RADIOLOGICAL SAFETY PLAN

FOR

[illegible]

Name of Measurement Specialist: Jason Elliott

Signature: J Elliott

Date: 06/10/2022

Table of Contents

A. Purpose

This document was created to be utilized as a reference for affiliates to follow and to use when questions or concerns arise regarding radiation safety during radon testing. This document will be kept on file by the business and available at all times and will be used by the business for training purposes.

All individuals will receive this document when first becoming affiliated, and thereafter annually and whenever the business revises the plan to change the procedures affiliates must follow. Awareness of the radiological risk factors associated with radon will help to keep the radon exposure of all affiliates as low as reasonably achievable.

B. Radon

Radioactivity is the process whereby an unstable nucleus spontaneously disintegrates or decays by emitting particles or waves in an effort to get rid of excess energy. The energy that is emitted and transmitted through matter is called radiation. A radioactive substance emits radiation.

Radon is a naturally occurring, chemically inert, invisible, and odorless radioactive gas. It travels easily through small crevices between particles of soil and rock. Radon-222 decays in several steps to form radioactive isotopes with short half-lives. These isotopes are commonly referred to as Radon Decay Products (RDPs), also known as radon progeny or radon daughters. Radon has a half-life of 3.8 days. As such, it has enough time to move from the uranium source, where it is produced, into buildings where the concentration of radon and some of its RDPs can build up, be inhaled, and deliver a dose of radiation to the lung tissues.

The RDPs are short lived (all less than 30 minutes), have static electric charges, are chemically reactive, and are solid particles (rather than in the gaseous form). These properties mean that RPDs easily attach themselves to solid objects such as dust, smoke, walls, floors, and clothing. Radon and RDPs release radioactive energy in the form of alpha particles that can damage lung tissue and can initiate the lung cancer process. Radon gas concentration is expressed in picocuries per liter (pCi/L). This is a measure of how much radiation is in a liter of air; a liter is about the size of a quart.

C. Radon Risk

RDPs are measured in Working Levels (WLs). If the WL is known, a good rule of thumb is to multiply the WL by 200 to get the estimated measure in pCi/L.

There is no "safe" level of radon since lung cancer can result from very low exposures to radon; however, the risk decreases as the radon concentration decreases. The more radon that one is exposed to, and the longer the exposure, the greater the risk of developing lung cancer. Radon is the second leading cause of lung cancer in the United States resulting in an estimated 21,000 deaths/year.

The main health concern for workers and affiliates is the risk caused from exposure to radon and RDPs while working in places with potentially high radon levels. The best way to minimize exposure to radon at a work site is to follow the radiation safety practices.

D. Radiation Safety Practices

The radiation safety practices that each affiliate entering a building must follow for radon testing include:

1. Limiting the time spent in areas with potentially high radon concentrations.
2. Responding to questions or concerns of clients in a low radon area.
3. Setting up radon testing devices prior to entering an area with potentially high radon concentrations.
4. Not smoking in buildings being tested.

E. Radiation Safety Training

Radiation safety training will be provided prior to affiliating with a certified individual or individual with an acknowledgement notice. The training will be based upon the information provided in this radiological safety plan.

Prospective affiliates are required to pass a radiation safety examination. The examination has a predetermined passing score. If the prospective affiliate does not pass the examination, additional training will be provided to the individual and the examination will be re-administered. The safety training examination results will be kept on file for five years and will be immediately available during a site inspection or other records request.

Certified Environmental Radon Services
PO Box 727, Farmingdale, NJ 07727
(732) 534-4892

Laboratory #13035
NJDEP MEB #94012

Radiological Safety Test

Name:_____

MET/MES Number:_____

Measurement Firm:_____

Telephone Number of
Technician/Specialist:_____

Email Address of
Technician/Specialist:_____

Email address for test results (if different from
above):_____

Date:_____

N.J.A.C. 7:28-27A.15 Requires all certified radon measurement businesses to supply a radiation safety exam for prospective affiliates. You will be supplied with your test score. A copy of your test answers will be kept on final in accordance with NJ DEP-Radon section requirements. A score of 70 or above is required for passing.

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1. Most of the Radon in homes comes from:

A. Building Materials

B. Burning liquid propane in a fireplace

C. The underlying soil

D. Water while taking a 10 minute shower

2. N.J.A.C. 7:28-27A requires each measurement business to keep the following on file for each affiliate.

A. copy of current radon measurement certificate

B. copy of 8 hour training certificate(s) for technicians/specialists who test schools, large building, and/or multifamily dwellings

C. copy of the affiliation form

D. all of the above

3. The radiation exposure tracking of NJ radon measurement technicians and

specialists require:

A. Continuous monitoring if exposure is 1 WLM/Y

B. Stop working if 4 WLM/y is approached

C. Annual exposure cannot exceed 4 WLM/Y

D. All of the above

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4. The average indoor radon concentration in US homes is:

A. 0.4 pCi/L

B. 0.8 pCi/L

C. 1.3 pCi/L

D. 4.0 pCi/L

5. The Radon Action Level recommended in the US is:

A. 2.7 pCi/L

B. 4.0 pCi/L

C. 5.4 pCi/L

D. 8.0 pCi/L

6. The minimum time of exposure for charcoal canisters and electret ion chambers is:

A. 24 hours

B. 36 hours

C. 48 hours

D. 4 days

7. Inhaled radon gas is more dangerous than inhaled radon decay products:

A. True

B. False

8. Radon decay products that plate out on surfaces present a health hazard:

A. True

B. False

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9. School testing in NJ requires

A. test all rooms in contact with the ground or over crawl spaces

B. maintain a list of all test locations

C. record all information on chain of custody form

D. mark and sketch all test locations on a school floor plan

E. all of the above

10. Which of the below are recommended in order to reduce a radon measurement technicians or specialists exposure to radon while testing?

A. limit time in unknown or high-level radon areas as much as possible

B. conduct discussions with clients in lower-level radon areas, such as upper levels or outside the structure

C. samples are to be analyzed in low radon areas

D. calibrate and set up of testing equipment shall be done prior to entering an unknown or elevated area

E. all of the above

Score:_____ Pass: Y N

Action: proceed corrective action given