



Department of
Environmental
Conservation

Landfill Leachate Rulemaking Effort

Rick Clarkson
Division of Materials Management

Background

- Leachate is generated at a landfill as a result of percolation of precipitation through the disposed waste and from the decomposition of organic wastes within the landfill.
- Landfills are designed to contain and collect leachate to protect groundwater at the landfill site and to allow for proper management.
- The standard method for managing landfill leachate has been disposal at WRRFs.
- The standard biological treatment processes at WRRFs are not designed to treat many of the chemical contaminants found in leachate.
- Technologies are now available whereby contaminants can be removed from landfill leachate and retained in a landfill, avoiding the reintroduction of these contaminants to the environment.



Cogeneration for Onsite Evaporation of Landfill Leachate RO Concentrate

The Cumberland County Improvement Authority Solid Waste Complex maximizes the value of its onsite Landfill Gas-to-Energy Facility by using engine exhaust to evaporate landfill leachate reverse osmosis concentrate with Heartland's CoVAP Solution.

BY JOHN WEIGOLD

Location: Deerfield, NJ

Cumberland County Improvement Authority Solid Waste Complex

- 275 acres permitted
- Over 6 million tons of waste in place
- Receives approximately 750 tons per day of solid waste

Key Takeaways

- **RO Concentrate Treatment** – direct contact evaporation is one of the best ways to treat challenging Reverse Osmosis (RO) concentrate
- **Cogeneration for Evaporation** – beneficial use of engine exhaust

for evaporation improves engine efficiency and cost-effectively evaporates leachate

- **Environmental Sustainability** – through onsite evaporation, The Authority is taking significant steps toward achieving their sustainability goals



MSW
Management
The Journal for Municipal Solid Waste Professionals

JANUARY/FEBRUARY 2022

www.mswmanagement.com

- **Energy Efficiency** – beneficial use of engine jacket heat preheats water and improves treatment effectiveness
- **Economic Benefits** – RO Concentrate treatment reduces overall leachate treatment costs

Basics

- Goal - minimize the re-introduction of contaminants into the environment
- Rulemaking would require leachate from currently active MSW landfills and CDD landfills with leachate collection systems to be treated to remove contaminants and ensure the proper disposal of those contaminants.
- The treatment would be required to occur prior to delivery of treated leachate stream to a WRRF or other authorized discharge location.
- The concentrated residual waste resulting from treatment would be required to be properly disposed.

- Draft rulemaking package is complete and under internal review.

2026 State of the State

Addressing Contamination from Landfills to Protect Water Quality

Clean water, vibrant agriculture, and a healthy environment go hand-in-hand. Currently, due to the lack of treatment for liquid waste from landfills that may contain heavy metals and PFAS, this waste may flow into municipal wastewater treatment plants that are unable to remove these substances. This risks discharging “forever chemicals” and other harmful contaminants into our drinking water. To build upon New York’s nation-leading efforts to address emerging contaminants, the Department of Environmental Conservation (DEC) will establish new regulations that instruct landfills to treat leachate for harmful contaminants at the source before discharge; and provide funding for local governments to comply. By treating leachate at the source, we can better protect our environment and our drinking water sources, and save taxpayers millions in future cleanup costs.



Landfill Leachate - Considerations

- Currently, there are 25 active MSW landfills and 7 active C&D debris landfills with leachate collection systems.
- Based on recent annual reports, landfill leachate is disposed at 35 WRRFs located in New York State.
 - ~ 600 WRRFs in NYS
- Leachate volumes - Total volume for the 25 active MSW landfills and 7 active C&D debris landfills with leachate collection systems is approx. 546,000,000 gallons



Landfill Leachate - Considerations

- Any location that treats leachate in NYS must do so under Part 360 Series permit as a leachate treatment facility
- Leachate treatment may occur at the generating landfill, at another landfill, or at an alternate permitted location
- Treatment method would not be specified; instead, minimum performance standard (i.e., contaminant removal requirements) would be specified
 - Treatment method must be included in a permit application with sufficient supporting documentation for DEC review and approval
 - Specific targeted contaminants would depend on those found in particular landfill's leachate – Part 363-4.6(h) Tables 3A and 3B
- Rule would include built-in timeframes to allow for planning, design, testing, construction, and final implementation



