

2021 – ANNUAL OPERATIONS REPORT

HAKES C&D DISPOSAL

**4376 Manning Ridge Road
Painted Post, New York 14870**

Prepared for:

**Hakes C&D Disposal, Inc.
4376 Manning Ridge Road
Painted Post, New York 14870**

Prepared by:

**McMahon & Mann Consulting Engineering and Geology, P.C.
2495 Main Street
Suite 432
Buffalo, New York 14214**

**Permit Number: 8-4630-00010/00001-0
Facility Number SW # 51D03**

FEBRUARY 2022



ACTIVE CONSTRUCTION AND DEMOLITION (C&D) DEBRIS LANDFILL ANNUAL/QUARTERLY REPORT

Submit the Annual Report no later than March 1, 2022

- A. This annual report is for the year of operation from January 01, 2021 to December 31, 2021
 B. Quarterly Report for: Quarter 1 Quarter 2 Quarter 3 Quarter 4

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: Hakes C&D Landfill			
FACILITY LOCATION ADDRESS: 4376 Manning Ridge Road	FACILITY CITY: Painted Post	STATE: NY	ZIP CODE: 14870
FACILITY TOWN: Campbell	FACILITY COUNTY: Steuben	FACILITY PHONE NUMBER: 1-607-937-6044	
FACILITY NYS PLANNING UNIT: (A list of NYS Planning Units can be found at the end of this report). Steuben County			NYSDEC REGION #: 8
360 PERMIT #: 8-4630-00010/00001-0	DATE ISSUED: Nov. 11, 2013	DATE EXPIRES: Nov. 10, 2023	NYS DEC ACTIVITY CODE OR REGISTRATION NUMBER: 51D03
FACILITY CONTACT: Charles Plank	<input type="checkbox"/> public <input checked="" type="checkbox"/> private	CONTACT PHONE NUMBER: 1-607-937-6044	CONTACT FAX NUMBER:
CONTACT EMAIL ADDRESS: charles.plank@casella.com			
OWNER INFORMATION			
OWNER NAME: Hakes C&D Disposal, Inc.	OWNER PHONE NUMBER: 1-607-937-6044	OWNER FAX NUMBER:	
OWNER ADDRESS: 4376 Manning Ridge Road	OWNER CITY: Painted Post	STATE: NY	ZIP CODE: 14870
OWNER CONTACT: Charles Plank	OWNER CONTACT EMAIL ADDRESS: charles.plank@casella.com		
OPERATOR INFORMATION			
OPERATOR NAME: <input checked="" type="checkbox"/> same as owner	<input type="checkbox"/> public <input checked="" type="checkbox"/> private		
PREFERENCES			
Preferred address to receive correspondence: <input checked="" type="checkbox"/> Facility location address <input type="checkbox"/> Owner address <input type="checkbox"/> Other (provide):			
Preferred email address: <input checked="" type="checkbox"/> Facility Contact <input type="checkbox"/> Owner Contact <input type="checkbox"/> Other (provide):			
Preferred individual to receive correspondence: <input checked="" type="checkbox"/> Facility Contact <input type="checkbox"/> Owner Contact <input type="checkbox"/> Other (provide):			

Did you operate in 2021? Yes; Complete this form.
 No; Complete and submit Sections 1 and 18. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at:
<http://www.dec.ny.gov/chemical/52706.html> .

SECTION 2 - SITE LIFE

1. Landfill Capacity Utilized Last Year (reporting year).

- a. What is the estimated landfill capacity that was utilized during the reporting year?

351,000 Cubic Yards of Airspace

- b. What is the estimated in-situ waste density for the reporting year?

0.71 Tons/Cubic Yard

Please do not report units as pounds per cubic yard.

2. Remaining Constructed Capacity

- a. What is the remaining capacity of the landfill that is already constructed?

674,900 Cubic Yards of Airspace

- b. What is the estimated remaining life of the constructed capacity?

1 Years 0 Months

at 466,000 Tons/Year.*

* Please note that this tonnage rate must include all materials placed in the landfill, i.e., waste, soil, cover, alternative daily covers, etc.

- c. The tonnage rate reported under 2.b. is based on (select one):

The amount of materials placed in the landfill in the reporting year

Estimated future disposal

Permit limit

Other (explain): _____

3. Permitted Capacity Still to be Constructed

- a. What is the remaining but not yet constructed landfill capacity that is authorized by a Part 360 permit?

1,747,300 Cubic Yards of Airspace

- b. What is the projected life of capacity reported in 3a.?

2 Years 8 Months

at 466,000 Tons/Year.*

* Please note that this tonnage rate must include all materials disposed in the landfill, i.e., waste, and soil and alternative daily covers.

- c. The tonnage rate reported under 3.b. is based on (select one):

The amount of materials placed in the landfill in the reporting year

Estimated future disposal

Permit limit

Other (explain): _____

4. Capacity Proposed in a Part 360 Permit Application

What is the capacity of any expansion proposed in a Part 360 permit application that has been submitted to the Department but not authorized by a permit as of the end of the reporting period?

_____ Cubic Yards of Airspace

5. Estimated Potential Future Capacity Not Permitted or in an Application (optional)

What is the estimated capacity of any potential future expansion at the facility that is not yet authorized by a permit or proposed in a Part 360 permit application that has been submitted to the Department?

_____ Cubic Yards of Airspace

SECTION 3 - PRIMARY LEACHATE

Name of off-site leachate treatment facility(s) utilized: Steuben County WWTP

Does the landfill have a constructed liner and a leachate collection system? Yes No

Enter the quantity of primary leachate that was collected, removed for on-site and off-site treatment, and recirculated each month, and the corresponding **Acreage, by Cell**:
(Note: For double-lined landfills this should not include the volume of leachate collected from secondary leachate collection and removal systems.)

For **each cell**, please report the **acreage** and the **primary leachate** amount.

	PRIMARY LEACHATE COLLECTED (GALLONS)						PRIMARY LEACHATE TREATED OFF SITE (GALLONS)					
	Cells 1-9						Cells 1-9					
January	171,298.48						215,621.10					
February	163,828.00						148,817.76					
March	534,685.40						501,448.44					
April	328,852.40						255,014.41					
May	545,509.68						469,292.56					
June	483,212.09						407,088.73					
July	1,257,807.31						1,107,649.97					
August	1,068,825.65						1,124,577.97					
September	469,085.12						515,848.95					
October	574,586.57						351,071.94					
November	728,933.35						844,726.63					
December	465,858.09						439,968.84					
ANNUAL	6,792,482.14						6,381,127.30					

	PRIMARY LEACHATE RECIRCULATED (GALLONS)						PRIMARY LEACHATE TREATED ON SITE (GALLONS)						
	Leachate Was Not Recirculated						Leachate Was Not Treated On Site						
January													
February													
March													
April													
May													
June													
July													
August													
September													
October													
November													
December													
ANNUAL													

Submit (attached to this form) a copy of the maintenance logs which document compliance with the Operation and Maintenance Manual's schedule for the routine annual flushing and inspection of the primary leachate collection and removal system. List required submissions that have been attached to this form or the reason for not attaching a required piece of information:

DEKRA Inspections (formerly Jamko Technical Solutions, Inc.) cleaned the leachate lines, tanks, manholes, sumps, and the loadout pad in November 2021. This information is included in Attachment 1.

Submit (attached to this form) a tabulated compilation of the semi-annual primary leachate quality data collected throughout the year including a summary comparing this year's data with the previous year's data and a summary discussion of results. This list should identify sample location(s) and method of analysis. List required submissions that have been attached to this form or the reason for not attaching a required piece of information:

On-Site Geological Services (On-Site) provided a tabulated compilation of the semi-annual primary leachate quality data and other monitoring data required in Sections 12 through 16. This information is included in Attachment 2.

Please report total cost for the year, not cost/gal.

Leachate Cost: (including transportation if appropriate) during the calendar year for leachate treatment: \$ **Proprietary Information**

Total quantity treated: 6,381,127.30 gal

SECTION 4 – BENEFICIAL USE DETERMINATION MATERIALS AND ALTERNATIVE OPERATING COVER MATERIALS

For each type of waste material that the Department has approved for use as alternative operating cover (AOC), intermediate cover, or other landfill material, provide the annual weight in tons, use (i.e., operating cover, intermediate cover, etc.), and source of material. (If material is from a solid waste facility also provide facility name, address, NYS Planning Unit, County/ Province, and State/Country.) Refer to the list of NYS Planning Units that can be found at the end of this report.

Type of Solid Waste	Weight (tons/year)	Use	NYS Planning Unit (See Attached List of NYS Planning Units)	County or Province	State or Country	Source (Facility and Address)
Aggregate/Concrete						
Processed C&D						
Contaminated Soil						
Other (specify)						
Total AOC	0					
Total Beneficial Use Determination Materials	0					

Percent Alternative Operating Cover (AOC) Calculation

AOC Calculations: Total Tons AOC/Total Tons Waste Disposed x 100 = 0

Please note the calculation **is**: Tons AOC (from table above)/Tons Solid Waste (from table in Section 6) x 100 and **Not**: Tons AOC / (Tons Solid Waste + AOC) x 100

SECTION 6 – SERVICE AREA OF C&D DEBRIS RECEIVED

Please identify where the waste is coming from. The total tons received reported below should equal the total tons received in Section 5 (Construction & Demolition (CD) Debris Disposed). **DO NOT REPORT IN CUBIC YARDS!**

- If the waste **WAS** received from another solid waste management facility, please write in the name *and address* of the facility along with the appropriate state, county and planning unit/municipality.
- If the waste **WAS NOT** received from another solid waste management facility, please write in “**Direct Haul**” along with the appropriate state, county and planning unit/municipality where the waste was generated.

Specify transport method and percentages of total waste transported by each:

100 % Road _____ % Rail
 _____ % Water _____ % Other (specify: _____)

Explain which waste types and service areas below are included in these transport methods _____

SERVICE AREA OF SOLID WASTE RECEIVED					
TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR “Direct Haul”	SERVICE AREA STATE OR COUNTRY	SERVICE AREA COUNTY OR PROVINCE	SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units)	TONS RECEIVED
Construction and Demolition Debris (mixed)	See Attachment 3 - Waste Origin				
Other (specify)					
TOTAL RECEIVED (tons): _____					

SECTION 7 – UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

Yes No If yes, give information below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location

SECTION 8 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure and post-closure care?

Yes No If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan? **(The current approved closure/post-closure/custodial care cost estimates are provided in Attachment 4)**

SECTION 9 – PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?

Yes No If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 10 – CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?

Yes No If yes, attach additional sheets identifying changes with a justification for each change.

SECTION 11 – LANDFILL OPERATOR TRAINING

Name of trained landfill operator: Charles Plank & Larry Shilling

Name and location of training course: Landfill Operator Certification, Niagara Falls, NY

Date completed: 3/18/2018

SECTION 12 - ANALYTICAL RESULTS

Submit (attached to this form) tables showing the sample collection date, the analytical results [including all peaks even if below the Method Detection Limits (MDL)], designation of upgradient wells and location number for each environmental monitoring point sampled, applicable water quality standards, and groundwater protection standards if established, MDL's, and Chemical Abstracts Service (CAS) numbers on all parameters. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

On-Site provided a tabulated compilation of the monitoring data required in Sections 12 through 16. This information is included in Attachment 2.

SECTION 13 - COMPARING DATA

Submit (attached to this form) tables or graphical representations comparing current water quality with existing water quality and with upgradient water quality. These comparisons may include Piper diagrams, Stiff diagrams, tables, or other analyses. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

On-Site provided a tabulated compilation of the monitoring data required in Sections 12 through 16. This information is included in Attachment 2.

SECTION 14 - DISCUSSION OF RESULTS

Submit (attached to this form) a summary of any contraventions of State water quality standards, significant increases in concentrations above existing water quality, any exceedances of groundwater protection standards, and discussion of results, and any proposed modifications to the sampling and analysis schedule necessary to meet the Existing, Operational and Contingency water quality monitoring requirements. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

On-Site provided a tabulated compilation of the monitoring data required in Sections 12 through 16. This information is included in Attachment 2.

SECTION 15 - DATA QUALITY ASSESSMENT

Submit (attached to this form) any required data quality assessment reports. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

On-Site provided a tabulated compilation of the monitoring data required in Sections 12 through 16. This information is included in Attachment 2.

SECTION 16 - SUMMARIES OF MONITORING DATA

Submit (attached to this form) a summary of the water quality information presented in Sections 13 and 14 for the year of operation for which the Annual Report is made, noting any changes in water quality which have occurred throughout the year. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

On-Site provided a tabulated compilation of the monitoring data required in Sections 12 through 16. This information is included in Attachment 2.

SECTION 17 - SURFACE IMPOUNDMENTS

Does this landfill have a surface impoundment?

