

Loudon County Solid Waste Disposal Commission
Workshop
March 20th, 2025
4:30PM
Loudon County Annex

Public Comment

Report and Status on Santek self-reporting of leachate outbreak beginning February 17, 2025, site inspection by Commission consultant Mr. Cline following week, and related request to Santek regarding damaged leachate pipe transition

Report and Status on Proposed Minor Modification from Santek, delay in sending to Commission before submitting to TDEC

Report and Status on Proposed Ground Water Monitoring Plan from Santek, delay in sending to Commission before submitting to TDEC

Report and Status on Mud/Debris corrective actions taken by Santek since Commission letter to Santek re violations of agreement

Review of Consulting costs related to leachate outbreak, review of Minor Mod, and GWM plan.

Action Items

Adjourn



March 17, 2025

Mr. Adam Waller
Chairman
Loudon County Solid Waste Disposal Committee
100 River Road #106
Loudon, TN 37774

RE: Response to: February 19, 2025 Leachate Outbreak Notice at
Matlock Bend Landfill SNL530000203
Loudon County, Tennessee

Dear Mr. Waller:

Following the notice from the TDEC of a leachate outbreak occurrence on February 19, 2025, Cannon & Cannon, Inc. (CCI) performed field observations and collected samplings. After reviewing all collected field and analytical data, we are pleased to provide the following report along with an attached site map, depicting areas discussed in the report.

This investigation has been inclusive of two site visits and lab testing. Attached is a summary of the investigation with conclusive recommendations along with backup documents, separately. If you feel there is any further discussion necessary, please feel free to reach out.

Sincerely,

Chris Cline, P.E.
Project Manager

EXECUTIVE SUMMARY

A leachate outbreak reportedly occurred on Feb 17, 0225. On February 19, 2025, the Commission was initially notified by Mr. Lewis Haynes of the Tennessee Department of Environment and Conservation (TDEC), via email, of the February 17th leachate outbreak occurrence, as reported by Santeek Environmental / Republic Services (Republic). TDEC requested a plan of action to resolve the cause of the outbreak and remediate areas affected by the outbreak. Republic identified pump failure as the cause of the outbreak and leachate was contained in the sump of Module 2 and was being pumped from the sump to the pump station to be normally discharged to the Loudoun Utilities collection system and a vac truck would accompany these efforts to properly remove leachate from the site.

At the request of the Loudon County Solid Waste and Disposal Commission, CCI accompanied by representatives from the commission, performed a site investigation on February 24, 2025 to confirm the plan of action set forth by Republic on February 19 was under way. The site visit on Feb 24, 2025 identified:

1. Multiple leachate outbreaks,
2. Pumping as described in Republic's plan of action to TDEC, along with
3. Additional pumps that discharged leachate to the stormwater system.

To confirm, a follow-up site visit on February 27, 2025 for further observations and collect aqueous samples.

In conclusion, leachate outbreaks at perimeter berms are attributable to trapped or standing leachate, commonly referred to as "Head on Liner." TDEC regulates "head on Liner" to not exceed one foot in depth. The primary leachate outbreak occurring at the south slope of Cell E and A, or AOC 1, is to a high degree of confidence, due to leachate backing up in the waste pile or backed on the liner and not draining through the collapsed leachate collection pipe or pipe fitting within the existing "Module A," as identified in the detailed in the Technical Memorandum dated February 20, 2025. It is recommended that the collapsed pipe identified in the memorandum be excavated and repaired.

Based on observations and sampling results, there were multiple points of leachate from the active landfill Modules A, E, B, and H (AOC 1, 2, 3, & 4) that drained into the sump of Modules 1 / 2. Leachate was then pumped not only to the sewer system but also off site through the stormwater system and ultimately released offsite. It is recommended that the full extent of contamination be traced and remediation measures be implemented for all affected areas both within and beyond landfill property boundaries. Additionally, it is recommended that the connection between AOC 5 and AOC 6 be assessed, and any necessary repairs be made.



INTRODUCTION

A leachate outbreak reportedly occurred on Feb 17, 2025. On February 19, 2025, the Commission was initially notified by Mr. Lewis Haynes of the Tennessee Department of Environment and Conservation (TDEC), via email, of the February 17th leachate outbreak occurrence, as reported by Santeck Environmental / Republic Services (Republic). TDEC requested a plan of action to resolve the cause of the outbreak and remediate areas affected by the outbreak.

Later on, February 19, 2025, Ms. Van Kirk of Republic, identified a pump failure as the cause of the outbreak. The pumps had been replaced and the leachate from the outbreak was collected in the sump of Module 2. It was reported that the collected leachate was being pumped from the sump to the pump station to be normally discharged to the Loudoun Utilities collection system and a vac truck would accompany these efforts to remove leachate from the site.

On behalf of the Loudon County Solid Waste and Disposal Commission, Commissioner Dianah Mullis, P.E., and CCI representatives (Chris Cline, P.E. and Jimmy Albert, P.E.) visited the site on February 24, 2025, took pictures and made observations. The team was escorted around the site by Republic representative Teresa Fox. In response to these observations, on February 27, 2025, Chairman Adam Waller and a CCI field team (Chris Cline, P.E. and Drew Williamson) revisited the site and collected water samples. The following details the findings from both the February 24 and the February 27 observations.

SITE VISIT OBSERVATIONS

FEBRUARY 24, 2025

The primary area of concern identified by Republic was a singular leachate outbreak. Based on emails between TDEC and Republic, initial reports identified the cause of the leachate outbreak as undersized pumps (pump failure) and leachate was collected in the sump of Module 2. Reports did not specify the precise location of the outbreak. Upon arriving in the construction area of the proposed new modules, the site representative identified the affected area as the north-facing slope of existing Module A and E, where the plywood is, as the location of the "Self-Reported" Leachate Outbreak. For reporting purposes, this area of concern is AOC 1. According to the findings in Technical Memo February 20, 2025, this area was defined as problematic for "trapping leachate" due to a collapsed pipe or pipe fitting. The collapsed pipe or fitting was identified by Republic in March 15, 2024. In addition to AOC 1, at least 3 other instances of leachate outbreaks were observed along the west-facing slope of Modules B and H (AOC 2, AOC 3, and AOC 4). See the attached site plan for general locations of these AOCs. Figures 1, 2, and 3, below, provide a visual of these AOCs as observed on February 24th.

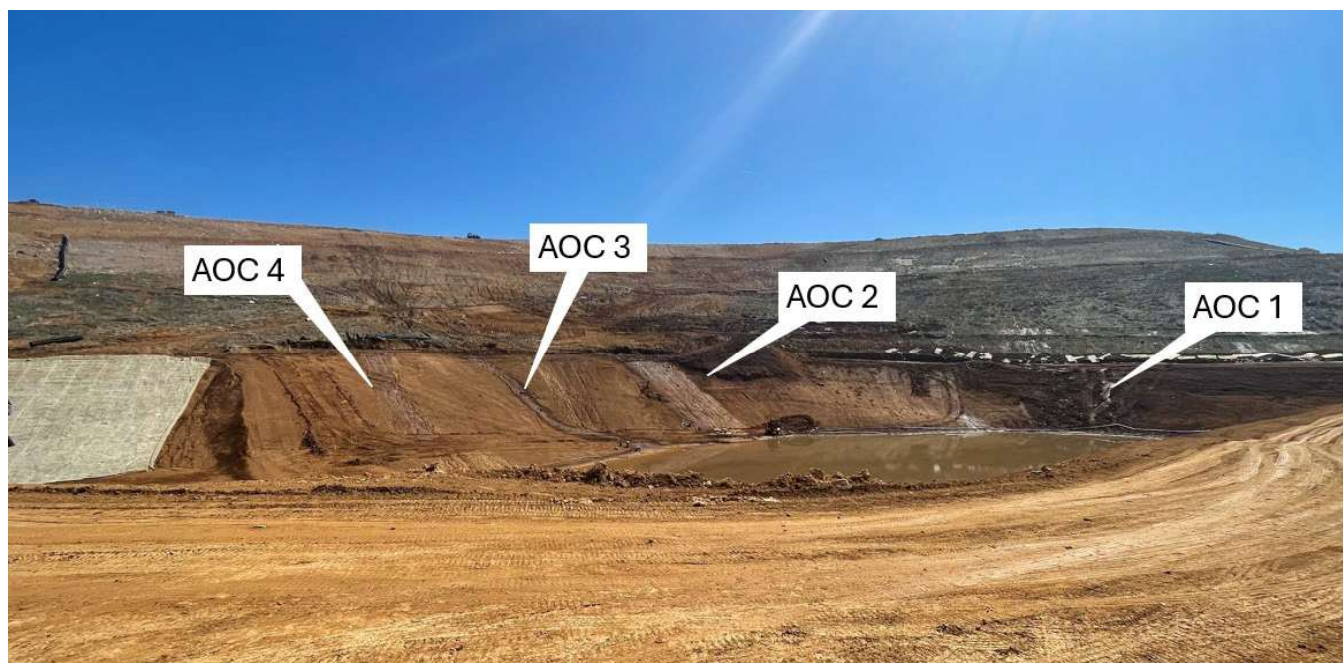


Figure 1: Leachate Outbreak Location (AOC 1, 2, 3, & 4)

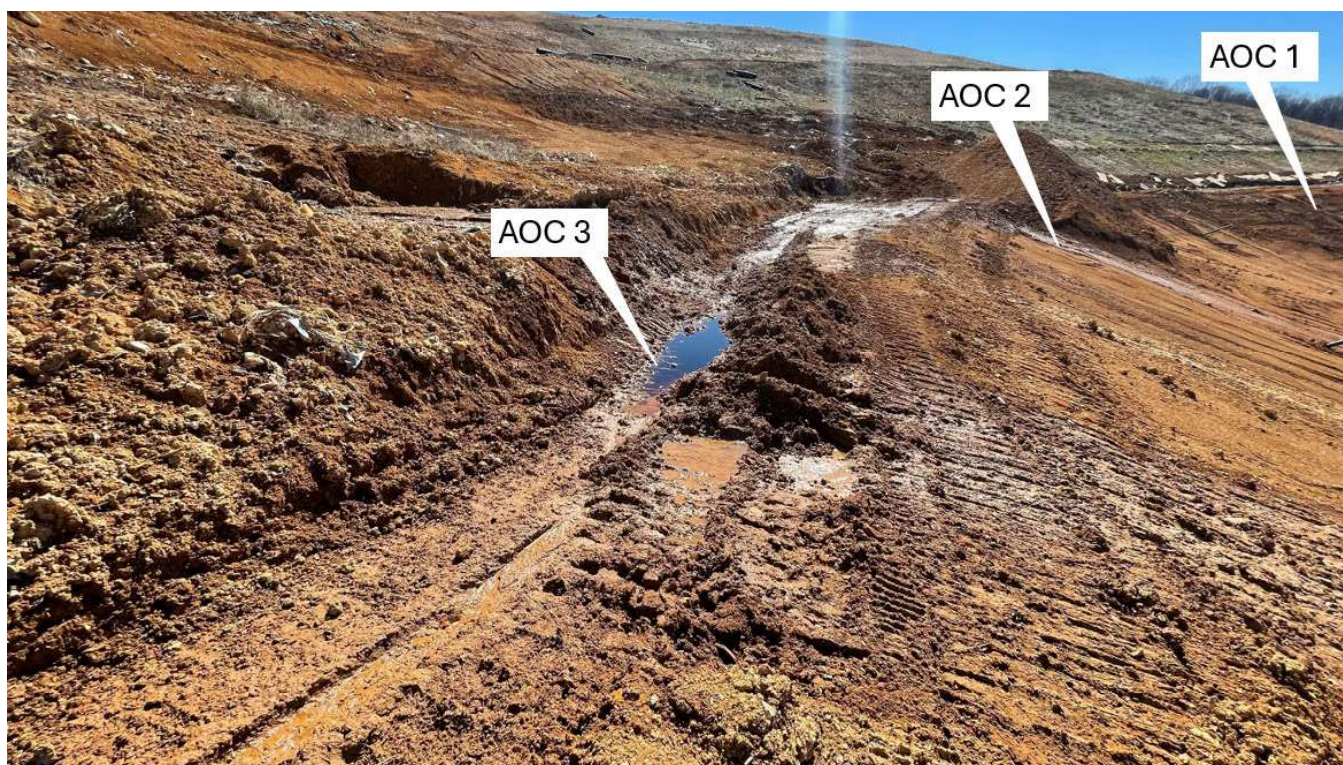


Figure 2: Leachate Outbreak Identification (AOC 1, 2, & 3)



Figure 3: Leachate Outbreak Identification (AOC 1, 2, 3, & 4)

As originally reported, and observed, all leachate outbreak areas ultimately drained into a single collection point, namely, the proposed sub cell for newly constructed Modules 1 and 2. Prior to the site visit, communications had been issued indicating that remediation efforts would include pumping leachate-laden water from the Module 1/2 sump southward and into the existing leachate disposal system. During the site visit on February 24th, this primary disposal system, a fuel powered pump and suction and discharge lines, was observed to be in place and operational, discharging into the pump station. See Figure 4.



Figure 4: Leachate Disposal System (Primary Pumping System)



In addition to confirming the presence of the reported pumping system, it was also observed that a secondary pumping system was actively extracting water from the same pool of leachate-laden water and discharging to the north, into proposed module 3 sump. The discharge piping for this secondary pumping system was routed to a pipe that penetrated the bottom of the western berm of newly constructed Module 3 (Figures 5 and 6). Presumably, the drain for the sump of proposed Module 3. At a visibly similar elevation on the opposite side of the berm, an aqueous conveyance was observed along the northwestern side of the access road, in the ditch at the entry to Sediment Pond #3, see Figure 7. With a high degree of certainty, this strongly indicating the presence of a direct pathway of leachate-laden water to sediment pond #3.

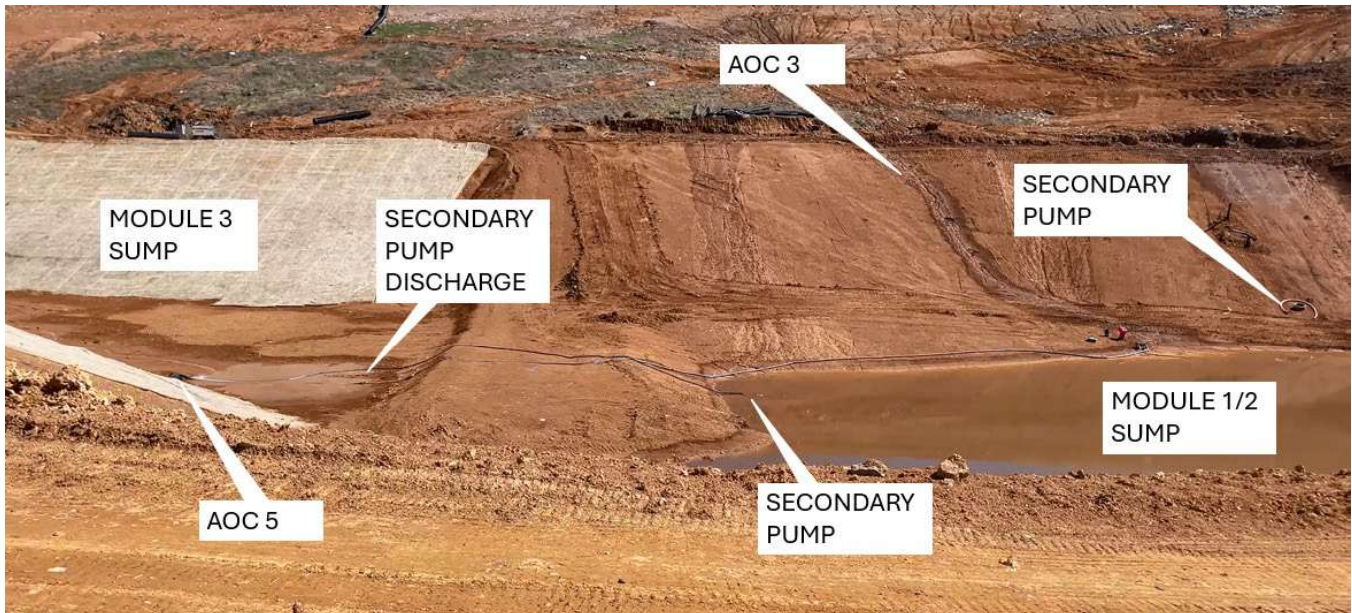


Figure 5: Leachate Disposal System (Secondary Pumping system)

