

NYSDOH Environmental Laboratory Approval Program – Radon Checklist

LAB ID and/or LABORATORY NAME:	
ASSESSOR NAME:	DATE:

ELECTRET by Voltametry

Method Number: ELAP method number 7034

SOP Number:

Revision Number:

SOP Date:

Personnel / Data Records observed:

General LLD: < 1 pCi/L

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Question	Y	N	NA	Codes	Comments
RADON IN AIR					
1. Are both of the following EPA publications available at the lab:					
a. Protocols for Radon and Radon Decay Product Measurements in Homes? (EPA 402-R92-003)				N002	
b. Indoor Radon and Radon Decay Product Measurement Device Protocols? (EPA 402-R92-004)				N003	
2. Does the facility monitor Radon levels in air for a minimum of 48 continuous hours, process the collective data and interpret the result for the client (rather than merely distributing devices)?				N004	
3. Is a written standard operating procedure (SOP) available? (Duplication of the protocols will not suffice.)				N005	
a. Does the analyst follow the manufacturer's instructions, the US EPA protocols and the lab's SOP?				N072	
4. Is a written quality assurance project plan (QAPP) appropriate to each device available?				N006	
5. Does the data collection log include:					
a. Date and time of deployment?				N007	
b. Date and time of removal?				N008	
c. Condition of the devices?				N009	
d. Attainment of closed building conditions?				N010	
e. Exact location of device (i.e., building, room and sampling position) within the property being monitored?				N011	
f. Serial number, model number, and manufacturer of the detector?				N012	
g. Unique identifier of client and client's address (if different from testing location)?				N013	
h. Condition of crawl space vents?				N014	
6. Are monitoring devices deployed and retrieved by trained employees of the radon laboratory?				N015	
7. When monitoring devices are set out and picked up by different persons, is this noted in the record?				N016	
8. Is a qualifying statement used if the lab does not control the monitoring process (i.e., placed and/or retrieved by persons other				N017	

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than trained lab personnel)?					
9. Are all devices deployed for 48 continuous hours if the measurement is used for remedial action or to determine the need for further measurements?				N018	
10. Is the technical director of the laboratory aware of the device's Lower Limit of Detection (LLD), and has the background level been determined? (Short term ~0.2 pCi/L; Long term ~0.3 pCi/L)				N019	
EQUIPMENT					
1. Are electret ion chamber radon detectors (ECs) of the type recommended for the exposure period and concentration? (Short term (ES) 2-7 days; Long term (EL) 1-12 months)				N117	
2. Is an instruction sheet provided to the client?				N118	
3. Is a shipping container provided to the client with a label for returning the detector(s)?				N119	
4. If the analysis is not performed in a temperature-controlled room, is the temperature before and after analysis recorded? a. Are pre- and post-analysis temperatures within 10 degrees F? b. Is the manufacturer's recommended temperature correction factor applied?				N120 N120A N120B	
5. Are pre- and post-sampling voltages recorded? a. Is a record of the pre- and post-sampling voltages maintained? b. Is the post-sampling voltage above 150 volts?				N121 N121A N121B	
6. Are devices recharged when minimum voltage is reached? (See manufacturer's instructions.)				N121C	
QUALITY CONTROL					
1. Is a reference electret used to check the reader weekly or with each use? a. Is there a record of the weekly or each use reference				N123 N124	