Yes No If yes, repeat Sections 12 through 15 above for Quarterly Reports and Section 16 above for Annual report. Attach additional submissions required by this section.

SECTION 18 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form?

Yes No If yes, attach additional sheets identifying the reporting requirements with their respective responses. **(See Attachment 5 for additional permit/consent order requirements)**

SECTION 19 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form to the appropriate Regional Office (See attachment for Regional Office addresses, email addresses and Materials Management Contacts).

The Owner or Operator must also submit one copy by email, fax or mail to:

**New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Solid Waste Management
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: SWMFannualreport@dec.ny.gov**

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with a system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.



Signature

Charles Plank

Name (Print or Type)

2/3/2022

Date

Division Manager

Title (Print or Type)

charles.plank@casella.com

Email (Print or Type)

4376 Manning Ridge Road

Address

New York 14870

State and Zip

Painted Post

City

(607) 937 - 6044

Phone Number

ATTACHMENTS: YES NO

ATTACHMENT 1 – LEACHATE LINE CLEANING LOG



Casella Hakes C&D Landfill

Line Cleaning Record

Project No.:	6585	Site Location:	Laechate Collection Lines	Technician(s)	Rob, Carter, Drew
Cell 1A CO into Hill	539LF	Total Cleaned:	539'	Passes: 1 2	Comments/Date 11/10/2021
Cell 1 CO into Hill	649LF	Total Cleaned:	649'	Passes: 1 2	Comments/Date 11/10/2021
Cell 2 CO into Hill	680LF	Total Cleaned:	680'	Passes: 1 2	Comments/Date 11/10/2021
Cell 3 CO to Cell 8A	1396LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/10/21
Cell 4 CO to Cell 7	1397LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/10/21
Cell 5 East CO to Cell 5 West	1349LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/10/21
Cell 5 West CO to Cell 5 East	1349LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/9/21
Cell 6 East CO to Cell 6 West	1492LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/9/21



Casella Hakes C&D Landfill

Line Cleaning Record

Project No.:	6585	Site Location:	Leachate Collection Lines	Technician(s)	Rob, Carter, Drew
Cell 6 West CO to Cell 6 East	1492	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/9/21
Cell 7 CO to Cell 4	1397LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/9/21
Cell 8A CO to Cell 3	1396LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/9/21
Cell 8C CO to 8B Riser	1190LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date go 750LF 11/9/21
Cell 8 D CO to 8B Riser	904LF	Total Cleaned:	750'	Passes: 1 2	Comments/Date 11/9/2021
Cell 9A East to West CO	1155LF	Total Cleaned:	400'	Passes: 1 2	Comments/Date 11/9/2021
Cell 9A West to East CO		Total Cleaned:	800'	Passes: 1 2	Comments/Date 11/9/2021
		Total Cleaned:		Passes: 1 2	Comments/Date



Casella Hakes C&D Landfill

Line Cleaning Record

Project No.:	6585	Site Location:	Header Lines	Technician(s)	Rob, Carter, Drew	
Cell 5 Header CO to Cell 6 Header CO	760LF	Total Cleaned:	760'	Passes: 1 2	Comments/Date	11/10/2021
Cell 3 Header CO to Cell 5 Header CO	438LF	Total Cleaned:	438'	Passes: 1 2	Comments/Date	11/10/2021
Cell 1 Header CO to Cell 3 Header CO	523LF	Total Cleaned:	523'	Passes: 1 2	Comments/Date	11/11/2021
Cell 8B Header Line 1	200LF	Total Cleaned:	200'	Passes: 1 2	Comments/Date	11/11/2021
Cell 8B Header Line 2	200LF	Total Cleaned:	200'	Passes: 1 2	Comments/Date	11/11/2021
		Total Cleaned:		Passes: 1 2	Comments/Date	
		Total Cleaned:		Passes: 1 2	Comments/Date	
		Total Cleaned:		Passes: 1 2	Comments/Date	



Casella Hakes C&D Landfill

Line Cleaning Record

Project No.:	6585	Site Location:	Sumps	Technician(s)	Rob, Carter, Drew	
Cell 1 Sump 1	65LF	Total Cleaned:	65'	Passes: 1 2	Comments/Date	11/23/2021
Cell 1 Sump 2	65LF	Total Cleaned:	65'	Passes: 1 2	Comments/Date	11/23/2021
Cell 1A Sump 1	63LF	Total Cleaned:	63'	Passes: 1 2	Comments/Date	11/23/2021
Cell 1A Sump 2	63LF	Total Cleaned:	63'	Passes: 1 2	Comments/Date	11/23/2021
Cell 2 Sump 1	48LF	Total Cleaned:	48'	Passes: 1 2	Comments/Date	11/12/2021
Cell 2 Sump 2	48LF	Total Cleaned:	48'	Passes: 1 2	Comments/Date	11/12/2021
Cell 3 Sump 1	96LF	Total Cleaned:	96'	Passes: 1 2	Comments/Date	11/12/2021
Cell 3 Sump 2	96LF	Total Cleaned:	96'	Passes: 1 2	Comments/Date	11/12/2021



Casella Hakes C&D Landfill

Line Cleaning Record

Project No.:	6585	Site Location:	Sumps	Technician(s)	Rob, Carter, Drew	
Cell 4 Sump 1	85LF	Total Cleaned:	85'	Passes: 1 2	Comments/Date	11/12/2021
Cell 4 Sump 2	85LF	Total Cleaned:	85'	Passes: 1 2	Comments/Date	11/12/2021
Cell 5 Sump 1	103LF	Total Cleaned:	103'	Passes: 1 2	Comments/Date	11/11/2021
Cell 5 Sump 2	103LF	Total Cleaned:	103'	Passes: 1 2	Comments/Date	11/11/2021
Cell 6 Sump 1	95LF	Total Cleaned:	95'	Passes: 1 2	Comments/Date	11/11/2021
Cell 6 Sump 2	95LF	Total Cleaned:	95'	Passes: 1 2	Comments/Date	11/11/2021
Cell 8B Sump 1	93LF	Total Cleaned:	93'	Passes: 1 2	Comments/Date	11/23/2021
Cell 8B Sump 2	93LF	Total Cleaned:	93'	Passes: 1 2	Comments/Date	11/23/2021



Casella Hakes C&D Landfill

Line Cleaning Record

Project No.:	6585	Site Location:	Tanks and MH's	Technician(s)	Rob, Carter, Drew
Storage Tank 1	Loads:	7	Comments/Date	11/24/2021	
Storage Tank 2	Loads:	6	Comments/Date	11/24/2021	
Load Off Pad	Cleaned:	cleaned	Comments/Date	11/23/1931	
Condensate Tank 1	Cleaned:		Passes: 1 2	Comments/Date	
Condensate Tank 2	Cleaned:		Passes: 1 2	Comments/Date	
Storage Tank MH	Cleaned:	cleaned	Passes: 1 2	Comments/Date	11/23/2021
Cell 1A MH	Cleaned:	cleaned	Passes: 1 2	Comments/Date	11/23/2021
Total Cleaned:			Passes: 1 2	Comments/Date	

ATTACHMENT 2 – ANNUAL ENVIRONMENTAL MONITORING REPORT



HAKES C&D DISPOSAL

4th QUARTER / ANNUAL 2021 ENVIRONMENTAL MONITORING REPORT

NYSDEC Permit No.: 8-4630-00010/00001-2

February 2022

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Overview

This report summarizes calendar year 2021 and details fourth quarter 2021 operational water quality monitoring activities completed at the Hakes C & D Landfill, located in the Town of Campbell, New York. Environmental monitoring is conducted in accordance with *Hakes Construction and Demolition Debris Landfill Expansion Project, 6 NYCRR Part 360 Permit Modification Application, Appendix C – Environmental Monitoring Plan, dated September 2019* (EMP). Sampling and reporting activities were performed by On-Site Geological Services, D.P.C. (On-Site) of Wellsville, New York. Sample analysis was performed by ALS Environmental (ALS), located in Rochester, New York.

This report addresses the environmental monitoring elements of Sections 1, 3, and 12 through 19 of the New York State Department of Environmental Conservation (NYSDEC) annual report form and includes the following:

- Tables;
- Figures;
- Appendix A – Field Sampling Forms;
- Appendix B – Laboratory Analytical Reports;
- Appendix C – Historic Groundwater Monitoring Statistics; and
- Appendix D – Groundwater Time-Trend Graphs.

Section 1 – Owner/Facility Information

Facility Name: Hakes C&D Landfill Town: Campbell County: Steuben NYSDEC Region #: 8

Facility Location: 4376 Manning Ridge Road, Campbell State: NY Zip: 14870

Facility Contact: Charles Plank Phone #: (607) 937-6044 Fax #: (607) 937-6089

363 Permit #: 8-4630-00010/00001-0 Issued: 11/11/2013 Expires: 11/10/2023

Owner Name: Hakes C&D Disposal, Inc. Phone #: (607) 937-6044

Mailing Address: Same as above

Section 3 – Primary Leachate (Analytical Results Only)

2021 semi-annual primary leachate sampling was conducted during the second and fourth quarterly monitoring events. Semi-annual leachate samples were collected on May 12 and November 11, 2021 and analyzed for parameters included in 6 NYCRR Part 363 Expanded Parameter List (expanded parameters). The samples were collected from a leachate tank and show analytical results typical of historic Site leachate. Site leachate generally exhibits significantly lower contaminant concentrations than observed at typical municipal solid waste landfills. Analytical results for the last five leachate samples are presented in Table 1. Primary leachate organic detections for 2021 are shown in the table below.

Date Sampled	Parameter	Result mg/L
12-May-21	Endosulfan I	0.00029
12-May-21	gamma-BHC (Lindane)	0.000066
12-May-21	alpha-BHC	0.000053
12-May-21	Heptachlor	0.000027 J
12-May-21	N-methylperfluoro-1-octanesulfonamidoacetic acid	0.000016
12-May-21	Perfluorooctanesulfonamide (PFOSA)	0.0000009 J
12-May-21	Perfluoroundecanoic Acid (PFUnA)	0.0000017 J
12-May-21	Perfluorooctanesulfonic Acid (PFOS)	0.000054
12-May-21	N-ethylperfluoro-1-octanesulfonamidoacetic acid	0.0000077
12-May-21	Perfluoropentanoic Acid (PFPeA)	0.0014
12-May-21	6:2 Fluorotelomer sulfonate (FtS 6:2)	0.000074
12-May-21	8:2 Fluorotelomer sulfonic acid (FtS 8:2)	0.0000038 J
12-May-21	Perfluorononanoic Acid (PFNA)	0.000025
12-May-21	Perfluorooctanoic Acid (PFOA)	0.00045
12-May-21	Perfluoroheptanoic Acid (PFHpA)	0.00027
12-May-21	Perfluorohexanoic Acid (PFHxA)	0.0011
12-May-21	Perfluorodecanoic Acid (PFDA)	0.000014
12-May-21	Perfluorodecane Sulfonate (PFDS)	0.00000033 J
12-May-21	Perfluoroheptane sulfonate (PFHpS)	0.0000022 J
12-May-21	Perfluorohexanesulfonic Acid (PFHxS)	0.000094
12-May-21	Perfluorobutanesulfonic Acid (PFBS)	0.00013
12-May-21	Perfluorobutanoic Acid (PFBA)	0.00058
12-May-21	Acetophenone	0.0023 J
12-May-21	2,4-Dimethylphenol	0.0016 J
12-May-21	Acenaphthene	0.0016 J
12-May-21	1,4-Dioxane	0.045 *
12-May-21	3/4-Methylphenol	0.0015 J
12-May-21	2-Butanone (MEK)	0.08 J
12-May-21	Acetone	0.27
12-May-21	4-Methyl-2-pentanone	0.0061 J
11-Nov-21	Endosulfan I	0.00025
11-Nov-21	Perfluoroundecanoic Acid (PFUnA)	0.0000056 J
11-Nov-21	Perfluorooctanesulfonic Acid (PFOS)	0.00018
11-Nov-21	Perfluoroheptanoic Acid (PFHpA)	0.00097
11-Nov-21	Perfluorooctanoic Acid (PFOA)	0.0016
11-Nov-21	Perfluoropentanoic Acid (PFPeA)	0.0027
11-Nov-21	Perfluorononanoic Acid (PFNA)	0.000058
11-Nov-21	Perfluorohexanesulfonic Acid (PFHxS)	0.00024
11-Nov-21	Perfluorodecanoic Acid (PFDA)	0.000033

Date Sampled	Parameter	Result mg/L
11-Nov-21	Perfluorobutanoic Acid (PFBA)	0.0019
11-Nov-21	Perfluorobutanesulfonic Acid (PFBS)	0.00047
11-Nov-21	N-methylperfluoro-1-octanesulfonamidoacetic acid	0.000068
11-Nov-21	N-ethylperfluoro-1-octanesulfonamidoacetic acid	0.00002 J
11-Nov-21	8:2 Fluorotelomer sulfonic acid (FtS 8:2)	0.000017 J
11-Nov-21	6:2 Fluorotelomer sulfonate (FtS 6:2)	0.00037
11-Nov-21	Perfluorohexanoic Acid (PFHxA)	0.0026
11-Nov-21	1,4-Dioxane	0.053 *
11-Nov-21	3/4-Methylphenol	0.053
11-Nov-21	Benzyl alcohol	0.0018 J
11-Nov-21	Anthracene	0.0016 J
11-Nov-21	Acetophenone	0.0034 J
11-Nov-21	Acenaphthene	0.01
11-Nov-21	2-Methylphenol	0.0025 J
11-Nov-21	2-Methylnaphthalene	0.0092 J
11-Nov-21	Fluorene	0.004 J
11-Nov-21	Dibenzofuran	0.0053 J
11-Nov-21	Phenanthrene	0.0017 J
11-Nov-21	2,4-Dimethylphenol	0.003 J
11-Nov-21	Phenol	0.0077 J
11-Nov-21	Carbon disulfide	0.044 J
11-Nov-21	Acetone	0.26
11-Nov-21	4-Methyl-2-pentanone	0.015 J
11-Nov-21	2-Butanone (MEK)	0.13 J
11-Nov-21	m&p-Xylene	0.0054 J
11-Nov-21	Naphthalene	0.028

A leachate tank sediment sample was collected on November 29, 2021 and analyzed for radionuclides. The laboratory analytical report for this sample is included in Appendix B.

