine where to test, how many test kits are required, where to place test kits, and proper documentation of the process. This document is thus meant to be used as a general guideline, not a mandate. Each school will present a different situation. If specific questions or issues arise regarding testing in your school, contact the Oregon Radon Awareness Program at 971-673-0440 or email radon.program@state.or.us.

Important: Order all radon test kits for initial measurement at the same time. Kits should all be from the same manufacturing batch.

Test Kit Placement Guide

Once the number of test kits is determined, they need to be placed in the frequently occupied rooms as identified in the “What rooms should be tested?” section on page 17 of the “Testing for Elevated Radon in Oregon Schools” protocol and plan.

1. Be sure to check these items before placing the radon test kits:

- ☒ Closed building conditions have been maintained in the building for 12 hours.
- ☒ HVAC system is operating as it normally would when students and faculty are present.
- ☒ Testing is being done during a time that students and faculty are present.

2. As detectors are placed in the rooms, determined thorough and accurate data needs to be recorded on the device log and floor plan (see samples in Appendix D of the “Testing for Elevated Radon in Oregon Schools” protocol and plan.)

Protocol for all test kits include the following. Be sure that each detector placed is:

- ☒ In a location where it will be undisturbed;
- ☒ Out of direct sunlight;
- ☒ Three feet from all doors and windows;
- ☒ Four inches from all other objects;
- ☒ At least one foot from all exterior walls;
- ☒ Between 20 inches and 6 feet from the floor;
- ☒ Out of direct air flow from vents;
- ☒ Four feet from the heat source.

School measurement teams in other states simply place the test kit on the teacher’s desk or out of the way of students on a bookshelf.

3. Specific protocol for duplicate measurements. If the test kit you are placing is a duplicate measurement also be sure to:

- ☒ Place duplicate (side-by-side) test kit four to five inches away from test kit for that room.

4. Specific protocol for blank measurements. If the test kit you are placing is a blank measurement, also be sure to:

- ☒ Unwrap blanks and open, but then immediately close and reseal them.
- ☒ Place the test kit next to the detector kit(s) for the room four to five inches away.

5. Specific protocol for spiked test kits.

- ☒ Arrange for the spiked test kits to arrive back from the Certified Performance Test Chamber to the School Measurement Team as close as possible to the day that kits are retrieved from the school. [See “Quality assurance procedures for a school radon measurement program” on page 31 of the “Testing for Elevated Radon in Oregon Schools” protocol and plan.]

6. Testing period.

The test kits should be left out no less than 48 hours but no more than seven days.

[It's best to follow test kit manufacturer's instructions for more specific recommendations.]

It's best if devices are left in place for four days to ensure optimum results.

Many schools place short-term kits on Monday morning and pick them up on Thursday morning.

Retrieving kits. Once the testing period has ended, all test kits placed at a school site (detectors, duplicates and blanks) need to be retrieved. This should be done on the same date. Complete the data sheet when retrieving detectors.

- ☒ Record the ending date and time that the kits were picked up per the “Sample Test Kit Placement Log” [Appendix D, page 54, of the [“Testing for Elevated Radon in Oregon Schools”](#) protocol and plan.]
- ☒ Record ending information on the test kit package (if required).

7. Prepare and mail all kits.

- ☒ Follow the manufacturer's instructions to seal and prepare test kits to be mailed to the lab.
- ☒ Include those spiked kits (not identified as such) in the same box(es) as other kit types.
- ☒ Mail all test kits (detectors, duplicates, blanks, spikes) to the radon measurement laboratory specified on the test kit. Use a mail service that guarantees delivery to the laboratory within two days at maximum, but **preferably overnight.**



4120 SE International Way
Suite A 110
Milwaukee, OR 97222

February 10, 2017

Mr. John W. Gilbert
Facilities Manager
Falls City School District #57
81 E North Main Street
Falls City, OR 97344

Via email to: john.gilbert@fallscityschools.org

Subject: Proposal for District Wide Radon Testing
Falls City School District (4 Buildings, 24 Sample Locations)
Falls City, OR

Dear Mr. Gilbert,

This letter presents TRC Environmental Corporation's (TRC's) proposal to assist the Falls City School District (hereinafter referred to as the "Client") with radon consulting services for the Falls City School District, in the State of Oregon. Please find below our project understanding, anticipated project scope, fees, proposed project schedule, and business terms.

Project Understanding

The District has requested that TRC provide initial short-term radon in air testing at four (4) school buildings in a total of 24 testing locations, in February or March of 2017. TRC understands that all four (4) buildings have not yet undergone testing for elevated radon.

Scope of Services

TRC proposes to complete the following scope of work, including delivery of final reports, as described herein.

Radon Testing

Testing shall be provided in accordance with the United States Environmental Protection Agency (USEPA) guidance document *Radon Measurement In Schools*, July 1993 as well as the State of Oregon (ORS) document *Testing for Elevated Radon in Oregon Schools*, April 2016. EPA/ORS initial testing protocols recommend taking initial short term measurements of all frequently-occupied rooms in contact with the ground and all 1st floor rooms directly above basement spaces. Testing is to be conducted during weekdays, with students present and HVAC systems operating normally, and as feasible under "closed building conditions". Testing will be performed under the guidance of TRC personnel certified as Radon Measurement Providers by the National Environmental Health Association (NEHA) National Radon Proficiency Program (NRPP).

Activated charcoal (AC) canisters shall be utilized for the short-term testing. TRC personnel shall place the canisters and retrieve the canisters after a 48 to 96 hour sampling period. Canisters shall then be sent, within 24 hours, to TRC's in house laboratory and analyzed utilizing a gamma scintillation spectroscopy system. TRC's laboratory is also certified by the NEHA NRPP as an Analytical Radon Laboratory.

Reporting

Following sample analysis, TRC shall prepare a report for each of the four (4) buildings, detailing the radon concentration levels measured and provide recommendations on any further actions to be taken including any further follow-up testing and/or mitigation.

Pricing

The contract price is based on a total of 32 radon canisters to be installed in four (4) school buildings, at a cost of \$12.00 per canister for standard laboratory turnaround of 4 to 5 business days. TRC's costs are based upon the requirement to perform installation on a Monday and pick up on a Thursday during the hours of operation for each site as Falls City often does not have school on Friday's. The 32 radon canister count includes the 24 sampling locations as well the duplicates and blanks as recommended under the EPA/ORS QA/QC protocols. Should additional canister analysis be necessary/requested, each additional canister will be invoiced at the unit price of \$12.00 per canister upon approval from Client.

TRC proposes to perform the Scope of Services for a lump-sum fee of **\$2,695.00**. Should Client request TRC to make changes in the services or to perform additional services, TRC will prepare a Change Order for Client's acceptance prior to execution of the work. Each Change Order will set forth an adjustment in the lump-sum budget.

Basis for Payment

TRC will submit one invoice at the completion of the project following our issuance of the final project report.

Budget Assumptions

TRC developed a budget for this project based on the following assumptions.

- No delays beyond TRC's control are encountered in performing the scope of work.
- TRC will have timely, complete and unobstructed access to the property as applicable to perform the requested scope of work.

Project Schedule, Authorization and Terms of Contract

TRC will initiate project activities upon receipt of written authorization from you. TRC proposes to perform the Scope of Services under the terms and conditions of the Proposal, the Work Authorization, the Terms and Conditions, and Schedule of Charges (collectively the "Agreement"). If this Agreement is satisfactory to Client, please sign in the required spaces on the Work Authorization and return a fully executed copy to my attention and retain a signed copy of the Work Authorization for your records.

If Client requires a Purchase Order for payment purposes, please submit the Purchase Order referencing and incorporating this Agreement, including TRC's Proposal and Proposal Number in addition to the signed Work Authorization.

Closing


TRC appreciates the opportunity to be of service on this project. If you have any questions regarding this proposal, please contact the undersigned at (503) 387-3251.

