

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Office of Communication Services, Region 1

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www.dec.ny.gov

June 29, 2021

Kerim Odekon, MD, MRP, MSc
kerimodekon@gmail.com
Brookhaven, NY

Dear Dr. Odekon:

This is in response to a series of questions from Brookhaven Landfill Action and Remediation Group (BLARG) members from the March 5, 2021 Zoom meeting attended by DEC representatives Sean Mahar, Rosa Mendez and Aphrodite Montalvo.

Please note we have also included three attachments that relate to these questions (Number 7). The names have been redacted on these three letters to be protective of privacy concerns. One letter we are not certain if it is complete. We will seek to determine whether or not it is complete and will forward you a complete copy when we determine this.

1. There should be testing of PFAS in the groundwater around the landfill. What testing has been done, and how frequently will it be done going forward? What other contaminants are tested for?

DEC performed preliminary testing for Per- and Polyfluoralkyl substances (PFAS) in the landfill groundwater in 2017. This data has been provided via FOIL. The revised 6NYCRR Part 360 requires testing of PFAS and 1,4-Dioxane as emerging contaminants in addition to the leachate indicators as prescribed in the Part 363 regulations. The Department approved Brookhaven landfill's Unified Environmental Monitoring Program to include these contaminants, and the sampling will be performed semiannually upon permit renewal. The semi-annual testing of the landfill includes sampling and testing of leachate, perimeter groundwater monitoring wells up-gradient and down-gradient at the landfill, and previously impaired surface water at Beaverdam Creek.

2. What remediation has been done on the unlined cells of the landfill (cells 1, 2, and 3)? What can be done to remediate and control the contamination coming from those cells?

Brookhaven Landfill's older cells (#1, #2 and #3) were closed and capped in 1993 to stop additional precipitation from percolating through the waste mass. In addition, the town of Brookhaven (Town) installed a potable public water supply system



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downgradient of the landfill and provided service connections to residents. The Town also conducts semiannual sampling of all landfill groundwater monitoring wells to ensure there is no increase of landfill leachate indicators in groundwater, as prescribed in Part 363 regulations. Groundwater quality around the landfill has steadily improved since the older landfill sections were capped. Those actions, along with the leachate collection systems installed at the newer lined landfill cells, are considered standard remedial measures to address groundwater impacts associated with leachate from landfilling activities.

- 3. A member of BLARG was told that DEC does not test for PFAS on private wells, but DEC is doing that at another NYS landfill. Why is this testing not being conducted at Brookhaven Landfill?**

This was addressed in Item No. 2 of DEC's April 22, 2021 letter to Kerim Odekon.

Air Quality and Other Contaminant Testing

- 4. There needs to be more air monitors in more areas of North Bellport.**

Is mercury tested for at the landfill and in the surrounding communities?

Under the Unified Environmental Monitoring Program, mercury is tested for in groundwater around the landfill and in surface water at Beaverdam Creek, and none has been identified to-date.

Air sampling for volatile organic compounds (VOCs) was done in North Bellport by Environmental Consultants, Inc. at Frank P. Long Intermediate School. In summary, 17 outdoor and 92 one-hour indoor air samples were collected at Frank P. Long School. Four one-hour VOC samples were collected during the 2013 Community Air Screen program. All one-hour VOC results were reviewed by the Departments of Health and Environmental Conservation, and the VOC concentrations in the community were typical of other suburban areas in New York State.

The air pollutant of concern as of recent has been hydrogen sulfide (H₂S). Two continuous H₂S monitors have been operating during the warmer months since 2018. Recent results from those monitors report very little H₂S detects (<1% of the sample results) and when detected, the concentrations have been very low. DEC does not believe that additional air monitoring for VOCs in the area is warranted at this time. See response to question 5, regarding mercury.

- 5. Studies on methylmercury in landfill gas and mercury air emissions from transfer stations: <http://www.energyjustice.net/lfg/mercury>**

The Florida landfills sampled in the studies referenced by Energy Justice are all municipal solid waste (MSW) landfills. The waste characterization for these types of

landfills is much different than the operations of the Brookhaven Landfill which does not accept MSW. The results from studies on landfills accepting MSW would not be applicable to the Brookhaven Landfill. Additionally, our understanding of potential sources of mercury has increased significantly since the studies referenced by Energy Justice (sampling conducted 1997 – 2003). NYSDEC has implemented steps to learn more about the origin of mercury to the environment and has taken measures to reduce it.