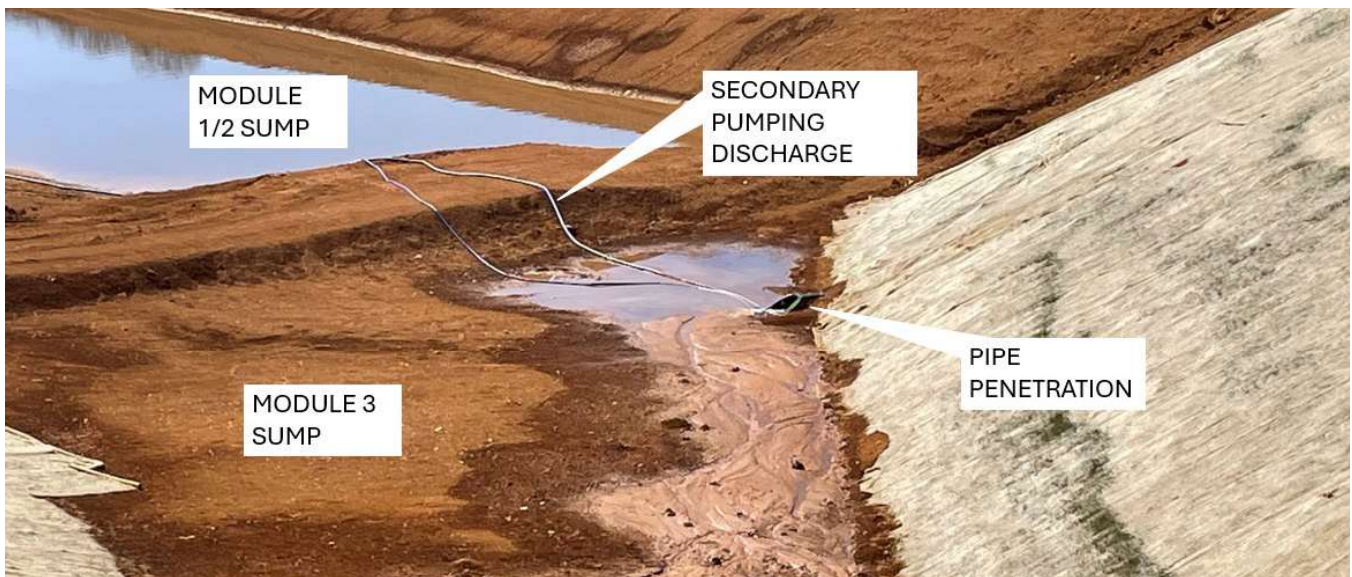


Figure 6: Pumping Discharge (AOC 5)

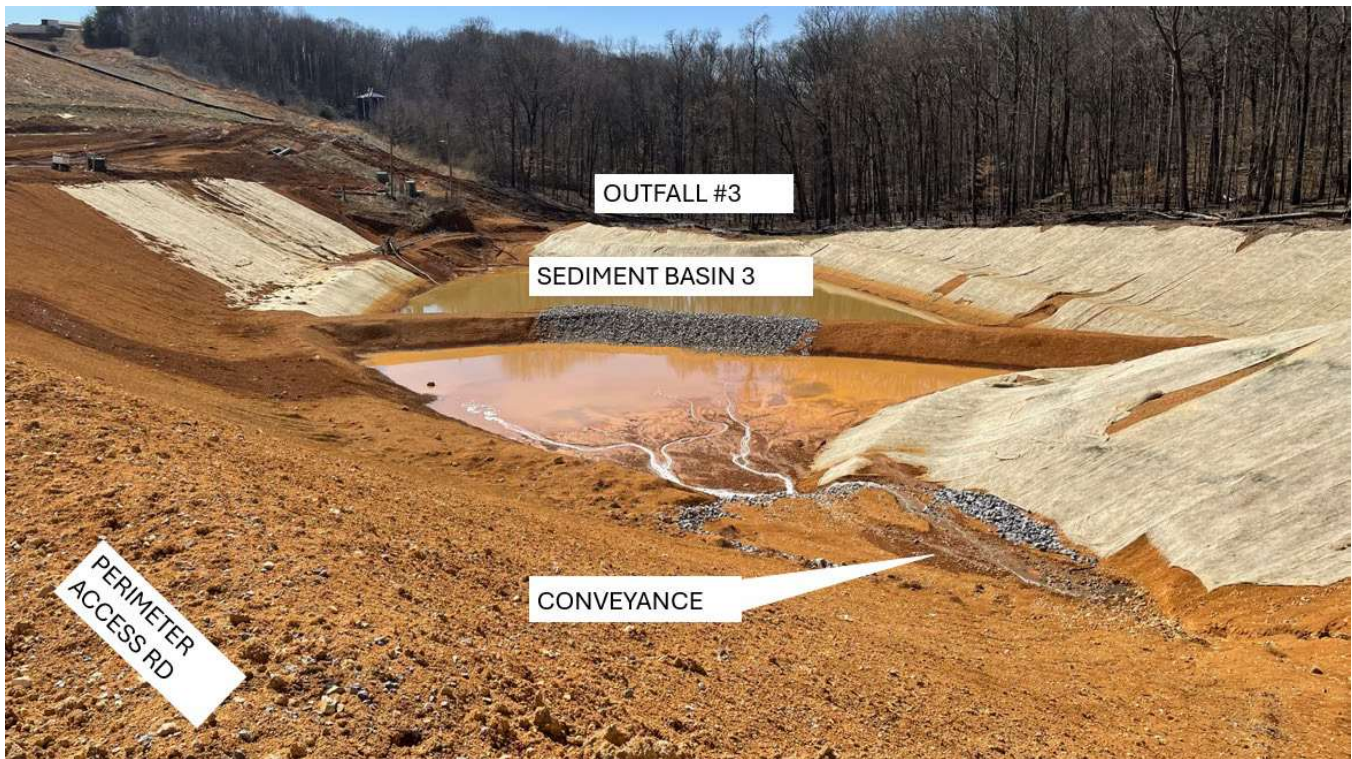


Figure 7: Conveyance into Sediment Basin (AOC 6)

FEBRUARY 27, 2025

INITIAL OBSERVATIONS (8:43AM – 8:47AM)

To provide a higher degree of confidence in the connection of the leachate source and the storm water in Sediment Basin #3, a second site visit was conducted to collect field data and samples at the source, in the sump of Module 1 / 2, Module 3 and in the conveyance into Sediment basin #3.

Upon arriving in the construction area of the proposed new modules, areas closest to the source, AOC 1, 2, 3, and 4, had evaporated, the ponding in sumps of Modules 1 / 2 was considerably reduced, and the sump of Module 3 had a noticeable increase in the volume of water, see Figure 8 as compared to Figure 5. All pumps were running similarly to February 24, 2025, and the aqueous conveyance at AOC 6 continued to flow, see Figure 9. A pump was actively drawing out of Sediment Basin #3 near the designed discharge and pumping westward to a sediment bag at the outfall and discharging off site (see Figure 10).



Figure 8: Module 1, 2 and 3 Sump and AOC 1 – 5



Figure 9: Sediment Pond #3 and Outfall #3 AOC 6

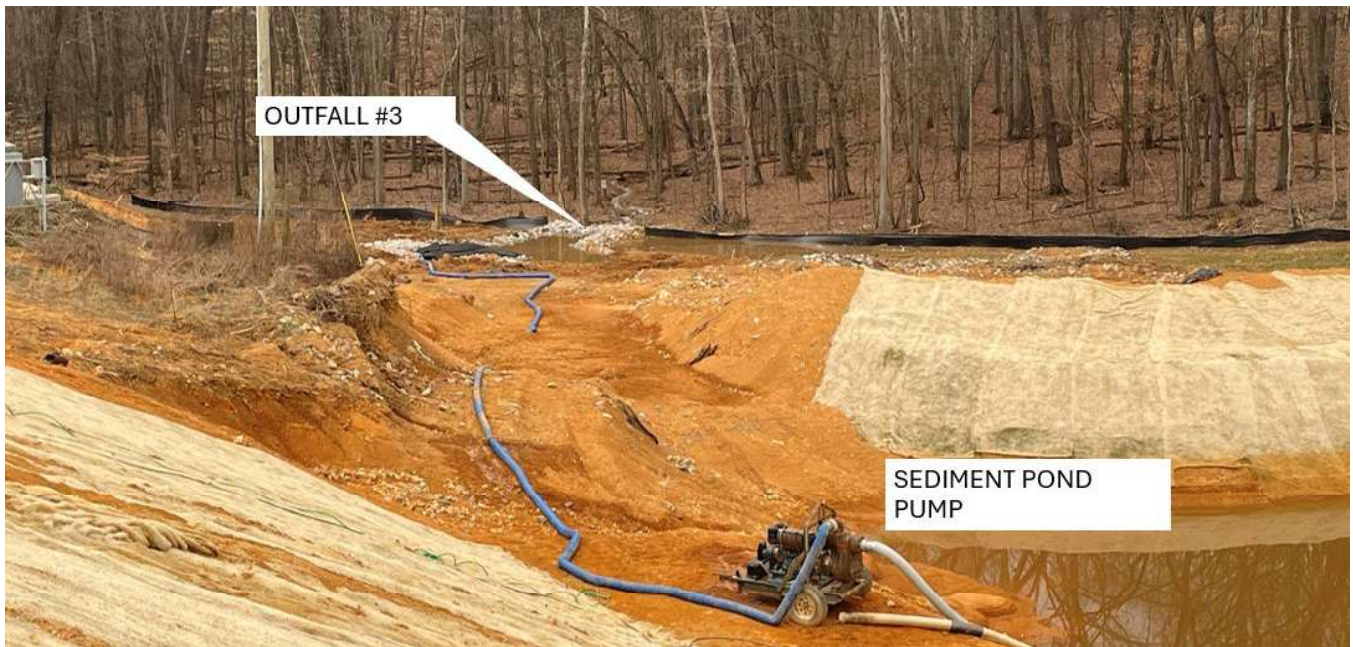


Figure 10: Sediment Pond #3 Outfall (AOC 7)(Woods are off-site)

SECONDARY OBSERVATIONS (8:56AM – 9:30AM)

Shortly after observing the notables above in the “Initial Observation (8:43AM – 8:47AM)”, all the portable pumps were shut off. As a result, the aqueous conveyances, into the sediment Pond #3, stopped into AOC 5 and subsequently in AOC 6, and the sediment pond outfall stopped flowing. See Figures 11, 12, and 13 as compared to Figure 8, 9 and 10.

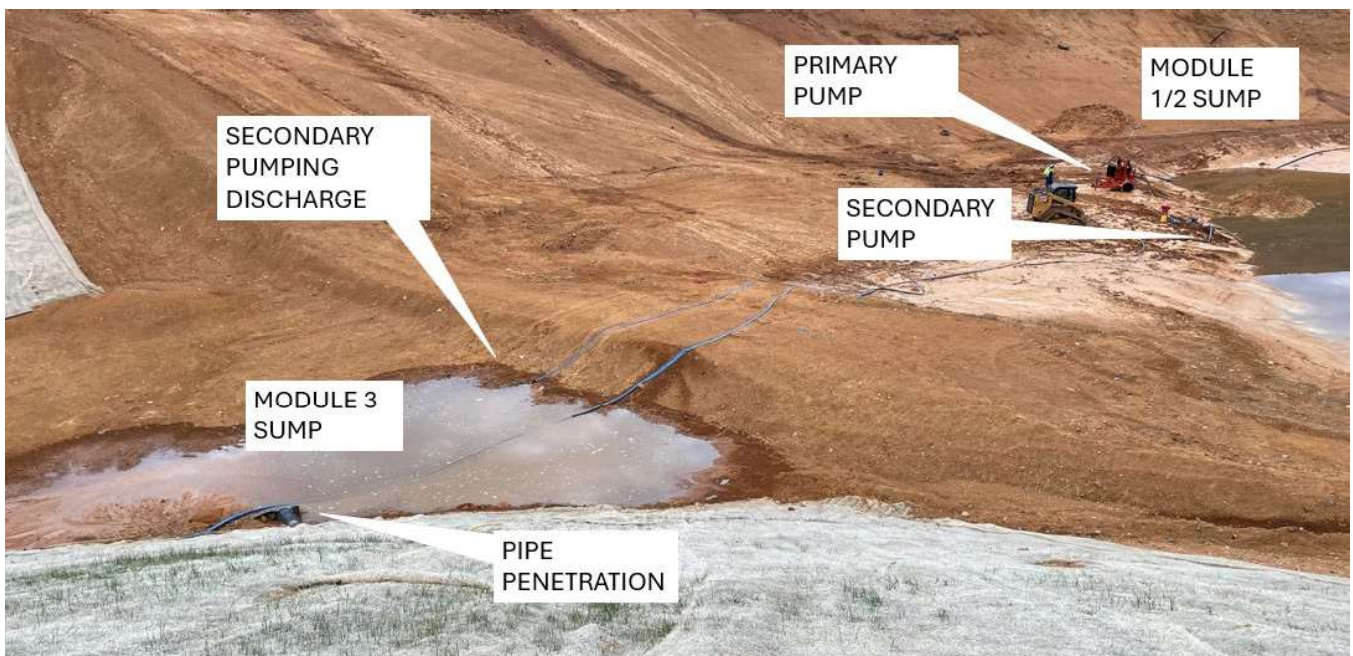


Figure 11: Pumping Discharge (AOC 5)



Figure 12: Sediment Pond #3 and AOC 6



Figure 13: Sediment Pond #3 Outfall



SAMPLING

Following the two observations described previously, water samples were then collected from “Sump 1 & 2”, “Sump 3”, stormwater “Sediment Basin #3”, and a known leachate outbreak on the “East Face” of the landfill; S1, S3, SW3, and EF, respectively. See Figure 14 for samplings sites. Field parameters pH, and Conductivity were collected at all 4 locations using a **Hanna 991301 Multiparameter Meter**. Aqueous samples at all four locations were collected and analyzed for 88 analytes including; Ammonium, Chloride, Chemical Oxygen Demand (COD), Sulfate, Calcium, Potassium, Sodium, and Zinc based on the Global landfill leachate characteristics (Qian, Youfen, et al., 2024.) which identified analytes most indicative of leachate characteristics. Utilizing single use collection containers, samples were collected, properly packaged, and shipped to Waypoint Analytical Laboratory in Memphis, TN under strict Chain of Custody.

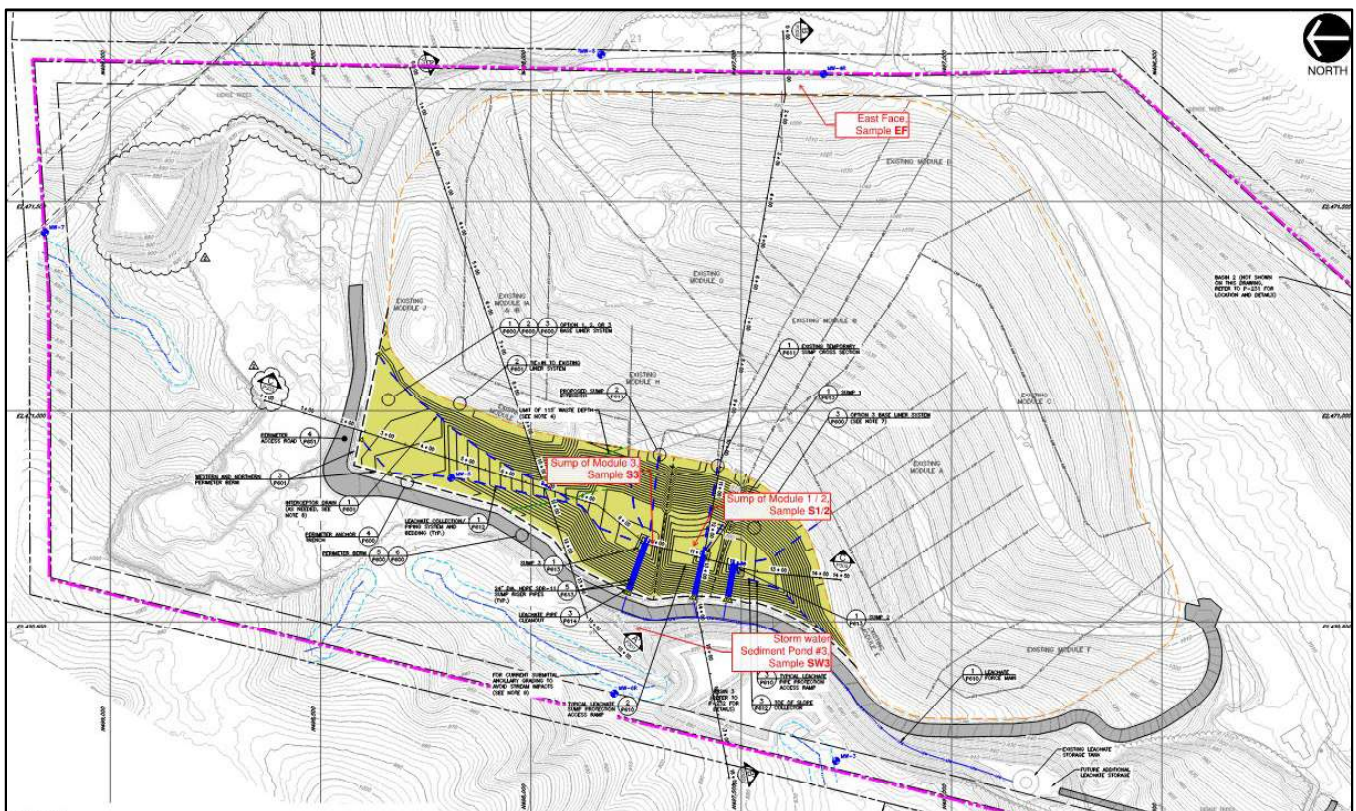


Figure 14: Sampling Locations



ANALYTICAL LAB RESULTS

Field parameters and results of the lab analysis are provided in Table 1 and Table 2 below.

