

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

**NPDES PERMIT FACT SHEET
ADDENDUM**

Application No. PA0046680
APS ID 318564
Authorization ID 1364256

Applicant and Facility Information

Applicant Name	<u>Republic Services of Pennsylvania, LLC</u>	Facility Name	<u>Modern Landfill (PF #255900)</u>
Applicant Address	<u>4400 Mount Pisgah Road York, PA 17406-8240</u>	Facility Address	<u>4400 Mount Pisgah Road York, PA 17406-8240</u>
Applicant Contact	<u>Mazen Haydar, Environmental Manager (717) 887-0478 mhaydar@republicservices.com</u>	Facility Contact	<u>Mazen Haydar (717) 887-0478</u>
Client ID	<u>92781</u>	Site ID	<u>249052</u>
SIC Code	<u>4953</u>	Municipality	<u>Windsor and Lower Windsor Townships</u>
SIC Description	<u>Trans. & Utilities - Refuse Systems</u>	County	<u>York</u>
Date Published in PA Bulletin	<u>August 26, 2023</u>	EPA Waived?	<u>No</u>
Comment Period End Date	<u>October 10, 2023</u>	If No, Reason	<u>Significant Chesapeake Bay Discharger</u>
Purpose of Application	<u>renewal of NPDES permit for discharge of stormwater & treated Industrial wastewater & groundwater</u>		

Internal Review and Recommendations

The draft NPDES permit was issued August 10, 2023. The draft permit and the application were posted on a DEP website due to public interest:

[Modern Landfill NPDES/Solid Waste \(pa.gov\)
https://www.dep.pa.gov/About/Regional/SouthcentralRegion/Community%20Information/Pages/Modern-Landfill-NPDES.aspx](https://www.dep.pa.gov/About/Regional/SouthcentralRegion/Community%20Information/Pages/Modern-Landfill-NPDES.aspx)

(also accessible from DEP's website, www.dep.pa.gov, choose 'Regional Resources', choose 'Southcentral Regional Office', choose 'Community Information', choose 'Modern Landfill NPDES/Solid Waste'.)

A public hearing was held October 4, 2023. Written comments on the draft permit were received from the permittee, U.S. EPA, and 6 other commenters. 15 persons testified at the hearing, some of whom provided their testimony in writing at the same time. Responses to comments have been prepared as a separate document and will be posted on the same website shown above along with the final permit and this Fact Sheet Addendum. **Changes made in the final permit as a result of the comments are detailed in this Fact Sheet Addendum and are listed on pages 4 and 5.**

The upgrade to the treatment plant became operational at the end of April 2023. As of May 28, 2024, there have been no exceedances of the existing NPDES permit's limits since the upgrade according to DEP's WMS database (which reflects data from the facility's Discharge Monitoring Reports (DMRs)).

As of May 28, 2024, DEP's Compliance History Power BI Report indicates there is one unresolved violation for Republic Services of Pennsylvania but it does not prevent the final NPDES permit from being issued. The violation is for the Modern Landfill site for an August 2023 spill, described below. The spill has been cleaned up but the penalties are still being

Approve	Return	Deny	Signatures	Date
x			<i>Bonnie Boylan</i> Bonnie Boylan / Environmental Engineering Specialist	May 29, 2024
x			<i>Daniel W. Martin</i> Daniel W. Martin, P.E. / Environmental Engineer Manager	May 31, 2024
x			<i>Maria D. Bebenek</i> Maria D. Bebenek, P.E. / Program Manager	May 31, 2024

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collected. A Consent Assessment for Civil Penalty (CACP) is pending. It is in the interest of the environment for the renewal permit to be issued, not delayed, since the renewal permit includes stricter limits and additional requirements than the existing permit.