In 2004, New York enacted a consumer product law which required labeling and recycling of mercury-added consumer products, such as batteries, electronic switches and fluorescent lights, and a year later prohibited the sale of mercury-added consumer products. The prohibition of the sale of mercury-added consumer products targets items that use mercury for novelty items, and the definition can be found on NYSDEC's website.^[1] These laws and subsequent regulations have significantly reduced the amount of mercury-containing consumer products deposited in MSW landfills. Consumer products containing mercury have largely been redirected to hazardous waste streams and recycling facilities. To protect the waters in the State, a New York law banned the use of non-encapsulated elemental mercury and required dentists to recycle any mercury or dental amalgam waste generated. The law became effective in March 2003. In May 2006, dental facilities were required to install separators to remove waste amalgam from dental facilities' wastewater. Reductions of mercury in wastewater, also reduces it in sewage sludge which is deposited in many waste landfills. Other federal and State regulations that reduce mercury releases to the air, also reduced mercury in surface waters and wastewater streams. New York, along with other Northeast States, currently has a more stringent allowable mercury limit on Resource Recovery Facilities than allowed by the federal program. New York is committed to reducing mercury releases into the air, water and soil and has enacted many laws and regulations to achieve that goal.

Long Island has no active MSW landfills. Landfills on Long Island are subject to tighter State regulation than those in other parts of New York. The Long Island Landfill Law (Environmental Conservation Law, Section 27-0704), enacted in 1983, restricts the types of waste that can be landfilled to prevent contamination of the groundwater. Consequently, Long Island currently has no facilities that landfill MSW. However, it does have facilities that combust MSW and certain other types of waste. There are three two landfills on Long Island that dispose of ash resulting from waste incineration. Landfills also can accept unprocessed, processed, and pulverized construction and demolition (C&D) debris and clean fill (uncontaminated soil or other "inert material"), by permit throughout Nassau and Suffolk Counties.^[2]

The potential sources of mercury at the Brookhaven Landfill are from mercury-containing consumer products, sewage or industrial sludge and ash from waste combustion. Brookhaven Landfill stopped accepting MSW for deposit in 1995. MSW

would include mercury-containing consumer products. Studies show that older deposits of landfills release much less mercury than newer sections of landfills. The newer deposits at the Brookhaven Landfill do not contain MSW and therefore would not consist of mercury-containing consumer products.

The landfill does accept ash from nearby municipal waste combustors. Waste ash deposited in landfills must meet specific criteria established in DEC solid waste regulations to ensure the content of the ash disposed has low levels of metals, including mercury. These requirements are written into the solid waste permits for municipal waste combustors. Municipal waste combustors are also resource recovery facilities and remove and recycle metal from the waste stream prior to incineration. Also, important to note that studies have shown that most of the form of mercury in the ash would be strongly bound to other elements such as iron or sulfur^[3] and therefore, not available to become methylmercury. Pure elemental mercury must be available to be transformed to methylmercury by anerobic bacterial activity. Studies show that the dominant species of mercury released from landfills is elemental mercury with methylmercury contributing less than 5%.^[4] Methylmercury is a concern because it bioaccumulates in the environment and is commonly found in fish. Eating fish containing methylmercury is the most common route of mercury exposure for people.^[5]

Lastly, the Brookhaven landfill does have a transfer facility, but it does not accept mercury-containing consumer products such as compact fluorescent light bulbs or batteries. Therefore, mercury would not be released from the transfer activities at Brookhaven Landfill. A separate Stop Throwing Out Pollutants (STOP) facility handling area is provided to town residents for depositing mercury containing products.

In summary, we do not expect mercury and methylmercury to be released from the landfill in quantities to be of public health concern, as we have reduced mercury in the waste stream. Therefore, we do not see a need to conduct air monitoring for mercury and methylmercury.

^[1] <https://www.dec.ny.gov/chemical/8853.html>

^[2] <https://www.osc.state.ny.us/files/local-government/publications/pdf/landfills-2018.pdf>

^[3] Zhou, Jizhi, et. al., Mercury in municipal solids waste incineration (MSWI) fly ash in China: Chemical speciation and risk assessment. Fuel 158 (2015).

^[4] Zhengkai Tao, et.al., Mercury emission to the atmosphere from municipal solid waste landfills: A brief review. Atmospheric Environment. 170 (2017).

^[5] U.S. Environmental Protection Agency, Mercury webpage, accessed 4/15/2021, <https://www.epa.gov/mercury>

6. You can use monitors for heavy metal contamination including mercury, dioxanes, cadmium, and tritium as they are known contaminants in incinerator ash.