Table 1: Field Parameters Results

Field Parameter	Analytical Method	Units	MCL	Results			
				S 1/2	S3	SW-3	EF
Conductivity	Field	µS/cm	1000**	2290	2700	2640	6140
pH	Field	mol/L	6.5-8.5*	7.49	7.56	7.67	7.99

* EPA Secondary MCL

**Organic Indicator

Table 2: Lab Analytics Results

Analyte	Analytical Method	Units	MCL	Results			
				S 1/2	S3	SW-3	EF
Ammonium	CALC	mg/L	1**	83.4	118	112	286
Chloride	EPA-300.0	mg/L	250*	172	241	232	638
COD (Chemical Oxygen Demand)	5220D-2011	mg/L	100**	326	432	396	888
Sulfate	EPA-300.0	mg/L	250*	96	109	106	65.8
Calcium	EPA-200.7	mg/L		77.8	89.7	83.3	106
Potassium	EPA-200.7	mg/L		53.4	68	63.2	207
Sodium	EPA-200.7	mg/L		158	211	191	542
Zinc	EPA-200.7	mg/L	5*	0.0215	0.0279	0.03	0.0935

* EPA Secondary MCL

**Organic Indicator

Field parameters and laboratory analyses were compared to EPA Secondary Maximum Contaminant Levels (SMCLs) or typical environmental indicator levels (see footnotes). Higher conductivity serves as an indicator of the presence of inorganic chemicals and dissolved salts, such as chloride, sulfate, calcium, potassium, and sodium. As a comparison the World Health Organization recommends conductivity of tap water to be less than 400 µS/cm and natural water bodies can range between 50 and 1,000 µS/cm. Ammonium and Chemical Oxygen Demand (COD) indicate the presence of decomposed organic matter, which depletes oxygen in water. Generally, ammonium should be less than 1 mg/L and COD for wastewater discharge are less than 100 mg/L. The prevalence of these parameters and other analytes in all sampled areas indicate the presence of leachate across all sampled locations including the Sediment Basin #3.

CONCLUSIONS AND RECOMENDATIONS

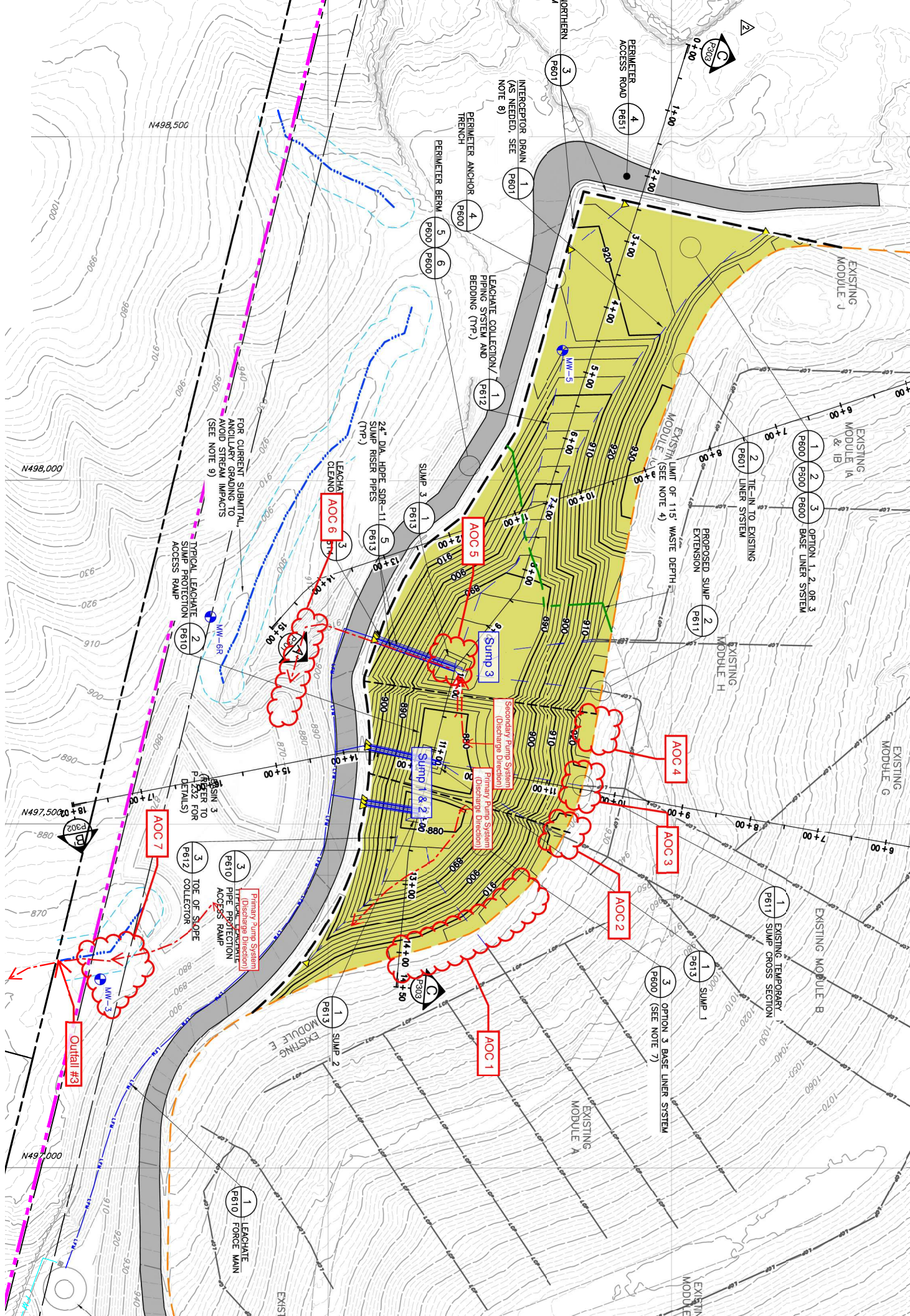
Leachate outbreaks at perimeter berms are attributable to trapped or standing leachate, commonly referred to as "Head on Liner." TDEC regulates "head on Liner" to not exceed one foot in depth. The primary leachate outbreak occurring at the south slope of Cell E and A, or AOC 1, is to a high degree of confidence, due to leachate backing up in the waste pile or backed on the liner and not draining through the collapsed leachate collection pipe



or pipe fitting within the existing "Module A," as identified in the detailed in the Technical Memorandum dated February 20, 2025. It is recommended that the collapsed pipe identified in the memorandum be excavated and repaired.

Original information identified a singular leachate outbreak and as part of a plan of action requested by TDEC on February 19, 2025, dewatering activities sent leachate to the Loudon Utility sewer system. Based on observations and sampling results, there were multiple points of leachate from the active landfill Modules A, E, B, and H (AOC 1, 2, 3, & 4) that drained into the sump of Modules 1 / 2. Leachate was then pumped not only to the sewer system but also off site through the stormwater system. Leachate was pumped from the sump of Module 1 / 2 to the pump station and also into the sump of Module 3 (AOC 5). From AOC 5, the leachate drained through a buried conduit, broken or disconnected, to the stormwater Sediment Pond #3 (AOC 6). Leachate was then pumped directly from Sediment Pond #3 to Outfall #3 (AOC 7), and ultimately released offsite. It is recommended that the full extent of contamination be traced and remediation measures be implemented for all affected areas both within and beyond landfill property boundaries. Additionally, it is recommended that the connection between AOC 5 and AOC 6 be assessed, and any necessary repairs be made.

All inspections, remediation efforts, and repairs shall be performed to meet all applicable state, local, and federal regulatory agencies and to the satisfaction of the Owner.





Outlook

RE: Self Reporting of Leachate Outbreak at Mattock Bend Landfill

From Van Kirk, Holly <HVankirk@republicservices.com>**Date** Wed 2/19/2025 5:07 PM**To** Lew Haynes <Lew.Haynes@tn.gov>; Waller, Adam <wallera@loudoncounty-tn.gov>; Fox, Teresa <TFox@republicservices.com>**Cc** Rob Ashe <Rob.Ashe@tn.gov>; Revendra Awasthi <Revendra.Awasthi@tn.gov>; Wells.Trompeter@hklaw.com <Wells.Trompeter@hklaw.com>; Elizabeth Murphy <elizmurphy966@msn.com>; Turtle, Lindsey <LTurtle@republicservices.com>; Hollinshead, David <DHollinshead@republicservices.com>

Caution! This message was sent from outside your organization.

Hi Lew,

Thank you for reaching out. We investigated the issue on Monday, February 17th and determined that the pump in the temporary lift station was undersized. By Monday evening of the same day, we upsized the amount of gallons pumped per minute, allowing us to alleviate liquids in the existing hill. We inspected the area on Tuesday, February 18th and found that liquids had stopped seeping out near the edge of liner. We are inspecting this on a daily basis and monitoring the lift station, which appears to be handling the liquids well. Given this, we believe we have addressed the root cause but will continue to monitor closely. Liquids that seeped out near the edge of liner drained to and collected in the sump of Module 2, where existing rainwater was already contained and collected. We immediately scheduled vac truck services and had the vendor onsite all of Tuesday, February 18th and through half the day on February 19th. These liquids were sent to the Loudon Utilities Treatment Facility for proper disposal. To enhance liquid removal, we are planning to manually pump liquids from the future sump of Module 2 and into the lift station which is then sent to the treatment facility for proper disposal. The onsite Contractor has evaluated the pump that is to be used and confirmed that they will throttle it back to prevent any potential for overflow of the lift station. The contractor is bringing and installing the pump tomorrow afternoon, February 20th. Let it be noted that we have not yet excavated all the way down to geologic buffer, we were planning to do so once the rain from last weekend passed. Once liquids have been removed, we will excavate and dispose of materials that encountered leachate. I can certainly provide updates as needed until the situation has been fully resolved.

Have a great day,

Holly Van Kirk
Environmental Manager

750 E Jefferson Pike
Murfreesboro, TN 37130
e hvankirk@republicservices.com
c (615) 956-9277
w RepublicServices.com



Sustainability in Action

From: Lew Haynes <Lew.Haynes@tn.gov>

Sent: Wednesday, February 19, 2025 8:59 AM

To: Waller, Adam <wallera@loudoncounty-tn.gov>; Fox, Teresa <TFox@republicservices.com>; Van Kirk, Holly <HVankirk@republicservices.com>

Cc: Rob Ashe <Rob.Ashe@tn.gov>; Revendra Awasthi <Revendra.Awasthi@tn.gov>

Subject: Self Reporting of Leachate Outbreak at Mattock Bend Landfill

This Message Is From an External Sender

[Report Suspicious](#)

This message came from outside your organization.

Good morning,

First, I would like to thank Ms. Van Kirk for letting us know about the leachate outbreak occurring at the landfill seemingly caused the construction of the new cell. I am writing this email as I unable to reach her by phone for further details, but was able to reach Mr. Waller.

Now, that we are aware of this issue we will need a plan of action about how it will be resolved. This should include: changes to the construction plan as the current safeguards in place may not be as effective as predicted, plans to remove and properly dispose of materials that are saturated with leachate (i.e -soils that were supposed to be part of the geologic buffer), as well as blocking the outlet and testing of any effected ponds, if leachate was allowed to enter stormwater collection channels and/or reach the pond. All of this will need to be submitted as soon as possible in writing, I will be onsite this week for a follow up inspection to look at the safeguards to eliminate and/or control the issue and conduct a further assessment. If you have any questions at all, please reach out to me or Mr. Awasthi, my supervisor.

Again, thank you for making us aware of the issue.

Please let us know if you have any questions or concerns. These can be addressed to the signatory below.

V/R,



Lewis L Haynes IV, PhD, CHMM, AHMM | Environmental Protection Specialist II

Solid Waste/Environmental Response/Knoxville Field Office

3711 Middlebrook Pike, Knoxville TN 37921

c. 865-228-8256

lew.haynes@tn.gov

<https://www.tn.gov/environment/program-areas/sw-solid-waste.html>

Knox Field Office Environmental Response Hotline: 865-594-5548

Email: bg_knox_env_responders@tn.gov



Outlook

Fw: Matlock Bend - Leachate

From Elizabeth murphy <elizmurphy966@msn.com>**Date** Thu 2/27/2025 5:10 PM**To** Chris Cline <ccline@cci-corp.com>**Cc** Waller, Adam <wallera@loudoncounty-tn.gov>

4 attachments (1 MB)

P618-PIPE PENETRATION DETAILS (1).pdf; Pipe Insert Grouting Figure.pdf; RE: Self Reporting of Leachate Outbreak at Mattock Bend Landfill ; Matlock Bend - Interim Leachate Collection System - Modules 1 & 2.pdf;

Caution! This message was sent from outside your organization.

Chris,

This response from counsel for Republic sounds like the same proposal they had before - and still ignores the crushed location visible on the CCTV. To avoid us all talking past one another, I intend to send your report to Ms. Trompeter that you sent on the 20th. LMK if that is NOT correct.

Elizabeth

From: Wells.Trompeter@hklaw.com <Wells.Trompeter@hklaw.com>**Sent:** Thursday, February 27, 2025 2:35 PM**To:** Elizabeth murphy <elizmurphy966@msn.com>**Cc:** Anna.Rasmussen@hklaw.com <Anna.Rasmussen@hklaw.com>**Subject:** Matlock Bend - Leachate

Hi Elizabeth,

Per our conversation and emails from earlier in the week, I wanted to provide you (for Mr. Cline and the Commission) additional information regarding the leachate pipes and pumping concerns you expressed.

As to the crushed Module A connector pipe, the pipe penetration plan is in the Operations Plan that was submitted and approved within the expansion documents. I have attached two PDFs to provide a visual on how Santek plans to address the Module A crushed leachate pipe. To briefly summarize, Santek will slip line the existing 6" HDPE and 6" PVC pipe by installing a 4" SDR 11 solid wall HDPE pipe inside the 6" HDPE and PVC pipes. The slip line will extend to the Module A "sump"/low point and will be confirmed via a camera inspection. The annular space between the pipes will be strategically grouted using a tremie pipe. The 4" pipe will be jetted and a second camera inspection will be performed to ensure proper installation. We can provide the camera inspection videos to the Commission upon completion. This work will be conducted as part of the Modules 1 & 2 Cell Construction project.