Section 12 – Analytical Results

The fourth quarter 2021 quarterly sampling event was primarily conducted between November 10 and 11, 2021. A leachate sediment sample for radionuclide analysis was collected on November 29, 2021. Tables presenting the fourth quarter 2021 field parameters and analytical results are included with the appropriate NYSDEC water quality standards as follows:

- Table 2 – Fourth Quarter 2021 Groundwater Analytical Results;
- Table 3 – Fourth Quarter 2021 Surface Water Analytical Results; and
- Table 4 – Fourth Quarter 2021 Groundwater Suppression Systems Analytical Results.

Tables 5 through 7 provide historical data for the last five quarters. A narrative of comparing data to standards is provided in Section 13 and a discussion of results is presented in Section 14. A

data quality assessment is provided in Section 15 and a summary of data is referenced in Section 16.

Section 13 – Comparing Data

Site specific Existing Water Quality Values (EWQVs) and trigger values have been established for the facility since 2000 with periodic revisions associated with landfill expansions. The currently approved EWQVs were submitted to NYSDEC on July 13, 2020 in preparation of Cell 9 operations and are presented in Table 5A. As presented in Table 5A, there are separate EWQVs and trigger values for wells associated with different sections of the landfill. Therefore Table 5A is divided into four parts as follows.

1. Table 5A – Part 1 are routine parameter EWQVs and trigger values that apply to monitoring wells associated with landfill cells 1 through 8 which includes: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H MW-J, MW-O, MW-P and MW-QR. Table 5A – Part 1 EWQVs and trigger values were submitted to the NYSDEC on May 28, 2008 and developed in accordance with 6 NYCRR Part 360-2.11 (c) (5) (i), which is the applicable regulation at that time.
2. Table 5A – Part 2 includes additional parameters that are on the expanded parameter list but not routine parameter list. These EWQVs are required by the Hakes solid waste permit special condition 59 and apply to landfill cells 1 through 8 monitoring wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H MW-J, MW-O, MW-P and MW-QR. Table 5A – Part 2 EWQVs and trigger values were established in accordance with 6 NYCRR 363-4.6(f)(9)(i) (b)(4)(ii).
3. Table 5A – Part 3 EWQVs and trigger values are inter-well expanded parameter list EWQVs that apply to Cell 9 monitoring wells MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) and MW-V(BR). Table 5A – Part 3 EWQVs and trigger values were established in accordance with 6 NYCRR 363-4.6(f)(9)(i) (b)(4)(ii).
4. Table 5A – Part 4 provides Intra-well EWQVs and trigger values for cell 9 monitoring well MW-V. As the pre-operational geochemistry of this well does not compare adequately with the other Cell 9 wells, a standalone intra-well comparison is most applicable for this well. Table 5A – Part 4 EWQVs and trigger values were established in accordance with 6 NYCRR 363-4.6(f)(9)(i)(b)(4)(ii).

According to 6 NYCRR 363-4.6(f)(9)(ii), operational water quality monitoring must be designed to distinguish facility-derived contamination from existing water quality at the site using trigger values established in accordance with 6 NYCRR 363-4.6(f)(9)(i)(b)(4)(ii). In accordance with 6 NYCRR 363-4.6(f)(9)(i)(b)(6)(ii)(f) a significant increase has occurred if the water quality result for a parameter exceeds the established trigger value for that parameter.

Trigger value exceedances are intended to provide an indication that a sample result may represent a statistically significant increase over existing water quality. However, it is likely that some operational groundwater monitoring results will exceed trigger value as a result of natural conditions, normal variations in ambient groundwater chemistry, or sampling analysis anomalies. As these natural variations or analysis anomalies occur, the resulting trigger value exceedance will require proper clarification in accordance with the regulations and Site Environmental Monitoring Plan, and not be categorized as a statistically significant increase over existing water quality. A discussion of results is provided in Section 14 below.

Section 14 – Discussion of Results

This section includes a narrative pertaining to results greater than Trigger Values and/or Class GA Standards, significant changes in water quality and a general discussion of results.

Operational water quality monitoring has been ongoing at the site since December 1999. The fourth quarter 2021 quarterly operational water quality event is a NYSDEC 6 NYCRR Part 363 Routine Parameter List (routine parameters) event. Representatives of On-Site conducted this monitoring event with scheduled sampling of groundwater, surface water, groundwater suppression systems and leachate. Please see Figure 1 for sampling locations. Non-dedicated bladder pumps were utilized following low-flow purging techniques for monitoring well purging and sampling with the following exceptions. Low yielding monitoring wells MW-D, MW-GR, MW-N, MW-OBR and MW-QR were each purged dry with a dedicated bailer and allowed time to recover prior to sampling with a dedicated bailer. Field sampling forms are included in Appendix A. The table below provides the locations and dates sampled for the fourth quarter 2021 sampling event.

Hakes C&D Landfill Fourth Quarter 2021 Sample Summary		
Location	Description	Sample Date
Upgradient Monitoring Wells		
MW-H	Upgradient well	11/11/2021
MW-QR	Upgradient well	11/10-11/11/21
MW-R(BR)R	Upgradient well	11/11/2021
MW-S(BR)	Upgradient well	11/11/21
Downgradient Monitoring Wells		
MW-CR	Downgradient well	11/11/2021
MW-D	Downgradient well	11/10-11/11/2021
MW-E	Downgradient well	11/11/2021
MW-F	Downgradient well	11/11/2021
MW-GR	Downgradient well	11/10-11/11/2021
MW-J	Downgradient well	11/11/2021

Downgradient Monitoring Wells		
MW-N	Downgradient well	11/10-11/11/2021
MW-O	Downgradient well	11/10/2021
MW-O(BR)	Downgradient well	11/10-11/2021
MW-P	Downgradient well	11/11/2021
MW-T(BR)	Downgradient well	11/11/2021
MW-U(BR)	Downgradient well	11/11/2021
MW-V	Downgradient well	11/10/2021
MW-V(BR)	Downgradient well	11/11/2021
Surface Water		
SW-1A	Tributary 4 upstream of landfill at property line	11/10/2021
SW-2	Tributary 4 downgradient	11/10/2021
SW-2A	Erwin Hollow Creek down-stream convergence with Tributary 4	11/10/2021
SW-3A ¹	Pond 5 discharge	11/10/2021
SW-4 ²	Pond 1 discharge	11/10/2021
SW-4A ²	Pond 1 discharge to sand filter	11/10/2021
SW-5A ²	Pond 3 discharge	11/10/2021
SW-6 ²	Pond 4 discharge	11/10/2021
SW-7	Erwin Hollow Creek upstream Convergence with Tributary 4	11/10/2021
SW-7A	Erwin Hollow Creek adjacent to borrow area	11/10/2021
SW-8 ¹	Tributary 4 North Ditch convergence	11/10/2021
SW-9	East pond discharge	11/10/2021
Groundwater Suppression System		
GSS-1 ¹	Gravity pipe to Pond 1	11/10/2021
GSS-1A	Sampled from hose at riser pipe	11/10/2021
GSS-2 ¹	Gravity pipe to Tributary 4	11/10/2021
GSS-3 ¹	Gravity pipe to Tributary 4	11/10/2021
GSS-4	Gravity pipe to Tributary 4	11/10/2021
GSS-5	Gravity pipe to Tributary 4	11/10/2021
GSS-6	Discharge pipe while pumping	11/10/2021
GSS-8	Discharge pipe while pumping	11/10/2021
GSS-9	Discharge pipe while pumping	11/10/2021

¹ Dry or insufficient water volume. No sample collected.

² No flow at pond discharge location as flow is diverted to next pond. No sample collected.

Tables 2, 3 and 4 provide analytical results for the fourth quarter 2021 sampling event. Analytical results for the last five quarters are presented in Tables 5 through 7. Analytical results from the fourth quarter 2021 sampling event appear generally consistent with historic results. Some sampling locations, including upgradient monitoring wells, continue to exhibit concentrations above trigger values and/or NYSDEC Standards. These exceedances do not appear to be a result of site operations but rather a factor of ambient water quality.

Discussion of Groundwater Monitoring Results

Fourth quarter 2021 groundwater samples were scheduled to be collected and analyzed for routine parameters at 18 operational wells. Fourth quarter samples were collected between November 10 and November 11, 2021. Fourth quarter monitoring results are consistent with historic data and ambient groundwater quality. A discussion of results is provided below.

Upgradient Monitoring Wells

Upgradient monitoring well MW-H fourth quarter 2021 results are within trigger values, below Class GA Standards, and consistent with historical analytical results.

Fourth quarter 2021 upgradient monitoring well MW-QR results are consistent with previous analytical results, are within trigger values, and generally within Class GA Standards. Field Turbidity (7.66 NTU), Iron (0.75 mg/L) and Sodium (51.8 mg/L) exceed Class GA Standards.

Upgradient monitoring well MW-R(BR)R fourth quarter 2021 results show Nitrate Nitrogen at 1.9 mg/L and Total Organic Carbon (TOC) at 1.2 mg/L exceeding trigger values but remaining below Class GA Standards. Iron at 1.82 mg/L and Turbidity at 28.1 NTU remain outside the Class GA Standard and trigger values. The remaining analytical results are within trigger values and Class GA Standards.

Fourth quarter 2021 upgradient monitoring well MW-S(BR) results are comparable with previous analytical results and with the exception of Manganese at 0.607 mg/L, which exceeds Class GA Standard, remain below trigger values and Class GA Standards.

Downgradient Monitoring Wells

Downgradient monitoring well MW-CR fourth quarter 2021 results are consistent with historic analytical results, remaining below trigger values and Class GA Standards.

Fourth quarter 2021 downgradient well MW-D results are consistent with previous results and are generally within trigger values and Class GA Standards. Field Turbidity (23.6 NTU) and Iron (1.58 mg/L) exceed Class GA Standards.

Downgradient well MW-E fourth quarter analytical results are comparable to previous samplings and remain within trigger values and generally within Class GA Standards. Field Turbidity (12.1 NTU), Iron (0.54 mg/L) and Manganese (0.37 mg/L) exceed Class GA Standards.

Fourth quarter 2021 analytical results from downgradient well MW-F are consistent with historic results and are within trigger values and generally within Class GA Standards. Field pH (6.28 std. units), Field Turbidity (18.1 NTU), Iron (0.78 mg/L) and Sodium (20.3 mg/L) exceed Class GA Standards.

Downgradient well MW-GR fourth quarter analytical results are comparable to previous samplings and remain within trigger values and generally within Class GA Standards. Field Turbidity at 11.1 NTU exceeds Class GA Standard.

Fourth quarter 2021 downgradient well MW-J results are consistent with historic data and show Chloride at 137 mg/L exceeding the trigger value but remaining below Class GA Standard. Sodium at 123 mg/L exceeds both the Class GA Standard and trigger value. Additionally Field Turbidity at 7.37 NTU and Total Dissolved Solids (TDS) at 655 mg/L exceed Class GA Standards. The remaining results are within trigger values and Class GA Standards.

Downgradient monitoring well MW-N fourth quarter results are consistent with previous samplings. Alkalinity at 469 mg/L exceeds the trigger value, while remaining below the Class GA Standard. Field Turbidity (7.27 NTU), Iron (1.11 mg/L) and Sodium (33.3 mg/L) exceed Class GA Standards. The remaining results are within trigger values and Class GA Standards.