Landfill Leachate - Considerations

- Total costs for each landfill to evaluate, plan, and implement leachate treatment will vary considerably based on the approach and the technologies that the facility chooses to use to meet the new requirements, as well as the volume of leachate that needs to be treated.
- Potential funding for municipalities
 - EFC - Bipartisan Infrastructure Law (BIL) grant funding to address emerging contaminants (ECs)
Available for planning, design and construction activities that address ECs in wastewater, stormwater and nonpoint source pollution.
 - Links to EPA documents that outline the eligibilities for the BIL EC program:
<https://www.epa.gov/system/files/documents/2024-04/cwsrf-ec-ta-fact-sheet.pdf>
https://www.epa.gov/system/files/documents/2022-08/CWSRF%20EC%20FAQs_FINAL.pdf
 - Additional Funding Opportunities may be developed and related information will be shared when available



DOW Surface Water Action Levels vs. Part 363 Approach

- Part 363 Proposal is compatible with DOW's rules and guidance
 - DMM approach - mass basis
 - DOW approach - health/ecological risk basis
- Part 363 proposal aims to minimize the amount of industrial chemicals, heavy metals, and emerging contaminants that leave the landfill.
- Part 363 proposal takes action before DOW's risk-based action levels are considered.
- The constituents of concern in an individual landfill's leachate are identified and reductions are required for the leachate treatment effluent leaving the landfill.
- Treated leachate effluent that is then directed to a WRRF would be evaluated along with other incoming streams through DOW's action level evaluation system.
- If the leachate effluent is direct discharged, it would require its own SPDES permit with a similar evaluation.
- Approach reduces the overall contaminant loading to the WRRF and avoids a duplicative health/ecological risk assessment.



Stakeholder Feedback

- Two stakeholder meetings were held in 2023 to receive feedback and ideas.
- Two virtual meetings to share information related to the potential rulemaking and to receive input
 - January 27, 2026
 - February 11, 2026



From 2023 Stakeholder Meeting

MSW Landfill Leachate – Seeking Feedback on:

Leachate treatment/ solidification technology

Alternative operating cover adjustments

Operational changes to reduce leachate

Costs

Considerations for leachate storage capacity

How and when to transition into the new requirements

The need for additional odor control measures

Time frame needed to implement

Leachate sampling requirement adjustments

How and when will the requirements change at the conclusion of waste acceptance?

Acceptance of leachate from other SWMFs for solidification



Comments on Leachate Stakeholder Meeting

- Concern with “Expedited Rulemaking Process”
 - Short comment period
- Concern re: solidification of raw leachate
 - Slope stability, airspace usage, high-density material
 - Offset other “difficult-to-manage” wastes (e.g., biosolids)
- Recognize LF-WRRF Circularity
 - Infrastructure – dedicated sewer lines
 - Financial agreements
- Clearly identify subsets of “leachate”
 - Raw, treated, effluent, condensate, byproduct
- Clearly identify acceptable methods/alternative
 - Volume reduction or other pretreatment
 - Allowable methods of redisposal – solidification, slurry
 - Onsite treatment/offsite disposal
 - Offsite treatment/onsite disposal
- Allow sufficient transition time for permitting, design, construction (4-5 years recommended)



Recent Comments

- Extend standard 60-day comment period during proposed rulemaking period
- Make regulations applicable to all landfill leachate
- Consider air impacts if leachate is used in blown-on daily cover
- Control of leachate moving in-state or out-of-state



Recent Comments

- Additional recent comments from January 27 webinar

Thank You

Connect with us:

Facebook: www.facebook.com/NYSDEC

Twitter: twitter.com/NYSDEC

Flickr: www.flickr.com/photos/nysdec

Rick Clarkson

Division of Materials Management

richard.clarkson@dec.ny.gov

518-402-8652



Department of
Environmental
Conservation