As to the other expressed concern regarding the potential that Santek was pumping leachate into a sediment pond, that is not the case. In the attached email to TDEC, Holly Van Kirk noted that liquids seeped out near the edge of the liner (where Santek was prepping the tie-in) and collected in the

sump of Module 2 (this is not a pond; it's the future Cell). Stormwater had already collected in the sump due to heavy rains in the weeks prior. It is important to note that in those prior weeks the facility received ~4.42" of rain, which is likely a partial contributor to observed seeps. It is also important to note that the day the seeps were observed, Santek upsized the amount of gallons it was able to pump per minute via the temporary lift station. Santek did this to effectively mitigate liquids in the hill after observed rain events. The facility also immediately scheduled vac truck services and had the vendor onsite all of Tuesday, February 18, and through half the day on February 19 to remove liquids from the sump of Module 2. These liquids were sent to the Loudon Utilities Treatment Facility for proper disposal. To enhance liquid removal, Santek began manually pumping liquids from the future sump of Module 2 and into the temporary lift station, which conveys liquids to the existing 100,000 gallon leachate storage tank. From there, liquids are sent to the treatment facility for proper disposal. I have attached the Interim Leachate Collection System drawing for Mr. Cline's review.

Please let me know if you need any additional information as the Commission is reviewing.

Thanks,
Wells

Wells Trompeter | Holland & Knight

Partner

Holland & Knight LLP

511 Union Street, Suite 2700 | Nashville, Tennessee 37219

Phone 615.850.8759 | Fax 615.244.6804 | Mobile 404.502.1809

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February 27, 2025

Ms. Holly Van Kirk, Environmental Manager
Republic Services, Inc.
750 E. Jefferson Pike
Murfreesboro, TN 37130

Dear Ms. Van Kirk:

Subject: Responses to Loudon County Solid Waste Disposal Commission
Comments on the Draft January 2025 Minor Modification – February 19,
2025
Matlock Bend Landfill
Loudon County, Tennessee
SNL530000203
CEC Project 317-474

On behalf of the Matlock Bend Landfill (MBLF), owned by Loudon County and operated by Santek Environmental, LLC (Santek), Civil & Environmental Consultants, Inc. (CEC) is submitting this Response to Comments (RTC) for comments received in a letter from the Loudon County Solid Waste Disposal Commission (Commission) authored by their consultant, Cannon & Cannon, Inc., titled “Response to Permit Package Clarification Revisions, Solid Waste Permit - Part II Application, Matlock Bend Landfill – Proposed 2024 Horizontal Expansion¹, Loudon County, Tennessee, SNL530000203”, dated February 19, 2025. There is also a comment from the Commission’s attorney, Elizabeth Murphy, that is addressed. The comments result from a review of a draft Minor Modification package dated January 2025 developed by CEC.

Commission comments from the comment letter are shown below in bold, followed by MBLF’s responses to each comment in regular text. An electronic copy of the revised portions of draft Minor Modification Package is also being submitted through a file sharing platform with a link sent via email. Attachments to the Operations Plan, Landfill Gas Monitoring Plan, and CQA Plan that had comments and resulting revisions have been included.

Revisions to text are indicated by a single, red-colored vertical bar in the left margin and a revision date of (Rev. 01, February 2025) on the bottom of each page being revised. Additions to the narrative are further noted with added text in red-colored font, and deletions to the narrative are noted with a red-colored single strike through the text. Revisions to the drawings are indicated by a cloud around the area being revised and a triangle containing the revision number.

1. The first bulleted item on page 8 of the Facility Operation Plan should be revised to

¹ Commission review comments were for a draft Minor Modification dated January 2025.

reflect the removal of “non-carbonous limestone”.

- a. Replace “57 washed non-carbonate stone” with “#57 washed Low-Carbonate Dolostone”.**

RESPONSE: The term “Low-Carbonate Dolostone” was not used anywhere in the Part II Application document. We believe use of this term could exclude locally-available material resulting in the need to source gravel from out of state.

The terminology currently used in the Minor Modification is “No. 57 washed gravel (\leq 12% calcium carbonate content)”. Additionally, the carbonate content of the aggregate will be tested per ASTM D3042 using liquid having a pH similar to the landfill leachate pH. This terminology was developed after discussions with TDEC and MBLF’s CQA Consultant. TDEC also recommended reviewing a recently approved CQA Plan from another TN Class I landfill that used similar approach and terminology.

We believe the current terminology will result in an aggregate that meets the intent of the design and the functional requirements for gravel in the leachate collection system.

- 2. Page 4 of the Landfill Gas Control and Monitoring Plan still includes the term “Limestone”. It is understood that this is not part of the Leachate Drainage Media, however this stone has a high probability of being affected by leachate as defined by rule 0400-11-01-.01.**

Consistently utilize “washed Low-Carbonate Dolostone” aggregate throughout all permanent areas in contact with leachate.

RESPONSE: Reference to limestone has been removed. The text now reads “AASHTO #57 washed stone or an equivalent aggregate.” See the response to Comment No. 1 above related to use of the term “Low-Carbonate Dolostone.” Passive landfill gas venting system has been added to the Protective Cover/Leachate Collection System portion of Table A-3 in the CQA Plan.

- 3. Table A-3 (of the CQA Plan) of Appendix A, page 6 identifies the Carbonate Content test to utilize a solution “similar to the pH of the leachate at the landfill”. The provided information does not identify the method to determine the pH value to be utilized. The pH of leachate evolves based on age of the landfill, temperature, and biologic uptake.**

A pH of 4 was used in the original document and is a reasonable value for leachate.

RESPONSE: Please refer to our response for Comment #1 above. The current language is consistent with suggestions from TDEC and the approach used in the approved CQA Plan from another Class I landfill they referenced. The pH used for carbonate testing will be based on the recent actual reported MBLF leachate pH values.

4. **Figure 1, page 5 of the Leachate Management Plan and Leachate Section on sheet P-613 identifies #3 stone. Aggregate gradation of #3 is not identified in the CQA/QC Plan.**

Specify all aggregates sizes in the design, maintaining Low-Carbonate Dolostone aggregate.

RESPONSE: Gradation for AASHTO No. 3 stone has been added to Table A-3 of the CQA Plan. This material was previously called out for use in the leachate sumps as shown on Details 2 and 3 of Drawing P-613. See the response to Comment No. 1 above related to use of the term “Low-Carbonate Dolostone.”

5. **Drawings P-600, P-611, and P-612 identify the drainage layer as “Non-Calcareous Limestone.**

Constantly replace “washed non-carbonate stone” with “washed Low-Carbonate Dolostone”

RESPONSE: References to the drainage layer on Drawing P-600 read “AASHTO #57 washed gravel (\leq 12% calcium carbonate content)...” Similar references to the leachate gravel on Drawing P-612 will be changed to: “AASHTO #57 washed gravel (\leq 12% calcium carbonate content)...” Reference to #57 Washed Limestone on Detail 1 of Drawing P-611 refers to existing conditions and will not be revised. See the response to Comment No. 1 above related to use of the term “Low-Carbonate Dolostone.”

6. **Section 4.5 of the CQA/QC Plan identifies barrier soils to be “free of rock-sized particles or clods greater than 1 inch in any dimension...”. Then in section 4.5.2, page 18 identifies that “Soil clods shall be broken down to 2 inches or half the lift thickness, whichever is less.”**

To be consistent with barrier soil layer description, revise the size in section 4.5.2 to 1-inch.

RESPONSE: After discussion with MBLF’s CQA Consultant, who has extensive experience at the MBLF site, and CEC, references to maximum particle and clod size have all been revised to 1-1/2 inches in Section 4.5 and Table A-3 of the CQA Plan.

7. **Comment from the Commission’s attorney Elizabeth Murphy: Revise the text in Section 1.4 of the Operations Plan that currently reads “The Loudon County Solid Waste Disposal Commission is ultimately responsible for the operation and maintenance of the MBLF.” To read as: “The Loudon County Solid Waste Disposal Commission holds the solid waste permit and owns the facility. Santek, a subsidiary**

of Republic, is contracted to operate and maintain the site in accordance with the contract and permit terms.”

RESPONSE: The text has been revised as requested.

CEC trusts the attached responses and revised portions of the draft Minor Modification are acceptable and allows Santek to submit the Minor Modification to TDEC. However, if you have questions or comments, please contact Ms. Holly Van Kirk at (615) 956-9277 or CEC at (615) 333-7797.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Timothy D. Mitchell, P.E.*
Principal
* - In AK, LA, MA, MI, MO, NC, OR,
PA, TX, & WA



B. Michael Yacyshyn, P.E.*
Senior Principal
* - In CA, TN, and KY

TDM:BMV

Attachments

Operations Plan, Rev. No. 1, January 2025
LFG Management Plan, Rev. No. 1, January 2025
CQA Plan, Rev. No. 1, January 2025
Revised Drawings P-612 and P-613

c:

Lindsey Turtle (Republic) [Electronic copy only]
Will McWhorter (Republic) [Electronic copy only]
Holly Van Kirk (Republic) [Hard copy for the site]
Dave Hollinshead (Republic) [Electronic copy only]



Outlook

FW: Matlock Bend Landfill Minor Modification Package

From Van Kirk, Holly <HVankirk@republicservices.com>**Date** Fri 1/31/2025 11:02 AM**To** Waller, Adam <wallera@loudoncounty-tn.gov>**Cc** Turtle, Lindsey <LTurtle@republicservices.com>; McWhorter, William <WMcwhorter@republicservices.com>; Hollinshead, David <DHollinshead@republicservices.com>

Caution! This message was sent from outside your organization.

Hi Adam,

As mentioned in my email to TDEC this morning, our consultant submitted the Matlock Bend Minor Modification package without our official approval. TDEC has confirmed that the minor mod will not be recorded at this time in order to allow the Commission time to review as practiced throughout prior submittals. We plan to submit the Minor Mod next Thursday, February 6th to TDEC for review. Please use the link provided by CEC in the below email to review and feel free to reach out if you have any questions. Apologies in advance for any confusion this may have caused.

Have a great day,

Holly Van Kirk
Environmental Manager

750 E Jefferson Pike
Murfreesboro, TN 37130
e hvankirk@republicservices.com
c (615) 956-9277
w RepublicServices.com



Sustainability in Action

From: Yacyshyn, Michael <myacyshyn@cecinc.com>**Sent:** Thursday, January 30, 2025 5:41 PM**To:** Revendra Awasthi <Revendra.Awasthi@tn.gov>; Brian Wolf <brian.wolf@tn.gov>**Cc:** Turtle, Lindsey <LTurtle@republicservices.com>; McWhorter, William <WMcwhorter@republicservices.com>; Van Kirk, Holly <HVankirk@republicservices.com>; Hollinshead, David <DHollinshead@republicservices.com>; Waller, Adam <wallera@loudoncounty-tn.gov>; Mitchell, Tim <tmitchell@cecinc.com>**Subject:** Matlock Bend Landfill Minor Modification Package

This Message Is From an External Sender[Report Suspicious](#)

This message came from outside your organization.

Hi,

Please find a Minor Modification submittal for the Matlock Bend Landfill at the link below. The included cover letter describes the changes. All revisions are included for your review and concurrence.

 [TDEC MBLF Minor Mod Package.pdf](#)

Please let us know if you have any questions or comments. I can be reached at 916-899-9052.

Thank you.

Regards,

Michael

B. Michael Yacyshyn, P.E. | *Senior Principal, P.E.* *
Civil & Environmental Consultants, Inc.
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Sustainability in Action

March 14, 2025

Ms. Molly Stanford
Environmental Scientist
Tennessee Department of Environment and Conservation
Division of Solid Waste Management
Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, Tennessee 37921-6538

**RE: Submittal of Groundwater Quality Assessment Plan
in response to TDEC 10/15/24 Letter
1st Semiannual 2024 Groundwater Report Review
Matlock Bend/Loudon County Active Class I SNL530000203, Loudon County**

Dear Ms. Stanford:

Please see enclosed the Groundwater Quality Assessment Plan (Plan) requested in the October 15, 2024 letter (Letter) from the Tennessee Department of Environment and Conservation (TDEC) regarding review of the 1st Semiannual 2024 groundwater monitoring report dated September 6, 2024, for the Matlock Bend/Loudon County Active Class I Landfill. This document has been prepared by Eagon & Associates, Inc., dated March 14, 2025. The TDEC Letter requested the Plan be submitted by December 15, 2024 but TDEC granted extensions (via November 18, 2024 and February 12, 2025 e-mails) allowing for submittal by March 14, 2025. The other information requested in the TDEC Letter was submitted December 13, 2024.

If you have any questions on this document or any other items regarding the Matlock Bend Landfill, please feel free to contact me at (828) 253-3929 or via email at SPickrell@republicservices.com.

Sincerely,

A handwritten signature in black ink that reads "Stoddard Pickrell".

Stoddard Pickrell
Environmental Manager
Matlock Bend Landfill

cc: Operating Record (Hard copy and electronic)
Adam Waller, Loudon County Commission (Electronic)
Lindsey Turtle, Matlock Bend Landfill (Electronic)
Jessica Preston, Senior Manager, Hydrogeology, Matlock Bend Landfill (Electronic)
Michael Johnson, P.G., Civil & Environmental Consultants, Inc. (Electronic)
Joe Montello, CPG, Eagon & Associates, Inc. (Electronic)

GROUNDWATER QUALITY ASSESSMENT PLAN
MATLOCK BEND LANDFILL

Prepared For:

Loudon County Solid Waste Disposal Commission

and



Santek Environmental, LLC

Matlock Bend Landfill
21712 Highway 72 North
Loudon, Tennessee 37774

Prepared By:



March 14, 2025

Eagon & Associates, Inc.
445 Hutchinson Avenue, Suite 900
Columbus, Ohio 43235
(614) 888-5760

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FIGURES

Figure 1. Groundwater Monitoring Network

TABLES

Table 1. Groundwater Monitoring Network Summary

APPENDICES

Appendix A. Calculations for Proposed Background-Based GWPS for Cobalt

1.0 INTRODUCTION

This Groundwater Quality Assessment Plan (Plan) for the Matlock Bend Landfill (MBLF), owned by the Loudon County Solid Waste Disposal Commission and operated by Santek Environmental, LLC, is submitted as requested by the Tennessee Department of Environment & Conservation (TDEC) in a letter dated October 15, 2024. That letter documented TDEC’s review of the 1st 2024 semiannual groundwater monitoring report, dated September 6, 2024. The letter requested additional information regarding certain statistically significant increases, results, and increasing trends. It also requested additional or new Alternate Source Demonstration (ASD) information. The ASD and information were submitted to TDEC on December 13, 2024 and the submittal is currently under review. Therefore, this plan may be updated depending on the outcome of that review.

This Plan summarizes assessment activities conducted to date, on-going activities, and future assessment monitoring as compared to the TDEC Rules and TDEC Division of Solid Waste Management, Solid Waste Program Policy and Guidance Manual (“Policy”, September 2023). It describes next steps for additional assessment activities as needed.

This Plan focuses on assessment-specific information and requirements. Refer to the most recent groundwater monitoring plan for MBLF (Modified Groundwater Monitoring Plan (MGWMP), 2024 Horizontal Expansion, August 2024, by Civil & Environmental Consultants, Inc., (CEC)) for detailed information on the site background, monitoring network, and sampling/analysis. Both this Plan and the MGWMP refer to the groundwater monitoring network shown on Figure 1 and summarized on Table 1.

2.0 ASSESSMENT MONITORING DETAILS

The following sections are paraphrased from the TDEC Policy referenced above. The Policy outlines rule requirements and TDEC expectations for performing a Groundwater Assessment. Text from the Policy is shown in *italics* followed by plain text indicating how MBLF has fulfilled, or will fulfill, the noted items.

2.1 Phase 1 Assessment Monitoring

IV. *Assessment Monitoring Program*

Assessment monitoring is required whenever a statistically significant increase above background has been determined. There are three distinct phases to the GW assessment program, which the DSWM refers to as Phase 1, 2 and 3.

1. *GW Assessment Monitoring Phase 1*

(a) Ninety (90) days from sample analysis showing a statistically significant increase above background, the O/O shall initiate GW Assessment Monitoring Phase 1. Within the next 90 day of initiating GW Assessment Monitoring Phase 1, the O/O shall:

(i) Initial Assessment Sampling Event – Sample and analyze all downgradient-monitoring points (e.g., wells, springs, etc.) for all Appendix II constituents for the initial assessment sampling event. The O/O may also request approval to sample an appropriate subset of monitoring points.

Phase 1 Assessment Monitoring (or “Initial Event”) has been completed for each monitoring well that has shown statistically significant increases (SSIs) above background as documented in the semiannual groundwater monitoring reports. All of the SSIs are for naturally occurring inorganic parameters and there have been no confirmed VOC detections. The wells in assessment monitoring are MW-01, MW-1A, MW-02, and MW-03. The initial, Phase 1 Appendix II sampling was completed in 2021.