In August, 2023, there was an unauthorized discharge at the facility which constituted a violation of Section 301 of the Clean Stream Law and Pa Code § 91.33(A). An overflow of the aeration tank and an open valve allowed partially treated wastewater to discharge to a stormwater pond and then into a stormwater channel and into an unnamed tributary of Kreutz Creek via outfall 003. The valve was supposed to be closed so that any overflows or spills would be pumped back to treatment tanks. There is a high-level alarm on the tank and it did sound an alarm. Corrective action was taken by the permittee, including vacuuming the wastewater out of the unnamed tributary, digging an interceptor trench, and removing sediments from the stormwater pond.

Since the treatment plant upgrade, color in the discharge and in Kreutz Creek downstream of outfall 001 has improved. The DMRs from May 1, 2023 through March 31, 2024 reported average Color upstream as 27 Platinum-Cobalt (Pt-Co) units and average Color downstream as 25 Pt-Co units. The eDMRs reported average Color for the discharge as 10 Pt-Co units.

Since the issuance of the draft permit in August 2023, EPA updated the surface water quality criteria tables on their website (December 2023). The tables still do not show criteria for Tritium or Uranium or PFAS parameters. Since the issuance of the draft permit in August 2023, surface water quality criteria for PFAS parameters have still not been promulgated and revised federal Effluent Limitation Guidelines (ELGs) for landfills have still not been published.

For PFAS developments, interested parties are directed to EPA's webpage:

[Key EPA Actions to Address PFAS | US EPA](https://www.epa.gov/pfas/key-epa-actions-address-pfas)
<https://www.epa.gov/pfas/key-epa-actions-address-pfas>

Republic Services has conducted PFAS (per- and polyfluoroalkyl substances) sampling of their discharge at outfall 001. Three rounds of sampling conducted before the upgrade and seven rounds of sampling after the upgrade, using EPA draft analytical method 1633, indicate average reductions in PFAS being achieved by their upgraded treatment plant as follows:

95% reduction for PFOA (perfluorooctanoic acid)
97% reduction for PFOS (perfluorooctanesulfonic acid)
97% average reduction for Total PFAS (40 parameters)

The average concentrations of the 7 samples collected from the discharge post-upgrade are as follows ('ppt' means parts per trillion; 'ng/l' means nanograms per liter):

102.3 ppt PFOA (= 102.3 ng/l)
11.9 ppt PFOS (= 11.9 ng/l)
527.9 ppt Total PFAS (= 527.9 ng/l)

Since the issuance of the draft permit in August 2023, DEP's Waste Management Program received a renewal landfill permit application from Republic Services for Modern Landfill and an amendment application to stabilize the Reverse Osmosis (RO) reject water and introduce it to the landfill cells. These applications are still under review. Interested parties are referred to the following DEP website for information:

[Modern Landfill NPDES/Solid Waste \(pa.gov\)](https://www.dep.pa.gov/About/Regional/SouthcentralRegion/Community%20Information/Pages/Modern-Landfill-NPDES.aspx)
<https://www.dep.pa.gov/About/Regional/SouthcentralRegion/Community%20Information/Pages/Modern-Landfill-NPDES.aspx>

(also accessible from DEP's website, www.dep.pa.gov, choosing 'About DEP', choosing 'Regional Resources', choosing 'Southcentral Regional Office', choosing 'Community Information', choosing 'Modern Landfill NPDES/Solid Waste'.)

Since the issuance of the draft permit in August 2023, Republic Services submitted Chemical Additive Notification forms for MemCleen A and nine other chemical additives along with supporting engineering calculations for usage rates: Vitec 7000, Vitec 7400, KRO-668, RoCide IS2, Kathon LX, Nalco 7330, Spectrus NX 106, (RoClean) L811, RoClean P112. All of these chemical additives are on DEP's Chemical Additives Approved List. DEP accepted the Notification forms and stored the usage rates in the DEP database. The Chemical Additives language in Part C.V. of the renewal permit takes effect on the permit effective date. Submitting the Chemical Additive Notification forms before the final permit is issued allows for the chemical additives' immediate use but not in excess of the usage rates on Chemical Additive Notification forms.