Sincerely,

TRC Environmental Corporation



Victoria Shepersky, IAQCP, MICP
Senior Industrial Hygienist
Cell: 971-344-9627



Ron Landolt, CAC
Project Manager
Cell: 503-407-0734

Attachments: Terms and Conditions

TRC is hereby authorized to proceed with the above scope of services as set forth in this proposal and in accordance with attached terms and conditions.

ACCEPTED:



Signature



Name



Title



Date

FALLS CITY SCHOOL DISTRICT #57 2018-19 District Calendar

ADOPTED 5.21.18

July

M	TU	W	TH	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30	31			

0

August

M	TU	W	TH	F
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22	23	24
27	28	29	30	31

4

September

M	TU	W	TH	F
3	4	5	6	7
10	11	12	13	NS
17	18	19	20	NS
24	25	26	27	SD

16

18

October

M	TU	W	TH	F
1	2	3	4	NS
8	9	10	11	15
15	16	17	18	NS
22	23	24	25	SD
29	30	31		

19

21

November

M	TU	W	TH	F
			1	G
5	6	7	8	NS
12	13	14	15	16
19	20	21	22	NS
26	27	28	29	NS

16

19

December

M	TU	W	TH	F
3	4	5	6	SD
10	11	12	13	NS
17	18	19	20	NS
24	25	26	27	28
31				

12

13

January

M	TU	W	TH	F
1	2	3	4	
7	8	9	10	NS
14	15	16	17	SD
NS	22	23	24	25
G	29	30	31	

15

17

February

M	TU	W	TH	F
				C
4	5	6		C
11	12	13	14	NS
NS	19	20	21	22
25	26	27	28	

17

18

March

M	TU	W	TH	F
				NS
4	5	6	7	NS
11	12	13	14	SD
18	19	20	21	NS
25	26	27	28	29

12

13

April

M	TU	W	TH	F
1	2	3	4	G
8	9	10	11	NS
15	16	17	18	SD
22	23	24	25	NS
29	30			

18

20

May

M	TU	W	TH	F
		1	2	NS
6	7	8	9	SD
13	14	15	16	NS
20	21	22	23	NS
27	28	29	30	31

18

20

June

M	TU	W	TH	F
3	4	5	6	NS
10	11	12	13	G
17	18	19	20	21
24	25	26	27	28

9

The purpose of this calendar is to show the days students are present and instructional staff are working full days to meet state standards for grades K-12. This calendar represents the FINAL work calendar for teachers and assumes an eight (8) hour work day.

- September 4, 2018 - First Day for Students
- Instructional Days - Students Attend School
- NS - No School
- Grading Days - No School
- Conference Days - No School
- Holidays - No School
- Summer, Winter & Spring Breaks - No School
- June 7, 2019 - HS Graduation - 7:00 pm - No School
- June 13, 2019 - Last Day of School
- Board Meetings - 6:30 pm
- Staff Inservice Days - No School
- Staff Development Days - No School

Signed original in Business Office
Board Chair/Date



14 Gabriel Drive
Augusta, ME 04330
207-620-3800

INVOICE

PLEASE REMIT TO:
TRC Lockbox
P. O. Box 536282
Pittsburgh, PA 15253-5904

John Gilbert
Falls City School District #57
111 N. Main Street
Falls City, OR 97344

December 20, 2018
Project No: 318590.0000.0000
Invoice No: 325560
Project Manager Ronald Landolt

Project 318590.0000.0000 Falls City School District #57 (4 Bldgs, 24 Locations) - 81 E North Main St,
Falls City OR 97344

Professional Services through December 19, 2018

Phase 000001 Radon Testing & Reports

Fee

Total Fee 2,695.00

Percent Complete

100.00	Total Earned	2,695.00	
	Previous Fee Billing	0.00	
	Current Fee Billing	2,695.00	
	Total Fee		2,695.00

Total this Phase 2,695.00

Total this Invoice 2,695.00

Req # 493



4105 SE International Way
Suite 505
Milwaukie, OR 97222

503.387.3251 PHONE
503.908.1318 FAX

www.trcsolutions.com

December 20, 2018

Mr. John W. Gilbert
Facilities Manager
Falls City School District #57
81 E. North Main Street
Falls City, OR 97344

VIA email to: john.gilbert@fallscityschools.org

RE: Radon Testing
Falls City School District
111 N. Main Street
Falls City, OR 97344

TRC Project: 318590

Mr. Gilbert:

At your request, TRC Environmental Corporation (TRC) performed radon in air testing at the Falls City Elementary School located at 177 Prospect Avenue and the Falls City High School, Gym Building, and Library/Science Building located at 111 North Main Street in Falls City, Oregon.

Testing Procedures

Prior to conducting the radon testing, to maintain proper testing conditions, a notification letter from the school administration was provided to staff informing them of the scheduled radon testing dates and protocols. Testing was performed under the guidance of TRC personnel certified as Radon Measurement Providers by the American Association of Radon Scientists and Technologist (AARST) National Radon Proficiency Program (NRPP). The radon testing was performed between December 10, 2018 and December 13, 2018, and involved four (4) school buildings.

Radon testing was conducted using the protocols recommended by the United States Environmental Protection Agency (USEPA) and the Oregon Health Authority (OHA) as directed by ORS 332.166-167. Testing was conducted by taking initial short-term measurements of frequently occupied rooms in contact with the soil or above a basement or crawlspace. Frequently occupied rooms include classrooms, offices, cafeterias, libraries and gymnasiums. Areas such as restrooms, hallways, stairwells, elevator shafts, utility closets and storage closets need not be tested. Testing was conducted during the weekday while school was in session and Heating Ventilation and Air-Conditioning (HVAC) systems were operating normally.

The radon sampling devices placed in the four (4) school buildings were short-term (3-day) passive, 4-inch open-faced, activated charcoal absorption canisters, deployed in general accordance with the OHA guidance documents *Testing for Elevated Radon in Oregon Schools*, as

well as the EPA guidance documents *Radon Measurements in Schools, July 1993*, and *Indoor Radon and Radon Decay Product Measurement Device Protocols, July 1992*. A warning sheet was placed underneath each testing device to alert occupants that radon testing was in progress, and that the device should not be disturbed and the windows must remain closed. TRC followed the EPA and OHA guidance for placing testing devices, as reasonably feasible, based on each room's configuration and usage. Testing devices were generally placed within the rooms away from drafts, vents and appliance, 20 inches above the floor, 3 feet from any exterior walls, doors or windows, 1 foot from any interior walls, 4 inches from other objects, away from heat, areas of high humidity and direct sunlight and where they were least likely to be disturbed. Multiple testing devices were utilized in rooms that were greater than 2000 square feet.

Testing for the District included 10% duplicated measurements and 5% blank measurements to provide appropriate quality assurance/quality control (QA/QC) measures. Samples were left in place for 3 days. After retrieval from the four (4) school buildings, the canisters were returned to TRC's AARST/NRPP-certified Analytical Laboratory (#102266AL) for analysis utilizing a gamma scintillation spectroscopy system.

Samples Collected and Results

Testing was performed in 24 locations within the four (4) Falls City School District buildings. Of the 24 devices deployed, one (1) was tampered with during testing (Sample #9 located in the Gym) and was therefore not analyzed. Recommendations for the Gym are provided below.

Of the 23 locations tested, one (1) location, the High School cafeteria, had results above the EPA recommended action level of 4.0 picocuries per liter (pCi/L) of air. Therefore, recommendations for the High School cafeteria are provided below. The remaining 22 locations tested had results below the EPA recommended action level of 4.0 picocuries per liter (pCi/L) of air.

Please note that the USEPA Action Level is based on an annual average concentration, and the USEPA does recommend re-testing sometime in the future, as radon concentrations can fluctuate over time and from room to room. OHA protocols recommend re-evaluation air testing every five years for schools with radon mitigation measures and whenever significant changes to the building's structure or mechanical systems occur.