The October 15, 2024 TDEC letter indicated the “Spring” sample point, which is located in the southern part of the property (Figure 1), should be added to the assessment sampling program due to past detections of elevated nitrate. This is discussed further below.

If additional sample points are placed in the assessment program, the initial, Phase 1 Appendix II sampling will be performed in the required timeframe.

(ii) Background Sampling for Identified Appendix II Constituents – Sample and analyze all approved upgradient and downgradient monitoring points (e.g., wells, springs, etc.) for four independent samplings within sixty (60) days in order to comply with the ninety (90) day time frame. The samples shall be analyzed for all Appendix II constituents detected in the Initial Assessment Sampling Event described in subpart IV.1.(a)(i) that had not been previously detected.

As discussed in the semiannual groundwater reports, Appendix II sampling has been conducted annually following the Initial Event. There have been no confirmed detections of VOCs, SVOCs, herbicides or pesticides present only on the Appendix II list at any of the required locations. The Appendix II parameters that have been detected are also on the Appendix I list and there is sufficient existing data to define background. Therefore, the four rounds of additional sampling to establish background for constituents solely on the Appendix II list were not required.

Additional sample points may need to be placed in Phase I assessment monitoring based on confirmed statistically significant increases for Appendix I parameters. If additional sample points are placed in Phase 1 Assessment Monitoring and Appendix II parameters are detected in the Initial Event that have not been previously detected and/or lack sufficient background data, MBLF will collect the appropriate number of independent samples for these parameters in the required timeframe (up to four).

(b) The O/O must notify the DSWM of all detected Appendix II constituents within 14 days of obtaining analytical results [Rule 0400-11-01-.04(7)(a)6(iii)(I)] in compliance with part IV.1.(a) above.

This notification (commonly called a 14-day notification) has already been completed for the Initial Event for the wells in assessment starting in 2021. This 14-day notification will be made in the required timeframe if additional sample points are placed in Phase 1 Assessment Monitoring.

(c) Within sixty (60) days after completing the sampling under part IV.1.(a) above, the O/O must submit a report that complies with all of the parts in subparagraph II.7 above. If

*all Appendix II constituent concentrations are **below** the GW protection standards, then the O/O shall proceed to Phase 2 of the Assessment Monitoring Program. If any Appendix II constituent concentration is **above** its GW protection standard, then the O/O must notify the DSWM within 14 days of this finding and proceed to a GW Quality Assessment Program (paragraph V. below).*

All sample results will continue to be submitted within 60 days after receipt of final analytical data, which completes the sampling. Because there has been a general lack of GW Protection Standards (GWPS) exceedances (discussed below), each of the wells in assessment have proceeded to a Phase 2 Assessment Monitoring Program with TDEC concurrence, as documented in the semiannual monitoring reports. The reports document completed and planned assessment sampling. TDEC review letters indicate the Division has concurred with the steps in MBLF's implementation of assessment monitoring.

If additional points are added to the Phase 1 program, they will be moved into the Phase 2 or Phase 3 program as appropriate depending on comparing sample results to GWPSs. MBLF will make the notification of any GWPS exceedances in the required timeframes.

2.1.1 Groundwater Protection Standards

(d) All SWLFs must be designed, constructed, operated, maintained, closed, and cared for after closure to comply with the GW protection standards.

(i) The GW Protection Standards shall be:

- (1) For constituents for which a maximum contaminant level (MCL) is listed in Appendix III of Rule 0400-11-01-.04, the MCL for that constituent; or*
- (2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells installed in accordance with Rule 0400-11-01-.04(7)(a)3; or*
- (3) For constituents for which the background level is higher than the MCL in Appendix III of Rule 0400-11-01-.04 or health based levels identified under subpart IV.1.(d)(ii) below, the background concentration.*

(ii) The O/O may request, and the DSWM may approve, an alternative GW protection standard for constituents without MCLs. The MCLs are provided in Appendix III of Rule 0400-11-01-.04. The request must be in the form of an

Alternate GW Protection Demonstration Report prepared and certified by a qualified toxicologist.

Note: In lieu of having a qualified toxicologist prepare and certify an Alternate GW Protection Demonstration Report, the O/O and his/her representative may use USEPA Region 9's Preliminary Remediation Goals for tap water as alternative GW protection standards for constituents without MCLs.

The GWPSs employed to date for Appendix I parameters have been listed in the semiannual groundwater monitoring reports. The TDEC list of primary MCLs in Appendix III of Rule 0400-11-01-.04 have been used for parameters that have established MCLs. Where no primary MCL exists, available TDEC Drinking Water Action Levels (for copper and lead) or USEPA Secondary MCLs (SMCLs, for silver and zinc) have been conservatively used. For parameters without MCLs, Action Levels, or SMCLs that have USEPA tap water Regional Screening Levels (RSLs; aka, Region 9 PRGs), the RSLs have been used as GWPSs (for cobalt and vanadium). The USEPA notes that the RSLs are not intended to be clean-up levels but are intended as screening tools to aid in determining if further evaluation is needed. Therefore, RSLs have been referenced as GWPS with the understanding that the rules have provisions to propose background-based or site-specific GWPSs. In the sections below, information is presented to support background-based, site-specific GWPS.

2.1.2 Cobalt

For at least the last two semiannual sampling events, the only instance of a GWPS exceedance for an Appendix 1 parameter at an assessment well was for cobalt at well MW-03. The USEPA RSL of 0.006 mg/L was referenced as a GWPS.

Cobalt has also been demonstrated to be present in on-site soils and borrow materials as part of an ASD (1st 2019 semiannual groundwater report). TDEC previously indicated it concurred with the conclusion that cobalt concentrations in groundwater were associated with on-site soils and has not required additional actions related to cobalt above the 0.006 mg/L GWPS (TDEC 2/5/21 letter).

Results for the December 2024 event support that elevated cobalt concentrations are associated with on-site soils. Total unfiltered cobalt concentrations for MW-03 were 0.0255 mg/L while total dissolved cobalt concentrations were 0.00745 mg/l. The higher cobalt levels appear to be associated with suspended solids associated with sample turbidity. This was also discussed in the December 13, 2024 groundwater submittal.

As noted in the semiannual reports and December 13, 2024 submittal, cobalt has also been detected several times at upgradient well MW-4R above the 0.006 mg/L RSL.

The above information indicates it is appropriate to propose a background-based GWPS for cobalt using the MW-4R analytical data. A background limit of 0.0183 mg/L was calculated for this Plan submittal by CEC using the cobalt data collected at MW-4R since 2017 as presented in Appendix A. The limit is a 95% Upper Tolerance Limit with 95% Coverage calculated using USEPA ProUCL software, which is an approach approved by USEPA for establishing GWPS. MBLF proposes to use the 0.0183 mg/L value as a site-specific, background-based GWPS for cobalt starting with the 1st 2025 event.

2.1.3 Additional Indicator Parameters

Fourteen additional inorganic indicator parameters beyond the Appendix I list (Ca, Fe, Mg, K, Na, Dissolved Mn, COD, NH₃, TDS, Chloride, NO₃, SO₄, CN, and TOC) are required by the MGWMP to be monitored at wells associated with the Phase I Landfill including each of the assessment wells. As requested, the December 13, 2024 submittal provided further information for some of these parameters. The conclusion was that the concentrations were generally low and reflective of background conditions.

Most of the additional indicator parameters do not have GWPSs because they are general indicators and utilized for geochemical evaluations of the groundwater. Where available, these GWPSs as reported previously are primarily SMCLs (aesthetic-based) or USEPA RSLs (screening tools). Only two of the additional parameters have primary MCLs - nitrate at 10 mg/L and cyanide

at 0.2 mg/L. Cyanide has shown non-detect results or low detections well below the MCL; therefore, it is not considered in this Plan for a site-specific GWPS.

2.1.4 Nitrate and Spring Sample Location

Past reports have noted elevated nitrate results for some of the samples collected at the wells in the assessment program and at the Spring sample location. A few of these results have been above the 10 mg/L GWPS for nitrate as discussed below. Nitrate has generally not been detected at the upgradient well MW-4R. Therefore, the detections at other sample points have been considered to be above background. As indicated in the December 13, 2024 submittal, the elevated nitrate does not appear to be associated with leachate migration. Common sources of nitrate include fertilizer, agriculture, septic systems/domestic wastewater, and farm/animal waste. Some of these potential sources are located in the area of the MBLF, including the Monterey Mushrooms facility adjacent to the east, and sewer lines to the south.

As shown in the December 13, 2024 submittal, there were three nitrate results before 2021 for assessment well MW-1A (10.6 to 13 mg/L) above the GWPS but the last 10 results (2021 onward) have been below the GPWS (averaging about 6 mg/L). This indicates no additional action is needed regarding nitrate at MW-1A except for continued monitoring.

Four samples have been collected at the Spring location for nitrate. One anomalously high result exceeded the GWPS (13 mg/L in January 2024) but the three other results have been below the GWPS (averaging about 7 mg/L) including the last sample collected in December 2024 (6.29 mg/L). The October 15, 2024 TDEC letter indicated the Spring should be added to the assessment monitoring program based on the single nitrate detection above the GWPS. The subsequent December 2024 sample showed nitrate below the GWPS and the December 13, 2024 submittal provided further discussion of the results for the Spring and information to support that elevated nitrate results at the site are not related to landfill migration. This includes a general lack of elevated nitrate in the leachate.

As mentioned in the December 13, 2024 submittal, MBLF has concerns on the use of the Spring as a representative groundwater/assessment sampling location. This includes the following:

- The Spring is not ideal for monitoring of constituents potentially associated with a landfill release. Several other potential sources are present that likely influence water quality. The Spring is located a short distance north of Loudon Highway (Rt 72). It is also located close to the high traffic area near the landfill entrance and the landfill scales. It is physically characteristic of a seep without a defined discharge point associated with a bedrock feature. The location is also near a surface water drainageway that receives runoff from the adjacent Monterey Mushrooms industrial property.
- Precipitation events and stormwater are expected to influence water quality at the Spring. This, and the physical nature described above, precludes the ability of collecting samples that strictly represent groundwater.
- The location is not secured to prevent tampering, like a locked monitoring well.
- Turbidity values at for the Spring samples are somewhat elevated and cannot be controlled through practices such as monitor well development. This may result in artificial elevation of results for total metals due to suspended sediment.
- The Spring samples may not exclusively represent the same groundwater zone sampled as the monitoring well samples.
- Monitoring well MW-1A is a short distance upgradient of the Spring, closer to the Phase 1 waste limits, and shows similar water quality. Also, MW-1A is much less likely to be influenced by surface water or other factors mentioned above. Therefore, sampling of the Spring is not needed to provide encircled coverage of the site.

For the above reasons, MBLF proposes to remove the Spring as a routine monitoring point. Currently, the August 2024 Monitoring Plan specifies that the Spring will be sampled annually for Appendix I parameters and nitrate. It is acknowledged that a modification to the August 2024 Monitoring Plan will be required.

2.2 Phase 2 Groundwater Assessment Monitoring

1. GW Assessment Program - Phase 2

(a) Sampling and Analysis

- (i) The O/O must semi-annually sample and analyze GW samples from all monitoring points (e.g., wells, springs, etc.) for the following:*

1st Sampling Event: All Appendix I constituents, any additional approved alternative parameters, and all other Appendix II constituents that have been previously detected during GW monitoring.

2nd Sampling Event: All Appendix II constituents and any additional approved alternative parameters.

The assessment wells are all within Phase 2 monitoring and have been sampled according to the above schedule, starting in 2021. The “1st Sampling Event” including the full Appendix II list has been conducted in the first half of the year. The “2nd Sampling Event” has been conducted in the second half of the year. No Appendix II constituents have needed to be added to the “1st events” because there have been no confirmed detections for parameters beyond the Appendix I list. Note that nitrate is sampled at all the wells in the assessment program as part of the additional indicator parameter list discussed above.

Any new sample points added to Phase 2 monitoring will also follow this schedule. If there are confirmed Appendix II detections for any assessment sampling point beyond the Appendix I list, these parameters will be added to appropriate locations for the “1st event”.

- (ii) The O/O may request to delete any of the Appendix II monitoring parameters for a SWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.*

Additionally, the O/O may request to sample a selected subset of monitoring points for the Appendix II monitoring parameters.

There has been no request to delete Appendix II parameters or to use an alternate parameter list but MBLF may seek TDEC approval for this in the future.

The wells currently sampled in the assessment monitoring program are considered a subset and have been sampled annually for the Appendix II parameters with TDEC concurrence.

*(b) Within sixty (60) days after completing the semi-annual sampling under part IV.2.(a) above, the O/O must submit a report in compliance with subparagraph II.7 above. [Rule 0400-11-01-.04(7)(a)6(ii)]. If all Appendix II constituents concentrations are **below** the GW protection standards, then the O/O shall remain in the GW Assessment Program under Phase 2 until all naturally occurring Appendix II constituents are statistically below background and other constituents that do not naturally occur (e.g. organics) are below their laboratory reporting limit for two consecutive sampling events. If any Appendix II constituent concentration is **above** its GW protection standard, then the O/O must notify the DSWM within 14 days of this finding and proceed to a GW Quality Assessment Program (paragraph V. below).*

Sample results and notification of any GWPS exceedances will continue to be submitted within 60 and 14 days, respectively.

Due to the general lack of GWPS exceedances discussed above, each of the wells that are in assessment have remained in Phase 2 Assessment Monitoring. The TDEC Policy refers to the Groundwater Quality Assessment Program that is initiated when Appendix II parameters exceed GWPS as “Phase 3”. As discussed above, the only Appendix II parameter that exceeded a GWPS for the 2024 events was cobalt at well MW-03. The GWPS for cobalt to date is the USEPA tap water RSL of 0.006 mg/L. A site-specific, background-based GWPS is proposed above to be used moving forward. Due to these factors and information in the December 13, 2024 submittal, there is currently no need to implement Phase 3 activities.

2.3 Phase 3 Groundwater Assessment Program

The Phase 3 requirements in the Policy and Guidance Manual are listed below for reference and possible future updates/additions of this Plan, if needed.

V. GW Quality Assessment Program – Phase 3

1. *The O/O must submit a GW Quality Assessment Plan to the DSWM not more than forty-five (45) days after the O/O is aware that any Appendix II constituent(s) concentration(s) is above its GW protection standard. Additionally, Rule 0400-11- 01-.04(7)(a)7 requires the O/O to initiate the assessment of corrective measures within ninety (90) days after the O/O is aware of any exceedance.*

This Plan is submitted as requested by the October 15, 2024 TDEC letter. It describes how the facility has met the requirements presented in Rule 0400-11-01-.04(6) and (7), as well as the Policy. It will be updated to encompass Phase 3 activities if needed.

2. *GW Quality Assessment Plans shall describe in detail the activities necessary to:*
 - (a) *Determine whether solid waste or solid waste constituents from the SWLF have entered the GW, the rate and extent of migration of waste or waste constituents in the GW, and the concentration in the GW of such waste or waste constituent(s).*
 - (b) *Specify the number of additional GW sampling locations (springs and wells) and depth of additional well(s) to define the nature and the vertical and horizontal extent of the release. At least one additional monitoring well must be installed at the SWLF boundary in the direction of the contaminant(s) migration.*
 - (c) *Notify all persons who own land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off- site.*

Note: This shall be documented and updated annually as required under subpart VI.2.(a)(iii).

- (d) *Identify all domestic and commercial water use sources within a one-mile radius from the center of the SWLF. The plan must propose a user survey that identifies all sources of drinking water (wells and/or springs) within a one-mile radius from the center of the SWLF. The plan must specify that a report containing the results of the survey will be submitted to the DSWM within 45 days of approval of the plan. The O/O may request a reduction or modification to the one-mile radius if adequate justification (e.g. a hydrogeologic barrier or divide such as river is within the one-mile radius) is provided*

and accepted by the DSWM. The survey report shall contain a topographic map (or legible enlarged copy) identifying the drinking water sources, the latitude and longitude coordinates, the names, addresses and phone numbers (if publicly available) of the owners, the SWLF property boundaries, the SWLF operational boundaries and the one-mile radius.

- (e) Conduct quarterly sampling in accordance with subparagraph V.4 below.*
- (f) Comply with paragraph II (Sampling, Analysis, and Recordkeeping Requirements) above.*

This Plan will be updated, should conditions change to include specifics for items 2(a) through 2(f). Regarding item 2(d), a recent water use survey is included in the August 2024 Supplemental Hydrogeological Investigation Report, Lateral Expansion, Matlock Bend Landfill, prepared by CEC.