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EPA asked that a more comprehensive discussion be included in the Fact Sheet (Addendum) explaining why the new WQBELs in this NPDES permit were not imposed effective immediately and supporting the appropriateness of a compliance schedule:

The volume of leachate generated seasonally varies and the concentrations of pollutants in leachate also varies such that requesting a few new effluent samples after the treatment plant upgrade would not necessarily be indicative of whether the upgraded treatment plant could consistently achieve the new Water-Quality Based Effluent Limitations (WQBELs) imposed in the permit for 14 parameters. Having on-going monitoring as a requirement in the permit for these parameters will yield a larger and more representative data set, including seasonal variations. Also, unlike other industrial dischargers, a landfill cannot change raw materials or production processes to enable the facility to meet new WQBELs: the waste has already been deposited and sometimes covered and capped. If the facility cannot consistently meet final permit limits, new treatment might be needed. A compliance schedule of three years was proposed to (1) allow enough time for the permittee to collect site-specific data to refine the accuracy of the new WQBELs if they choose (in accordance with Part C.III.A.1. of the renewal permit and as recommended in DEP's Standard Operating Procedure titled Establishing Water Quality-Based Effluent Limitations and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers), (2) to conduct the Toxics Reduction Evaluation required by the permit which could include identification and assessment of new treatment technologies to achieve the final WQBELs, (3) to submit the results to DEP, (4) for DEP to review the new information, and (5) for a draft permit amendment to be prepared if appropriate, with public notice and comment period, and/or a Water Quality Management (WQM) permit to be issued for new treatment if appropriate and then new treatment installed to achieve the final permit limits.

EPA asked that the August 2023 Fact Sheet be corrected for the 2017 increase in Total Phosphorus (TP) load. The August 2023 Fact Sheet was already issued so the correction is being noted in this Fact Sheet Addendum instead:

Pages 30 and 31 of the August 2023 Fact Sheet cited the October 2016 Fact Sheet (associated with the NPDES renewal permit issued in 2017) for purposes of documentation. The 129 lbs./yr. of additional TP appears to have been a typo in the 2016 Fact Sheet. The Total Phosphorus cap load was increased in the 2017 NPDES permit by 169 lbs./year from the Phase 2 Watershed Implementation Plan (WIP) Wastewater Supplement, not by 129 lbs./year as stated in the 2016 Fact Sheet and cited in the August 2023 Fact Sheet, for a total of 300 lbs./year. No changes to the Chesapeake Bay Total Maximum Daily Load (TMDL) Waste Load Allocations are being proposed in the renewal permit. The cap loads in the 2017 permit and in this renewal permit and in the Phase 3 WIP Wastewater Supplement (July 29, 2022) are as follows: 50,803 lbs./year for Total Nitrogen and 300 lbs./year for Total Phosphorus.

Following EPA's comments on the August 2023 draft permit which are included in the attached Comment/Response document, EPA supplied comments on DEP's proposed revisions to the August 2023 draft permit:

1. *EPA continues to recommend stormwater monitoring to evaluate whether any potential PFAS contaminated runoff may be leaving the site from the active landfill areas. We recommend screening for PFAS using EPA Method 1621 for Adsorbable Organic Fluorine and/or EPA Method 1633 to evaluate whether there is any potential pollution in the stormwater discharges. Since the facility is monitoring at stormwater outfall 005, this may be an appropriate outfall to characterize stormwater discharges from the site.*
2. *Since EPA Method 1633 is now final, the proposed Part C.II.F. condition should remove the word "Draft" in the first sentence. "Until there is an analytical method approved in 40 C.F.R. Part 136 for PFAS monitoring, all PFAS monitoring shall be conducted using EPA Draft Method 1633..."*
3. *The intention behind adding "...other than Reverse Osmosis reject water" regarding outfall 001 was initially unclear to EPA. In a phone conversation with EPA on 5/13/2024, PADEP clarified that the Reverse Osmosis reject water is collected and sent offsite. For PADEP's consideration, it might be clearer if a Part C condition was included stating that this permit does not authorize the discharge of Reverse Osmosis reject water.*

[The proposed revisions to the August 2023 draft permit included adding a clarification to "type of effluent" on the limits tables, from "Landfill leachate, groundwater, miscellaneous wastewaters" to "Landfill leachate, groundwater, miscellaneous wastewaters other than Reverse Osmosis reject water".]

