

January 31, 2018

Experts Spot High Levels of Radium and Radon Breakdown Products in Hakes Landfill Leachate Test Results

Expert affidavits filed yesterday in the Sierra Club, CCAC and PHE lawsuit challenging DEC's exclusion of radioactivity issues from the Draft Supplemental Environmental Impact Statement (DSEIS) for the Hakes landfill expansion project identify very high levels of the radionuclides lead-214 and bismuth-214 in some of the landfill's leachate test results.

The affidavits of Dr. Raymond Vaughan and Mr. Dustin May examine the landfill's semi-annual leachate radionuclide analytical results, which were obtained through a FOIL request to DEC. The affidavits point out that the highest levels of lead-214 and bismuth-214 concentrations were found in samples from landfill cells 3, 4, 5, 6, and 8B, all cells receiving shale gas drilling wastes. The highest observed lead-214 and bismuth-214 concentration was approximately 6000 pCi/L from an unfiltered leachate sample taken from Cell 8B in Q2 2017.

These results indicate major potential enrichment of the landfill leachate with radon-222 gas. The half-lives of lead-214 and bismuth-214, 27 and 20 minutes, respectively, are too short for these radionuclides to exist independently during the time period between collection and analysis. In order for these two radionuclides to be detectable in the samples weeks after collection, they would have to be supported and exist in an equilibrium state with radon-222 gas or radium-226.

The landfill did not test for radon-222 in the leachate samples, but did test for radium-226 using two methods generally used for testing drinking water, not liquids with high levels of dissolved solids. The landfill's tests found low levels of radium-226.

As described in the affidavits of Dr. Vaughan and Mr. May, as well as the affidavit of The affidavit of Dr. David Carpenter, the potentially high concentrations of radon-222 in and around the landfill leachate may pose risks to public health and the environment. Thus testing for radon-222 and new testing for radium-222 is needed to evaluate the potential impacts. Tests should also be conducted for other two other important radon-222 breakdown products, lead-210 and polonium-210.

Dr. Carpenter is Director of the Institute for Health and the Environment at the University at Albany. Dr. Vaughan is a consultant from Buffalo who has worked for many years on issues involving nuclear wastes at West Valley in Cattaraugus County. Mr. May is a PhD candidate at the University of Iowa in Iowa City, where he is part of a research group that has published a series of articles on measuring radioactivity in shale gas drilling wastes. Mr. May also serves as supervisor of the radiochemistry department of the State Hygienic Laboratory at the University of Iowa, the state of Iowa's public health laboratory.

The affidavits were filed January 19, 2018 in *Sierra Club v. DEC*, Steuben County Supreme Court, Index No. E2017-1384CV. The petitioners in the case are Sierra Club, Concerned Citizens of Allegany County, People for a Healthy Environment, Inc. and three individual neighbors of the landfill, John Culver and Brian and Maryalice Little. The Petitioners are represented by attorneys Richard Lippes from Buffalo and Rachel Treichler from Hammondspport. The papers filed in the case are posted at https://iapps.courts.state.ny.us/nyscef/DocumentList?docketId=C9Huno7WnpFtot4yyt_PLUS_png==&display=all and linked at <http://treichlerlawoffice.com/waste/hakes/index.html> .