Recommendations


TRC recommends that the District re-install a sampling device to take a short-term measurement in the Gym where Sample #9 was removed.

TRC recommends that the District lower the radon in the High School cafeteria and perform a long-term follow-up measurement test of this room. TRC recommends the long-term test be conducted over a nine-month school year when the room is occupied. If the nine-month test results show that the adjustment of the HVAC does not reduce the radon below 4.0 pCi/L, TRC then recommends hiring a radon mitigation professional to reduce the elevated radon levels.

Enclosed, please find the sample location maps located in Appendix A and laboratory analytical data located in Appendix B.

TRC appreciates the opportunity to provide you with environmental consulting services. We look forward to working with you on future endeavors. If you have any questions or comments concerning this report, please call TRC at (503) 387-3251.

Sincerely,
TRC Environmental Corporation



Chloe Hudson
Staff Scientist

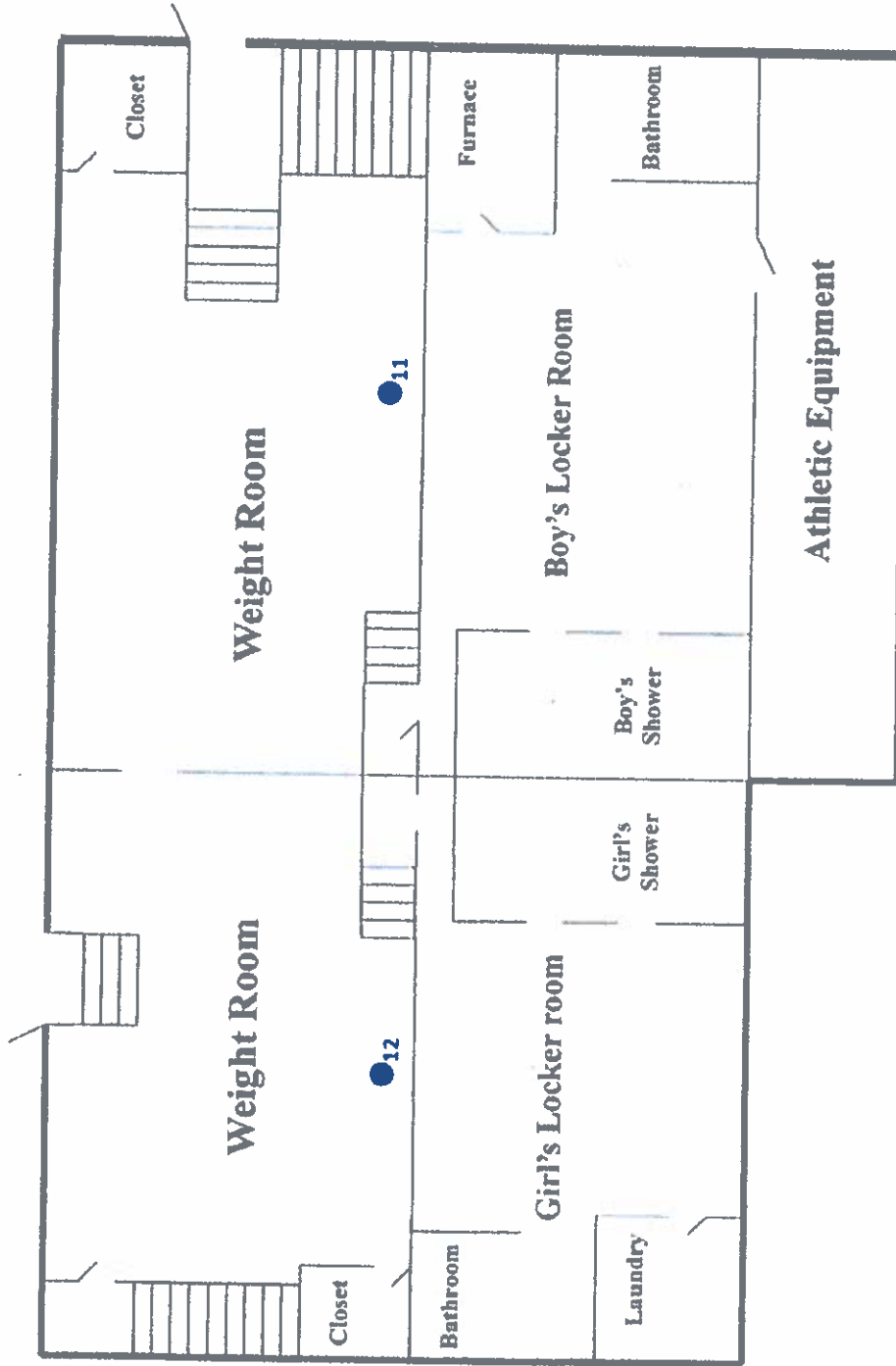


Ron Landolt
NW Region BSI Practice Leader

Attachments: Appendix A – Sample Location Map
Appendix B – Laboratory Results

Appendix A – Sample Location Maps

Gym: Lower Floor



LEGEND

● — Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - GYM BUILDING
111 NORTH MAIN STREET
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Drawn by: CH

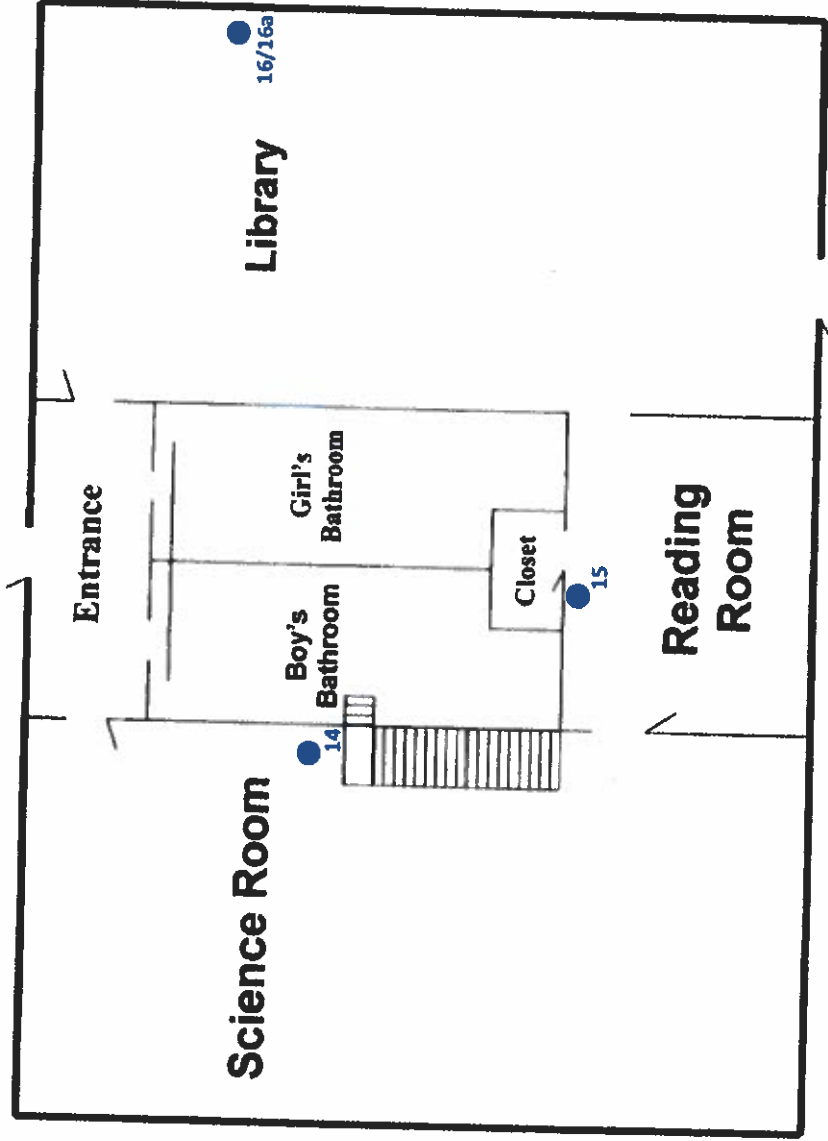
Figure: 1.2

Date: 12/20/18



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222
Phone: (503) 407-0734 Fax: (503) 282-0102

Library/Science Bldg.



