Permit Allows Hakes Landfill to Expand; Critics Say It's Highly Radioactive and a Health Threat to Communities Downwind

Peter Mantius / January 7, 2020January 10, 2020 / Uncategorized /

CORNING, Jan. 7, 2020 — The Cuomo Administration has quietly granted a Steuben County landfill permission to expand from 57.9 acres to 78.9 acres despite scientific evidence that the dump's leachate is laced with prohibited radioactive elements.

The decision gives the Hakes C&D Landfill, located six miles northwest of Corning, the green light to continue accepting drill cuttings from Pennsylvania gas wells and burning off methane and other gases generated from the decomposition of waste.

That flaring of gasses poses a serious threat to residents living downwind, several experts have argued, because the landfill is generating "huge" amounts of Radon-222, the nation's second leading cause of lung cancer.

"When you burn that methane, you're not going to burn the radon. That's just going to waft over the community. People are going to be breathing it in," said Dr. David Carpenter, director of the Institute for Health & the Environment at the University of Albany.

According to one calculation, radon levels in the Hakes leachate and expelled gas are tens of thousands of times higher than the state and federal threshold for remediation of 4 picocuries per liter (pCi/L).

The state Department of Environmental Conservation disagrees. The agency dismisses potential health risks because it denies the possibility that any significant radioactivity has built up in the landfill.

Any traces of radon or other radioactive isotopes are "substantially more likely to originate from the surrounding environment" than from material dumped in the landfill, it says.

Criticism of the Hakes expansion is "based on an apparent misunderstanding of the types of wastes being accepted in the landfill and the level of radioactivity in these materials," the agency recently wrote in response to one critical comment (https://waterfrontonline.files.wordpress.com/2020/01/hakesresponsivenessdec2019.pdf). "There is no realistic potential for buildup or accumulation (of radioactive elements) resulting in (health) impacts."

Hakes is not authorized to accept radioactive material, and the DEC argues that radiation detectors that screen delivery trucks at its entrance assure that it never does. But critics contend that the detectors can easily be manipulated or "gamed."

Several experts argue that there is irrefutable evidence — from radioactive isotopes found in the landfill's own testing data — that the landfill's leachate is, in fact, highly contaminated with radon.

"To get these levels of short-half-life isotopes like Lead-214 and Bismuth-214 in the leachate means there is a huge reservoir of radioactivity in the landfill," said Carpenter (left), a former head of the state Department of Health's Wadsworth Laboratory and a graduate of Harvard Medical School.

The dispute between scientists and the agency over the Hakes expansion permit is part of a larger debate over the past decade over whether drill cuttings imported from Pennsylvania are just harmless rock. The DEC insists they contain little more than normal background radiation and pose no health risks, while others are highly skeptical.

While considering Hakes' bid to expand, the DEC has attempted to squelch that debate in at least three important ways:

— Explicitly excluding discussion of radiation issues when setting the ground rules for an environmental impact statement (https://waterfrontonline.files.wordpress.com/2020/01/fseishakesacceptteddec2018.pdf) for the project.

— Allowing the landfill to discontinue testing for the tell-tale isotopes that mark the presence of radon in the leachate (and not requiring tests for radon itself).

— Rejecting requests for a special adjudicatory hearing on factual issues related to radioactivity levels at Hakes.

On Dec. 19, the day the DEC awarded the landfill a permit to expand (https://waterfrontonline.files.wordpress.com/2020/01/hakespermitdec2019.pdf), the agency all but buried the warnings of serious health consequences from vastly underreported radioactivity.

The DEC made no public announcement about its permit ruling, which went virtually unnoticed in the shadow of far bigger news. Only hours before, the U.S. House of Representatives voted to impeach President Donald Trump.

The agency's cover letter (https://waterfrontonline.files.wordpress.com/2020/01/hakespermitletterdec2019.pdf) spelling out its Hakes decision was circulated to several DEC employees, lawyers and local officials but not to the state DOH or the U.S. Environmental Protection Agency.