Fourth quarter monitoring well MW-O results are comparable with historic data and are generally within trigger values and Class GA Standards. Sodium at 20.5 mg/L exceeds Class GA Standard.

Downgradient well MW-O(BR) was sampled during the fourth quarter 2021 results are consistent with previous samplings. Total Organic Carbon (TOC) at 0.8 J mg/L exceeds the trigger value but remains below the Class GA Standard. Field Turbidity (11.37 NTU) and Sodium (20.4 mg/L) exceed Class GA Standards.

Fourth quarter 2021 analytical results from downgradient well MW-P, show results are consistent with historic data and generally within trigger values and Class GA Standards. Field Turbidity (18.6 NTU), Iron (0.79 mg/L), Manganese (1.72 mg/L) and Sodium (23.6 mg/L) exceed Class GA Standards.

During the fourth quarter 2021, downgradient monitoring well MW-T(BR) results remain consistent with historic data. Sampling results remain within the trigger values and with the exception of Manganese at 0.461 mg/L, are within in Class GA Standards.

Downgradient monitoring well MW-U(BR) fourth quarter results are consistent with previous samplings, remaining generally below trigger values and Class GA Standards. Manganese at 0.745 mg/L exceeds Class GA Standard.

Fourth quarter analytical results from downgradient well MW-V remain consistent with historic results. Results are within trigger values. Sodium at 82.8 mg/L and TDS at 709 mg/L exceed Class GA Standards.

Downgradient well MW-V(BR) fourth quarter analytical results are comparable to previous samplings. Ammonia Nitrogen at 0.034 J mg/L is not within the trigger value but does remain below the Class GA Standard. Manganese at 0.792 mg/L and Sodium at 23.6 mg/L exceed Class GA Standards .The remaining results are within Class GA Standards and trigger values.

Discussion of Surface Water Monitoring Results

In fourth quarter 2021, surface water locations were tested and analyzed for field parameters, air temperature and routine parameters. No flow condition was observed at one tributary surface water sampling location (SW-8) and therefore was not sampled. Five pond discharge locations (SW-3A, SW-4, SW-4A, SW-5A and SW-6) were not sampled due to a no flow condition attributed to the pond discharge being diverted to the inlet of the next pond. Therefore the locations sampled in the fourth quarter 2021 are SW-1A, SW-2, SW-2A, SW-7, SW-7A and SW-9. Locations SW-1A, SW-2, SW-2A, SW-7, SW-7A and SW-8 are stream sampling locations, while SW-3A, SW-4, SW-4A, SW-5A, SW-6 and SW-9 are pond discharge locations (please see Figure 1).

Surface water discharge locations were monitored for visual contrast between the discharge water and water in the stream. There was no evidence of visual contrast between the discharge water and the stream. Fourth quarter 2021 surface water results are within Class C Surface Water Standards. Fourth quarter 2021 surface water analytical results are presented in Table 3; while current plus historic results are provided in Table 6.

Discussion of Groundwater Suppression System Monitoring Results

As part of the fourth quarter 2021 sampling event, water samples were scheduled to be collected from groundwater suppression systems GSS-1, GSS-1A, GSS-2, GSS-3, GSS-4, GSS-5, GSS-6, GSS-8 and GSS-9 for routine parameters. The gravity drain pipes from GSS-1, GSS-2 and GSS-3 were dry and therefore not sampled. The remainders of the groundwater suppression system samples were collected as scheduled. Fourth quarter 2021 groundwater suppression system

analytical results are consistent with historic results. With the exceptions listed below, fourth quarter 2021 groundwater suppression system results are within Class GA Standards.

- GSS-1A Iron (1.36 mg/L) and Manganese (12.6 mg/L)
- GSS-4 Sodium (40.8 mg/L)
- GSS-5 Sodium (32.2 mg/L)
- GSS-6 Sodium (34.1 mg/L) and TDS (694 mg/L)
- GSS-8 Manganese (0.54 mg/L) and Sodium (47.2 mg/L)
- GSS-9 Field pH (6.25 std. units) and Sodium (25.8 mg/L)

Section 15 – Data Quality Assessment

The fourth quarter 2021 sampling event is a routine parameter list event; therefore third party data validation is not required. The laboratory performed internal validation in accordance with NELAC Standards. Laboratory quality control standards were met and no significant analyses anomalies reported. Please see the laboratory analytical reports in Appendix B for additional details.

The laboratory results were reviewed for compliance with the sampling program including laboratory sample receipt, holding times, matrix spike results and duplicate sample results. Data presented in this report should be considered technically correct and usable. A discussion of field duplicate and field equipment blank sampling is provided below.

Field Duplicate Sample

One field duplicate sample was collected in the fourth quarter 2021 from monitoring well MW-H labeled DUP1-1121. Routine parameter results from MW-H and the associated duplicate sample compare favorably indicating good sampling and analysis precision. A field duplicate sample comparison is provided in Table 8.

Field Equipment Blank Sample

One field equipment blank sample was collected to confirm proper cleaning of the bladder pump and tubing used to purge and sample monitoring wells MW-E, MW-J, MW-P, MW-S(BR) and MW-T(BR). The equipment blank sample was collected by pumping laboratory provided deionized water through the pump and tubing into laboratory provided sample containers. The fourth quarter 2021 equipment blank results are non-detect. Results are presented in Table 9.

Section 16 – Summaries of Monitoring Data

A summary of monitoring results for the most recent five quarterly monitoring events of groundwater, surface water and groundwater suppression systems are included as Tables 5, 6 and 7, respectively.

In accordance with 6 NYCRR 363-4.6(f)(10)(vii) through 6 NYCRR 363-4.6(f)(10)(ix), annual monitoring reports are to include the following.

- Historical water quality monitoring table for each parameter that has been detected. These tables are presented in Appendix C.
- A graph showing time versus concentration for each parameter that has exceeded Class GA Standard or trigger value. These time-trend graph are included in Appendix D.
- Updated groundwater contour maps. Groundwater contour maps are presented for February 8, 2021 and November 10, 2021 as Figures 2 and 3, respectively. February 8, 2021 represents the quarterly monitoring event conducted during a lower water table seasonal level, while November 10, 2021 is a higher seasonal level. Both Figures 2 and 3 illustrate very similar groundwater contours with the direction of groundwater flow towards the east-southeast. The groundwater contours and flow direction generally mimic topography with groundwater flow from higher to lower ground elevation, as expected, and the landfill operations do not appear to significantly impact groundwater elevations or flow patterns.

Quarterly monitoring was conducted as required in 2021 in accordance with the September 2019 EMP. First, third and fourth quarter 2021 sampling events were conducted for routine parameter analysis, while the second quarter 2021 event was a baseline parameter monitoring event. Please refer to Tables 5 through 7 for water quality results from the last five monitoring events. Each quarterly monitoring event is summarized separately below.

First Quarter 2021

First quarter 2021 routine sampling of groundwater, groundwater suppression system and surface water sampling was completed as required. Groundwater was sampled at Cells 1 through 9 monitoring wells. Surface water locations SW-1A, SW-4, SW-4A, SW-5A, SW-6, SW-7A SW-8 and SW-9 were not sampled either due to dry conditions or water being diverted to a downstream retention pond. Groundwater suppression system sampling locations GSS-1, GSS-2, GSS-3, SW-4 and SW-5 were not sampled due to insufficient water. First quarter results are consistent with historic results and ambient water quality.

Second Quarter 2021

Second quarter 2021 baseline sampling of groundwater, groundwater suppression system and surface water was completed as required. VOCs were not detected in second quarter baseline samples. Additionally, sampling and analysis of leachate for expanded parameters was completed. Groundwater was sampled at Cells 1 through 9 monitoring wells. Surface water sampling locations SW-4, SW-4A, SW-5A, SW-6, and SW-8 were not sampled in May 2021 due to dry conditions or water being diverted to a downstream retention pond. No sampling of GSS-1 and GSS-2 due to dry conditions. Second quarter 2021 results are consistent with historic data.

Third Quarter 2021

Third quarter 2021 routine monitoring was completed as required. Groundwater was sampled at Cells 1 through 9 monitoring wells. Surface water sampling locations SW-4, SW-4A, SW-5A, SW-6, and SW-8 were not sampled in August 2021 due to dry conditions or water being diverted to a downstream retention pond. Also GSS-1, GSS-2 and GSS-3 were dry therefore not sampled. Third quarter 2021 monitoring results are generally historically consistent.

Fourth Quarter 2021

Fourth Quarter 2021 routine parameter sampling and analysis of groundwater, surface water and groundwater suppression systems was completed as required and included sampling of Cells 1 through 9 wells. Additionally, sampling and analysis of leachate for expanded parameters was completed. Surface water sampling locations SW-3A, SW-4, SW-4A, SW-5A, SW-6 and SW-8 were not sampled in November 2021 due to either dry conditions or pond flow diverted to a downstream retention pond. Also GSS-1, GSS-2 and GSS-3 were dry and therefore not sampled. Fourth quarter 2021 monitoring results are historically consistent.

Section 17 – Surface Impoundments

This landfill does not have leachate surface impoundments.

Section 18 – Permit/Consent Order Reporting Requirements

Hakes has an Air State Facility Permit (permit # 8-4630-00010/00011) issued December 19, 2019 which has separate monitoring and reporting requirements. Compliance with air state facility permit requirements are reported separately through the Division of Air Resources.

Section 19 – Signature and Date by Owner or Operator

I hereby affirm under penalty of perjury that information provided on this form and attached statement and exhibits was prepared by me or under my supervision and direction and is true to the best of my knowledge and belief, and that I have the authority to sign this report form pursuant of 6 NYCRR Part 363. I am aware that any false statement made herein is punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.


Signature

Russell Anderson
Name

4376 Manning Ridge Road
Address

New York 14870
State and Zip

2/15/2022
Date

Manager of Compliance
Title

Campbell
City

(603) 545-7125
Phone Number

Tables

Table 1

Current and Historic Leachate Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	LCS 11/20/2019	LCS 5/13&26/2020 ¹	LCS 11/10/2020	LCS 5/12/2021	LCS 11/11/2021
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Field Parameters

Field pH (std. units)	7.19	7.17	7.74	7	7.3
ORP (mV)	-78.8	-62.7	247.8	70	-182.3
Specific Conductivity (us/cm)	6909	7783	4681	6900	4303
Temperature (deg. C)	9	10.2	16.7	13.1	13.5
Turbidity (NTU)	88	27.2	17	35.2	44.2

Inorganic Compounds

Aluminum	0.395	0.147	0.315	1.01	0.373
Antimony	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Arsenic	0.0882	0.0561	0.0212	0.0573	0.084
Barium	1.67	1.7	0.665	0.352	0.936
Beryllium	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Boron	13.4	15.2	9.39	9.99	17.7
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	258	291	189	300	419
Chromium	0.0733	0.0672	0.0358	0.0538	0.08
Chromium, hexavalent	0.1 U,*	0.1 U	0.05 U	0.1 U,*	0.2 U,*
Cobalt	0.0021 J	0.0026 J	0.0015 J	0.0029 J	0.0031 J
Copper	0.0064 J	0.0047 J	0.02 U	0.004 J	0.0231
Iron	2.51	2.12	2.08	2.2	1.94
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	229	244	131	217	278
Manganese	2.86	3.3	3.48	5.38	5.26
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.0041 J	0.04 U	0.0099 J	0.0121 J	0.0058 J
Potassium	146	153	81.9	138	187
Selenium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	873	1010	575	829	1070
Thallium	0.01 U	0.007 J	0.01 U	0.01 U	0.0171
Tin	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vanadium	0.0273 J	0.0249 J	0.0138 J	0.0215 J	0.0267 J
Zinc	0.0246	0.02 U	0.0205	0.0286	0.0475

PCB's

Aroclor-1016	0.00093 U	0.00097 U	0.00091 U	0.00091 U,*	0.001 U
Aroclor-1221	0.0019 U	0.0019 U	0.0018 U	0.0018 U,*	0.002 U
Aroclor-1232	0.00093 U	0.00097 U	0.00091 U	0.00091 U,*	0.001 U
Aroclor-1242	0.00093 U	0.00097 U	0.00091 U	0.00091 U,*	0.001 U
Aroclor-1248	0.00093 U	0.00097 U	0.00091 U	0.00091 U,*	0.001 U
Aroclor-1254	0.00093 U	0.00097 U	0.00091 U	0.00091 U,*	0.001 U
Aroclor-1260	0.00093 U	0.00097 U	0.00091 U	0.00091 U,*	0.001 U

Pesticides & Herbicides

4,4'-DDD	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
4,4'-DDE	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
4,4'-DDT	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Aldrin	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
alpha-BHC	0.000046 U	0.000049 U	0.000045 U	0.000053	0.00005 U