LEGEND

- — Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - LIBRARY/SCIENCE BUILDING
111 NORTH MAIN STREET
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Figure: 1.1

Drawn by: CH

Checked by: RL

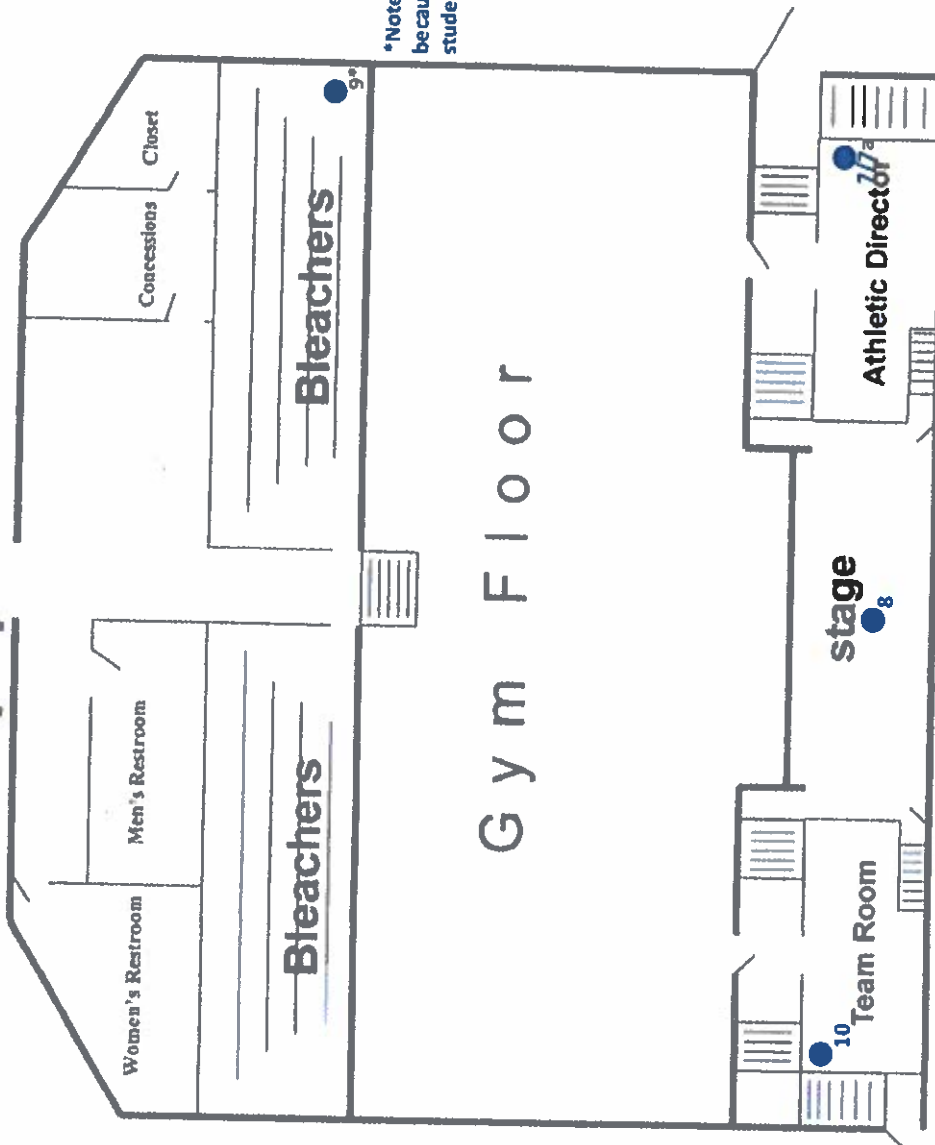
Date: 12/20/18



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222

Phone: (503) 407-0734 Fax: (503) 282-0102

Gym: Upper Floor



Rev: 10/2008

LEGEND

- Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - GYM BUILDING
111 NORTH MAIN STREET
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Figure: 1.3

Drawn by: CH

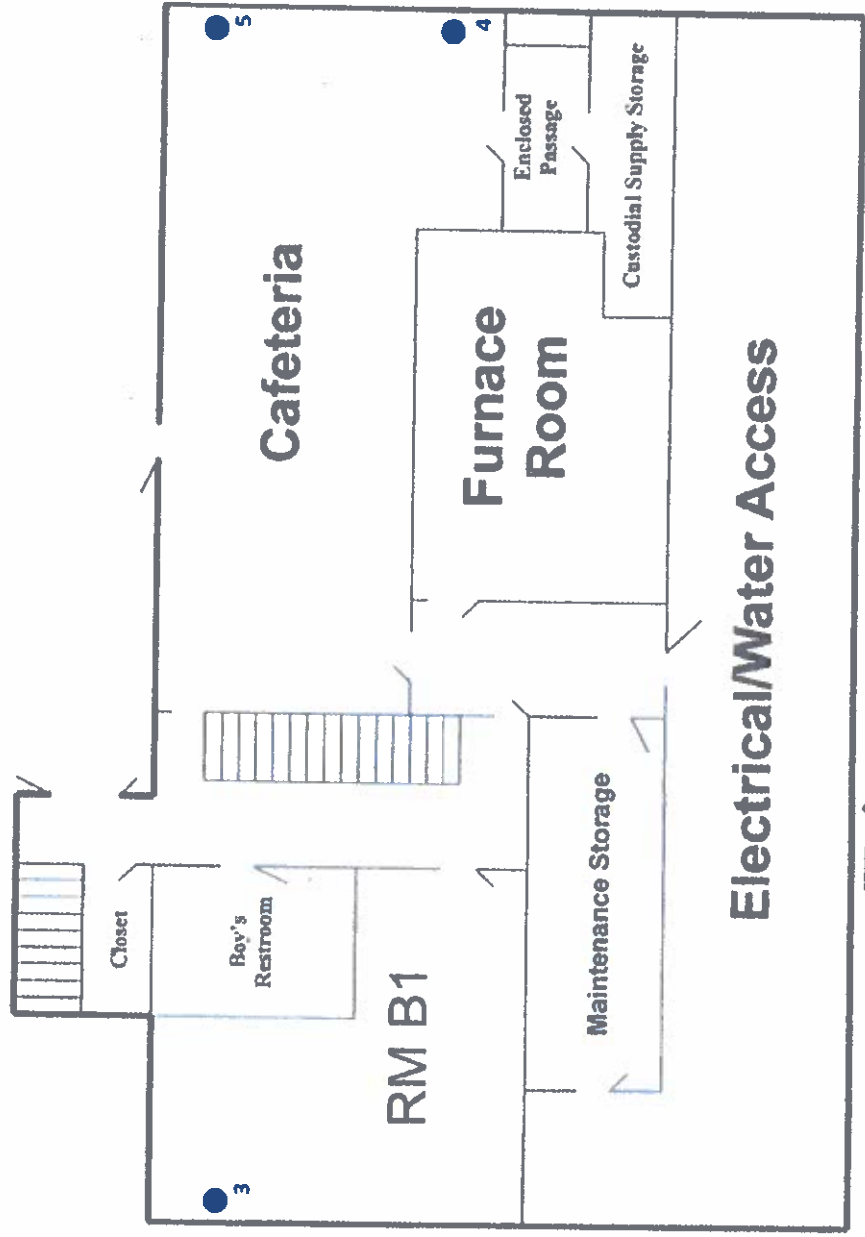
Checked by: RL

Date: 12/20/18



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222
Phone: (503) 407-0734 Fax: (503) 282-0102