**Multi-metals continuous emissions air monitors developed by Cooper Environmental (<http://cooperenvironmental.com/multi-metals-continuous-emissions-monitor/>) are available via CEMtek Instruments, which has exclusive rights to the technology: <https://www.cemtekinstruments.com> This tech should be used to sample for mercury and other toxic metals in the air around the landfill, and should be hooked up to share the info with the public real-time on a public website.
Ditto for particulate matter emissions or other pollutants of concern for which continuous testing technology exists.**

As stated in response to question 5, the ash deposited from municipal waste combustors is required to meet low level metal content as established in DEC solid waste regulations. We do not anticipate that the ash would cause dust issues as our regulations require that all ash delivered and placed in the landfill be in a moistened state. The moistened state of the ash develops a hardened surface or crust which prevents it from becoming airborne. Additionally, an air monitoring program conducted specifically to study the effects of the ash placement in the landfill demonstrated that fugitive ash dust is not being released from the landfill.

From 1996 – 1999, a consultant for the Town of Brookhaven collected particulate matter less than 10 microns in size (PM₁₀). All results were below NAAQS. Additionally, the consultant collected larger size particles called total suspended particles and those results were also below the NAAQS. In 2005, the Agency for Toxic Substance and Disease Registry summarized the air sampling results from 1993 and 1996-1999, along with other sampling conducted over the years and concluded that the landfill posed no apparent public health hazard.

The Town uses a DustTrak monitor to take hourly measurements of particulate matter (total PM, PM₁₀ and particulate matter less than 2.5 microns (PM_{2.5})) around the perimeter of the landfill. In 2016, the data collected showed the 24-hour average did not exceed the NAAQS of 150 µg/m³ and 35 µg/m³ for PM₁₀ and PM_{2.5}, respectively. The particulate matter monitoring has continued but recent evaluation of the monitoring results shows issues related to the instrument. Staff are working with the Town and consultant to develop a quality assurance and quality control plan for the instrument to ensure valid data are collected.

Tritium is not a heavy metal. It is an extremely low-energy radiation emitter, with a very low human health risk. It is not known to be a common contaminant in incinerator ash and is unlikely to be present in the municipal solid waste (MSW) stream. The primary potential source of tritium in MSW waste is self-illuminating safety signs, which are prohibited from disposal. If any Tritium bearing waste ends up in the municipal waste stream and is combusted, the tritium waste would likely be emitted through the smokestack and not in the MSW ash.

Dioxane waste and dioxane precursors are typically hazardous waste and is designated as F-list and U-list wastes. Such wastes are tracked from cradle to grave and is disposed at hazardous waste facilities. These wastes are not expected to be in the municipal waste stream in quantities that would cause the municipal waste ash to be hazardous. Also, if dioxane is released in the atmosphere it is short-lived in the atmosphere, with an estimated 1- to 3-day half-life due to photooxidation (ATSDR 2012; DHHS 2011).^[3]

^[1] Agency for Toxic Substances and Disease Registry, November 29, 2005. Health Consultation Brookhaven Landfill. Town of Brookhaven, Suffolk County
<https://www.atsdr.cdc.gov/HAC/pha/BrookhavenLandfil112905/BrookhavenLandfillHC112905.pdf>

Accompanying appendices

<https://www.atsdr.cdc.gov/HAC/pha/BrookhavenLandfil112905/BrookhavenLandfillHC112905Appendix.pdf>

^[2] This level is also below the current lead NAAQS of 0.15 µg/m³.

^[3] https://www.epa.gov/sites/production/files/2014-03/documents/ffrro_factsheet_contaminant_14-dioxane_january2014_final.pdf

7. Radon has been detected in about 20 wells. Why has the DEC taken no action? Radon is not natural for our area.

EPA has addressed the concern of presence of Radon detected in groundwater during testing by Enviroscience at the Frank P. Long Intermediate School. As noted earlier in this letter we have redacted the names associated with past radon correspondence to be protective of privacy concerns. Three letters dealing with radon issues in the Brookhaven Landfill vicinity are attached.

8. Testing should be done at the HELP Suffolk Homeless shelter that is one mile from the Frank P. Long School.

During assessment of private wells in the area, Suffolk County did not identify any at the Help Suffolk Homeless shelter. Soil vapor intrusion sampling is not warranted as the emerging contaminants in question have a very low propensity to volatilize from solutions in water, including groundwater.

Environmental Justice & Permits

9. How will EJ be incorporated in permit renewals? Kerim was told that EJ policies do not apply to renewals, but according to the solid waste management plan goals and objectives, they should.

This has been addressed in Item No. 8 of DEC's April 22, 2021 letter.