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EPA's recommendations #2 and #3, above, were incorporated in the final permit's Part C.II.F. and Part C.II.J. EPA's recommendation #1, above, was not incorporated in the final permit nor was the Comment/Response document changed. DEP thanks EPA for their input but notes that our NPDES permit applications and our Standard Operating Procedures do not require PFAS monitoring for stormwater-only discharges. The federal ELGs do not require PFAS monitoring for stormwater at landfills. The Department's PFAS monitoring strategy does not currently include monitoring at stormwater outfalls.

For documentation purposes, DEP noticed an error in a citation in the August 2023 Fact Sheet: on page 24, the citation 25 Pa. Code § 92a.3 should have been 25 Pa. Code § 92a.44, incorporating the federal regulations [40 CFR § 122.44(l)] prohibiting backsliding of permit limits. The August 2023 Fact Sheet was already issued so the correction is being noted in this Fact Sheet Addendum.

Republic Services asked that the description of the treatment plant in the August 10, 2023 Fact Sheet (pages 9 and 10) be modified. The August 2023 Fact Sheet was already issued as was the 2021 WQM permit. (The NPDES permit authorizes discharges. The WQM permit approves treatment plant designs. A NPDES Fact Sheet does not grant permission to deviate from an approved treatment plant design.) In response to Republic Services comment, DEP notes in this Fact Sheet Addendum that:

- a Dissolved Air Flotation (DAF) system was installed prior to the leachate treatment plant;
- there are three Ultrafiltration (UF) membrane units with up to 5 modules for each unit and approximately 0.100 MGD capacity for each UF unit, with one UF membrane serving as a spare according to the 2021 Design Engineers Report in the 2021 WQM permit application;
- recirculation pumps to the new aeration tank were installed;
- an existing sludge thickener tank was re-purposed in the recent upgrade to an aeration tank feed sump.

Per Republic Services' comments received by email October 10, 2024:

- “Only 1 sludge thickener, now repurposed to an aeration tank feed sump”;
- “Remove automatic strainers after the grit chamber”.

(For more details, past WQM permits and their associated Fact Sheets and the WQM permit applications can be reviewed. A few pages of the 2021 WQM permit application are attached to this Fact Sheet Addendum for additional clarification.)

CHANGES IN THE FINAL PERMIT AS A RESULT OF COMMENTS AND TESTIMONY RECEIVED

- DEP has changed the permittee on page 1 of the NPDES permit from "Republic Service of PA, LLC" to "Republic Services of Pennsylvania, LLC", as requested by the permittee.
- The sentence below the limits tables for outfall 001 now reads as follows: "samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: after final treatment of the wastewater and groundwater." (There is an automatic sampler that is currently used for outfall 001 sample collection, instead of collecting samples farther away at the end of the discharge pipe.)
- For clarity for DEP inspectors and any future permittee staff, the 'Type of Effluent' shown above the limits tables for outfall 001 now reads: 'Landfill leachate, groundwater, miscellaneous wastewater (See Part C.II.J.)'. Part C.II.J. in the final permit states: "The treatment plant must adhere to the treatment plant design authorized by WQM permit 06786201 or subsequent WQM permits and permit amendments. The WQM permit 06786201 issued September 27, 2021 does not include feeding the Reverse Osmosis reject water directly into the treatment plant or directly discharging it to outfall 001."
- To avoid back-sliding, the existing permit's Daily Maximum concentration (0.0998 mg/l) and Daily Maximum mass loading limits (0.416 lbs./day) for Total Zinc have been carried forward into the final permit, replacing the draft permit's limits of 0.11 mg/l and 0.47 lbs./day, respectively. (The average monthly and Instantaneous Maximum limits for Total Zinc are the same in the final permit as in the draft permit.)
- To avoid back-sliding, the existing permit limits were carried forward with the same number of significant figures for