High School



First Floor

LEGEND

- — Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - HIGH SCHOOL
111 NORTH MAIN STREET
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Figure: 1.4

Drawn by: CH

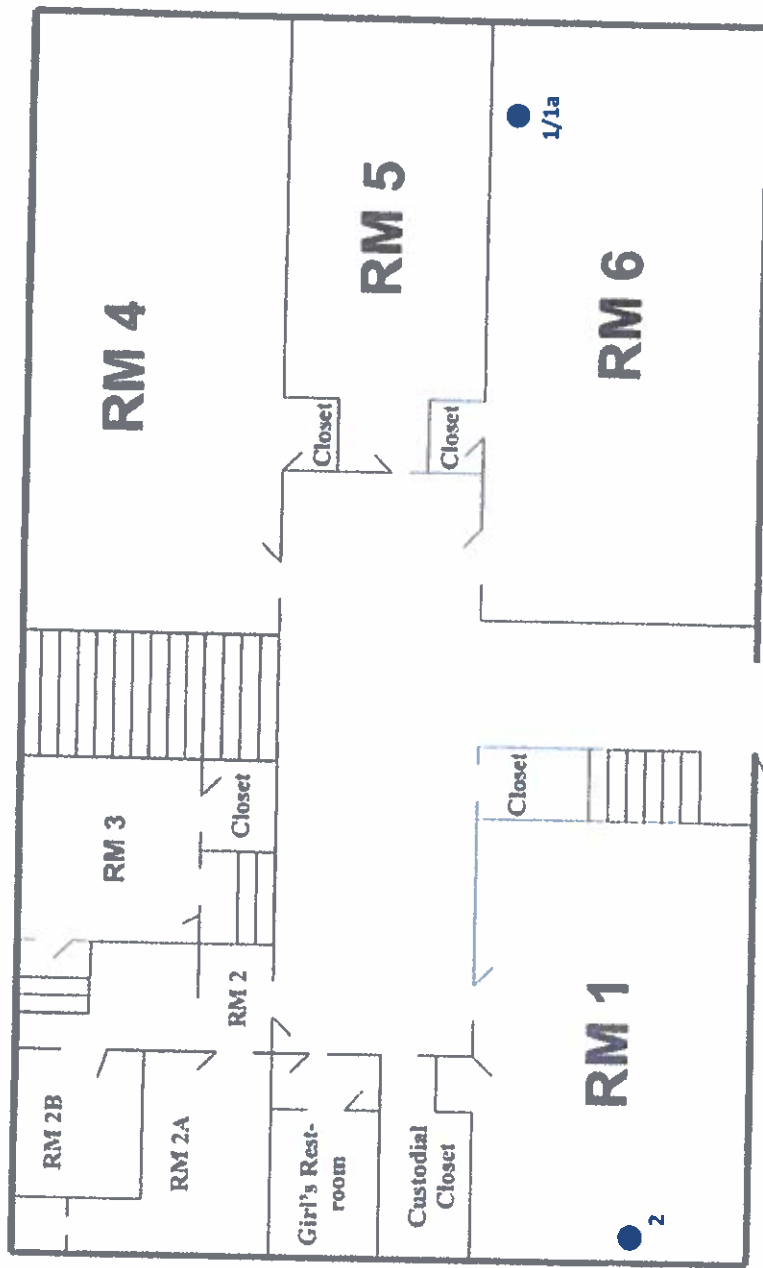
Checked by: RL

Date: 12/20/18



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222
Phone: (503) 407-0734 Fax: (503) 282-0102

High School



Second Floor

LEGEND

- — Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - HIGH SCHOOL
111 NORTH MAIN STREET
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Drawn by: CH

Figure: 1.5

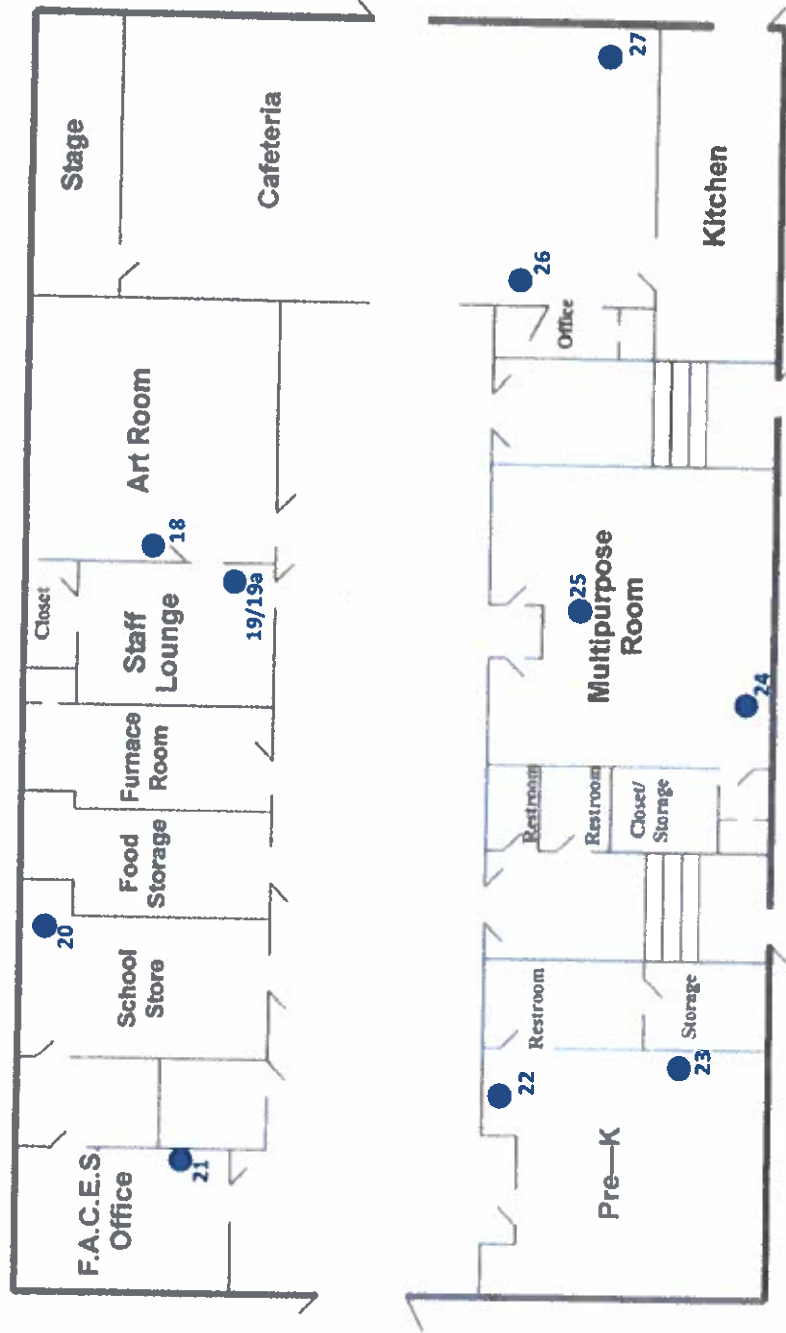
Checked by: RL

Date: 12/20/18



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222
Phone: (503) 407-0734 Fax: (503) 282-0102

Elementary Bldg.