Table 1

Current and Historic Leachate Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	LCS 11/20/2019	LCS 5/13&26/2020 ¹	LCS 11/10/2020	LCS 5/12/2021	LCS 11/11/2021
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Pesticides & Herbicides (con't)

alpha-Chlordane	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
beta-BHC	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Chlorobenzilate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
delta-BHC	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Dieldrin	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Dinoseb	0.0005 U	0.0005 U	0.00045 U	0.00045 U	0.0005 U
Endosulfan I	0.000046 U	0.00044	0.000045 U	0.00029	0.00025
Endosulfan II	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Endosulfan sulfate	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Endrin	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Endrin aldehyde	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
gamma-BHC (Lindane)	0.000046 U	0.000049 U	0.000087 *	0.000066	0.00005 U
gamma-Chlordane	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Heptachlor	0.000046 U	0.000049 U	0.000045 U	0.000027 J	0.00005 U
Heptachlor epoxide	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Methoxychlor	0.000046 U	0.000049 U	0.000045 U	0.00005 U	0.00005 U
Methyl parathion	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Parathion	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Toxaphene	0.0005 U	0.0005 U	0.00046 U	0.0005 U	0.0005 U
2,4,5-T	0.0005 U	0.0005 U	0.00045 U	0.00045 U	0.0005 U
2,4,5-TP	0.0005 U	0.0005 U	0.00045 U	0.00045 U	0.0005 U
2,4-D	0.0005 U	0.0005 U	0.00045 U	0.00045 U	0.0005 U

Per- and Polyfluoralkyl Substances (PFAS)

8:2 Fluorotelomer sulfonic acid (FtS 8:2)	0.000081 J	0.000013	0.000014	0.0000038 J	0.000017 J
N-ethylperfluoro-1-octanesulfonamidoacetic acid	0.000012 J	0.00002	0.000027	0.0000077	0.00002 J
N-methylperfluoro-1-octanesulfonamidoacetic acid	0.000046	0.000042	0.000064	0.000016	0.000068
Perfluorobutanesulfonic Acid (PFBS)	0.00033	0.0005	0.00045	0.00013	0.00047
Perfluorobutanoic Acid (PFBA)	0.00072	0.00095 X	0.0017 X	0.00058	0.0019
Perfluorodecane Sulfonate (PFDS)	0.000031 U	0.0000044 U	0.00000071 J	0.00000033 J	0.000026 U
Perfluorodecanoic Acid (PFDA)	0.000015 J	0.000021	0.000056	0.000014	0.000033
Perfluorododecanoic Acid (PFDoA)	0.000031 U	0.0000044 U	0.0000029 J	0.00000045 U	0.000026 U
Perfluoroheptane sulfonate (PFHpS)	0.000031 U	0.0000044 U	0.000011	0.0000022 J	0.000026 U
Perfluoroheptanoic Acid (PFHpA)	0.00058	0.0008 X	0.00082	0.00027	0.00097
Perfluorohexanesulfonic Acid (PFHxS)	0.00022	0.00024	0.00027	0.000094	0.00024
Perfluorohexanoic Acid (PFHxA)	0.0016	0.003 X	0.0039 X	0.0011	0.0026
Perfluorononanoic Acid (PFNA)	0.000046	0.000037	0.000076	0.000025	0.000058
Perfluorooctanesulfonamide (PFOSA)	0.000031 U	0.0000023 J	0.0000027 J	0.0000009 J	0.000026 U
Perfluorooctanesulfonic Acid (PFOS)	0.00012	0.00011	0.00019	0.000054	0.00018
Perfluorooctanoic Acid (PFOA)	0.00094	0.0011	0.0012	0.00045	0.0016
Perfluoropentanoic Acid (PFPeA)	0.0022	0.0032 X	0.0035 X	0.0014	0.0027
Perfluorotetradecanoic acid (PFTeDA)	0.000031 U	0.0000044 U	0.00000043 U	0.00000045 U	0.000026 U
Perfluorotridecanoic acid (PFTrDA)	0.000031 U	0.0000044 U	0.00000043 U	0.00000045 U	0.000026 U
Perfluoroundecanoic Acid (PFUNA)	0.000031 U	0.0000024 J	0.0000061	0.0000017 J	0.0000056 J

Radionuclide Act + Unc (MDC) pCi/L

Radium-226, Dissolved (EPA 903.1)	1.83 ± 0.79 (0.58)	0.88 ± 0.52 (0.41)	0.75 ± 0.43 (0.5)	0.45 ± 0.27 (0.29)	0.65 ± 0.39 (0.46)
Radium-226, Total (EPA 903.1)	0.62 ± 0.56 (0.81)	0.92 ± 0.52 (0.5)	1.02 ± 0.48 (0.49)	0.45 ± 0.26 (0.23)	0.37 ± 0.23 (0.23)
Radium-228, Dissolved (EPA 904.0)	2.16 ± 0.97 (1.62)	1.28 ± 0.82 (1.56)	0.81 ± 0.43 (0.76)	0.75 ± 0.46 (0.86)	2.08 ± 0.68 (0.86)
Radium-228, Total (EPA 904.0)	2.38 ± 0.96 (1.49)	1.19 ± 0.84 (1.65)	1.54 ± 0.55 (0.77)	0.31 ± 0.47 (1.01)	1.58 ± 0.58 (0.84)
Total Uranium, Dissolved (EPA 908.0)	0.41 ± 0.15 (0.11)	0.76 ± 0.22 (0.15)	0.71 ± 0.19 (0.07)	1.05 ± 0.25 (0.12)	0.78 ± 0.2 (0.1)
Total Uranium, Total (EPA 908.0)	0.51 ± 0.18 (0.13)	0.65 ± 0.14 (0.07)	0.68 ± 0.19 (0.11)	1.12 ± 0.25 (0.09)	0.51 ± 0.16 (0.1)

Table 1

Current and Historic Leachate Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	LCS 11/20/2019	LCS 5/13&26/2020 ¹	LCS 11/10/2020	LCS 5/12/2021	LCS 11/11/2021
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Semi Volatile Organic Compounds

1,2,4,5-Tetrachlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
1,3,5-Trinitrobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
1,3-Dinitrobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
1,4-Dioxane	0.12 *	0.17	0.11	0.045 *	0.053 *
1,4-Naphthoquinone	0.048 U	0.045 U	0.045 U	0.045 U	0.05 U
1,4-Phenylenediamine	0.048 UX	0.045 UX	0.045 U	0.045 UX	0.05 UX
1-Naphthylamine	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
2,3,4,6-Tetrachlorophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,4,5-Trichlorophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,4,6-Trichlorophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,4-Dichlorophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,4-Dimethylphenol	0.015	0.0093	0.0017 J	0.0016 J	0.003 J
2,4-Dinitrophenol	0.048 U	0.047 U	0.045 U	0.045 U	0.05 U
2,4-Dinitrotoluene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,6-Dichlorophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,6-Dinitrotoluene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2-Acetylamino fluorene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2-Chloronaphthalene	0.0013 J	0.0091 U	0.0091 U	0.0091 U	0.01 U
2-Chlorophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2-Methyl-5-nitroaniline	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2-Methylnaphthalene	0.009 J	0.012	0.0091 U	0.0091 U	0.0092 J
2-Methylphenol	0.0079 J	0.0065 J	0.0091 U	0.0091 U	0.0025 J
2-Naphthylamine	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
2-Nitroaniline	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
2-Nitrophenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
3,3-Dichlorobenzidine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
3,3-Dimethylbenzidine	0.048 U	0.045 U	0.045 U	0.045 U	0.05 U
3/4-Methylphenol	0.096 D	0.034	0.0091 U	0.0015 J	0.053
3-Methylcholanthrene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
3-Nitroaniline	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
4,6-Dinitro-2-methylphenol	0.048 U	0.045 U	0.045 U	0.045 U	0.05 U
4-Aminobiphenyl	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
4-Bromophenyl-phenylether	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
4-Chloro-3-methylphenol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
4-Chloroaniline	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
4-Chlorophenyl-phenylether	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
4-Dimethylaminoazobenzene					0.01 U
4-Nitroaniline	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
4-Nitrophenol	0.048 U	0.045 U	0.045 U	0.045 U	0.05 U
7,12-Dimethylbenz(a)anthracene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Acenaphthene	0.0089 J	0.011	0.0091 U	0.0016 J	0.01
Acenaphthylene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Acetophenone	0.012	0.01	0.006 J	0.0023 J	0.0034 J
Anthracene	0.0095 U	0.0013 J	0.0091 U	0.0091 U	0.0016 J
Benzo(a)anthracene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Benzo(a)pyrene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Benzo(b)fluoranthene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Benzo(g,h,i)perylene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Benzo(k)fluoranthene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Benzyl alcohol	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.0018 J
Bis(1-chloroisopropyl) Ether	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U

Table 1

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Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	LCS 11/20/2019	LCS 5/13&26/2020 ¹	LCS 11/10/2020	LCS 5/12/2021	LCS 11/11/2021
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Semi Volatile Organic Compounds (con't)

bis(2-Chloroethoxy) methane	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
bis(2-Chloroethyl) ether	0.0052 J	0.0091 U	0.0091 U	0.0091 U	0.01 U
bis(2-Ethylhexyl) phthalate	0.0097 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Butylbenzylphthalate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Chrysene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Diallate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Dibenzo(a,h)anthracene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Dibenzofuran	0.0037 J	0.0047 J	0.0091 U	0.0091 U	0.0053 J
Diethylphthalate	0.0013 J	0.0091 U	0.0013 J	0.0091 U	0.01 U
Dimethoate	0.048 U	0.045 U	0.0091 U	0.0091 U	0.01 U
Dimethylphthalate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Di-n-butylphthalate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Di-n-octylphthalate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Diphenylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Disulfoton	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Ethyl methanesulfonate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Famphur	0.00093 U	0.00097 U	0.0091 U	0.0091 U	0.01 U
Fluoranthene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Fluorene	0.0023 J	0.0031 J	0.0091 U	0.0091 U	0.004 J
Hexachlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Hexachlorocyclopentadiene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Hexachloroethane	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Hexachloropropene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Indeno(1,2,3-cd)pyrene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Isodrin	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Isophorone	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Isosafrole	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Kepone	0.0046 U	0.0049 U	0.0091 U	0.0091 U	0.01 U
Methapyrilene	0.048 U	0.045 U	0.045 U	0.045 U	0.05 U
Methyl methanesulfonate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Nitrobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosodibutylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosodiethylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosodimethylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosodi-n-propylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosodiphenylamine/Diphenylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosomethylethylamine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosopiperidine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
N-Nitrosopyrrolidine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
o,o,o-Triethyl phosphorothioate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
o-Toluidine	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
p-(Dimethylamino)azobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	
Pentachlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Pentachloronitrobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Pentachlorophenol	0.048 U	0.045 U	0.045 U	0.045 U	0.05 U
Phenacetin	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Phenanthrene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.0017 J
Phorate	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Pronamide	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Pyrene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Safrole	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Thionazin	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U

Table 1

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(mg/L except where noted)

Parameter	LCS 11/20/2019	LCS 5/13&26/2020 ¹	LCS 11/10/2020	LCS 5/12/2021	LCS 11/11/2021
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Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,1,1-Trichloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,1,2,2-Tetrachloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,1,2-Trichloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,1-Dichloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,1-Dichloroethene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,1-Dichloropropene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,2,3-Trichloropropane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,2-Dibromo-3-chloropropane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,2-Dibromoethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,2-Dichlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
1,2-Dichloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,2-Dichloropropane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,3-Dichlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
1,3-Dichloropropane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,4-Dichlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
2,2-Dichloropropane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
2-Butanone (MEK)	1.3	0.66	0.068 J	0.08 J	0.13 J
2-Chloro-1,3-butadiene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
2-Hexanone	0.019 J	0.25 U	0.2 U	0.25 U	0.25 U
4-Methyl-2-pentanone	0.12	0.054 J	0.018 J	0.0061 J	0.015 J
Acetone	3 D	1.7	0.3	0.27	0.26
Acetonitrile	1 U	2.5 U	2 U	2.5 U	2.5 U
Acrolein	1 U	2.5 U	2 U	2.5 U	2.5 U
Acrylonitrile	1 U	2.5 U	2 U	2.5 U	2.5 U
Allyl chloride	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Benzene	0.0069 J	0.0051 J	0.1 U	0.13 U	0.13 U
Bromochloromethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Bromodichloromethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Bromoform	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Bromomethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Carbon disulfide	0.0027 J	0.25 U	0.2 U	0.25 U	0.044 J
Carbon tetrachloride	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Chlorobenzene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Chloroethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Chloroform	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Chloromethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
cis-1,2-Dichloroethene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
cis-1,3-Dichloropropene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Dibromochloromethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Dibromomethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Dichlorodifluoromethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Dichloromethane (Methylene chloride)	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Ethyl benzene	0.0037 J	0.13 U	0.1 U	0.13 U	0.13 U
Ethyl methacrylate	0.1 U	0.25 U	0.2 U	0.25 U	0.25 U
Iodomethane	0.1 U	0.25 U	0.2 U	0.25 U	0.25 U
Isobutyl alcohol	1 U	2.5 U	2 U	2.5 U	2.5 U
m&p-Xylene	0.0074 J	0.0066 J	0.1 U	0.13 U	0.0054 J
Methacrylonitrile	0.2 U	0.5 U	0.4 U	0.5 U	0.5 U
Methyl methacrylate	0.1 U	0.25 U	0.2 U	0.25 U	0.25 U
o-Xylene	0.0043 J	0.13 U	0.1 U	0.13 U	0.13 U