Asked about the apparent disconnect between the two Cuomo Administration agencies, DEC and DOH, both issued general statements saying that they work together to protect the environment and public health. The DOH acknowledged that it does not review specific conditions of permits issued by DEC.

With the Health Department taking no active role in the Hakes decision, the courts may be the only venue left for a future public airing of the potential harm to public health.

The Sierra Club has filed suit (https://waterfrontonline.files.wordpress.com/2020/01/sierrasuitdechakescampbell.pdf) in Steuben County Supreme Court to challenge the DEC's permitting processes on the grounds that the agency never took the legally required "hard look" at radiological issues.

One Sierra Club expert witness in particular added fuel to the long-running controversy over landfill radioactivity.

Raymond Vaughan, a PhD geologist from Buffalo, studied data from 106 samples of Hakes leachate collected between 2012 and mid-2018. Vaughan (below) noticed that several samples contained exceptionally high levels of Lead-214 (Pb-214) and Bismuth-214 (Bi-214), isotopes produced in the decay process of Uranium-238, Radium-226 and Radon-222.

Because the lead and bismuth isotopes are very short-lived — with half lives of 27 and 20 minutes, respectively — their detection in tests conducted hours after the leachate samples were collected represents smoking-gun evidence that high levels of Radon-222 had to be present in the leachate samples, Vaughan has argued (https://waterfrontonline.files.wordpress.com/2020/01/rayvaughanfeb212019.pdf).

In fact, he calculates that radon concentrations in the landfill leachate could be as high as 270,000 pCi/L, while radon in the landfill's expelled gas could reach more than one million pCi/L.

Carpenter and Dustin May, an Iowa chemist who has studied radioactivity in the Marcellus shale formation, have generally endorsed Vaughan's conclusions. All three men have worked as expert witnesses for the Sierra Club in its litigation.

The DEC dismisses Vaughan's calculations, saying they are "misleading" and unsupported by scientific peer review. "This asserted value could only have been speculatively back-calculated using several assumptions," the agency said.

The agency concedes that the high levels of lead and bismuth isotopes correspond with high levels of radon, but they attribute the readings to naturally occurring radiation.

The DOH has reported that the average indoor radon level in the Town of Campbell, where Hakes is located, is 14.11pCi/L, more than three times the threshold at which remediation is recommended.

But Vaughan counters that even Campbell's relatively high naturally occurring radiation is many orders of magnitude beneath radon levels in the leachate.

Radon kills about 21,000 Americans each year, according to EPA.

Although radon is by far the most dangerous form of the various isotopes in the uranium decay chain, Hakes does not test for it.

And shortly after Vaughan published his analysis of the significance of the Lead-214 and Bismuth-214 detections in early 2018, the landfill halted its testing for those two red flags for radon contamination.

The DEC gave Hakes permission to terminate that stream of evidence on the grounds that the EPA testing method that had been used semiannually since 2012 was not appropriate.

"The Department has chosen not to use EPA 901.1 to analyze for radium in leachate because this analytical method was originally designed for soil analysis and the use of it for water analysis results in unacceptably high uncertainties," the DEC said.

Vaughan has argued that the method is perfectly valid and must be resumed. The reliability of the data is backed up, he said, by the fact that the contamination levels tend to nearly match in sample after sample.

The dispute over the validity of the EPA method was one of the factual issues that Vaughan and the Sierra Club had hoped to resolve in a special issues conference and adjudicatory hearing they asked the DEC to conduct.

Late last year, the agency declined to require those special procedures.

The DEC's policy of allowing upstate New York landfills to import drill cuttings from Pennsylvania gas wells has come under fire repeatedly.

Those hydrofracked wells tap the Marcellus shale formation, which is more radioactive that most other U.S. shale formations.