Rev: 10/2009

First Floor

LEGEND

- Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - ELEMENTARY SCHOOL
177 PROSPECT AVENUE
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Figure: 1.6

Drawn by: CH

Checked by: RL

Date: 12/20/18



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222
Phone: (503) 407-0734 Fax: (503) 282-0102

Appendix C – Laboratory Results



Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

RADON ANALYSIS REPORT

CLIENT: Falls City School District

Site: School District #57 (4 Buildings), 81 E North Main St, Falls City OR 97344
Project #: 318590.0000.0000
Radon Log #: 53160
Date Received: 12/14/18
Date Analyzed: 12/14-17/18

Test Location	Canister #	Start Date	Start Time	Stop Date	Stop Time	Radon Concentration (pCi/l)
1-Room 6	1441	12/10/18	1031	12/13/18	1035	1.2
1A-Room 6 Duplicate	821	12/10/18	1032	12/13/18	1036	1.1
2-Room 1	1431A	12/10/18	1035	12/13/18	1038	1.3
3-Room B1	2040	12/10/18	1038	12/13/18	1040	3.0
4-Cafeteria	231	12/10/18	1042	12/13/18	1042	2.2
5-Cafeteria	1866	12/10/18	1043	12/13/18	1044	4.2
6-Field Blank	2104	12/10/18	1045	12/13/18	1045	ND<0.5
7-Athletic Director	2089	12/10/18	1051	12/13/18	1046	1.1
7A-Athletic Director Duplicate	3235	12/10/18	1052	12/13/18	1047	1.1
8-Gym	1671	12/10/18	1058	12/13/18	1049	1.4
9-Gym	3036	12/10/18	1105	12/13/18	1057	**
10-Team Room	1956	12/10/18	1109	12/13/18	1100	1.4
11-Weight Room	1579	12/10/18	1112	12/13/18	1102	1.1
12-Weight Room	2130	12/10/18	1113	12/13/18	1104	1.5
13-Field Blank	3184	12/10/18	1115	12/13/18	1115	ND<0.5
14-Science Room	2050	12/10/18	1121	12/13/18	1108	2.3
15-Reading Room	1921	12/10/18	1124	12/13/18	1112	1.8
16-Library	2112	12/10/18	1126	12/13/18	1116	2.0
16A-Library Duplicate	589	12/10/18	1127	12/13/18	1117	1.7
17-Field Blank	2171	12/10/18	1129	12/13/18	1129	ND<0.5
18-Art Room	2004	12/10/18	1148	12/13/18	1126	1.6

53160.Falls City SD.doc


19- Staff Lounge	2196	12/10/18	1150	12/13/18	1127	1.3
19A- Staff Lounge Duplicate	2155	12/10/18	1151	12/13/18	1128	1.2
20- School Store	443	12/10/18	1154	12/13/18	1130	1.4
21- FACES Office	1989	12/10/18	1157	12/13/18	1134	1.1
22- Pre-K	112	12/10/18	1201	12/13/18	1137	1.6
23- Pre-K	1970	12/10/18	1202	12/13/18	1138	1.7
24- Multipurpose	2019	12/10/18	1207	12/13/18	1140	1.8
25- Multipurpose	1816	12/10/18	1210	12/13/18	1142	1.5
26- Cafeteria	2141	12/10/18	1212	12/13/18	1147	1.2
27- Cafeteria	1867	12/10/18	1214	12/13/18	1149	1.1
28- Field Blank	235	12/10/18	1216	12/13/18	1216	ND< 0.5

**Void- See CoC


Results relate only to samples tested, as received by the laboratory.

This laboratory utilizes gamma scintillation spectroscopy to analyze activated charcoal (AC) canisters following USEPA Indoor Radon and Radon Decay Product Measurement Device Protocols, July 1992. The United States Environmental Protection Agency has set a CONTINUOUS EXPOSURE Action Level of 4 pCi/l as a guidance level at which further testing and/or remedial actions are indicated. Consult your testing laboratory or State Health Department for further information.

Analyzed by


Kathryn Lemire, Laboratory Analyst

Reviewed by


Kathleen Williamson, Laboratory Manager
or other approved signatory

Date Issued:

12/18/18

Project #: 318590

Lab #: 53160
Page 1 of 2

Client: Falls City SD.

Device Placement Log

Site: Falls City SD - 4 Bldgs

Room#/Name	Location	Canister #	Start Date	Start Time	Stop Date	Stop Time	Initial Wt.	Final Wt.	Result
1- Am 6	Top of bookshelves	1441 ₂₀	12/10/18	10:31am	12/13/18	10:35am	167.3	170.8	1.2
1a- Am 6 Dup.	↓	821 ₂₀	12/10/18	10:32am		10:36am	156.2	159.7	1.1
2- Am 1	Top of bookshelves	1431A ₂₀		10:35am		10:38am	160.9	164.7	1.3
3- Am B1	Bookshelves	2040 ₂₀		10:38am		10:40am	158.9	162.7	3.0
4- Cafeteria	Top shelf	231 ₂₀		10:42am		10:42am	158.4	160.2	2.2
5- Cafeteria	Table	1866 ↓		10:43am	↓	10:44am	155.8	159.0	4.2
6- Blank	High School	2104		10:45am	12/10/18	10:45am	156.0	156.1	nd
7- Athletic Director	File cabinet	2089		10:51am	12/13/18	10:46am	158.6	160.9	1.1
7a- Athletic Director Dup.	↓	3235		10:52am		10:47am	161.2	164.7	1.1
8- Gym	Stage	1671		10:58am		10:49am	163.5	168.0	1.4
9- Gym	Chair next to bleachers	3036		11:05am		10:57am	DO NOT ANALYZE	DO NOT ANALYZE	←
10- Team Room	Table	1956		11:09am		11:00am	156.5	159.5	1.4
11- Weight Room	Ledge	1579		11:12am		11:02am	164.4	167.6	1.1
12- Weight Room	Ledge	2130		11:13am	↓	11:04am	159.1	162.4	1.5
13- Blank	Gym	3184		11:15am	12/10/18	11:15am	157.4	157.5	nd
14- Science Room	Top Bookshelf	2050		11:21am	12/13/18	11:08am	157.3	160.6	2.3
15- Reading Room	Top cabinet	1921		11:24am		11:12am	156.2	158.7	1.8
16- Library	Bookshelf	2112		11:26am		11:16am	157.5	160.2	2.0
16a- Library Dup.	↓	589		11:27am	↓	11:17am	159.7	161.7	1.7
17- Blank	Library	2171	↓	11:29am	12/10/18	11:29am	157.5	157.6	nd

Relinquished by: Chloé Hudson

Received by: *[Signature]*

12/14/18

11:00

10% Duplicates 5% Field Blanks

*Contents spilled by students and brushed back into canister by TRC upon pickup. Canister was upside down - DO NOT ANALYZE *

Project #: 31859D

Lab #: 53160
Page 2 of 2

Page 2 of 2

Device Placement Log

Client: Falls City SD.

Site: Falls City SD - 4 Bldgs

[illegible]

Relinquished by: Chloe Hudson

Received by: Kelley 12/14/18 1100

10% Duplicates 5% Field Blanks



4105 SE International Way
Suite 505
Milwaukie, OR 97222

January 10, 2019

Mr. John W. Gilbert
Facilities Manager
Falls City School District #57
81 E. North Main Street
Falls City, OR 97344

Via email to: john.gilbert@fallscityschools.org

Subject: Proposal for Follow-up Radon Testing
Falls City School District (High School Building, 2 Sample Locations)
Falls City, OR

Dear Mr. Gilbert,

This letter presents TRC Environmental Corporation's (TRC's) proposal to assist the Falls City School District (hereinafter referred to as the "Client") with radon consulting services for the Falls City School District, in the State of Oregon. Please find below our project understanding, anticipated project scope, fees, proposed project schedule, and business terms.

Project Understanding

The District has requested that TRC provide follow-up short-term radon in air testing at the High School building in a total of 2 testing locations, the Cafeteria and Room B1. These two locations were found to be elevated during the initial sampling conducted by TRC in December 2018. The District is seeking a follow-up test to see if the results remain consistent.

Scope of Services

TRC proposes to complete the following scope of work, including delivery of final reports, as described herein.

Radon Testing

Testing shall be provided in accordance with the United States Environmental Protection Agency (USEPA) guidance document *Radon Measurement In Schools*, July 1993 as well as the State of Oregon (ORS) document *Testing for Elevated Radon in Oregon Schools*, April 2016. EPA/ORS initial testing protocols recommend taking initial short term measurements of all frequently-occupied rooms in contact with the ground and all 1st floor rooms directly above basement spaces. Testing is to be conducted during weekdays, with students present and HVAC systems operating normally, and as feasible under "closed building conditions". Testing

will be performed under the guidance of TRC personnel certified as Radon Measurement Providers by the National Environmental Health Association (NEHA) National Radon Proficiency Program (NRPP).