- 3. *A qualified GW scientist and a person representing the O/O as described in Rule 0400-11-01-.02(2)(a)7, 8 and 10 must certify the GW Quality Assessment Plan.*

This plan is certified by a qualified GW scientist from Eagon & Associates, Inc., and a representative of the Owner/Operator.

- 4. *While the assessment plan is being developed and approved, and throughout implementation, the O/O must conduct quarterly sampling of all monitoring points (e.g., wells, springs, etc.) and submit results in quarterly reports. Quarterly the O/O shall sample and analyze all monitoring points (e.g., wells, springs, etc.) for the following:*

1st Sampling Event: All Appendix I constituents, any additional approved alternative parameters, and all other Appendix II constituents that have been previously detected during GW monitoring.

2nd Sampling Event: All naturally occurring constituents with a statistically significant increase above background and all detected constituents that do not naturally occur (see subparagraph II.6 above).

3rd Sampling Event: All Appendix II constituents and any additional approved alternative parameters.

4th Sampling Event: All naturally occurring constituents with a statistically significant increase above background and all detected constituents that do not naturally occur (see subparagraph II.6 above).

This Plan will be updated as needed to include specifics for these events.

5. *The SWLF shall remain in the GW Quality Assessment Program until the extent and nature of contamination in the GW has been defined for all constituents that have been released by the SWLF and an acceptable corrective action GW monitoring program under Rule 0400-11-01-.04(7)(a)9(i)(I) has been implemented.*

This Plan will be updated as needed to acknowledge this.

Refer to additional possible requirements in Section VI of the Policy regarding “Off-Site Drinking Water” if MBLF is informed by TDEC that the Phase 3 requirements in that section are applicable.

3.0 PROVISIONS TO RETURN WELLS TO DETECTION MONITORING

The assessment rules (0400-11-01-.04(7)6.(iii)(III)) allow a return to detection monitoring, upon approval of TDEC, if all Appendix II constituents are at or below statistical background for two consecutive sampling events. The detection monitoring rules (0400-11-01-.04(7)5.(iii)(III)) have provisions to remain in detection monitoring, upon approval of TDEC, if it is demonstrated (though an acceptable ASD) that a source other than the landfill caused the SSIs or if the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Assessment well MW-1A has not shown SSIs for at least the last two semiannual monitoring events. Therefore, MBLF will submit a notification under 0400-11-01-.04(7)6.(iii)(III) requesting TDEC approval to return MW-1A to detection monitoring.

The only SSIs at assessment well MW-2 the last two events were for nickel. The December 13, 2024 submittal showed the SSIs for MW-2 originally reported in the 1st 2024 semiannual report for parameters other than nickel resulted from errors in the statistical background database, made by a prior consultant. Well MW-2 also shows very low concentrations for most of the indicator parameters. MBLF will submit a request for TDEC approval to return well MW-2 to detection monitoring based on the information presented in the December 13, 2024 submittal and the ASD rule provision referenced above.

Well MW-01 did not show SSIs in the 2nd 2024 event. If no SSIs occur in the 1st 2025 event, MBLF will submit a notification under 0400-11-01-.04(7)6.(iii)(III) requesting TDEC approval to return MW-01 to detection monitoring.

Cobalt was the only SSI at MW-03 for the 2nd 2024 event. MBLF will submit a request for TDEC approval to return well MW-03 to detection monitoring based on the information presented in the December 13, 2024 submittal and the ASD rule provision referenced above.

4.0 ADDITIONAL MONITORING PROGRAM DETAILS

Refer to the most recent Monitoring Plan for MBLF (Modified Groundwater Monitoring Plan 2024 Horizontal Expansion, August 2024 by CEC) for details on the following:

- Site hydrogeology and setting,
- Well logs,
- Monitoring network summary and monitoring history,
- Appendix I and II and additional indicator parameter lists,
- Sampling and analysis procedures,
- Statistical procedures, and
- Data evaluation and reporting.

Groundwater Assessment Plan

Matlock Bend Landfill Loudon County, Tennessee Permit No. SNL #530000203

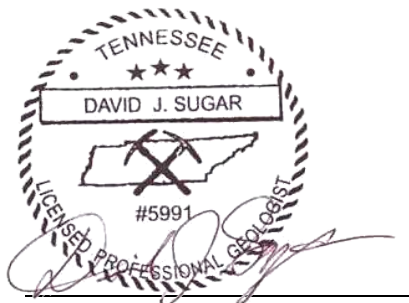
For Submittal to:
Tennessee Department of Environment and Conservation

Prepared by:
Eagon Associates, Inc.
445 Hutchinson Avenue
Suite 900
Columbus, OH 43235

Certification

I certify that I am a qualified groundwater professional who has received a baccalaureate or post-graduate degree in the natural sciences and am licensed as a Professional Geologist in the State of Tennessee. I have sufficient training and experience in groundwater hydrology that enables me to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective-action.

I further certify that this report was prepared by me or by a subordinate working under my direction.



David J. Sugar, P.G.
Tennessee Licensed Professional
Geologist #5991

3/14/2025
Date

Groundwater Assessment Plan

Matlock Bend Landfill Loudon County, Tennessee Permit No. SNL #530000203

For Submittal to:
Tennessee Department of Environment and Conservation

Prepared by:
Eagon Associates, Inc.
445 Hutchinson Avenue
Suite 900
Columbus, OH 43235

Certification

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. As specified in T.C.A. § 39-16-702(a) (4) , this declaration is made under penalty of perjury.



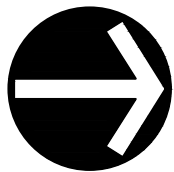
Lindsey Turtle, General Manager
Santek Environmental, LLC
Representative of the Owner/Operator

3/14/2025

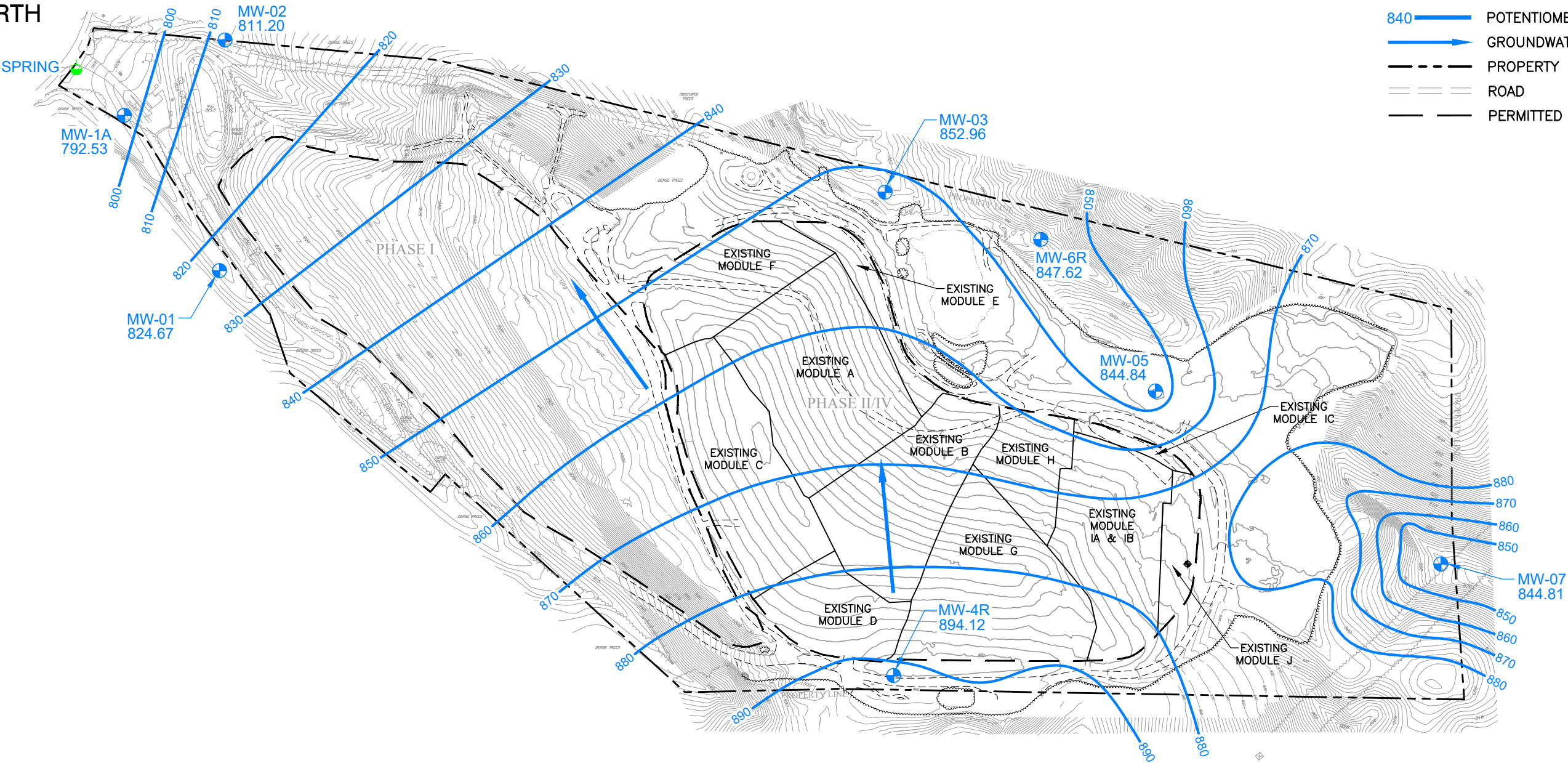
Date

FIGURES

P:\310-000\313-710\--CADD\DWG\2024\313-710-POTENTIOMETRIC MAP LOUDON COUNTY-MATLOCK BEND JUNE 2024.DWG(FIG 2)LS:(KUNDERWOOD -- 9/5/2024) -- LP: 9/5/2024_9:53:52_AM



NORTH



LEGEND:	
	SPRING OR SURFACE WATER
	GROUNDWATER MONITORING WELL
855.07	GROUNDWATER ELEVATION (fmsl)
840	POTENTIOMETRIC SURFACE CONTOUR (fmsl)
	GROUNDWATER FLOW DIRECTION
	PROPERTY BOUNDARY
	ROAD
	PERMITTED LIMITS OF WASTE

GROUNDWATER CONDITIONS

THE WATER LEVELS PRESENTED HEREIN ARE APPLICABLE TO THE LOCATION AND TIME OF MEASUREMENT JUNE 19, 2024. WATER LEVELS MAY FLUCTUATE THROUGH TIME.

POTENTIOMETRIC CONTOURS GENERATED FROM THESE DATA ARE CONSTRUCTED BY INTERPOLATION BETWEEN POINTS OF KNOWN STATIC WATER LEVEL ELEVATIONS AND USING KNOWLEDGE OF SPECIFIC SITE CONDITIONS. ACTUAL STATIC WATER LEVELS AT LOCATIONS BETWEEN THE MONITORING POINTS MAY DIFFER FROM THOSE DEPICTED.

REFERENCE:

- TOPOGRAPHIC INFORMATION WITHIN THE LANDFILL LIMITS TAKEN FROM FIRMATEK DRONE SOLUTION. DATED MARCH 23, 2023, AS PROVIDED BY REPUBLIC.
- TOPOGRAPHIC CONTOURS SHOWN WERE PROVIDED BY SOUTHERN RESOURCES MAPPING CORP., NORTHPORT, ALABAMA.

*HAND SIGNATURE ON FILE



Civil & Environmental
Consultants, Inc.

117 Seaboard Lane
Suite E-100
Franklin, TN 37067
Ph: 615.333.7797
www.cecinc.com

MATLOCK BEND LANDFILL
LOUDON, COUNTY TENNESSEE

JUNE 2024
POTENTIOMETRIC SURFACE MAP

DRAWN BY:	KLU	CHECKED BY:	MJJ	APPROVED BY:	*MJJ	FIGURE NO.:
DATE:	SEPTEMBER 2024	DWG SCALE:	1"=400'	PROJECT NO:	313-710	1



TABLES

TABLE 1.
MONITORING WELL SUMMARY
MATLOCK BEND LANDFILL
(Modified From CEC, August 2024 Plan)

ID	Top of Casing Elevation (ft AMSL)⁽¹⁾	Total Depth (ft)	Bottom of Casing Elevation (ft AMSL)⁽¹⁾	Topographic Position to Waste
MW-01*	830.87	45.0	785.87	Downgradient
MW-1A*	805.13	38.0	767.13	Downgradient
MW-02*	825.20	43.10	782.1	Downgradient
MW-03*	867.86	41.6	826.26	Downgradient
MW-4R	992.32	104.20	888.12	Upgradient
MW-05	936.84	172.71	764.13	Downgradient
MW-6R	895.52	62.60	832.92	Downgradient
MW-7	877.13	38.40	838.73	Downgradient
Spring**	NA	NA	NA	Downgradient

Notes:

1. Feet above mean sea level

* - Current wells in Assessment

** - Spring proposed to be removed as a routine monitoring point

APPENDIX A.

CALCULATIONS FOR PROPOSED BACKGROUND-BASED GWPS FOR COBALT

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.2 1/30/2025 1:31:37 PM
 From File WorkSheet.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Coverage 95%
 Different or Future K Observations 1
 Number of Bootstrap Operations 5000

Cobalt

General Statistics

Total Number of Observations	16	Number of Missing Observations	0
Number of Distinct Observations	8		
Number of Detects	6	Number of Non-Detects	10
Number of Distinct Detects	6	Number of Distinct Non-Detects	2
Minimum Detect	0.00649	Minimum Non-Detect	0.002
Maximum Detect	0.0151	Maximum Non-Detect	0.005
Variance Detected	1.5243E-5	Percent Non-Detects	62.5%
Mean Detected	0.0114	SD Detected	0.0039
Mean of Detected Logged Data	-4.529	SD of Detected Logged Data	0.385

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.841	Shapiro Wilk GOF Test
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.212	Lilliefors GOF Test
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.00553	KM SD	0.00506
95% UTL95% Coverage	0.0183	95% KM UPL (t)	0.0147
90% KM Percentile (z)	0.012	95% KM Percentile (z)	0.0139
99% KM Percentile (z)	0.0173	95% KM USL	0.0179

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.00557	SD	0.00523
95% UTL95% Coverage	0.0188	95% UPL (t)	0.015
90% Percentile (z)	0.0123	95% Percentile (z)	0.0142
99% Percentile (z)	0.0177	95% USL	0.0183

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.589	Anderson-Darling GOF Test
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.241	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.333	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.892	k star (bias corrected MLE)	4.557
Theta hat (MLE)	0.00128	Theta star (bias corrected MLE)	0.00251
nu hat (MLE)	106.7	nu star (bias corrected)	54.69
MLE Mean (bias corrected)	0.0114		
MLE Sd (bias corrected)	0.00535	95% Percentile of Chisquare (2kstar)	17.08

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.00649	Mean	0.0105
Maximum	0.0151	Median	0.01
SD	0.00236	CV	0.224
k hat (MLE)	21.37	k star (bias corrected MLE)	17.4
Theta hat (MLE)	4.9301E-4	Theta star (bias corrected MLE)	6.0532E-4
nu hat (MLE)	683.8	nu star (bias corrected)	556.9
MLE Mean (bias corrected)	0.0105	MLE Sd (bias corrected)	0.00253
95% Percentile of Chisquare (2kstar)	49.57	90% Percentile	0.0139
95% Percentile	0.015	99% Percentile	0.0173

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0174	0.0176	95% Approx. Gamma UPL	0.0152	0.0152
95% Gamma USL	0.0172	0.0173			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.00553	SD (KM)	0.00506
Variance (KM)	2.5583E-5	SE of Mean (KM)	0.00139
k hat (KM)	1.197	k star (KM)	1.014
nu hat (KM)	38.31	nu star (KM)	32.46
theta hat (KM)	0.00462	theta star (KM)	0.00546
80% gamma percentile (KM)	0.0089	90% gamma percentile (KM)	0.0127
95% gamma percentile (KM)	0.0165	99% gamma percentile (KM)	0.0253

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0235	0.0248	95% Approx. Gamma UPL	0.0158	0.0161
95% KM Gamma Percentile	0.0144	0.0145	95% Gamma USL	0.0225	0.0237

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.813	Shapiro Wilk GOF Test	
10% Shapiro Wilk Critical Value	0.826	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.232	Lilliefors GOF Test	
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.00646	Mean in Log Scale	-5.278
SD in Original Scale	0.00467	SD in Log Scale	0.708
95% UTL95% Coverage	0.0304	95% BCA UTL95% Coverage	0.0151
95% Bootstrap (%) UTL95% Coverage	0.0151	95% UPL (t)	0.0183
90% Percentile (z)	0.0126	95% Percentile (z)	0.0163
99% Percentile (z)	0.0265	95% USL	0.0288

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-5.583	95% KM UTL (Lognormal)95% Coverage	0.0317
KM SD of Logged Data	0.844	95% KM UPL (Lognormal)	0.0173
95% KM Percentile Lognormal (z)	0.0151	95% KM USL (Lognormal)	0.0296

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.00557	Mean in Log Scale	-5.615
SD in Original Scale	0.00523	SD in Log Scale	0.96
95% UTL95% Coverage	0.0411	95% UPL (t)	0.0206
90% Percentile (z)	0.0125	95% Percentile (z)	0.0177
99% Percentile (z)	0.034	95% USL	0.038

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	16	95% UTL with95% Coverage	0.0151
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.0151
95% USL	0.0151	95% KM Chebyshev UPL	0.0283

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

CORRECTIVE ACTION PLAN

LOUDON COUNTY (MATLOCK BEND) LANDFILL

NPDES PERMIT TRACKING NO. TNR051889

DECEMBER 2024



© Republic Services, Inc. (2024)

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B.

