

APPENDIX G2

Radon Analysis Letter



CITADEL EHS

assess resolve strengthen

April 11, 2024,
Revised May 2, 2024

Tim Paone, Esq.
Partner
COX, CASTLE & NICHOLSON, LLP
3121 Michelson Drive
Irvine, California 92612

Re: CITADEL Project No. 9108.1001.0
Radon Analysis Letter
800 Meadow Pass Road
Walnut, California 91789

Dear Mr. Paone:

Enclosed please find Citadel EHS's Radon Analysis Letter for the above-referenced location.

The Radon Analysis Letter was conducted for Cox, Castle & Nicholson, LLP, in accordance with Citadel's Proposal 9108.1001.P, dated February 22, 2024, and a mutually agreed upon scope of work.

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 EHS

Mark Drollinger

Digitally signed by Mark
Drollinger
Date: 2024.05.02 16:07:21 -07'00'

Mark Drollinger, M.Eng., CSP
Principal, Engineering and Environmental Sciences

Enclosure



CITADEL EHS

assess resolve strengthen

Cox, Castle & Nicholson, LLP
3121 Michelson Drive
Irvine, California 92612

Radon Analysis Letter

April 11, 2024,
Revised May 2, 2024

Citadel Project Number 9108.1001.0

800 Meadow Pass Road
Walnut, California 91789

www.CitadelEHS.com

Table of Contents

1.0 INTRODUCTION	1
2.0 BACKGROUND	1
3.0 RADON POTENTIAL ZONES AND RADON DATA	2
4.0 PROJECT IMPACT	2
5.0 REFERENCES	3
6.0 SIGNATURES	4

1.0 INTRODUCTION

Citadel EHS (Citadel) was contacted by Cox, Castle & Nicholson, LLP (Client) to prepare a Radon Analysis Letter for the property located 800 Meadow Pass Road in the City of Walnut, California (Site). According to the Notice of Preparation, dated November 10, 2022, an Environmental Impact Report (EIR) was prepared for the proposed Brookside Project (Project) as part of the California Environmental Quality Act (CEQA) process. The Site was previously occupied by the Brookside Equestrian Center (Center), consisting of two stables, one of which included a second-story residential addition, covered stalls, two fenced corrals, maintenance storage shed, three feed sheds within fenced areas, one outdoor arena, one covered open-air arena, and one gazebo on approximately 25.84 acres of land. The Assessor's Parcel Numbers (APNs) associated with the Site include 8709-093-001, -002, and -003. The Center was reportedly closed in 2014. The Project for the Site requests approval of a Tentative Tract Map to allow for the development of a 28-unit single-family detached housing project and proposes a total of 11.4 acres of open space with recorded deed restrictions to preserve and maintain natural open space and Lemon Creek.

According to information provided by the Client, the following statement was reported in a Geotechnical Report:

The California Geological Survey Special Radon Potential Zone Map (CGS, 2005) indicates the site is within a zone designated as having moderate potential for indoor radon levels above 4.0 picocuries per liter (pCi/L). Four pCi/L is recommended to be an action level for radon reduction by the U.S. Environmental Protection Agency (US EPA). Moderate indoor radon potential is described to be six to 20 percent of indoor radon measurements are likely to exceed the radon action level of 4.0 pCi/L. Encountering units that have potential to contain radon may require a radon specialist to determine risk at the site.

Based on this statement, the City of Walnut's EIR Consultant indicated that further analysis needs to be done. As a result, the Client requested that Citadel provide an analysis of radon concerns and impacts on the Project.

2.0 BACKGROUND

Radon is a colorless, odorless, and tasteless radioactive, naturally occurring gas, which results from the radiogenic decay of uranium, thorium, and radium naturally present in rocks and soils. Certain rock types, such as black (organic-rich) shales, some granitic rocks, and rhyolites can have uranium and thorium present at levels of tens to hundreds of parts per million (ppm). Radon decays with a half-life of 3.82 days into a series of short-lived radioisotopes collectively referred to as radon daughters or progeny. Since it is chemically inert, most inhaled radon gas is rapidly exhaled, whereas inhaled daughter elements (polonium-218 and polonium-214) readily deposits in the airways of the lung where the daughter elements emit alpha particles, which can damage the cells lining the airways and ultimately leading to lung cancer. The term radon commonly refers to radon and its daughter elements.

Radon readily escapes from the rock or soil where it is generated and enters surrounding water or air. Radon migrates up through the soil and can enter structures through cracks and penetrations in the foundation or slab. Radon moves into buildings from the soil when air pressure inside the buildings is lower than the air pressure outside. Radon usually exists at very low levels outdoors. The primary concern for radon is not in the amount of radon emanating from the soil, but the concentrations that build up within buildings. Because radon enters buildings from adjacent soil, radon levels are typically highest in basements and ground floor rooms. Radon emanations from

soil will vary considerably depending upon seasonal and other climatic conditions (such as precipitation and atmospheric pressure).

The average radon concentration for indoor air in American homes is about 1.3 pCi/L, based on a 1991 national survey. The average radon concentration in outdoor air is about 0.4 pCi/L. The US EPA recommends that individuals avoid long-term exposures to radon concentrations above 4.0 pCi/L. The US EPA recommends action to reduce indoor radon levels if the levels exceed 4.0 pCi/L.