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the following parameters: alpha-Terpineol, Benzoic Acid, Bis(2-Ethylhexyl)Phthalate (until the end of the compliance period after which the new limits are more stringent than the existing permit limits) , p-Cresol, and Phenol.

- The following change (in *italics*) has been made in Part C.II.E. of the permit:

If surface water quality criteria for PFOA, PFOS, or *any PFAS parameter* are promulgated during the permit term or if technology-based performance standards for the treatment of PFOA, PFOS, or *any PFAS parameter* become available, DEP may modify or revoke and reissue the permit to impose limits developed from the new promulgated criteria or in conformance with applicable technology-based performance standards. Any such major permit amendment shall be considered a formal permitting action of DEP subject to applicable permit modification procedures.

- The permit limits tables for outfall 001 show "See Part C" for PFAS. Part C.II.F. now reads as follows:
"Until there is an analytical method approved in 40 C.F.R Part 136 for PFAS monitoring, all PFAS monitoring shall be conducted using EPA Method 1633. PFAS monitoring shall include the 40 parameters analyzed by Method 1633. The lab results pages showing the results for all 40 PFAS parameters must be attached to the quarterly DMRs for outfall 001. In addition, the results for PFOA and PFOS must be individually entered on the quarterly DMRs for outfall 001."

Internal Review and Recommendations

ATTACHMENTS to Fact Sheet Addendum

2021 WQM Permit Application, Design Engineer's Report:

3.0 DESIGN BASIS, page 11

The design basis for the modified LTP [leachate treatment plant] including biological treatment upgrades and the addition of a RO [Reverse Osmosis] system is based on historical and current operating data. Based on recent source data, discussions with Modern, and historical flow information, the design annual average leachate (including gas well liquids) flow rate was assumed at 175,000 gpd and the peak flow rate was assumed at 235,000 gpd. These flow rates represent the liquid flow from landfill sources that will be treated by the leachate treatment system including the modifications. Table 3-1 below summarizes the average and peak flows for the plant.

Table 3-1. Proposed Plant Effluent Flows

Source	Average (gpd)	Peak (gpd)
Treated Leachate and GWLs	175,000	235,000
Groundwater	265,000	265,000
Combined	422,000	500,000

Page 20:

14. Utilize both trains of the ultra-filter membrane system and additional membranes added to the blank spaces. Installation of a third ultra-filter membrane system for separating the mixed liquor biomass.

15. Installation of automatic strainers in two locations; after the grit chamber, and prior to the UF membrane skids.

Page 26:

4.5 ULTRAFILTRATION SOLID SEPARATION MEMBRANES

The existing UF membrane system consists of two units, which operate, in parallel. Each unit currently has five tubular membrane modules, two are currently blank. Two additional membranes will be added per membrane train. These two units will be capable of processing the average daily flow. The existing UF feed pumps are 7.5 HP each. These pumps will be increased in size to 10 HP. This increase in size will allow each unit to permeate approximately 117,500 gpd for a total of 235,000 gpd.