December 5, 2024 – BMP Summary Letter to Mr. Michael Atchley

C.

Drainage Area Map

D.

Corrective Action Monthly Inspection

1. BACKGROUND

Matlock Bend Landfill is located at 21712 Highway 72 North, Loudon, TN 37774 in Loudon County, Tennessee. The facility currently operates under Solid Waste Permit No. SNL 53-103-0203 and is permitted to discharge stormwater associated with industrial activities under the Tennessee Stormwater Multi-Sector General Permit for Industrial Activities No. TNR051889. There are currently three (3) outfalls that discharge stormwater associated with industrial activities.

On November 22, 2024, a Notice of Violation (NOV) was issued by the Tennessee Department of Environment and Conservation (TDEC) to Republic Services, Inc. dba Loudon County (Matlock Bend Landfill). The NOV stipulates certain actions to be taken at Matlock Bend Landfill in regard to alleged violations.

The NOV stipulates that a Corrective Action Plan was to be received by the Department by December 2, 2024; however, the Department verbally granted the site a 30-day extension (January 1, 2025), with the condition that a summary letter of the best management practices implemented at the facility was submitted to the Department. The summary letter was submitted on December 5, 2024 and is provided in Appendix B. The corrective action plan must contain a description of the steps that have been taken and/or are being taken to correct the stated violations and a schedule for corrective action implementation.

Specifically, the NOV states that the corrective action plan should address the reoccurring and insufficient treatment of stormwater, which has resulted in discharge of sediment off-site during rain events. The Department requests an alternative, preventative method be implemented, and stated that the current method of riprap and street sweeping is inadequate. Corrective actions are summarized in the list below:

1. Currently Implemented Corrective Actions and Best Management Practices
2. Incorporating Flocculants into Wheel Wash Operations
3. Increasing Routine Inspections and Maintenance Frequency of Wheel Wash
4. Rerouting Trucks Hauling Cover Soil to Back Haul Roads
5. Installation of Mud Mats (or an equivalent control)

Each of these items are individually addressed in Section 3 alone with the description of the steps that have been taken and/or are being taken to correct the alleged violations is included. A schedule for corrective action implementation has been included in Section 4.

2. CORRECTIVE ACTIONS

1. Currently Implemented Corrective Actions and Best Management Practices

The mitigation of sediment runoff from the facility is managed through its Best Management Practices (BMP) Plan. BMPs currently implemented and maintained by Matlock Bend Landfill to mitigate sediment track-out were provided in the December 5, 2024 summary letter and are also listed below:

- The facility has modified operations so that haul trucks are limited to driving on tipping pads temporarily stabilized with rock.
- Rock is refreshed along the haul road as needed, and a minimum of 2 loads of rock are maintained on-site. When a rain event is anticipated, the facility maintains a stockpile of 3-4 loads of rock for immediate deployment when necessary.
- The facility scarifies the rock along the haul road at least daily to maintain rock effectiveness.
- The facility sweeps the road at a minimum of once every two hours, and more frequently during rain events as needed.
- The manufacturer of the Wheel Wash conducted an inspection and routine maintenance in April 2023. The Wheel Wash is cleaned every other month, and more frequently during wet months as needed (to be increased to monthly as part of Corrective Action 3 listed below).
- When necessary, during rain events, trucks are pressure washed after the wheel wash, if sediment is still observed on the tires/undercarriage.
- A concrete barrier has been installed to minimize the occurrence of trucks driving in the grassed area of the outbound lane near the entrance/exit of the Landfill/Hwy 72.
- Disturbed areas are kept vegetated along the haul road to minimize the amount of sediment getting onto the outbound portion of the interior haul road.

2. Incorporating Flocculants into Wheel Wash Operations

In order to further mitigate offsite tracking, Matlock Bend Landfill proposes to incorporate flocculants into the operation of the wheel wash in order to enhance removal of suspended solids from the wash water.

If tires require cleaning, vehicles are required to pass through the wheel wash after disposing of their load and prior to exiting the facility. The wheel wash system is self-contained, and no water is allowed to discharge from this system. Flocculants are expected to improve the effectiveness of the wheel wash system and mitigate suspended solids. Flocculants will be added in accordance with the manufacturer's specifications. Any solids that accumulate within this system are removed and disposed of properly. Any liquid that is required to be removed will be disposed of at a proper disposal facility. At no point is liquid from the wheel wash system allowed to discharge through the stormwater drainage system.

3. Increasing Routine Inspection and Maintenance Frequency of existing Wheel Wash

In order to monitor the effectiveness of the wheel wash system, the facility will conduct routine inspections of the wheel wash system monthly (Appendix D). The facility will inspect the system to ensure the system is functioning effectively, that accumulated solids are removed, and that the wash water is refreshed, as needed. Routine maintenance includes removing and properly disposing of any solids that accumulate in this system. Any liquid that is required to be removed will be disposed of at a proper disposal facility.

4. Rerouting Trucks Hauling Cover Soil to Back Haul Roads

In order to further mitigate offsite tracking, Matlock Bend Landfill proposes to reroute internal trucks hauling cover soil onto back haul roads. Routing trucks away from the main haul road will reduce the amount of sediment tracked towards the facility exit and prolong the lifespan of the stone on the main haul road.

5. Installation of Mud Mats (or an equivalent control)

In order to further mitigate offsite tracking, Matlock Bend Landfill proposes to install Mud Mats, or an equivalent control. This control measure is designed to aid in the removal of mud and sediment from vehicle tires and serve as a bridge in soft soil areas. The Mats will be routinely inspected and maintained per the manufacturer's recommendation, or more frequently if deemed necessary.

3. SCHEDULE FOR CORRECTIVE ACTION IMPLEMENTATION

As discussed in the previous section, the majority of corrective actions have already been completed. Therefore, only the remaining to be completed corrective action items are included in this schedule for Corrective Action Implementation.

1. Currently Implemented Corrective Actions and Best Management Practices

Implemented corrective actions and BMPs will continue on a routine schedule as mentioned in Section 3.

2. Incorporating Flocculants into Wheel Wash Operations

The incorporation of flocculants into the wheel wash system will begin within 30 days of the date of this Corrective Action Plan.

3. Increasing Routine Inspection and Maintenance Frequency

The increased wheel wash inspection and maintenance frequency will be initiated within 30 days of the date of this Corrective Action Plan.

4. Rerouting Trucks Hauling Cover Soil to Back Haul Roads

The proposed route changes will be implemented within 30 days of the date of this Corrective Action Plan.

5. Installation of Mud Mats (or an equivalent control)

The installation, maintenance, and inspection of Mud Mats, or an equivalent control, will be completed within 30 days of the date of this Corrective Action Plan.

APPENDIX

- A. November 22, 2024 – Notice of Violation
- B. December 5, 2024 – BMP Summary Letter to Mr. Michael Atchley
- C. Drainage Area Map
- D. Corrective Action Monthly Inspection

A. NOVEMBER 22, 2024 – NOTICE OF VIOLATION

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, TN 37921
Phone 865-594-6035 Statewide 1-888-891-8332 Fax 865-594-6105

November 22, 2024

CERTIFIED MAIL RETURN
RECEIPT # 9489 0090 0027 6662 7970 87

Ms. Teresa Fox, Facility Contact
Republic Services, Inc., dba Loudon County (Matlock Bend Landfill)
Matlock Bend Landfill
100 River Road #106
Loudon, TN 37774

RE: **Notice of Violation**
NPDES Permit Tracking #TNR051889
Republic Services, Inc. dba Loudon County (Matlock Bend) Landfill
21712 Highway 72
Loudon County, Tennessee

Dear Ms. Fox:

On November 20th, 2024, Madeline Vicars and Valerie McFall with the Tennessee Department of Environment and Conservation, Division of Water Resources (the Division) conducted a complaint investigation of the above referenced property. The complaint was received by the Division of Solid Waste on November 14th and referred to Division of Water Resources. The complaint concerned sediment being tracked onto Highway 72, causing a threat to public safety as well as the unnamed tributary across the road.

You have been authorized to discharge stormwater associated with sanitary landfills/disposal activities for the Matlock Bend Landfill under the Tennessee Multi-Sector Permit (TMSP), tracking number TNR#051889. During the investigation it was noted that the reoccurring and insufficient treatment of stormwater has resulted in discharge of sediment off-site during rain events, an issue of noncompliance with the terms and conditions of the TMSP and potential threat to water quality (See Photo Log). The discharge of untreated stormwater into streams can impair the stream and its designated uses, including the support of fish and aquatic life, livestock and wildlife, recreation, and irrigation. Discharging sediment into waters of the state is a violation of the *Tennessee Water Quality Control Act of 1977*.

The landfill's Highway 72 entrance/exit experiences high levels of traffic coming in and out of the landfill itself and passing through. The Division requests an alternative, preventative method be implemented, as the method currently in place (riprap and sweeping) has proven inadequate. A permanent solution is needed, rather than a response. Sediment should be addressed and treated prior to ever leaving the site rather than cleaned once it's already been tracked out. In addition,

washing any tracked mud into the nearby tributary is not acceptable and as stated above, a violation of the *Tennessee Water Quality Control Act of 1977*.

Plan to submit a list of permanent treatment options to the Division by Monday, December 2nd. The Division will then review the options and accept a plan moving forward. Once a treatment option or combination of treatments has been accepted, a timeframe to have these measures implemented by will be requested. Until the permanent solution is in place, any sediment tracked into the roadway should immediately be cleaned off and gravel should be refreshed to prevent water quality issues as much as possible.

Your quick attention to these matters is greatly appreciated. You may contact Madeline Vicars at (865) 203-5062 or Madeline.Vicars@tn.gov with your list of options or any questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Michael Atchley".

Michael Atchley, Environmental Program Manager
Division of Water Resources
Knoxville Field Office

cc : File : County : TNR051889
Enforcement and Compliance Unit, Nashville (e-copy)



Division of Water Resources (DWR) was forwarded a complaint from the Division of Solid Waste on 11/15/2024 regarding sediment in the roadways and concern about impacts to the tributary located across Highway 72. On 11/20/2024, Madeline Vicars and Valerie McFall with DWR conducted an investigation.



During the investigation, sweepers were seen actively clearing mud off the roadways. Sediment was also observed accumulating around the entrance/exit and staining was observed across Highway 72. This issue is noted to be ongoing. A preventative solution is needed to remove any material on tires prior to leaving the site. Consistent tracking of mud can potentially cause a condition of pollution in Waters of the State, a violation of the *Water Quality Control Act of 1977*.

**B. DECEMBER 5, 2024 – BMP SUMMARY LETTER TO MR. MICHAEL
ATCHLEY**



Sustainability in Action

December 5, 2024

Michael Atchley
Environmental Program Manager
Knoxville Environmental Field Office
Division of Water Resources
3711 Middlebrook Pike
Knoxville, TN 37921

RE: Matlock Bend Landfill
TNR051889
Notice of Violation Response

To whom it may concern:

This letter provides a summary of the sediment track-out mitigation measures currently implemented at Matlock Bend Landfill. Additionally, the Facility will submit a formal Corrective Action Plan in response to the Notice of Violation (NOV) received on November 22, 2024, for Matlock Bend Landfill (TNR051889). An extension of 30 days for the submission of the formal Corrective Action Plan has been granted by TDEC, and the facility is committed to ensuring its submission within the specified timeframe.

BMPs currently implemented and maintained by Matlock Bend Landfill to mitigate sediment track-out- are listed below.

- The facility has modified operations so that haul trucks are limited to driving on tipping pads temporarily stabilized with rock.
- Rock is refreshed along the haul road as needed, and a minimum of 2 loads of rock are maintained on-site. When a rain event is anticipated, the facility maintains a stockpile of 3-4 loads of rock for immediate deployment when necessary.
- The facility scarifies the rock along the haul road at least daily to maintain rock effectiveness.
- The facility sweeps the road at a minimum of once every two hours, and more frequently during rain events as needed.



Sustainability in Action

- The manufacturer of the Wheel Wash conducted an inspection and routine maintenance in April 2023. The Wheel Wash is cleaned every other month, and more frequently during wet months as needed.
- When necessary, during rain events, trucks are pressure washed after the wheel wash, if sediment is still observed on the tires/undercarriage.
- A concrete barrier has been installed to minimize the occurrence of trucks driving in the grassed area of the outbound lane near the entrance/exit of the Landfill/Hwy 72.
- Disturbed areas are kept vegetated along the haul road to minimize the amount of sediment getting onto the outbound portion of the interior haul road.

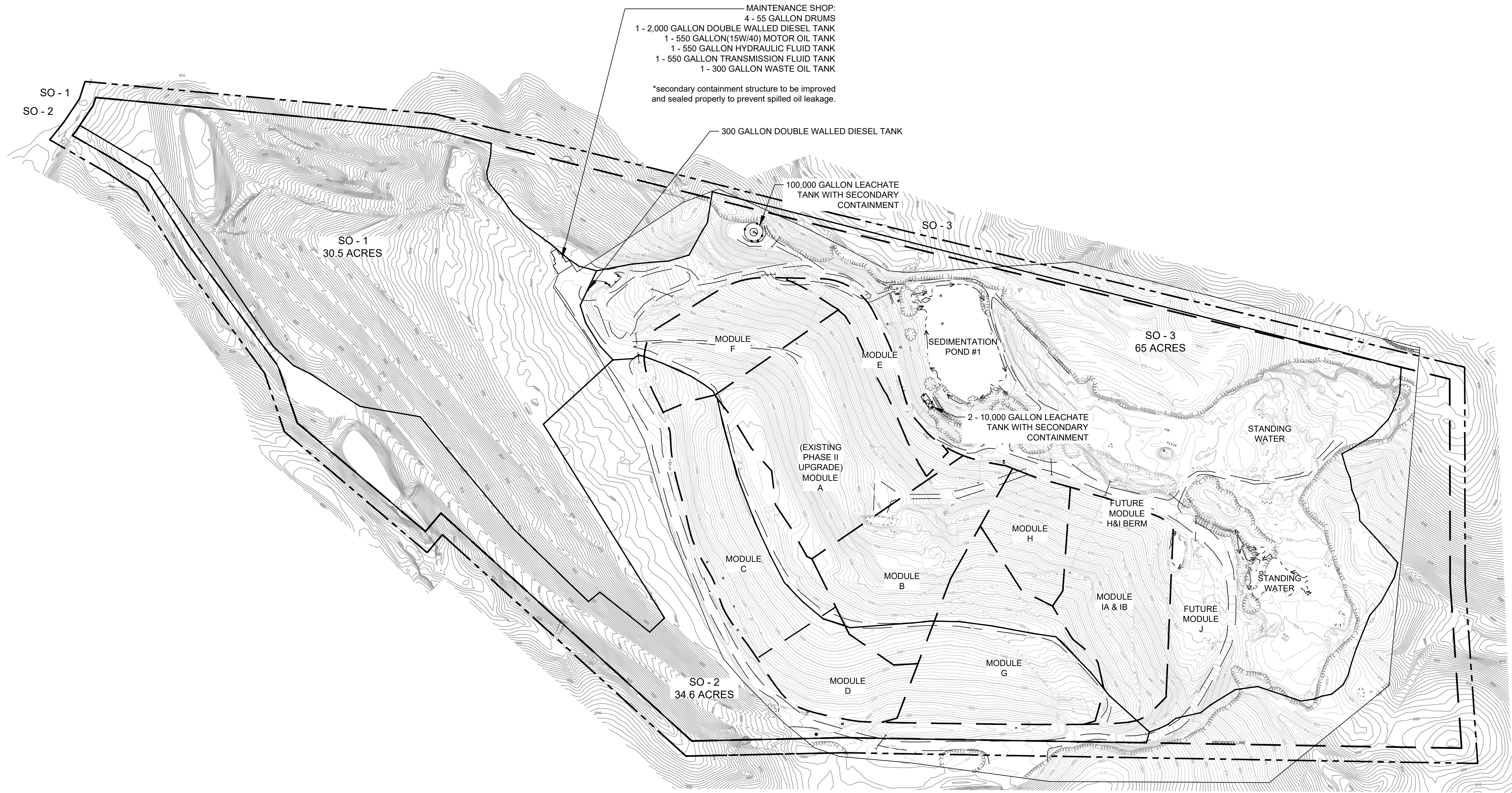
Should you require additional information or have any questions or comments, please contact me via email at hvankirk@republicservices.com or by phone at (615) 956-9277.