3.0 RADON POTENTIAL ZONES AND RADON DATA

According to the US EPA's State Radon Survey, the Federal EPA Radon Zone for Los Angeles County is Zone 2, which indicates an average indoor concentration greater than or equal to 2.0 pCi/L and less than or equal to 4.0 pCi/L. The California Department of Conservation, California Geological Survey (CGS), prepared radon potential maps using geologic maps and indoor radon measurement data from 1990 to 2004 (CGS, 2005). The radon potential maps are maps that identify areas where geologic conditions are more likely to contribute to excessive indoor radon levels and are not intended for determining which buildings have excessive indoor radon levels. Dibblee Foundation's 7.5-minute quadrangle geologic maps were utilized to maintain consistency in geologic unit definitions across the Southern Los Angeles County area. The radon potential maps and reports are intended to be advisory, not regulatory.

According to the Special Report 182 (Radon Potential in Southern Los Angeles County), four radon potential zones were developed for the maps: High, High-Qa (areas of recent alluvium with increased radon potential), Moderate, and Low (CGS, 2005). The Site is identified on the Geologic Map of the San Dimas and Ontario quadrangles, Los Angeles and San Bernardino Counties, California (Dibblee and Minch, 2002), as being late Miocene aged Monterey (Puente) Formation (Tms) and Holocene aged surficial sediment (Qa). The Monterey (Puente) Formation is described as Soquel sandstone facies, partly intertongued into Yorba Shale Member and La Vida Shale Member, that are light gray to tan, moderately lithified, bedded, arkosic, contains concretions, and some interbedded silty shale; and the surficial sediment is described as alluvial gravel and sand of valley areas. The geologic unit Tms was not included in the Radon Zone Designation in the report (CGS, 2005). However, based on the CGS Indoor Radon Potential interactive web map, the Site is located within the Moderate potential zone, which is described as the zone where six to 20 percent of indoor radon measurements are likely to exceed the radon action level of 4.0 pCi/L. Consequently, radon levels for a specific building can only be determined by indoor radon testing of that building, regardless of what radon zone it is located within.

In addition, the California Department of Public Health (CDPH) Radon Program collects radon test data for buildings throughout the state and maintains a radon database. According to the database, a total of 27 radon tests conducted within the zip code of 91789 were reported to CDPH (CDPH, 2016). While the maximum result was reported at 3.8 pCi/L, none of the tests were at or above 4.0 pCi/L.

4.0 PROJECT IMPACT

According to the 2013 Geotechnical Report, subsurface conditions at the Site include two to four feet of artificial fill of stiff clay and silt; very stiff and hard native clay with some sandy silt; and bedrock of claystone and sandstone (Group Delta Consultants, Inc., 2013). Radon moves more readily through permeable soils, such as coarse sand and gravel, than through impermeable soils, such as clays.

According to Occupational Safety and Health Administration's (OSHA) Standard Interpretation of the Ionizing Radiation standards (29 CFR 1910.1096 and 1926.53), where radon concentrations generally disperse into the open environment and are not "artificially enhanced," exposures are likely to be well below the permissible exposure limit (PEL) of 100 pCi/L averaged over a 40-hour workweek of seven consecutive days (OSHA, 2009). However, where radon concentrations are confined, enclosed, or restricted within a space, such as a building, mine, cave, or tunnel, their containment artificially enhances or increases the radon concentration level. Since natural ventilation dilutes radon gas levels, construction employees working at open air excavation or trenching work sites are not likely to be exposed to hazardous concentrations of radon except in rare circumstances such as underground or enclosed construction work sites. In most cases, construction employers would not be expected to test for radon unless excavations are enclosed or made in geographic areas known to contain high radon levels.

Based on the 2015 California Supreme Court's decision on California Building Industry Association vs. Bay Area Air Quality Management District, Citadel understands that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate, consistent with a key element of the Resources Agency's interpretation, is an analysis of how a project might exacerbate existing environmental hazards."

Since radon concentrations generally disperse into the open environment, the Project would not exacerbate existing environmental hazards during and following development.

5.0 REFERENCES

California Department of Conservation, 2005, California Geological Survey, Special Report 182, Radon Potential in Southern Los Angeles County.

California Department of Public Health, 2016, California Indoor Radon Test Results.

Dibblee, T.W., and Minch, J.A., 2002, Geologic map of the San Dimas and Ontario quadrangles, Los Angeles and San Bernardino Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-91, scale 1:24,000.

Group Delta Consultants, Inc., 2013, Geotechnical Recommendations, The Proposed Residential Development, Track 45378, Northeast Corner of North Lemon Avenue and La Puente Road, City of Walnut, California.

Occupational Safety and Health Administration Letter to Mr. Thomas Van Hooser, December 28, 2009.

United States Environmental Protection Agency, 2003, Office of Radiation and Indoor Air, EPA Assessment of Risks from Radon in Homes.

6.0 SIGNATURES

Letter Prepared by:

Shirley LeeDigitally signed by
Shirley Lee
Date: 2024.05.02
16:07:45 -07'00'Shirley Lee
Senior Staff Environmental Specialist

Letter Reviewed by:

**Mark
Drollinger**Digitally signed by Mark
Drollinger
Date: 2024.05.02 16:07:57
-07'00'Mark Drollinger, M.Eng., CSP
Principal, Engineering and Environmental Sciences