

**New Jersey Drinking Water Quality Institute
Radon Ad Hoc Subcommittee Meeting
December 14, 2007
New Jersey Environmental Infrastructure Trust**

Subcommittee Members Present: Judith Klotz, Perry Cohn, Russell Ford, Jean Matteo, Carol Storms, Leslie McGeorge and Barker Hamill

Support Members Present: Vas Komandori: Office of Quality Assurance; Karen Fell & Kristin Hansen: DEP-Water Supply; Pat Gardner and Jenny Goodman: Bureau of Environmental Radiation; Judy Louis: Division of Science, Research, and Technology; Zoltan Szabo: USGS; Leo Kruger & Anne Kruger: Passaic River Coalition.

1. Summary

J. Klotz provided a brief summary of the Radon Ad Hoc Subcommittee's status. At the September 7, 2007 meeting, the Ad Hoc Subcommittee decided it would recommend regulating radon through a single MCL rather than through a multi-media mitigation approach. After reviewing data provided by DEP, the Ad Hoc Subcommittee determined it wanted to recommend a MCL of 800 pCi/l or 1000 pCi/l for radon. To assist the Subcommittee in making a decision, the Subcommittee requested DEP prepare a chart illustrating the costs versus lives saved associated with regulating at 800 pCi/l and 1000 pCi/l.

2. Minutes

The minutes from the September 7, 2007 meeting were reviewed and approved with revisions.

3. Private Well Issue

The Radon Ad Hoc Subcommittee discussed the issue that generally private wells have higher concentration of radionuclides than public wells. Therefore, the impact of a radon MCL to private wells may need to be considered. Z. Szabo provided a summary of a USGS study in which 100% of 31 wells sampled in the Highland area were over 300 pCi/l and 12 of the 31 were over 1000 pCi/l.

4. Review of Radon Handouts

K. Fell briefly reviewed the chart provided at the last Radon Ad Hoc Subcommittee meeting. She indicated that when BSDW developed the estimated radon results from past results, they assumed each point of entry was high. Since BSDW always assumed high, DEP could not accurately calculate cost of treatment versus lives saved.

The Environmental Radiation Program compared distribution system data to point of entry data and found some results were higher and others were lower (which was illustrated in a chart provided). Therefore, BSDW decided to recalculate the cost chart using the distribution system values the Environmental Radiation Program used to calculate lives saved.

L. McGeorge asked how distribution system results could be higher than point of entry results. This may be a result of another point of entry contributing higher level of radon to the distribution system or the time of day/ proximity to the water tank may affect the results.

J. Goodman reviewed the two charts titled "Inhalation + Ingestion" and "Ingestion Only". The charts provide information regarding lives lost, lives saved, cost of mitigation, cost per life saved, and difference in cost per life for each of the proposed MCLs (300, 500, 800, and 1000 pCi/L).

To calculate lives lost, J. Goodman used the equation below to determine the population weighted average.

Population Weighted Average (C_{pwa}) = sum of the product of radon conc (C_i) times population (P_i) for each distribution system divided by the sum of the population over all sites

$$C_{pwa} = \frac{\sum_{i=1}^N C_i \times P_i}{\sum_{i=1}^N P_i}$$

i represents the ith site and N the total number of sites

Population Weighted Average (pCi/L) X Population affected X Risk/pCi/L = **Lives Lost over 70 yrs**

As the chart indicates, there is only a \$6,172 difference per person for lives saved between 800 and 1000 pCi/l. To save a life at 300 pCi/l, it is estimated it will cost \$718,206 and at 1000 pCi/lit will cost \$364,084.

J. Goodman mentioned the cost per life saved for either 800 or 1000 pCi/l radon is not large when compared to the cost per life for some other standards. L. McGeorge recommended having the cost of life saved for the arsenic and radium MCLs for reference.

R. Ford also suggested possibly recalculating the cost estimates for treatment. The cost information will be important for the Drinking Water Quality Institute's MCL recommendation. K. Fell reiterated that the cost estimate of treatment includes only those community water systems previously sampled for radon. Noncommunity water systems and private wells were not included in the costs. It is important to note the impact of a radon MCL will extend to these smaller systems.

B. Hamill stated a substantial number of public water systems will be affected, as well as a large number of private wells. The cost of treatment for private wells is relatively expensive, but the cumulative population affected is less. The cost per life saved will be more for a private well than for a community water system.

J. Matteo asked if the DEP has an estimate of how many homes would have radon in their drinking water between the levels of 800 and 1000 pCi/l. DEP has limited radon data for private wells, so this number is unknown.

Z. Szabo indicated a fair number of private wells would be between 800 and 1000 pCi/l.

J. Louis reminded the Radon Ad Hoc Subcommittee that the Private Well Testing Act itself does not require treatment when an MCL is exceeded, although it is often required as a condition of sale or by local health departments. She recommended testing for gross alpha in the northern portion of the state prior to regulating radon in private wells.

L. McGeorge asked if the Drinking Water Quality Institute could move forward with an MCL for radon for community water systems and remain silent on private well issues.

K. Fell believes the state could calculate a cost estimate for home treatment. Z. Szabo stated that there are many treatments that vary in cost. There are also disposal issues and guidance would need to be developed for the homeowners.

B. Hamill stated the Drinking Water Quality Institute could recommend a radon MCL for community water systems and suggest DEP look at private wells further.

J. Klotz mentioned the email from Gloria Post, which provided that status of other States' radon regulation. Currently there are no other States considering developing a MCL. Most of the New England states have developed guidelines.

J. Louis mentioned that in general if a system has radon, it would most likely have uranium. If DEP extends the gross alpha sampling, radioactivity will definitely be found.

The Radon Ad Hoc continued discussing the issue of regulating radon in private wells. Additional work needs to be done regarding radon in private wells. Developing a radon MCL for public water systems should not be dependent on private wells.

J. Klotz discussed the importance of private wells is dependent on how quickly information can be gathered so the Institute can move forward. J. Klotz supported either 800 or 1000 as long as the Institute can move forward with its recommendation.

B. Hamill stated that the MCL should be based on ingestion only, not inhalation and ingestion. He suggested 800 pCi/l as the MCL since there is not a significant difference between 800 and 1000 pCi/l. He also mentioned that developing a homeowner's guide will take sometime.

Z. Szabo mentioned that Maine is in the process of developing a homeowner's guide to testing.

5. Radon MCL Recommendation

J. Klotz made a motion to recommend a MCL of 800 pCi/l for radon.

R. Ford seconded.

Six Radon Ad Hoc members were in favor and one opposed for recommending a MCL of 800 pCi/l for radon to the full Drinking Water Quality Institute.

C. Storms expressed her concern of establishing a MCL of 800 or 1000 pCi/l for radon. She would like the MCL recommendation to be higher than 1000. C. Storms believes the impact to water systems, especially smaller systems, is underestimated. She has some data regarding smaller systems and would like it compared to DEP's data. C. Storms believes DEP needs to be prepared for resistance from community water systems and the increased cost of water.

6. Radon in Indoor Air

P. Gardner discussed the status of draft legislation to regulate radon in indoor air. DEP will start working with the Legislators sometime in February 2008. DEP will push for a bill that requires radon testing of certain educational facilities every five years, testing of residential properties at the time of sale and testing of residential lease properties within 18 months of the bill's enactment date and every five years after thereafter. We would not expect legislation would require mitigation (similar to Private Well Testing Act).

7. Next Meeting

To Be Determined.

Meeting Minutes prepared by:
Kristin Hansen January 2, 2008
Revised 7/3/08