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**CITADEL** ENVIRONMENTAL SERVICES, INC.

PRIVILEGED AND CONFIDENTIAL

December 15, 2015

Elizabeth Gonzales  
Principal Engineer  
**WATERSTONE ENVIRONMENTAL, INC.**  
11026 Ventura Boulevard Suite 1  
Studio City, California, 91604

**Re: CITADEL Report No. 7059.1003.0  
Radon Testing Report  
LAUSD Campuses  
Porter Ranch Community School and Castlebay Lane Elementary School**

Dear Ms. Gonzales;

Enclosed please find a copy of the report for the Indoor Air Quality Sampling for Radon Gas prepared by Citadel Environmental Services, Inc. All work was conducted in accordance with Citadel's Proposal Number 7059.1003.P, dated December 3, 2015, as well as industry standards and Client-established protocols.

If, after your review, you have any questions or require additional information, please do not hesitate to telephone me at the Citadel Office in Glendale at (818) 246-2707.

Sincerely,  
**CITADEL ENVIRONMENTAL SERVICES, INC.**

Mark Drollinger, M.Eng, CSP, CHMM, EIT  
Director, Environmental Geology and Engineering

Enclosure



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**CITADEL** ENVIRONMENTAL SERVICES, INC.

**Waterstone Environmental, Inc.**  
11026 Ventura Boulevard Suite 1  
Studio City, California 91604

## **Radon Testing Report**

December 15, 2015

Citadel Project Number 7059.1003.0

LAUSD Campuses  
Porter Ranch Community School and Castlebay Lane  
Elementary School

**[www.citadelenvironmental.com](http://www.citadelenvironmental.com)**

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- A. Laboratory Report
- B. Field Documents
- C. Certification

## **1.0 INTRODUCTION**

Citadel Environmental Services, Inc. (Citadel) was retained by Waterstone Environmental, Inc. (Client) to conduct Indoor Air Quality (IAQ) sampling for radon gas at Porter Ranch Community School located at 12450 Mason Avenue in Porter Ranch, California, and Castlebay Lane Elementary School located at 19010 Castlebay Lane in Porter Ranch, California (Site). The IAQ sampling was conducted in accordance with Citadel's Proposal Number 7059.1003.P, dated December 3, 2015, as well as industry standards and Client-established protocols.

Citadel's scope of work was to collect short term radon gas samples to evaluate the current interior conditions and confirm that radon gas concentrations are below the United States Environmental Protection Agency (USEPA) guidance for Radon Measurement in Schools<sup>1</sup> action level of 4.0 pico curies per liter (pCi/L).

The survey was conducted from December 4<sup>th</sup> to December 10<sup>th</sup>, 2015.

## **2.0 SITE DESCRIPTION AND BACKGROUND**

The Site consists of the Porter Ranch Community School and the Castlebay Lane Elementary School in Porter Ranch. The areas sampled consisted of approximately 50 occupied classrooms or offices combined throughout both campuses.

Radon is a colorless, odorless, and tasteless radioactive, naturally occurring gas, which results from the radiogenic decay of uranium and radium. Radon migrates up through the soil and can enter structures through cracks and penetrations in the foundation or slab. The primary concern for radon is not in the amount of radon emanating from the soil, but the concentrations within buildings. Radon emanations from soil will vary considerably depending upon seasonal and other climatic conditions (such as precipitation and atmospheric pressure).

## **3.0 SCOPE OF SERVICES**

Based upon the above Site conditions, Citadel performed the following scope of services:

- 1) Performed short-term radon sampling using a liquid scintillation (LS) activated charcoal canister within the target areas (a combined 50 classrooms or offices throughout both campuses);
- 2) Submitted samples to an accredited laboratory for the appropriate analysis; and
- 3) Prepared this report documenting Citadel's methods, findings, and recommendations.

All of Citadel's work was performed in accordance with Client-established protocols.