Activated charcoal (AC) canisters shall be utilized for the short-term testing. TRC personnel shall place the canisters and retrieve the canisters after a 48 to 96 hour sampling period. Canisters shall then be sent, within 24 hours, to TRC's in house laboratory and analyzed utilizing a gamma scintillation spectroscopy system. TRC's laboratory is also certified by the NEHA NRPP as an Analytical Radon Laboratory.

Reporting

Following sample analysis, TRC shall prepare a report, detailing the radon concentration levels measured and provide recommendations on any further actions to be taken including any further follow-up testing and/or mitigation.

Pricing

The contract price is based on a total of 4 radon canisters to be installed, at a cost of \$12.00 per canister for standard laboratory turnaround of 4 to 5 business days. One canister will be placed in Room B1, one canister will be placed in the Cafeteria and one duplicate and one field blank will also be collected. TRC's costs are based upon the requirement to perform installation on a Monday and pick up on a Thursday during the hours of operation for each site as Falls City often does not have school on Friday's. The 4 radon canister count includes the 2 sampling locations as well the duplicates and blanks as recommended under the EPA/ORS QAQC protocols. Should additional canister analysis be necessary/requested, each additional canister will be invoiced at the unit price of \$12.00 per canister upon approval from Client.

TRC proposes to perform the Scope of Services for a lump-sum fee of **\$700.00**. Should Client request TRC to make changes in the services or to perform additional services, TRC will prepare a Change Order for Client's acceptance prior to execution of the work. Each Change Order will set forth an adjustment in the lump-sum budget.

Basis for Payment

TRC will submit one invoice at the completion of the project following our issuance of the final project report.

Budget Assumptions

TRC developed a budget for this project based on the following assumptions.

- No delays beyond TRC's control are encountered in performing the scope of work.
- TRC will have timely, complete and unobstructed access to the property as applicable to perform the requested scope of work.

Project Schedule, Authorization and Terms of Contract

TRC will initiate project activities upon receipt of written authorization from you. TRC proposes to perform the Scope of Services under the terms and conditions of the Proposal, the Work Authorization, the Terms

and Conditions, and Schedule of Charges (collectively the "Agreement"). If this Agreement is satisfactory to Client, please sign in the required spaces on the Work Authorization and return a fully executed copy to my attention and retain a signed copy of the Work Authorization for your records.

If Client requires a Purchase Order for payment purposes, please submit the Purchase Order referencing and incorporating this Agreement, including TRC's Proposal and Proposal Number in addition to the signed Work Authorization.

Closing

TRC appreciates the opportunity to be of service on this project. If you have any questions regarding this proposal, please contact the undersigned at (503) 387-3251.

Sincerely,

TRC Environmental Corporation



Victoria Shepersky, IAQCP, MICP
Senior Industrial Hygienist
Cell: 971-344-9627



Ron Landolt, CAC
Project Manager
Cell: 503-407-0734

Attachments: Terms and Conditions

TRC is hereby authorized to proceed with the above scope of services as set forth in this proposal and in accordance with attached terms and conditions.


ACCEPTED:



Signature



Name



Title



Date



14 Gabriel Drive
Augusta, ME 04330
207-620-3800

INVOICE

PLEASE REMIT TO:
TRC Lockbox
P. O. Box 536282
Pittsburgh, PA 15253-5804

John Gilbert
Falls City School District #57
111 N. Main Street
Falls City, OR 97344

March 27, 2019
Project No: 318590.0000.0000
Invoice No: 352098
Project Manager: Ronald Landolt

Project 318590.0000.0000 Falls City School District #57 (4 Bldgs, 24 Locations) - 81 E North Main St,
Falls City OR 97344

Professional Services through March 15, 2019

Phase 000002 HS Bldg (Cafeterial & Rm B1) - Follow-Up Radon Testing

Fee

Total Fee 700.00

Percent Complete

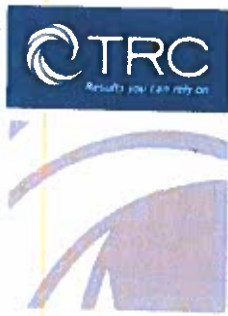
100.00 Total Earned
Previous Fee Billing
Current Fee Billing
Total Fee

700.00
0.00
700.00

700.00

Total this Phase 700.00

Total this Invoice 700.00



4105 SE International Way
Suite 505
Milwaukie, OR 97222

503.387.3251 PHONE
503.908.1318 FAX

www.trcsolutions.com

February 18, 2019

Mr. John W. Gilbert
Facilities Manager
Falls City School District #57
81 E. North Main Street
Falls City, OR 97344

VIA email to: john.gilbert@fallscityschools.org

RE: Radon Testing
Falls City School District
111 N. Main Street
Falls City, OR 97344

TRC Project: 318590 Phase 2

Mr. Gilbert:

At your request, TRC Environmental Corporation (TRC) performed follow-up short term radon in air testing at the Falls City High School located at 111 North Main Street in Falls City, Oregon.

Background

TRC Environmental Corporation (TRC) previously performed radon in air testing at the Falls City High School between December 10, 2018 and December 13, 2018. At that time, sampling results from the Cafeteria were above the EPA recommended action level of 4.0 picocuries per liter (pCi/L) of air and sampling results from Classroom B1 were elevated, but still below the EPA recommended action level of 4.0 picocuries per liter (pCi/L) of air. Based on those results, TRC recommended follow-up testing in the Cafeteria and Classroom B1. Client requested another round of short term testing to determine if a long term test was warranted.

Testing Procedures

Prior to conducting the radon testing, to maintain proper testing conditions, a notification letter from the school administration was provided to staff informing them of the scheduled radon testing dates and protocols. The radon testing was performed between February 11, 2019 and February 14, 2019, and involved one (1) school building.

Radon testing was conducted using the protocols recommended by the United States Environmental Protection Agency (USEPA) and the Oregon Health Authority (OHA) as directed by ORS 332.166-167. Testing was conducted by taking short-term measurements of frequently occupied rooms in contact with the soil or above a basement or crawlspace. Frequently occupied rooms include classrooms, offices, cafeterias, libraries and gymnasiums. Areas such as restrooms, hallways, stairwells, elevator shafts, utility closets and storage closets need not be tested. Testing was conducted during the weekday while school was in session and Heating Ventilation and Air-Conditioning (HVAC) systems were operating normally.

The radon sampling devices placed in the one (1) school building were short-term (3-day) passive, 4-inch open-faced, activated charcoal absorption canisters, deployed in general accordance with the OHA guidance documents *Testing for Elevated Radon in Oregon Schools*, as well as the EPA guidance documents *Radon Measurements in Schools, July 1993*, and *Indoor Radon and Radon Decay Product Measurement Device Protocols, July 1992*. A warning sheet was placed underneath each testing device to alert occupants that radon testing was in progress, and that the device should not be disturbed and the windows must remain closed. TRC followed the EPA and OHA guidance for placing testing devices, as reasonably feasible, based on each room's configuration and usage. Testing devices were generally placed within the rooms away from drafts, vents and appliance, 20 inches above the floor, 3 feet from any exterior walls, doors or windows, 1 foot from any interior walls, 4 inches from other objects, away from heat, areas of high humidity and direct sunlight and where they were least likely to be disturbed (when possible). Multiple testing devices were utilized in rooms that were greater than 2000 square feet.

Testing for the District included 10% duplicated measurements and 5% blank measurements to provide appropriate quality assurance/quality control (QA/QC) measures. Samples were left in place for 3 days. After retrieval from the High School building, the canisters were returned to TRC's AARST/NRPP-certified Analytical Laboratory (#102266AL) for analysis utilizing a gamma scintillation spectroscopy system.