Table 1

**Current and Historic Leachate Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)**

Parameter	LCS 11/20/2019	LCS 5/13&26/2020 ¹	LCS 11/10/2020	LCS 5/12/2021	LCS 11/11/2021
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Volatile Organic Compounds (con't)

Phenol	0.072	0.02	0.0091 U	0.0091 U	0.0077 J
Propionitrile	1 U	2.5 U	2 U	2.5 U	2.5 U
Styrene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Tetrachloroethene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Toluene	0.008 J	0.0069 J	0.1 U	0.13 U	0.13 U
trans-1,2-Dichloroethene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
trans-1,3-Dichloropropene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
trans-1,4-Dichloro-2-butene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Trichloroethene	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Trichlorofluoromethane	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
Vinyl acetate	0.1 U	0.25 U	0.2 U	0.25 U	0.25 U
Vinyl chloride	0.05 U	0.13 U	0.1 U	0.13 U	0.13 U
1,2,4-Trichlorobenzene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Hexachlorobutadiene	0.0095 U	0.0091 U	0.0091 U	0.0091 U	0.01 U
Naphthalene	0.053	0.066	0.0091 U	0.0091 U	0.028

General Chemistry

Alkalinity	1840	1830	1190	1380	2260
Ammonia Nitrogen	287	171	84.8	118	253
Biochemical Oxygen Demand	96.6	59.7	21.1	68.7	110
Bromide	6.4	5.4	4.9	6.2	7.3
Chemical Oxygen Demand	982	948	575	696	1210
Chloride	1620	1910	878	1570	1830
Color (True) (C.U.)	250	400	700	1000	600
Cyanide	0.145	0.083	0.022	0.011	0.299
Hardness	1590	1730	1010	1640	2190
Nitrate Nitrogen	1 U	4 U	1 U	1 U	1 U
pH of Color Analysis	7.71 *	7.69 *	7.76 *	7.84 *	7.19
Sulfate	223	582	251	853	646
Total Dissolved Solids	4660	5200	2830	4730	6050
Total Kjeldahl Nitrogen	88.4	172	109	139	216
Total Organic Carbon (TOC)	280	292	202	204	443
Total Phenolics	0.426	0.116	0.0082	0.046	0.075

Notes:

U - Concentration not detected at specified detection limit

J - Estimated value

X/UX - Refer to laboratory analytical report for details

* - Analysis was performed out of hold time.

¹ - Due to sample analysis error, results presented for radionuclide samples collected 5/26/2020

Fourth Quarter 2021 Groundwater Analytical Results
 Hakes C and D Landfill
 Campbell, New York
 (mg/L except where noted)

Parameter	Upgradient Wells				Downgradient Wells														Class GA Standard
	MW-H 11/11/2021	MW-QR 11/11/2021	MW-R(BR) 11/11/2021	MW-S(BR) 11/11/2021	MW-CR 11/11/2021	MW-D 11/11/2021	MW-E 11/11/2021	MW-F 11/11/2021	MW-GR 11/11/2021	MW-J 11/11/2021	MW-N 11/11/2021	MW-O 11/10/2021	MW-O(BR) 11/11/2021	MW-P 11/11/2021	MW-T(BR) 11/11/2021	MW-U(BR) 11/11/2021	MW-V 11/10/2021	MW-V(BR) 11/11/2021	

Field Parameters

Depth to Groundwater (ft.)	4.77	5.57	15.27	3.4	10.6	25.32	17.58	25	35.47	15.19	19.02	16.19	52.38	18.63	4.3	12.59	15.08	26.24	
Dissolved Oxygen	3.12		0.82	1.53	3.58		1.66	2.98		1.61		4.07		1.98	0.57	0.36	0.65	0.51	
Field pH (std. units)	6.72	6.97	6.94	7.52	7.08	7.41	6.54	6.28	6.92	6.75	7.02	8.03	8.38	7.24	7.59	7.66	7.54	7.59	6.5 - 8.5
ORP (mV)	115.4	72.5	131.3	-8	92.4	116.9	195.7	159.8	118.8	134	-27.9	113.8	95.5	184.3	164.9	152.8	117.2	-77.8	
Specific Conductivity (us/cm)	472.9	180.7	241.7	353.4	535.8	249.7	726	729	594.1	1098	757	284.7	181.5	499.5	343.4	272.3	895	478.3	
Temperature (deg. C)	10.9	13.3	8.7	10.6	12.6	12.6	12.6	12.8	13.1	11.7	13.3	12.9	11.7	11.4	12.1	9.5	12.2	11.5	
Turbidity (NTU)	3.24	7.66	28.1	0.77	2.22	23.6	12.1	18.1	11.1	7.37	7.27	0.86	11.3	18.6	1.81	1.12	4.71	3.86	5

Inorganicx Compounds

Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.025
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005
Calcium	53.3	12.9	39.6	48.1	98.3	83.8	107	133	108	95.4	125	33.1	28.7	65.3	49.5	39.2	77.9	73.2		
Iron	0.1 J	0.75	1.82	0.1 U	0.1 U	1.58	0.54	0.78	0.1 U	0.25	1.11	0.1 U	0.08 J	0.79	0.21	0.1 U	0.1 U	0.22	0.3	
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025	
Magnesium	22.3	4.8	6.3	12.4	29.1	19.6	30.7	33.9	19.1	24.1	27.2	13.2	10.3	18.3	11.3	9.2	45.8	22.7		
Manganese	0.072	0.076	0.09	0.607	0.01 J	0.05	0.37	0.075	0.01 U	0.132	2.75	0.063	0.007 J	1.72	0.461	0.745	0.245	0.792	0.3	
Potassium	0.8 J	1.4 J	2.4	1.6 J	2.8	2.4	1.4 J	3.2	1.2 J	3	6.1	4.7	4	2.1	1.6 J	1.5 J	45.9	2.3		
Sodium	33.8	51.8	3.7	11.3	14.5	12.2	16.6	20.3	10.3	123	33.3	20.5	20.4	23.6	11.7	10.4	82.8	23.6	20	

General Chemistry

Alkalinity	118	40.8	106	166	353	270	370	419	339	355	469	168	159	233	175	150	447	253	
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.032 J	0.132	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.034 J	2
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Chemical Oxygen Demand	5 U	4.3 J	5 U	5 U	5 U	5 U	4.6 J	5 U	5 U	5 U	5.3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloride	15.4	73.4	1.8 J	0.6 J	13.6	11.7	7.7	18.5	8.3	137	2.2	1.7 J	1.5 J	7	1.1 J	0.9 J	1.5 J	0.8 J	250
Hardness	225	51.9	125	171	365	290	395	470	348	337	423	137	114	238	170	136	383	276	
Nitrate Nitrogen	0.4 J	1 U	1.9	1 U	1 U	0.4 J	1 U	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10
Sulfate	148	17.6	11.9	37.3	27.1	17.9	64.9	70.9	25.7	55.5	28.4	18.9	16.9	49.6	25.4	14.7	179	87.5	250
Total Dissolved Solids	373	194	142	214	391	300	466	526	378	655	498	195	175	314	209	165	709	361	500
Total Kjeldahl Nitrogen	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.54	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
Total Organic Carbon (TOC)	0.6 J	1.7	1.2	1 U	1 J	1 U	2	3.2	1 J	1.5	2.2	1 U	0.8 J	1 U	1 U	1 U	1.1	1 U	
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001

Notes:

Class GA Standard - NYSDEC Class GA Groundwater Standard
 Concentrations in **bold** exceed Class GA Standards

U - Concentration not detected at specified detection limit
 J - Estimated value

Table 3

**Fourth Quarter 2021 Surface Water Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)**

Parameter	SW-1A 11/10/2021	SW-2 11/10/2021	SW-2A 11/10/2021	SW-7 11/10/2021	SW-7A 11/10/2021	SW-9 11/10/2021	Class C Standard
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Field Parameters

Dissolved Oxygen	10.94	11.23	12.9	10.75	11.82		Not < 5
Field pH (std. units)	7.25	7.08	6.67	6.51	6.8	7.62	6.5 - 8.5
ORP (mV)	160.3	202.7	232	223.9	226.2	172.2	
Specific Conductivity (us/cm)	59.7	83	72.8	56.9	59.6	170.4	
Temperature (deg. C)	8.2	8.9	8.1	7.6	8	8.8	
Turbidity (NTU)	2.5	7.46	7.44	1.79	2.34	82.1	

Inorganic Compounds

Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Calcium	5.1	8.9	8.2	6.2	6.6	24	
Iron	0.16	0.19	0.17	0.1 J	0.09 J	3.41	
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.008
Magnesium	1.6	2.3	2.1	1.6	1.6	5.4	
Manganese	0.005 J	0.009 J	0.006 J	0.01 U	0.01 U	0.056	
Potassium	0.6 J	0.9 J	0.8 J	0.7 J	0.7 J	3.6	
Sodium	4.7	3.9	3.4	3	3.2	2.1	

General Chemistry

Alkalinity	15.8	23.8	22.8	18.2	20	48.3	
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.038 J	2
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	
Chemical Oxygen Demand	11.7	8.5	7.9	8.2	8.9	13	
Chloride	5.9	4.9	3.5	3.2	3.2	1.1 J	
Hardness	19.5	31.9	29	22	23.2	82	
Nitrate Nitrogen	1 U	1 U	1 U	1 U	1 U	1 U	
Sulfate	3.8	9.2	7.8	4.7	4.2	31.5	
Total Dissolved Solids	49	61	53	44	49	136	500
Total Kjeldahl Nitrogen	0.25	0.23	0.2	0.24	0.21	0.6	
Total Organic Carbon (TOC)	5.1	3.7	3.3	3.2	3.7	4.1	
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Total Suspended Solids	1.1	1.4	1.7	1.1	1.3	7.8	

Notes:

Class C Standard - NYSDEC Class C Surface Water Standard

Concentrations are within Class C Standards

U - Concentration not detected at specified detection limit

J - Estimated value

Table 4

Fourth Quarter 2021 Groundwater Suppression System Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	GSS-1A 11/10/2021	GSS-4 11/10/2021	GSS-5 11/10/2021	GSS-6 11/10/2021	GSS-8 11/10/2021	GSS-9 11/10/2021	Class GA Text ppm
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Field Parameters

Field pH (std. units)	6.61	7.78	8.29	6.95	6.76	6.25	6.5 - 8.5
ORP (mV)	111.6	84.2	88.4	107.6	133.6	179.4	
Specific Conductivity (us/cm)	553.7	492.8	606.8	1011	708	447.2	
Temperature (deg. C)	13.4	17.5	13.7	19.6	17.5	12.9	
Turbidity (NTU)	4.08	1.02	0.35	3.56	0.86	0.69	5

Inorganic Compounds

Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.025
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005
Calcium	90.1	38.2	61.4	145	83	52	
Iron	1.36	0.1 U	0.1 U	0.24	0.1 U	0.1 U	0.3
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025
Magnesium	17.7	12.9	19.2	40.2	17.9	11.8	
Manganese	12.6	0.01 U	0.009 J	0.01	0.54	0.056	0.3
Potassium	2.2	3	3.1	4.2	2.1	2 J	
Sodium	5.2	40.8	32.2	34.1	47.2	25.8	20

General Chemistry

Alkalinity	289	59	138	393	219	148	
Ammonia Nitrogen	0.236	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	
Chemical Oxygen Demand	34.2	4.6 J	5 U	5 U	7.2	5 U	
Chloride	2	105	89.5	70.4	84.7	47.1	250
Hardness	298	148	232	528	281	179	
Nitrate Nitrogen	1 U	0.3 J	0.2 J	1 U	0.3 J	1 U	10
Sulfate	43.4	26.7	43.1	122	44.8	26.3	250
Total Dissolved Solids	374	264	328	694	427	267	500
Total Kjeldahl Nitrogen	1.04	0.2 U	0.2 U	0.2 U	0.18 J	0.2 U	
Total Organic Carbon (TOC)	16.4	1 J	1	1.4	3.1	1	
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001