Page 27:

A third identical UF membrane system will be added as a spare unit. This third UF membrane system with five modules will be a spare UF system

2021 WQM Permit Application: next pages

FACILITIES DESIGN DATA						
Treatment Unit Description (List in sequence)	Design Basis (See Below)	Number of Units			Total Treatment Unit Hydraulic Design (mgd)	Total Treatment Unit Organic Design (lbs/day)
		Existing	To Be Abandoned	Proposed New Units		
Dissolved Air Flotation Device (1)	MD	0	0	1	0.056	11,389
Influent Storage Tanks (2)	MD	2	0	1	0.275	13,865
Influent Mixed Storage Tank (2)	MD	2	0	1 ⁽³⁾	0.275	13,865
Grit Chamber (1)	MD	1	0	0	0.275	13,865
Neutralization Tank (1)	MD	1	0	0	0.279	13,865
Flocculation Tanks (2)	MD	2	0	0	0.279	13,865
Gravity Plate Separators (2)	MD	2	0	0	0.279	13,865
Pre-selector Tank/Aeration Tank Feed Sump (1)	MD	1 ⁽⁴⁾	0	0	1.29	13,865
Selector Tanks (2)	MD	2 ⁽⁵⁾	0	0	1.29	13,865
MBBR Anoxic Tank (1)	MD	1 ⁽⁶⁾	0	0	1.29	13,865
Aeration Tank (2)	MD	1	0	1	1.30	10,922
Heat Exchangers	MD	2	0	1	N/A	N/A
Ultra-filter Membranes (3)	MD	2	0	1	0.65	1,080

Design Basis:

PI – Peak Instantaneous Flow
 PH – Peak Hourly Flow
 MD – Maximum Daily Flow
 MMA – Maximum Monthly Average Flow
 MDO – Maximum Daily Organic Load

3850-PM-BCW0400d 7/2016
 Pennsylvania, LLC (d/b/a Modern Landfill)
 Module 1

Applicant Name: Republic Services of

FACILITIES DESIGN DATA						
Treatment Unit Description (List in sequence)	Design Basis (See Below)	Number of Units			Total Treatment Unit Hydraulic Design (mgd)	Total Treatment Unit Organic Design (lbs/day)
		Existing	To Be Abandoned	Proposed New Units		
RO Membrane Skid (6)	MD	0	0	6	0.253	7
UF Permeate Storage Tank (1)	MD	0	0	1	0.235	1,080
RO Reject Storage Tank (1)	MD	0	0	1	0.036	
Air Stripping Towers (2)	MD	2	0	0	0.50	6
Blended Sludge Storage (2)	MD	1	0	1		
Sludge Dewatering (1)	MD	1	0	0		
Effluent Storage Lagoon (1)	MD	0	1	0	0.50	
Chiller	MD	0	0	1	N/A	
Water Storage Tank	MD	0	0	1	0.030	1

Design Basis:

- PI – Peak Instantaneous Flow
- PH – Peak Hourly Flow
- MD – Maximum Daily Flow
- MMA – Maximum Monthly Average Flow
- MDO – Maximum Daily Organic Load



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

**OTHER FILTERS AND DISINFECTION
MODULE 8**

APPLICANT NAME	Republic Services of Pennsylvania, LLC (d/b/a Modern Landfill)
FILTERS (Other than rapid sand filters)	
<p>Describe each filtering device to be used, including: type of filter; media (type, depth, etc.); filtration rate; backwash procedure, rates and applied loading.</p> <p>An Ultra-filter Membrane system is being added for separating the mixed liquor biomass from the treated effluent. The membranes are a cross flow tubular membrane style. There are two existing membrane trains and a third one will be added. The feed pumps will be increased in size and will allow more flow to be processed through each unit approximately 117,500 gpd.</p> <p>A Reverse Osmosis Membrane system is being added for boron and osmotic pressure reduction. The membranes are mounted in a horizontal configuration and the overall unit consists of two skids, a primary 2-pass primary RO skid and a 2-pass concentrating RO skid for the concentrate. One system will be added for flows up to 175,000 gpd and a second system will be sized for 60,000 gpd.</p>	
DISINFECTION	
<p>Describe the method of disinfection to be provided, including: disinfectant type; feed mechanism; effective dosage range; expected residual; contact tank; contact time and safety features.</p>	