Samples Collected and Results

Follow-up testing was performed in 2 locations within the Falls City High School building. **Of the two (2) rooms tested, neither had results above the EPA recommended action level of 4.0 picocuries per liter (pCi/L) of air. However, the average radon concentration of the two (2) sampling devices placed in the Cafeteria was 3.7 picocuries per liter (pCi/L) of air. Recommendations for the Cafeteria are provided below.**

Please note that the USEPA Action Level is based on an annual average concentration, and the USEPA does recommend re-testing sometime in the future, as radon concentrations can fluctuate over time and from room to room. OHA protocols recommend re-evaluation air testing every five years for schools with radon mitigation measures and whenever significant changes to the building's structure or mechanical systems occur.

Recommendations

TRC offers no further recommendations for Classroom B1; however, based on the follow-up testing results for the Cafeteria being just below the EPA action level of 4.0 pCi/L, with prior results being above 4.0 pCi/L, TRC recommends that the District lower the radon in the High School Cafeteria by adjusting the ventilation system and performing a long-term follow-up measurement test of this room. TRC recommends the long-term test be conducted over a nine-month school year when the room is occupied. If the nine-month test results show that the adjustment of the HVAC does not maintain the radon below 4.0 pCi/L, TRC then recommends hiring a radon mitigation professional to reduce the elevated radon levels.

Enclosed, please find the sample location maps located in Appendix A and laboratory analytical data located in Appendix B.

TRC appreciates the opportunity to provide you with environmental consulting services. We look forward to working with you on future endeavors. If you have any questions or comments concerning this report, please call TRC at (503) 387-3251.

Sincerely,
TRC Environmental Corporation

Chloe Hudson

Chloe Hudson
Staff Scientist

Ron A. Landolt

Ron Landolt
NW Region BSI Practice Leader

Attachments: Appendix A – Sample Location Map
Appendix B – Laboratory Results

Appendix A – Sample Location Maps



Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

RADON ANALYSIS REPORT

CLIENT: Falls City School District

Site: Falls City High School, 111 North Main Street, Falls City, OR
Project #: 318590.0002.0000
Lab Log #: 53382
Date Received: 02/15/19
Date Analyzed: 02/15/19

Test Location	Canister #	Start Date	Start Time	Stop Date	Stop Time	Radon Concentration (pCi/l)
1- Rm. B1	1876	02/11/19	0904	02/14/19	0847	1.9
2- Cafeteria	518	02/11/19	0914	02/14/19	0849	3.9
2a- Cafeteria- Duplicate	2013	02/11/19	0915	02/14/19	0849	3.5
3- Field Blank	305	02/11/19	0916	02/14/19	0916	ND<0.5


Results relate only to samples tested, as received by the laboratory.

This laboratory utilizes gamma scintillation spectroscopy to analyze activated charcoal (AC) canisters following USEPA Indoor Radon and Radon Decay Product Measurement Device Protocols, July 1992. The United States Environmental Protection Agency has set a CONTINUOUS EXPOSURE Action Level of 4 pCi/l as a guidance level at which further testing and/or remedial actions are indicated. Consult your testing laboratory or State Health Department for further information.

Analyzed by


Kathleen Williamson, Laboratory Manager

Reviewed by


Kathleen Williamson, Laboratory Manager
or other approved signatory

Date Issued:

02/15/19

Project #: 318590 Ph. 2

Lab #: 53382

Device Placement Log

Client: Falls City SD, OR

Site: Falls City HS

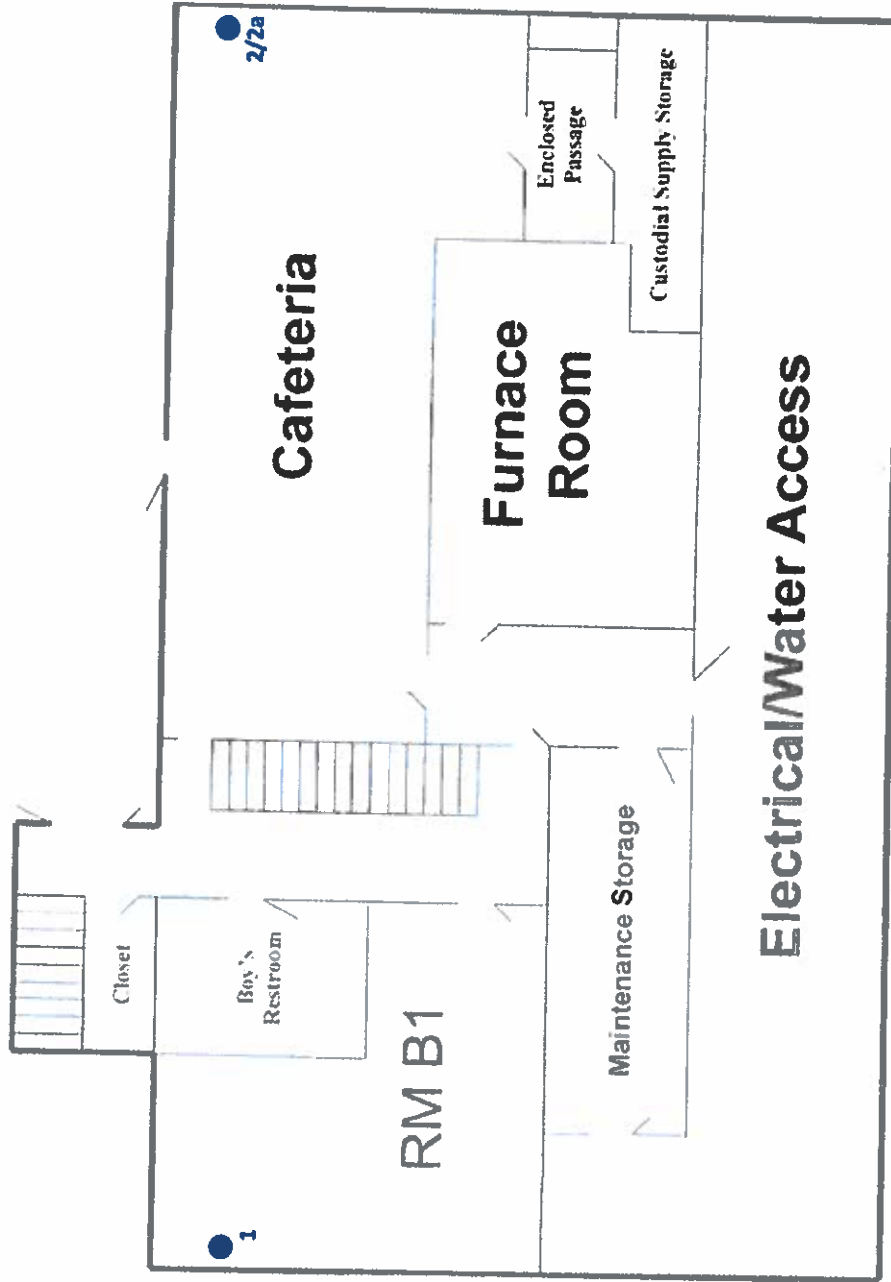
[illegible]

Relinquished by: Chloe Hudson

Received by: 2/15/19 0945

10% Duplicates 5% Field Blanks

High School



First Floor

LEGEND

- — Radon Sample Location

RADON SURVEY REPORT SAMPLE LOCATION MAP

FALLS CITY SCHOOL DISTRICT - HIGH SCHOOL
111 NORTH MAIN STREET
FALLS CITY, OREGON 97344

TRC Project No.: 318590

Figure: 1

Drawn by: CH

Checked by: RL

Date: 2/18/19



4105 SE International Way, Suite 505
Milwaukie, Oregon 97222

Phone: (503) 407-0734 Fax: (503) 282-0102

Appendix B -- Laboratory Results