DEVICE CALIBRATION

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National Radon Safety Board (NRSB)

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- EPA announced intention to privatize RPP in 1995
- NRSB was formed
- Series of stakeholder meetings on privatization
- NRSB incorporated in 1998 and became operational after EPA discontinued RPP

NRSB Vision

- To provide continuity of radon proficiency within an independent non-profit framework

- NRSB Board to be independent of the encumbrances of the trade association, government, non-governmental organizations and commercial interests (such as training providers)

Evolution of NRSB Program

- Program Elements that were developed after the close of the EPA RPP

- Chamber Accreditation
- Policy on Instrument Calibration

Radon Chamber Accreditation

- Accreditation of radon chambers was not an element of the EPA RPP

- Need to develop protocols for establishing and operating radon chambers that are used for instrument and detector calibration

Traceability for Quality Assurance Exposures

- Radon chamber accreditation ensures that providers of quality assurance exposures of devices and instruments that measure radon and radon decay products meet standard criteria to ensure high quality in their services

Quality in Quality Assurance Measurements

- Radon Chamber Operators provide the reference upon which radon and radon decay product measurements are based
- Quality Assurance Measurements are essential to the radon industry and for consumer confidence

Quality Assurance Exposures

- Calibrations
- Spikes
- Proficiency tests
- Performance evaluations

Chamber & Test Criteria

- NRSB developed standards for establishing a radon chamber
- NRSB established criteria by which a radon chamber may be accredited to conduct calibrations, spikes, proficiency tests and performance evaluations

To Achieve an Adequate Degree of Quality

- Radon chambers must meet certain design and operating characteristics
- Criteria available on website www.NRSB.org

To Ensure Comparability & Reliability of Data

- Instruments and methods used for the assessment of radon exposure must be calibrated and maintained in good order in a standards test facility (radon chamber)

- Radon chamber needs to be able to simulate conditions as the intended use in the field

Three Categories of Radon Chambers

- Primary
- Secondary
- Tertiary

Primary Radon Chamber

- Sophisticated chamber that can handle both radon and radon decay product testing and calibration
- Having a wide and closely controlled radon of exposure conditions
- Trace-ability to NIST

Primary Radon Chamber

- US Department of Energy Environmental Measurements Laboratory radon chamber served as the primary radon chamber from 1981 – 1996

- US Environmental Protection Agency's Radiation and Indoor Environments National Laboratory (R&IENL) in Las Vegas now serves as the primary radon chamber

Secondary Radon Chamber

- Can perform quality assurance exposures of devices including calibrations, spikes and proficiency tests

- Bowser Morner
- TCS Industries Inc.

Tertiary Radon Chamber

- May be used for initial evaluation of devices by manufacturers, for spiking and calibration
- Firms that manufacture and calibrate continuous radon monitors should participate in the tertiary chamber accreditation

List of Accredited Tertiary Radon Chambers

- Durridge Company
- Gemmill Associates
- Rad Elec, Inc.
- Radon Testing Corporation of America
- Spruce/Radon Away
- Sun Nuclear Corporation
- US Inspect
- Radalink

Inter-comparison Program

- R&IENL agreement with NIST
- Secondary Radon Chamber inter-compares with a primary chamber
- Tertiary Radon Chamber inter-compares with accredited secondary or primary chamber

Implications of Radon Chamber Accreditation

- Assumes base-line quality for the labs QA program
- Allows for traceability from point of manufacture throughout the useful life of the radon detector

Continuous Radon Monitors (CRM)

- The number of real estate radon tests conducted with continuous radon monitors has been increasing

- Reliability of CRM measurements

CRM Annual Calibration

- Annual calibration was a requirement of the EPA RPP, but proof of calibration was not a requirement
- NRSB is serious about the reliability of radon measurements
- Proof of calibration is required

How to define Instrument Calibration

- Even though annual calibration for CRMs was required, EPA did not develop policy for what constitutes a legitimate instrument calibration

Was instrument calibration performed properly???

- Without a policy for instrument calibration, anyone could do anything they wished and call it a ‘calibration’

Developing Policy

- NRSB Device Panel defined policy and standards regarding the type of facility required to calibrate any particular measuring instrument

NRSB Policy on Instrument Calibration

- By “instrument”, NRSB specifically includes all continuous radon monitors (method CR), and all continuous radon decay product (RDP) monitors (method CW).

NRSB Policy on Instrument Calibration

- An accredited radon chamber may adjust an instrument as a required part of an instrument calibration only with prior authorization to do so by the instrument manufacturer.

NRSB Policy on Instrument Calibration

- The manufacturer's authorization of an accredited chamber to perform instrument calibration must be expressed in writing by the manufacturer.

NRSB Policy on Instrument Calibration

- The NRSB maintains a list of accredited chambers and the instruments which each chamber is manufacturer-authorized to perform calibration. The full list of instrument calibration authorizations will be available from the NRSB web site (www.nrsb.org).

Initial Certification

- Radon Measurement Specialists using a continuous radon monitor must successfully pass a proficiency test for each device type from an accredited secondary radon chamber

Renewal Certification

- Radon Measurement Specialists using a continuous radon monitor have an option – can successfully pass a proficiency test from accredited secondary radon chamber
  - OR
  - Submit a Certificate of Calibration for the radon monitor from an accredited radon chamber (secondary or tertiary)

Laboratory Accreditation

- Laboratories must successfully pass a proficiency test for each type used from an accredited secondary radon chamber for initial and renewal certification

ANY QUESTIONS ???

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