## **4.0 METHODOLOGY**

Citadel placed one liquid scintillation (LS) activated charcoal canister sampling device inside each of the 50 classrooms or offices. Each canister typically provides approximately 2,000 square

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<sup>1</sup> EPA, Radon Measurement in Schools, Publication No. 402-R-92-014, Revised July 1993

feet of coverage. Along with the primary sample canisters, Citadel provided 10 percent (%) coverage for duplicates and 5% blanks for quality control purposes which entails collection of five duplicate samples and three sample blanks. The sample canisters were placed in the appropriate breathing zone and secured. The canisters were allowed to sit undisturbed between 48 and 96 hours. Prior to the expiration of 96 hours, Citadel collected and shipped the samples overnight to Accustar Laboratory for analysis. All sampling performed was in accordance with standard industry sampling practices for the collection of radon gas. Field documentation is included as an attachment.

Accustar is accredited for the analysis of radon samples by the American Industrial Hygiene Association (AIHA) and the National Environmental Laboratory Accreditation Program (NELAP). The samples were delivered via FedEx to Accustar in Medway, Massachusetts, for analysis by USEPA Test Method 402-R-92-004. The complete laboratory report is included as an attachment.

## **5.0 RESULTS**

The Radon sampling was conducted under the general guidance of Citadel's Director of Environmental Geology and Engineering, Mr. Mark Drollinger. Mr. Drollinger is a certified Radon Measurement Specialist (RMS) No. 11SS027 through the National Radon Safety Board. All the samples collected from the Survey Area were identified to be below the EPA Action Level of 4.0 pCi/l. A summary of results is provided in the table below. Mr. Drollinger's certification is included as an attachment.

Dates Sampled	Area Sampled	EPA Action Level for Radon Gas (pCi/l)	Radon Concentrations (pCi/l)
<b>Porter Ranch Community School</b>			
12/4/15 – 12/7/15	Bldg. 1 First Floor, Room 1-104 Principal Office	4.0	<0.4
12/4/15 – 12/7/15	Bldg. 3 First Floor, Room 3-161A Maintenance Office	4.0	<0.4
12/4/15 – 12/7/15	Bldg. 4 First Floor, Room 4-107	4.0	<0.4
12/4/15 – 12/7/15	Bldg. 5 First Floor, Room 5-528 Office (Gym)	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 4-101F	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 4-108	4.0	0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 4-109	4.0	0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 4-111	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 4-110	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 4-112	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 4, First Floor, Room 120 Janitor's Room	4.0	0.4
12/7/15 – 12/10/15	Bldg. 5, First Floor, Room 532 Gym Office	4.0	0.4
12/7/15 – 12/10/15	Bldg. 3, First Floor, Room 152A, Teacher's Lounge	4.0	0.4
12/7/15 – 12/10/15	Bldg. 3, First Floor, Room 101, Walkway	4.0	0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 137 Classroom 11	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 136 Classroom 9	4.0	0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 123 Copy Room	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 134 Classroom 8	4.0	<0.4
12/7/15 – 12/10/15	Building 2, First Floor, Room 122	4.0	0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 114 Classroom 4	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 103 Classroom 14	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 102 Classroom 1	4.0	0.4
12/7/15 – 12/10/15	Bungalow 3, First Floor, Classroom 31	4.0	<0.4
12/7/15 – 12/10/15	Bungalow 3, First Floor, Room 32 Science Lab	4.0	<0.4
12/7/15 – 12/10/15	Bungalow 3, First Floor, Classroom 34	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 101, Classroom 15	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 106, Classroom 2	4.0	0.4