Notes:

Class GA Standard - NYSDEC Class GA Groundwater Standards

Concentrations in **bold** exceed Class GA Standards

U - Concentration not detected at specified detection limit

J - Estimated value

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Upgradient Wells																			
	MW-H 11/9/2020	MW-H 2/8/2021	MW-H 5/6/2021	MW-H 8/27/2021	MW-H 11/11/2021	MW-QR 11/10/2020	MW-QR 2/8- 9/2021	MW-QR 5/5- 6/2021	MW-QR 8/27/2021	MW-QR 11/11/2021	MW-R(BR) 12/15/2020	MW-R(BR) 2/11/2021	MW-R(BR) 5/11/2021	MW-R(BR) 8/25/2021	MW-R(BR) 11/11/2021	MW-S(BR) 12/15/2020	MW-S(BR) 2/11/2021	MW-S(BR) 5/11/2021	MW-S(BR) 8/24/2021	MW-S(BR) 11/11/2021

Field Parameters

Depth to Groundwater (ft)	6.3	6.44	3.51	3.98	4.77	10.35	7.85	2.73	4.05	5.57	15.7	16.97	13.21	13.32	15.27	4.74	4.43	3.53	3.06	3.4
Dissolved Oxygen	4.19	2.95	2.54	5.12	3.12						2.19	5.67	5.93	1.33	0.82	0.19	6.7	0.2	0.34	1.53
Field pH (std. units)	6.64	6.67	6.5	6.46	6.72	5.62	5.61	5.49	5.9	6.97	6.62	6.7	5.64	5.94	6.94	7.77	7.58	7.64	7.69	7.52
ORP (mV)	226.7	129.5	172.2	-192.6	115.4	277	212	251.7	115.2	72.5	211.8	151.9	264.2	105.8	131.3	-49	36.8	-7.5	-54.4	-8
Specific Conductivity (us/cm)	578.3	661.9	549.7	515.6	472.9	632	699.5	847	408.3	180.7	201.3	186	84.4	146.7	241.7	340	8.1	334.6	346.2	353.4
Temperature (deg. C)	15.4	6.3	9.2	18.1	10.9	13.7	5.2	12.8	21	13.3	9.1	9.5	8.8	17.2	8.7	7.4	8.1	7.3	16.6	10.6
Turbidity (NTU)	1.16	1.83	0.92	2.13	3.24	3.7	2.2	1.07	1.02	7.66	35	31.8	25.6	15.6	28.1	3.41	0.39	0.48	0.71	0.77

Inorganic Compounds

Aluminum			0.1 U					0.0567 J					1.74					0.1 U		
Antimony			0.06 U					0.06 U					0.06 U					0.0048 J		
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium			0.0139 J					0.0718					0.0221					0.0858		
Beryllium			0.003 U					0.003 U					0.003 U					0.003 U		
Boron			0.2 U					0.2 U					0.019 J					0.0452 J		
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	61.9	68.8	53.7	48.8	53.3	32.2	42.2	44	13.7	12.9	15.3	28.2	8.35	13	39.6	49.4	50.2	47.6	47.5	48.1
Chromium			0.01 U					0.01 U					0.0031 J					0.01 U		
Chromium, hexavalent			0.01 U					0.01 UJ					0.01 U					0.01 UJ		
Cobalt			0.05 U					0.0034 J					0.0015 J					0.05 U		
Copper			0.0058 J					0.02 U					0.02 U					0.02 U		
Iron	0.1 U	0.11	0.1 U	0.1 U	0.1 J	0.14	0.09 J	0.0635 J	0.1 U	0.75	2.17	2.37	1.44	1.13	1.82	0.12	0.1 U	0.1 U	0.1 U	0.1 U
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	26.7	29.7	23.4	21.2	22.3	14.7	18	16.9	4.9	4.8	3.9	5.1	3.01	3.3	6.3	12.7	13.1	12.6	12.4	12.4
Manganese	0.008 J	0.014	0.01 U	0.008 J	0.072	1.62	0.621	0.132	0.032	0.076	0.088	0.132	0.0461	0.05	0.09	0.548	0.498	0.587	0.589	0.607
Mercury			0.0002 U					0.0002 U					0.0002 U					0.0002 U		
Nickel			0.04 U					0.0069 J					0.04 U					0.04 U		
Potassium	0.8 J	0.8 J	0.604 J	0.7 J	0.8 J	4	2.5	2.14	1.5 J	1.4 J	2.1	2.5	1.28 J	1.5 J	2.4	1.7 J	1.8 J	1.56 J	1.7 J	1.6 J
Selenium			0.01 U					0.01 U					0.01 U					0.01 U		
Silver			0.01 U					0.01 U					0.01 U					0.01 U		
Sodium	31	35.6	32.8	32.1	33.8	68	80.9	103	58.3	51.8	4	4	3.13	3.7	3.7	11.9	11.7	10.8	11	11.3
Thallium			0.01 U					0.01 U					0.01 U					0.01 U		
Vanadium			0.05 U					0.05 U					0.0025 J					0.05 U		
Zinc			0.02 U					0.0214					0.02 U					0.02 U		

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,1-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2,3-Trichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromo-3-chloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromoethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,4-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
2-Butanone (MEK)			0.01 U					0.01 U					0.01 U					0.01 U		
2-Hexanone			0.01 U					0.01 U					0.01 U					0.01 U		

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Upgradient Wells																			
	MW-H 11/9/2020	MW-H 2/8/2021	MW-H 5/6/2021	MW-H 8/27/2021	MW-H 11/11/2021	MW-QR 11/10/2020	MW-QR 2/8- 9/2021	MW-QR 5/5- 6/2021	MW-QR 8/27/2021	MW-QR 11/11/2021	MW-R(BR) 12/15/2020	MW-R(BR) 2/11/2021	MW-R(BR) 5/11/2021	MW-R(BR) 8/25/2021	MW-R(BR) 11/11/2021	MW-S(BR) 12/15/2020	MW-S(BR) 2/11/2021	MW-S(BR) 5/11/2021	MW-S(BR) 8/24/2021	MW-S(BR) 11/11/2021
Volatile Organic Compounds (con't)																				
4-Methyl-2-pentanone			0.01 U					0.01 U					0.01 U						0.01 U	
Acetone			0.01 U					0.01 U					0.01 U						0.01 U	
Acrylonitrile			0.1 U					0.1 U					0.1 U						0.1 U	
Benzene			0.005 U					0.005 U					0.005 U						0.005 U	
Bromochloromethane			0.005 U					0.005 U					0.005 U						0.005 U	
Bromodichloromethane			0.005 U					0.005 U					0.005 U						0.005 U	
Bromoform			0.005 U					0.005 U					0.005 U						0.005 U	
Bromomethane			0.005 U					0.005 U					0.005 UJ						0.005 UJ	
Carbon disulfide			0.01 U					0.01 U					0.01 U						0.01 U	
Carbon tetrachloride			0.005 U					0.005 U					0.005 U						0.005 U	
Chlorobenzene			0.005 U					0.005 U					0.005 U						0.005 U	
Chloroethane			0.005 U					0.005 U					0.005 U						0.005 U	
Chloroform			0.005 U					0.005 U					0.005 U						0.005 U	
Chloromethane			0.005 U					0.005 U					0.005 U						0.005 U	
cis-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U						0.005 U	
cis-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U						0.005 U	
Dibromochloromethane			0.005 U					0.005 U					0.005 U						0.005 U	
Dibromomethane			0.005 U					0.005 U					0.005 U						0.005 U	
Dichloromethane (Methylene chloride)			0.005 U					0.005 U					0.005 U						0.005 U	
Ethyl benzene			0.005 U					0.005 U					0.005 U						0.005 U	
Iodomethane			0.01 U					0.01 U					0.01 U						0.01 U	
m&p-Xylene			0.005 U					0.005 U					0.005 U						0.005 U	
o-Xylene			0.005 U					0.005 U					0.005 U						0.005 U	
Styrene			0.005 U					0.005 U					0.005 U						0.005 U	
Tetrachloroethene			0.005 U					0.005 U					0.005 U						0.005 U	
Toluene			0.005 U					0.005 U					0.005 U						0.005 U	
trans-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U						0.005 U	
trans-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U						0.005 U	
trans-1,4-Dichloro-2-butene			0.005 U					0.005 U					0.005 U						0.005 U	
Trichloroethene			0.005 U					0.005 U					0.005 U						0.005 U	
Trichlorofluoromethane			0.005 U					0.005 U					0.005 U						0.005 U	
Vinyl acetate			0.01 U					0.01 U					0.01 U						0.01 U	
Vinyl chloride			0.005 U					0.005 U					0.005 U						0.005 U	

General Chemistry																				
	111	118	115	112	118	14.8	20	13	39.4	40.8	30	63.2	15.1	30.3	106	150	167	162	159	166
Alkalinity	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Ammonia Nitrogen	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Biochemical Oxygen Demand	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromide	5 U	4 J	5 U	5 U	5 U	7.5	5 U	5.9	5.9	4.3 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chemical Oxygen Demand	9.9	63.1	32.7	18	15.4	115	195	256	93	73.4	3.1	3.1	2 U	2.1	1.8 J	0.9 J	1.2 J	2 U	0.7 J	0.6 J
Chloride			10					11					7					6		
Color (True) (C.U.)			0.005 U					0.005 U					0.01 U					0.01 U		
Cyanide	265	294	230	209	225	141	180	179	54.1	51.9	54.3	91.3	33.2	45.9	125	176	179	170	170	171
Hardness	0.6 J	0.6 J	0.8 J	0.6 J	0.4 J	0.4 J	0.3 J	0.3 UJ	0.2 J	1 U	3.5	3	1 U	2.4	1.9	1 U	1 U	1 U	1 U	1 U
Nitrate Nitrogen			6.75					5.91					6.19					7.68		
pH of Color Analysis	235	165	137	145	148	113	55.5	49.9	18.4	17.6	14	16.6	16	9.7	11.9	38.7	39.2	38.8	38.8	37.3
Sulfate	385	452	373	372	373	397	409	492	232	194	89	112	167	80	142	217	223	226	217	214
Total Dissolved Solids	0.2 U	0.24	0.2 U	0.2 U	0.2 U	0.46	0.36	0.16 J	0.18 J	0.2 U	0.29	0.2 U	0.31	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total Kjeldahl Nitrogen	0.5 J	0.7 J	0.8 J	0.7 J	0.6 J	3	1.9	2.2	2.6	1.7	1.5	0.8 J	1.5	1.9	1.2	1 U	1 U	0.6 J	1 U	1 U
Total Organic Carbon (TOC)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Phenolics																				

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells																			
	MW-CR 11/9/2020	MW-CR 2/8/2021	MW-CR 5/6/2021	MW-CR 8/26/2021	MW-CR 11/11/2021	MW-D 11/10/2020	MW-D 2/9/2021	MW-D 5/5-6/2021	MW-D 8/27/2021	MW-D 11/11/2021	MW-E 11/9/2020	MW-E 2/10/2021	MW-E 5/6/2021	MW-E 8/26/2021	MW-E 11/11/2021	MW-F 11/10/2020	MW-F 2/11/2021	MW-F 5/11/2021	MW-F 8/25/2021	MW-F 11/11/2021

Field Parameters

Depth to Groundwater (ft)	13.75	12.12	10.82	10.12	10.6	28.76	29.12	28.42	25.73	25.32	22.22	19	17.52	16.62	17.58	26.82	26.29	22.48	23.34	25
Dissolved Oxygen	2.45	5.43	4.85	2.08	3.58						1.91	2.08	2.33	0.9	1.66	4.38		1.67	0.7	2.98
Field pH (std. units)	7.01	7.22	7.07	6.96	7.08	7.31	7.2	7.01	6.99	7.41	6.76	6.82	6.72	6.65	6.54	6.21	6.4	6.3	6.24	6.28
ORP (mV)	132.4	154.6	127	98.4	92.4	293.3	35.1	206.3	124.6	116.9	155.6	160.5	150.3	88	195.7	299.9	150.7	196	106.1	159.8
Specific Conductivity (us/cm)	686	595.1	612.3	644	535.8	499.8	489	497	508.4	249.7	706	715.5	691	727	726	580.7	707	919	942	729
Temperature (deg. C)	18.5	5.9	12	19	12.6	13.3	10.5	11.3	13.3	12.6	18.3	6.9	12.4	17.2	12.6	16.1	10.8	9.7	22.2	12.8
Turbidity (NTU)	12.6	2.47	3.92	3.38	2.22	2.31	6.61	4.91	2.59	23.6	7.5	7.08	3.84	8.08	12.1	7.04	2.94	7.42	9.76	18.1