The DEC acknowledges that fact, and it prohibits many forms of Marcellus drilling waste, including "bulk drilling fluids, liquids resulting from the hydrofracturing process, flowback water and related filter sludge, production brine and related filter sludge, and drill cuttings generated from operations using oil-based drilling fluids."

However, New York does allow imports of Marcellus well drill cuttings from air- and water-based drilling fluids. More than half a million tons of the material has been imported by five upstate landfills, roughly one-third of that total at Hakes.

In the hydrofracking process, air- and water-based fluids are generally used to drill the vertical portion of a fracked well to reach the Marcellus shale layer. Oil-based fluids are used to drill the horizontal portion within the Marcellus. The latter is more likely to be highly radioactive.

Evidence is mixed on whether the DEC has strictly enforced its bans on fluid Marcellus wastes.

The Pennsylvania Department of Environmental Protection reported that Hakes Landfill received "332 barrels" of fracking waste between 2010 and 2017 in addition to 167,238 tons of drill cuttings. Two other New York landfills also received liquid fracking waste, according to the Pennsylvania department.

In response to reports that Hakes had imported banned liquid fracking waste, the landfill's owner, Casella Waste Systems Inc., asked three separate gas drillers to recheck their records.

Each driller later old Casella that they had mistakenly reported the shipments of liquid waste, and they asked the Pennsylvania DEP to correct its records.

Pennsylvania reported that the Chemung Landfill east of Elmira, which is operated by Casella, imported 323,466 tons of drill cuttings, easily the most of any New York landfill.

That report did not show that Chemung had imported liquid fracking wastes.

However, samples of leachate from the Chemung Landfill did show high levels — up to 1,000 pCi/L — of Lead-214 and Bismuth-214, the markers for radon contamination, Vaughan reported.

The volume of drill cuttings Hakes has accepted in recent quarters has declined significantly from peak import levels several years ago. But that doesn't diminish the ongoing health risk if radiation is as pervasive in the landfill as the Sierra Club expert witnesses contend.

While radon-222, the uranium-chain isotope that does the most damage to human health, has a half-life of only 3.8 days, it is constantly being produced by Radium-226, which has a half-life of 1,600 years.

Aside from the potential ongoing contamination of air around the landfill, local groundwater may be at risk.

Vaughan argues that the DEC has failed to adequately analyze the landfill's liner system that protects local soil and groundwater. The landfill drains toward the Corning aquifer, the primary drinking water supply for the Corning-Painted Post metro area.

In its findings statement (https://waterfrontonline.files.wordpress.com/2020/01/hakesdecfindingsdec2019.pdf) backing up its permit decision, DEC called Hakes an important outlet for construction and demolition debris (C&D). It noted that the existing landfill is running out of disposal capacity. If not expanded, it would have to close, forcing waste to other landfills in or outside the state or to illegal disposal sites.

The expansion, the agency said, will allow Hakes to operate for another 5-10 years.

"We're certainly pleased to receive a permit from the state to continue to provide much-needed, safe disposal capacity of construction and demolition debris at our Hakes landfill," said Joseph Fusco, a company spokesman.

Published by Peter Mantius

I am a journalist who lives in Watkins Glen, NY. I write about the environment and politics on my website, Waterfrontonline.blog. For more detail on my background, see the "Peter's Bio" section on that site. View all posts by Peter Mantius

3 Comments

1. **Edward J Berry** says:January 8, 2020 at 7:42 am Edit
   Thanks for continuing to cover serious stories like this. Good investigative reports both keep the public informed and keep the pressure on our elected leaders.

   Reply

2. **Brian L. Little** says:January 8, 2020 at 4:07 pm Edit
   Thank you, Peter! Fine writing. As a neighbor of the Hakes Landfill, I appreciate your fair, clear, and in depth reporting.

   Reply

3. **Barbara Thorne** says:January 11, 2020 at 11:35 pm Edit
   What action do you suggest? This is not ok.

   Reply