Dates Sampled	Area Sampled	EPA Action Level for Radon Gas (pCi/l)	Radon Concentrations (pCi/l)
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 105 Classroom 13	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 110 Classroom 3	4.0	0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 110 Classroom 3 – Duplicate	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 118 Classroom 5	4.0	<0.4
12/7/15 – 12/10/15	Bldg. 2, First Floor, Room 118 Classroom 5 – Duplicate	4.0	<0.4
12/7/15 – 12/10/15	Building 2, First Floor, Room 122 – Duplicate	4.0	<0.4
12/7/15 – 12/10/15	Field Blank	4.0	<0.4
<b>Castlebay Lane Elementary School</b>			
12/4/15 – 12/7/15	Main Office Building, First Floor, Supply Room	4.0	0.5
12/4/15 – 12/7/15	Plant Manager's Office, First Floor	4.0	<0.4
12/4/15 – 12/7/15	Administration Main Building, First Floor, Hopper Room	4.0	<0.4
12/4/15 – 12/7/15	Performing Art Center, First Floor, Stage	4.0	0.5
12/7/15 – 12/10/15	First Floor, Room 1 Classroom	4.0	0.8
12/7/15 – 12/10/15	First Floor, Room K4 Classroom	4.0	0.9
12/7/15 – 12/10/15	First Floor, Room K3 Classroom	4.0	1.2
12/7/15 – 12/10/15	First Floor, Room K2 Classroom	4.0	0.6
12/7/15 – 12/10/15	First Floor, Room K1 Classroom	4.0	0.7
12/7/15 – 12/10/15	First Floor, Room 34 Classroom	4.0	0.8
12/7/15 – 12/10/15	First Floor, Room 33 Classroom	4.0	0.8
12/7/15 – 12/10/15	First Floor, Room 21 Classroom	4.0	0.4
12/7/15 – 12/10/15	First Floor, Room 20 Classroom	4.0	0.7
12/7/15 – 12/10/15	First Floor, Room 19 Classroom	4.0	<0.4
12/7/15 – 12/10/15	First Floor, Room 18 Classroom	4.0	0.4
12/7/15 – 12/10/15	First Floor, Room 25 Classroom	4.0	0.4
12/7/15 – 12/10/15	First Floor, Room 23 Classroom	4.0	0.4
12/7/15 – 12/10/15	First Floor, Room 23 Classroom – Duplicate	4.0	0.5
12/7/15 – 12/10/15	First Floor, Room 22 Classroom	4.0	0.6
12/7/15 – 12/10/15	First Floor, Room 22 Classroom – Duplicate	4.0	0.5
12/7/15 – 12/10/15	First Floor, Room 27 Classroom	4.0	0.5
12/7/15 – 12/10/15	First Floor, Room 35 Science Lab	4.0	0.9
12/7/15 – 12/10/15	Field Blank	4.0	<0.4
12/7/15 – 12/10/15	Field Blank	4.0	<0.4

## **6.0 CONCLUSION AND RECOMMENDATIONS**

During the sampling performed from December 4<sup>th</sup> to 10<sup>th</sup>, 2015, indoor radon gas levels were below the EPA Action Level of 4.0 (pCi/l). Based on the results of the sampling for radon gas, no further action is recommended.

## **7.0 DISCLAIMER AND LIMITATIONS**

This report has been prepared by Citadel Environmental Services, Inc. exclusively for our Client and their Authorized Representatives. The information contained herein pertains only to indoor air quality issues reported by the Client to be present at the referenced property which were evaluated in accordance with a mutually agreed upon scope of work. The findings and recommendations presented are based upon observations of present conditions, and may not necessarily indicate future conditions. Citadel Environmental Services, Inc. implies no warranty to the accuracy of information provided to them by the Client or outside agents and transmitted herein. The information contained herein may not be used, disclosed, or copied without written permission of the Client.

## **8.0 SIGNATURES**

All work was conducted in accordance with Client-established protocols, and the standards of care and diligence normally practiced by recognized consulting firms in performing services of a similar nature.

Work Completed By:

Whitney Barlow  
Environmental Compliance Technician

Report Prepared By:

Shirley Lee  
Environmental Specialist

Report Reviewed By:

Mark Drollinger, M.Eng, CSP, CHMM, EIT  
Director, Environmental Geology and Engineering

Attachments