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check?					
2. Is the meter zeroed according to the manufacturer's instructions?				N125	
a. Is there a record of the meter zeroing check?				N126	
<i>Laboratory Control Detectors</i>					
3. Has the background gamma exposure been checked prior to the use of the detectors?				N128	
a. Have at least 10 or 5% of the electrets, whichever is smaller, been checked for voltage drift?				N129	
b. Is a background gamma exposure record available?				N130	
4. Have the detectors been kept in a low Radon environment with the caps on for a period of time similar to that used in the homes?				N131	
5. Is the voltage drop for short term electrets (ES) less than 1 volt per week over three weeks?				N132	
6. Is the voltage drop for long term electrets (EL) less than 1 volt per month over three months?				N133	
<i>Duplicate Collocated Detectors</i>					
1. Are duplicate detectors installed in homes at the rate of 10% of deployed detectors each month or 50, whichever is smaller?				N135	
2. Are the duplicates systematically distributed throughout the workload?				N136	
3. Are the duplicates handled identically to the samples?				N137	
4. Are the duplicates not identified as such to the analyzing laboratory (i.e., submitted blindly)?				N138	
5. Is the precision of the duplicate data from radon levels measured at 4 pCi/L or above within 10% Relative Standard Deviation (RSD: for a long-term series of duplicate measurements), or 14% Relative Percent Difference (RPD: for a single pair of duplicates)?				N139	
6. Are the data from duplicates available (e.g., control charts)?				N140	
7. Are the acceptance limits for duplicates determined?				N141	
<i>Spiked Samples</i>					

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1. Are spiked samples with known radon exposures submitted at the rate of 3 per 100 measurements, with a minimum of 3 per year and a maximum of 6 per month?				N145	
2. Are spiked samples labeled as routine samples?				N146	
3. Are the results of spiked samples kept as part of the record (e.g., control charts)?				N147	
4. If the acceptance limits are exceeded, is the source of the problem determined?				N147A	
SYSTEM CALIBRATION					
1. Has either the <u>manufacturer</u> or the <u>user</u> calibrated the complete system (detectors and readers) in a Radon Chamber yearly?				N149	
2. Has a minimum of 10 detectors been exposed at a minimum of 3 different concentrations?				N150	
3. Is the exposure period sufficient to allow the detector to achieve equilibrium with the chamber atmosphere?				N151	
4. If the manufacturer is performing the calibration, does the lab utilize the correct calibration coefficient?				N151A	
RECORD KEEPING					
1. Are the following record(s) kept for 5 years by the measurement organization:					
a. A copy of the final report including measurement results and the statement outlining any recommendations concerning retesting or mitigation provided to the building occupant or agent?				N237	
b. The address of the building monitored including zip code?				N238	
c. The exact locations of all deployed measurement devices? (Examples: room sketches, detailed written description)				N239	
d. Exact start and stop dates and times of the measurement period required for analysis?				N240	
e. A description of the device used including the device identification number and serial number, if applicable?				N241	
f. A description of the condition of any permanent vents?				N242	
g. The name of the service organization used for calibrations and the certificates of calibration?				N243	

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h. The name of the individual who conducted the test along with their associated training records?				N244	
i. A description of any variations from or uncertainties about standard measurement procedures, closed building conditions, or other factors that may affect the measurement result?				N245	
j. A description of any non-interference controls and copies of signed non-interference agreements?				N246	
k. A record of any quality control measurements associated with the test?				N247	
l. The written authorization from the client enabling the lab to report results to a third party (if applicable)?				N254	
REPORTING					
1. Does the lab report the result with an uncertainty or error factor, if one is provided by the manufacturer?				N249	
2. Does the report contain the advisory of 10 NYCRR 16.130 for properties tested within New York State having measured radon gas levels >20 pCi/L or 0.1 working level?				N257	
3. For labs within NYS, does the laboratory report all of its radon monitoring data to the State according to 10 NYCRR 16.130?				N258	
4. Are results calculated correctly?				N262	
5. Are field duplicate readings, if available, reported in an acceptable manner? (See EPA 402R92-003).				N259	

When any radon screening or long term testing result exceeds 20 pCi/L or 0.1 working level as defined in section 16.2(a)(145), the customer, if a resident of New York State, is advised to contact the New York State Department of Health, Bureau of Environmental Radiation Protection, for further technical advice and assistance.

New York State Radon Office

Phone (518) 402-7556

Toll Free (800) 458-1158

Website: <http://www.health.state.ny.us/environmental/radiological/radon>