Landfill Closure

10. What is the estimated post-closure cost?

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As per the latest submission for the financial year ending 31 December 2019 of the Local Government Financial Test from the Town, submitted per requirement of Part 360 regulations, the estimated liability for landfill closure and post closure care cost is estimated at \$32,574,091. The post closure cost is estimated at \$13,159,220 is kept in post closure reserve fund and is funded by a tipping fee surcharge to established in 2017.

11. Will it affect the community and taxes?

This question is beyond DEC's purview and should be directed to the Town.

12. What does the closure plan entail?

The Closure Plan entails the Part 363 requirements for landfill capping and closure, and a post-closure care and maintenance plan.

A landfill cap consists of the following:

- Gas management system to ensure that landfill gas will be adequately controlled and removed from the landfill in a manner to ensure the overall stability of the landfill and its final cover system, and to reduce the concentration and pressure gradient of landfill gases to control gas migration.
- Landfill cover system that consists of a geosynthetic composite barrier layer consisting of a geocomposite clay liner and separate geosynthetic liner, barrier protection and drainage layer of soil and topsoil layer meeting the requirements of subpart 363-6.6(d)

The post-closure plan entails two phases of landfill monitoring and maintenance known as the post-closure care and custodial care.

Post-closure care includes the following activities:

- Maintenance of slopes, vegetation, drainage structures, gas venting structures, access roads to ensure the integrity of the final cover including making repairs,
- Leachate collection system operation and maintenance,
- Landfill gas collection system operation and maintenance,
- Periodic inspection and inspection following a major weather event and

- Submission of an annual landfill report detailing all data related to the landfill including gas collection and leachate collection and verifying of liner performance.

Custodial care begins when the facility owner demonstrates to the Department's satisfaction that the facility poses a significantly reduced threat to public health and environment. The environmental monitoring includes the following activities:

- Maintenance of all slopes, vegetation and drainage and gas management structures
- Maintenance and sampling of all environmental monitoring points,
- Periodic inspections
- Annual reporting to the Department

13. How can the community be involved in the closure discussions?

DEC does not decide the post-closure use of a landfill. DEC's role is to ensure that the landfill is closed in accordance with the regulations. Any post-closure use will require approval from DEC to ensure the environment is protected and cap integrity is maintained.

14. What is the estimated time for the closure?

Brookhaven landfill capping and closure is a work in progress. All previous Cells including Cells 1-5 have been capped and closed. Additionally, about 30 acres of Cell 6 are capped and closed, with a remaining area of about 78 acres in active stage or yet to be filled. As per current estimates based on past filling rate, the landfill is expected to reach capacity in 2024. A facility closure plan and post-closure maintenance plan must be submitted to the Department at least 180 days before commencement of construction of final facility closure and the owner or operator must complete final closure of the landfill by completing installation of the final cover system within 365 days of final receipt of waste unless an extension is approved in the landfill's closure plan.

Long Island Regional Planning for Solid Waste Management

15. There is no approved local Solid Waste Management Plan for the Town of Brookhaven. Why?

The Town of Brookhaven does not currently have an approved Local Solid Waste Management Plan (LSWMP) in place, but is currently working on updating their draft LSWMP to be in compliance with Part 366. The Town submitted a draft LSWMP in 2012. The Department responded with comments in March 2018, and the Town has hired a consultant to assist with updating the plan and to respond to the Department's comments. The Town submitted an updated draft Chapter 1 in April 2019 and is currently working on the rest of the draft plan.

16. How can DEC permit new solid waste sites (2 new transfer stations) without a plan in place?

New applications (i.e., permit applications for new facilities) are handled differently under Part 360 regulations than applications to modify or renew an existing permit. 360.16 (d) states that new applications submitted by or on behalf of a municipality for a permit under Part 362 or 363 of this Title will not be complete until a LSWMP is in effect for the municipality. The Department has not received a new application submitted by or on behalf of a municipality for a transfer facility in the Town of Brookhaven.

17. Should there be a moratorium until a plan is approved on new solid waste infrastructure.

360.16 (d) states that new applications submitted by or on behalf of a municipality for a permit under Part 362 or 363 of this Title will not be complete until a LSWMP is in effect for the municipality. The Department will comply with the requirement in Part 360 for new applications submitted by or on behalf of a municipality for Part 362 and 363 solid waste facilities in the Town of Brookhaven.

18. What happens when the town does not respond to DEC's requests for cooperation, getting a solid waste plan in place? What fines and actions are taken?

