

From: Rind, Mike <Mrind@wm.com>
Sent: Thursday, November 19, 2015 9:59 AM
To: Tarquino Morris, Ali
Cc: Brill, Eli; Mary Webber (mary@webber-associates.com)
Subject: FW: RESRAD discussions
Attachments: TENORM Memo (1452171_1).DOCX; PA_001.pdf; TENORM Disposal in PA Solid Waste Landfills (1325710_1) 111918.docx

Ali

As discussed we would like the PADEP to consider further discussion on the input values in PA's RESRAD modeling prior to the proposed reductions for 2016. We believe the State's current TENORM disposal program may already provide protection several safety factors below existing background levels. In support of this consideration I have attached Eli's note below and three attachments. Please excuse Eli and I for any inconsistencies as we had pulled this together quickly and certainly we are not expert in these matters. We believe it is however prudent to allow additional time for the experts in these matters to meet and vet all the issues.

The January 1st deadline may be difficult to fully address the issue. After review by the experts in these models the State can certainly implement additional controls at any time throughout the year. Please feel free to call.

Thanks for your consideration

The US EPA has set an action level of 4 pCi/L for Radon in homes. It is recognized that there are many areas that have naturally occurring higher levels, especially in PA.. At or above this level of radon, the EPA recommends the home owner take [corrective measures](#) (basement fan) to reduce exposure to radon gas to 4 pCi/L. **In our analysis of TENORM disposal we defined background**, in the form of indoor air, without considering a mitigation system, at 1 pCi/liter or 200 millirem of background. We were super conservative, because only one county in Pa has less than 2 pCi/liter. See. National Council on Radiation Protection and Measurements, Report No. 94, "Exposure of the Population in the United States and Canada from Background Radiation," 1987 Radon gas is commonly found between (2 and 4 pCi/L)(orange on attachment. Areas above 4 pCi/L are red. Radon can account for 85% percent of the dose for this future Red Rad farmer 1000 years ago. Because we excavate out the background soil, landfills don't emit much radon into occupied structures. Why do we have to protect a resident farmer from radon gas when we've already overprotected him by taking out the first 200 mrem - 400 mrem of natural background from radon gas. The neighbor of **the future landfill dweller** is going to get a much higher dose naturally. The EPA standard for homes is 4 pCi/liter. My home has a remediation system, and with the remediation system it is at 2 pCi/L. So I am getting 16 times the dose of what **the PADEP** considers allowable in this model - 25 mrem from background, today or 1000 years+ from now, to a **future landfill farmer** on a site that maintains institutional controls that prevent this from happening, the same controls that are deemed fine in CERCLA, Act 2, etc.

Eli

Michael T. Rind *Think Green!*
Director of Operations Think Waste Management!
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Waste Management Energy Services Oil and Gas Solutions http://www.wmsolutions.com/solutions/oil_and_gas.asp

Office Address:
Cell: 412-996-9001 625 Cherrington Parkway
Fax: 412-893-4919 Moon Twp., Pa 15108

Waste Management's renewable energy projects create enough energy to power over 2 million homes

From: Brill, Eli
Sent: Wednesday, November 18, 2015 11:24 AM
To: Rind, Mike
Subject: docs