Sincerely,

Holly Van Kirk
Environmental Manager
Republic Services

cc: Operating Record (Hard Copy and Electronic)
Mike Classen (Electronic)
Adam Waller (Electronic)
David Hollinshead (Electronic)
Robert Heller, HHNT (Electronic)

C. DRAINAGE AREA MAP



- GENERAL NOTES:
1. THE MAIN SURFACE CONSISTS OF THE 2021 AERIAL TOPOGRAPHIC SURVEY BY SOUTHERN RESOURCES MAPPING CO. DATED APRIL 2, 2021.
 2. ALL TOPOGRAPHIC DATA SHOWN TO THE SOUTH OF THE MAINTENANCE SHOP AND TO THE LEFT OF THE MAIN ACCESS ROAD IS FROM THE 1996 PERMIT DRAWINGS BY SANTEK ENVIRONMENTAL INC.



SITE MAP			
STORM WATER POLLUTION PREVENTION PLAN			
MATLOCK BEND CLASS I LANDFILL			
FOR			
SANTEK WASTE SERVICES, LLC			
LOUDON COUNTY, TENNESSEE			
<div><div>HHNT</div><div>HODGES, HARBIN, NEWBERRY & TRIBBLE, INC. Consulting Engineers</div></div>			
(478) 743-7175 (478) 743-1703(FAX)		3920 ARKWRIGHT RD. SUITE 101 MACON, GEORGIA 31210	
PROJ. NO.	6703-1095-01	DWG.	MATLOCK-SWPPP-SITE MAP 2021
SCALE	1" = 200'	SHEET 1 OF 1	
DATE	NOVEMBER 2021		

D. CORRECTIVE ACTION MONTHLY INSPECTION

CAP BMP MONTHLY INSPECTION

Inspection Date:		
	Functioning Properly? (Y/N)	Notes
Incorporating Flocculants into Wheel Wash Operations		
<i>Is the wheel wash operational?</i>		
<i>Is the water used by the wheel wash in an acceptable condition?</i>		
<i>Are flocculants being utilized in the wheel wash?</i>		
Increasing Routine Inspections and Maintenance Frequency of Wheel Wash		
<i>Are monthly inspections and maintenance of wheel wash being conducted?</i>		
Installation of Mud Mats (or an equivalent control)		
<i>Are Mud Mats installed per detail?</i>		
<i>Are Mud Mats maintained and functioning properly?</i>		

Inspector's Name: _____

Signature: _____



Outlook

RE: Landfill Mud

From Classen, Mike <MClassen@republicservices.com>**Date** Wed 11/20/2024 10:52 AM**To** Revendra Awasthi <Revendra.Awasthi@tn.gov>**Cc** Fox, Teresa <TFox@republicservices.com>; Hollinshead, David <DHollinshead@republicservices.com>; Waller, Adam <wallera@loudoncounty-tn.gov>; Rob Ashe <rob.ashe@tn.gov>

This Message Is From an External Sender

This message came from outside your organization.

Good Morning, Revendra –

Last week we had a situation where we started filling in a new and challenging area of the landfill due to our limited available airspace and that area turned out to be extremely soft, leading to customers getting stuck and muddy. We have and continue to acknowledge that this is a results-based business and therefore are not making any excuses – we had a bad day and have been working tirelessly to return the exterior road to acceptable conditions, which I believe it now is. I want to be clear, however, that at all times while our facility is in operation we are taking extraordinary measures to limit trackout. This includes a combination of operational strategies at the active face, significant rock purchase and placement, continuous wheel wash operation, routine street sweeper usage, and photographic documentation every two hours of every work day. Those efforts for the past 8-12 months have been successful by all counts, and I am confident these actions go above and beyond those of any other landfill in the state.

I don't want to get into an electronic tit-for-tat with Mr. Viars and the untruths he routinely espouses (including specifically about us washing dirt and mud into the stream). Those photos sent by Mr. Viars were taken prior to us being able to finish our work restoring the road, which we have already acknowledged to all parties got temporarily out of hand due to the previously communicated reasons. I could send hundreds of photos, including from yesterday of our entrance throughout the day, showing successful efforts and satisfactory conditions.

I make it a specific point not to communicate back to Mr. Viars and have instructed my team to do the same. He routinely aggressively hounds our employees, curses them, calls them derogatory names, denigrates them by calling them “worthless” and “embarrassing”, and in general conducts himself in a manner that deserves no response. Based on his aggressive and erratic behavior, I have concern that he will escalate things to physical altercation. For this reason, we will not associate or communicate with Mr. Viars.

If there is ever a need for us to provide TDEC information in response to a Mr. Viars request or complaint, we will continue to work cooperatively directly with TDEC to help facilitate that. I know you often communicate directly with Teresa, but please know I am always available as well direct on my cell phone should you wish to reach out.

Thank you,
Mike

Mike Classen, PE

General Manager

BU237 Middle TN Post-Collection

c 678.435.7218

From: Revendra Awasthi <Revendra.Awasthi@tn.gov>**Sent:** Wednesday, November 20, 2024 10:18:31 AM**To:** brian viars <bviars@hotmail.com>; Adam Waller <m.adam.waller@gmail.com>; Adam Waller <waller@loudoncounty-tn.gov>; Lisa Vinton <lisavinton26@gmail.com>; Coffey, Bonnie <Bonnie.Coffey@tdsynnex.com>**Cc:** Lowell Russell <rep.lowell.russell@capitol.tn.gov>; elizmurphy966 <elizmurphy966@msn.com>; Randolph, Chase <randolphc@loudoncounty-tn.gov>; Becca Godwin <becca.godwin@news-herald.net>; Bradshaw, Buddy <bradshawb@loudoncounty-tn.gov>; billsatterfield1951@outlook.com <billsatterfield1951@outlook.com>; Rob Ashe <Rob.Ashe@tn.gov>; Fox, Teresa <TFox@republicservices.com>; Van kirk, Holly <HVankirk@republicservices.com>; John LeCroy <John.LeCroy@tn.gov>**Subject:** RE: Landfill Mud

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This message came from outside your organization.

[Report Suspicious](#)

Dear Mr. Viars,

I have received your complaints and acted on them. I wanted to let you know that I inspected the landfill yesterday (11/19/2024), however it was before 4:30 PM, and rain had not started at that time. During the inspection, I stressed the need to pressure wash tires of trucks at the tire wash facility located at the landfill before trucks go out on the highway. This was discussed with the landfill manager.

Your photos of the road from yesterday appears to be after the rain event, and I acknowledge that the mud situation really looks bad in the photos.

I will be informing the Division of Water Resources to look into the possible stormwater issues.

Please feel free to contact me if you have any questions or comments.

Thank you,

From: brian viars <bviars@hotmail.com>**Sent:** Tuesday, November 19, 2024 9:19 PM**To:** Revendra Awasthi <Revendra.Awasthi@tn.gov>; Lowell Russell <rep.lowell.russell@capitol.tn.gov>; elizmurphy966 <elizmurphy966@msn.com>; Randolph, Chase <randolphc@loudoncounty-tn.gov>; Bradshaw, Buddy <bradshawb@loudoncounty-tn.gov>; Adam Waller <m.adam.waller@gmail.com>; Adam Waller <waller@loudoncounty-tn.gov>; Becca Godwin <becca.godwin@news-herald.net>; Lisa Vinton <lisavinton26@gmail.com>; Coffey, Bonnie <Bonnie.Coffey@tdsynnex.com>; billsatterfield1951@outlook.com**Subject:** [EXTERNAL] Landfill Mud

This Message Is From an External Sender

This message came from outside your organization.

Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security

Hello, I just wanted to let everyone know what I witnessed this evening around 515 pm. I saw someone from the landfill washing the Mud and Debris off of the road straight into the stream, they had both sweeper trucks out there... But it was way too late... The debris, havoc mud and debris was already collecting on the side of the road and washing into the creek. Our community is seeking for a permanent resolution.... Please do not extend the permit.... They are failing in so many ways towards our community! I would also, like to add Revendra never replies, Adam (SolidWasteChair) Never replies nor acknowledges any of us... I'm going to include a few pics of today...

Again,
Brian Viars
865-640-1624

Holland & Knight

Nashville City Center | 511 Union Street, Suite 2700 | Nashville, TN 37219 | T 615.244.6380 | F 615.244.6804
Holland & Knight LLP | www.hklaw.com

Wells Trompeter
+1 615-850-8759
Wells.Trompeter@hklaw.com

February 28, 2025

Via E-mail (elizmurphy966@msn.com)

Elizabeth Murphy

Re: Matlock Bend Improvements



Dear Elizabeth:

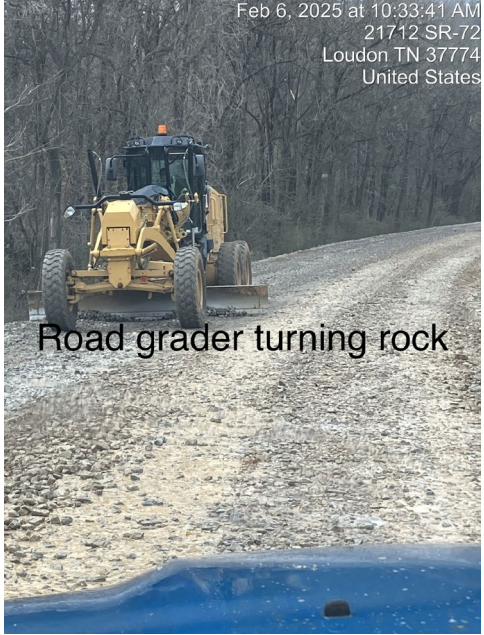

As Santek Environmental, LLC (“Santek”) and the Loudon County Solid Waste Disposal Commission (the “Commission”) continue to work together to address concerns about mud from the Matlock Bend Landfill (the “Landfill”) potentially being tracked onto Highway 72, Santek wanted to provide the Commission with information on what it has done to address the issue to date. On the next page, please find a chart detailing the enhancements that Santek has made to the Landfill, the date Santek took the action, the financial cost to Santek of the action taken, and photos showing the improvements, where applicable.



If you have any questions or would like any further information, please let us know. We look forward to continuing to work with the Commission to address any concerns.

Atlanta | Austin | Birmingham | Boston | Century City | Charlotte | Chattanooga | Chicago | Dallas | Denver | Fort Lauderdale
Houston | Jacksonville | Los Angeles | Miami | Nashville | Newport Beach | New York | Orlando | Philadelphia
Portland | Richmond | San Francisco | Stamford | Tallahassee | Tampa | Tysons | Washington, D.C. | West Palm Beach



Algiers | Bogotá | London | Mexico City | Monterrey



Date of Implementation	Control Measure	Financial Investment	Photos
Beginning in February 2023	Rock is refreshed along the haul road as needed. At a minimum, Santek maintains two loads of rock on-site. When a rain event is anticipated, the facility maintains a stockpile of three to four additional loads of rock for immediate deployment when necessary.	\$431,891.22 spent on rock from 2023-2024	<div><p>Feb 6, 2025 at 10:00:31 AM 21712 SR-72 Loudon TN 37774 United States</p><p>Rock stockpile</p></div> <div><p>Feb 5, 2025 at 4:45:41 PM 21712 SR-72 Loudon TN 37774 United States</p><p>Rock stockpile</p></div>



Beginning in February 2023	The facility scarifies the rock along the haul road at least daily to maintain best management practice (BMP) effectiveness.	Labor Cost	 <p>Feb 6, 2025 at 10:33:41 AM 21712 SR-72 Loudon TN 37774 United States</p> <p>Road grader turning rock</p>
Beginning in February 2023	The facility sweeps Highway 72 at a minimum of once every two hours and more frequently during rain events as needed.	Dedicated Operator and Labor Costs	 <p>Feb 5, 2025 at 3:48:56 PM 19793-20015 SR-72 Loudon TN 37774 United States</p> <p>Sweeper in use</p>



May 2023	Santek keeps disturbed areas vegetated along the haul road to minimize the amount of sediment getting onto the outbound portion of the interior haul road.	Unquantified ¹	 
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¹ For certain improvements, Santek is unable to calculate a specific amount spent on the improvement apart from amounts Santek spends through its general operating budget. In those instances, we have labeled the cost as “unquantified” because, while implementing and maintaining the improvement necessarily costs money, Santek cannot easily quantify the exact amount at this time.

July 2023	Santek installed a concrete barrier to minimize trucks driving in the grassed area of the outbound lane near the entrance and exit of the Landfill.	Unquantified	 <p>Concrete barrier and erosion matting at the entrance</p>
Beginning in July 2024	Santek routinely blades the top deck to maintain a flat hard surface for customers to drive on.	Labor Costs	 <p>Bladed road to active face</p>
Beginning in August 2024	When necessary, during rain events, Santek pressure washes trucks after the Wheel Wash, if sediment is still	Labor Costs	

	observed on the tires or undercarriage of the truck.		
December 2024	Santek has modified operations so that haul trucks are limited to driving on tipping pads temporarily stabilized with rock. Santek uses a rocked, elevated pad and pit to minimize trucks backing into mud and debris.	Unquantified	 <p>Elevated and rocked tipping pad into pit</p>
December 2024	Santek has created a separate haul route specifically for dirt trucks so they stay off of the rocked haul road for customers.	Unquantified	 <p>Alternate route for haul trucks</p>

January 2025	Santek installed mud mats at the entrance and exit of the Wheel Wash.	\$7,800.00	<div><p>Feb 6, 2025 at 10:30:58 AM 21712 SR-72 Loudon TN 37774 United States</p><p>Wheel wash in use</p></div> <div><p>Track out pads 1 & 2</p></div>
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			 <p>Yellow track out pad #3</p>
February 4, 2025	Santek last had the Wheel Wash cleaned on February 4 th . The manufacturer of the Wheel Wash conducted an inspection and routine maintenance in April 2023. The Wheel Wash is cleaned every other month, and more frequently during wet months as needed.	\$23,000 for Cleaning and \$11,905 for Maintenance since February 2023	 <p>Feb 5, 2025 at 1:24:47 PM 21712 SR-72 Loudon TN 37774 United States</p> <p>Wheel wash clean out</p>

			
February 2025	Santek has implemented the use of flocculants at the Wheel Wash and inspects it on a monthly basis. Santek also hired two temporary laborers to specifically oversee the Wheel Wash and ensure that all drivers drive through it. They also require vehicles to run through multiple times in case the first time is not sufficient.	\$1,370.00, plus the cost of the temporary laborers	

Elizabeth Murphy
February 28, 2025
Page 10

Please let me know if you have any questions as you review and we work cooperatively on these issues. Please again note that we would welcome and request the opportunity to have Lindsey Turtle, the General Manager, meet with Chairman Waller and other members of the Commission to move continue moving toward a long-term productive relationship to address these and other issues.

Sincerely yours,

HOLLAND & KNIGHT LLP

/s/Wells Trompeter

WT