The Town has responded to the Department's comments on their 2018 draft plan. The Town submitted an updated draft Chapter 1 in April 2019 and is currently working on drafting the rest of the plan. The Department will follow the Local Solid Waste Management Plan (LSWMP) review and approval process in Part 366.

19. DEC stated the Long Island Regional Planning Council oversees creating a solid waste regional plan. LIRPC responded to several members stating that due to COVID, these efforts have paused, and they are not meeting. What will DEC do to take the lead on this crisis as the landfill is set to close in 2024? Shouldn't this be DEC's jurisdiction?

In February 2020, a presentation by the Long Island Solid Waste Leadership Council (LISWLC), as well as support from the NYSDEC Regional Director, was made to the Long Island Regional Planning Council (LIRPC) to describe the LISWLC's efforts requesting the assistance of the LIRPC in advancing regional solid waste management planning. At that time, as a result of that meeting, it was expected that the LIRPC would be incorporating this effort into their upcoming endeavors. However, in mid-April 2021, the LIRPC informed DEC that it would be unable to keep the LISWLC and their efforts under its umbrella, due to unforeseen challenges brought on by the COVID-19 pandemic. LISWLC is a voluntary advisory group formed in 2018 to facilitate talks between public representatives, local municipalities, local solid waste planning units,

and the private sector of Long Island's solid waste management industry and to encourage a regional approach to addressing the region's waste management challenges. Solid waste management presents some unique challenges for Long Island, and the efforts of the LISWLC were an important first step, but LISWLC does not have the authority to make solid waste management decisions, which is why they were seeking support from the LIRPC. In an effort to help keep the regional discussions and problem-solving for solid waste management moving forward, DEC is currently looking into potential pathways for support.

DEC does not have the authority to mandate the solid waste management choices made by local municipalities or local solid waste planning units. While DEC's materials management program oversees solid waste management planning units and local municipalities - to ensure that they meet statutory and regulatory requirements - as well as solid waste management facilities - to ensure that they are constructed and operated in a way that is protective of human health and the environment, it is local governments and local planning units that are empowered and responsible to make decisions about whether to construct and operate solid waste management facilities or have them constructed and operated by private entities, whether they be landfills, transfer facilities, or other types of solid waste management facilities. DEC has long understood the benefits of regional cooperation in solid waste management and will continue to look for opportunities to help local planning units and municipalities with their decision-making and regional communication.

2019 Consent Order

20. Has the town conducted an Environmental Benefit Project as they committed to? Is it assisting the affected community? What was in the project if it has taken place or when will it take place?

A final Environmental Benefit Project (EBP) has not been determined. The Order on Consent assessed a total penalty in the amount of TWO HUNDRED FIFTY THOUSAND (\$250,000) DOLLARS. Of the total assessed penalty, the Town is required to fund and implement an EBP in the sum of ONE HUNDRED FIFTY THOUSAND (\$150,000) DOLLARS. The balance of ONE HUNDRED THOUSAND (\$100,000) DOLLARS is to be suspended provided that the Town complies with the terms and conditions of the Order on Consent. The EBP must comply with the Department's Environmental Benefit Projects Policy (CP-37), but otherwise there is no restrictions on benefits to the affected community.

21. Where did the \$250,000 fine go? Did that fine go to assist the community?

See Response 20 above.

22. Will a timeline be produced on when improvements will be made? When will that be available?

DEC has been posting fact sheets and/or community updates on implementation status of the remedial actions and improvements as listed in the Order on Consent. The following link may be used to access those updates
<https://www.dec.ny.gov/chemical/111038.html>

Legal

23. Is it the agency's position that there cannot be a violation of Title VI of the Civil Rights Act of 1964 (CRA) if a facility is in compliance with environmental regulations, or does DEC recognize that compliance with CRA is an independent legal obligation regardless of environmental compliance?

42 U.S.C. 2000d et seq., Title VI of the Civil Rights Act of 1964 ("Title VI"), prohibits discrimination on the basis of race, color or national origin in any program or activity that receives Federal funds or other Federal financial assistance. Title VI sets forth distinct authority from other federal and state statutory schemes, including those addressing environmental compliance.

All future inquiries regarding Brookhaven Landfill operations and community Environmental Justice concerns can be addressed to Region One Office of Communication Services staff members.

Please reach out to both Regional Public Participation Specialist Bill Fonda and / or Public Participation Specialist and Regional Environmental Justice Coordinator Aphrodite Montalvo. They can be reached at (631) 444-0350.

Thank you again for sharing these concerns and questions.

Sincerely,

A handwritten signature in black ink that reads "Bill Fonda". The signature is written in a cursive style with a large, prominent "B" and "F".

Bill Fonda