Inorganic Compounds

Aluminum			0.1 U					0.454					0.0265 J					0.256		
Antimony			0.06 U					0.06 U					0.06 U					0.06 U		
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium			0.0592					0.102					0.085					0.179		
Beryllium			0.003 U					0.003 U					0.003 U					0.003 U		
Boron			0.0147 J					0.2 U					0.2 U					0.0261 J		
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	104	92.7	94.3	95.2	98.3	79.1	80.4	78.5	77.6	83.8	111	119	110	114	107	82.2	114	147	149	133
Chromium			0.01 U					0.0008 J					0.0006 J					0.0019 J		
Chromium, hexavalent			0.01 U					0.01 UJ					0.01 U					0.01 UJ		
Cobalt			0.05 U					0.05 U					0.05 U					0.05 U		
Copper			0.02 U					0.02 U					0.02 U					0.02 U		
Iron	0.95	0.1	0.1 U	0.1 U	0.1 U	0.09 J	0.58	0.505	0.1 U	1.58	0.21	0.15	0.1 U	0.26	0.54	0.22	0.08 J	0.324	0.3	0.78
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	31.3	27.9	28.5	29	29.1	17.2	17.8	17.7	17.8	19.6	29.5	31	29.1	29.6	30.7	22	30.8	36.7	35.4	33.9
Manganese	0.025	0.019	0.0176	0.016	0.01 J	0.01 U	0.014	0.0128	0.01 U	0.05	0.076	0.495	0.0495	0.32	0.37	0.069	0.007 J	0.0327	0.051	0.075
Mercury			0.0002 U					0.0002 U					0.0002 U					0.0002 U		
Nickel			0.04 U					0.04 U					0.04 U					0.04 U		
Potassium	3.2	2.7	2.69	3.3	2.8	1.9 J	2 J	1.95 J	1.8 J	2.4	1.3 J	1.2 J	1.05 J	1.2 J	1.4 J	1.7 J	2.2	2.61	2.9	3.2
Selenium			0.01 U					0.01 U					0.01 U					0.01 U		
Silver			0.01 U					0.01 U					0.01 U					0.01 U		
Sodium	14.6	14.1	14.4	15.2	14.5	12.1	11.5	11	10.7	12.2	13.7	14.7	13.6	15.5	16.6	15.6	19.1	19	18.7	20.3
Thallium			0.01 U					0.01 U					0.01 U					0.01 U		
Vanadium			0.05 U					0.05 U					0.05 U					0.05 U		
Zinc			0.02 U					0.02 U					0.02 U					0.02 U		

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,1-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2,3-Trichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromo-3-chloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromoethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,4-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
2-Butanone (MEK)			0.01 U					0.01 U					0.01 U					0.01 U		
2-Hexanone			0.01 U					0.01 U					0.01 U					0.01 U		

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells																				
	MW-CR 11/9/2020	MW-CR 2/8/2021	MW-CR 5/6/2021	MW-CR 8/26/2021	MW-CR 11/11/2021	MW-D 11/10/2020	MW-D 2/9/2021	MW-D 5/5-6/2021	MW-D 8/27/2021	MW-D 11/11/2021	MW-E 11/9/2020	MW-E 2/10/2021	MW-E 5/6/2021	MW-E 8/26/2021	MW-E 11/11/2021	MW-F 11/10/2020	MW-F 2/11/2021	MW-F 5/11/2021	MW-F 8/25/2021	MW-F 11/11/2021	
Volatile Organic Compounds (con't)																					
4-Methyl-2-pentanone			0.01 U					0.01 U					0.01 U						0.01 U		
Acetone			0.01 U					0.01 U					0.01 U						0.01 U		
Acrylonitrile			0.1 U					0.1 U					0.1 U						0.1 U		
Benzene			0.005 U					0.005 U					0.005 U						0.005 U		
Bromochloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Bromodichloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Bromoform			0.005 U					0.005 U					0.005 U						0.005 U		
Bromomethane			0.005 U					0.005 U					0.005 U						0.005 UJ		
Carbon disulfide			0.01 U					0.01 U					0.01 U						0.01 U		
Carbon tetrachloride			0.005 U					0.005 U					0.005 U						0.005 U		
Chlorobenzene			0.005 U					0.005 U					0.005 U						0.005 U		
Chloroethane			0.005 U					0.005 U					0.005 U						0.005 U		
Chloroform			0.005 U					0.005 U					0.005 U						0.005 U		
Chloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
cis-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
cis-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U						0.005 U		
Dibromochloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Dibromomethane			0.005 U					0.005 U					0.005 U						0.005 U		
Dichloromethane (Methylene chloride)			0.005 U					0.005 U					0.005 U						0.005 U		
Ethyl benzene			0.005 U					0.005 U					0.005 U						0.005 U		
Iodomethane			0.01 U					0.01 U					0.01 U						0.01 U		
m&p-Xylene			0.005 U					0.005 U					0.005 U						0.005 U		
o-Xylene			0.005 U					0.005 U					0.005 U						0.005 U		
Styrene			0.005 U					0.005 U					0.005 U						0.005 U		
Tetrachloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
Toluene			0.005 U					0.005 U					0.005 U						0.005 U		
trans-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
trans-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U						0.005 U		
trans-1,4-Dichloro-2-butene			0.005 U					0.005 U					0.005 U						0.005 U		
Trichloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
Trichlorofluoromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Vinyl acetate			0.01 U					0.01 U					0.01 U						0.01 U		
Vinyl chloride			0.005 U					0.005 U					0.005 U						0.005 U		

General Chemistry																				
Alkalinity	346	339	343	339	353	246	268	265	258	270	326	360	342	360	370	209	365	473	490	419
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chemical Oxygen Demand	5 U	5 U	5 U	4.6 J	5 U	5 U	5 U	5 U	5 U	5 U	4 J	9.1	5.3	7.2	5 U	5 U	7.2	5 U	9.2	4.6 J
Chloride	16.8	15.4	16.5	15.7	13.6	11.1	11.5	12.6	12	11.7	10.3	7.9	9.2	7.4	7.7	36.9	25.5	16.7	14.4	18.5
Color (True) (C.U.)			11					10					7					11		
Cyanide			0.005 U					0.005 U					0.005 U					0.01 U		
Hardness	388	346	353	357	365	268	274	269	267	290	400	425	396	407	395	296	411	519	517	470
Nitrate Nitrogen	0.5 J	0.2 J	0.3 J	0.3 J	1 U	0.6 J	0.5 J	0.5 UJ	0.5 J	0.4 J	0.6 J	1.5	1.1	0.6 J	1 U	1 U	0.3 J	1.8	0.4 J	1 U
pH of Color Analysis			7.15					7.28					6.9					6.47		
Sulfate	31	28.2	29.7	30.4	27.1	21	19.5	18.9	18.4	17.9	72	86.3	81.4	74.8	64.9	59.1	71.6	74.6	69.7	70.9
Total Dissolved Solids	419	384	192	404	391	309	303	310	298	300	447	492	473	476	466	369	476	619	613	526
Total Kjeldahl Nitrogen	0.19 J	0.2	0.2 U	0.18 J	0.2 U	0.2 U	0.28	0.16 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.29	0.2 U	0.2 U	0.2 U	0.24	0.2	0.2 U
Total Organic Carbon (TOC)	1.3	1.7	1.6	1.4	1 J	1 U	0.6 J	0.6 J	0.7 J	1 U	1.8	2.9	2.7	2.9	2	1.8	2.6	3.8	3.6	3.2
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells																			
	MW-GR 11/10/2020	MW-GR 2/9/2021	MW-GR 5/5- 6/2021	MW-GR 8/24/2021	MW-GR 11/11/2021	MW-J 11/9/2020	MW-J 2/8/2021	MW-J 5/6/2021	MW-J 8/26/2021	MW-J 11/11/2021	MW-N 11/10/2020	MW-N 2/9/2021	MW-N 5/5-6/2021	MW-N 8/24/2021	MW-N 11/11/2021	MW-O 11/9/2020	MW-O 2/9/2021	MW-O 5/6/2021	MW-O 8/25/2021	MW-O 11/10/2021

Field Parameters

Depth to Groundwater (ft)	40.02	39.04	36.95	35.62	35.47	17.66	17.45	15.34	14.6	15.19	23.45	25.11	23.5	20.46	19.02	20.82	18.86	15.64	15.14	16.19
Dissolved Oxygen						1.18	2.18	1.84	4.23	1.61						0.68	4.06	2.99	2.03	4.07
Field pH (std. units)	6.96	6.92	6.88	6.87	6.92	7.13	7.19	7.06	6.95	6.75	6.96	6.85	7.13	6.89	7.02	7.76	8.04	7.99	7.69	8.03
ORP (mV)	200.1	85.1	207.4	95.3	118.8	145.4	169.4	168.5	78.9	134	-37.4	-60.3	19.5	11.6	-27.9	201.8	80.4	197.6	27.9	113.8
Specific Conductivity (us/cm)	632	524.4	603.8	637	594.1	1099	1058	1074	1092	1098	775	744	689	809	757	356.9	330.2	364.1	367.4	284.7
Temperature (deg. C)	13.5	10.9	12.2	14.9	13.1	13.4	7.1	9.3	20.4	11.7	14.7	11	10.6	14.5	13.3	19.8	9.3	11.2	23.9	12.9
Turbidity (NTU)	2.98	2.72	6.17	3.88	11.1	15.3	37.4	38	15.3	7.37	21.6	7.36	15.5	13.3	7.27	0.53	0.66	0.57	0.49	0.86

Inorganic Compounds

Aluminum			0.109					1.84					0.182					0.1 U		
Antimony			0.06 U					0.06 U					0.06 U					0.06 U		
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium			0.124					0.0905					0.133					0.0598		
Beryllium			0.003 U					0.003 U					0.003 U					0.003 U		
Boron			0.2 U					0.035 J					0.0354 J					0.0146 J		
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	110	107	106	108	108	108	113	103	100	95.4	124	126	124	128	125	45.2	39.5	43.6	43.5	33.1
Chromium			0.01 U					0.0023 J					0.01 U					0.01 U		
Chromium, hexavalent			0.01 U					0.01 U					0.01 U					0.01 U		
Cobalt			0.05 U					0.05 U					0.0024 J					0.05 U		
Copper			0.02 U					0.02 U					0.02 U					0.02 U		
Iron	0.1 U	0.1 U	0.129	0.1 U	0.1 U	0.35	2.64	1.55	0.46	0.25	3.84	4.01	0.671	0.79	1.11	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	19.1	18.9	18.8	19.1	19.1	31.9	33.4	28.8	27.8	24.1	28.7	29.1	29	28.5	27.2	14.1	14.1	14.1	13.7	13.2
Manganese	0.01 U	0.01 U	0.0043 J	0.01 U	0.01 U	0.143	0.11	0.0543	0.085	0.132	3.23	3.34	2.72	2.9	2.75	0.035	0.007 J	0.0064 J	0.041	0.063
Mercury			0.0002 U					0.0002 U					0.0002 U					0.0002 U		
Nickel			0.04 U					0.0031 J					0.0033 J					0.0026 J		
Potassium	1.1 J	1.2 J	1.09 J	1.2 J	1.2 J	4.1	4.8	4.09	3.6	3	6.6	5.7	5.85	6.4	6.1	2.4	4.6	3.51	2.5	4.7
Selenium			0.01 U					0.01 U					0.01 U					0.01 U		
Silver			0.01 U					0.01 U					0.01 U					0.01 U		
Sodium	9.8	9.7	9.7	9.7	10.3	90.3	88.8	101	105	123	17.5	16.2	16.1	16.5	33.3	16.5	19.5	17.6	17.4	20.5
Thallium			0.01 U					0.01 U					0.01 U					0.01 U		
Vanadium			0.05 U					0.0028 J					0.001 J					0.05 U		
Zinc			0.02 U					0.02 U					0.02 U					0.02 U		

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,1-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2,3-Trichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromo-3-chloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromoethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,4-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
2-Butanone (MEK)			0.01 U					0.01 U					0.01 U					0.01 U		
2-Hexanone			0.01 U					0.01 U					0.01 U					0.01 U		

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells																			
	MW-GR 11/10/2020	MW-GR 2/9/2021	MW-GR 5/5- 6/2021	MW-GR 8/24/2021	MW-GR 11/11/2021	MW-J 11/9/2020	MW-J 2/8/2021	MW-J 5/6/2021	MW-J 8/26/2021	MW-J 11/11/2021	MW-N 11/10/2020	MW-N 2/9/2021	MW-N 5/5-6/2021	MW-N 8/24/2021	MW-N 11/11/2021	MW-O 11/9/2020	MW-O 2/9/2021	MW-O 5/6/2021	MW-O 8/25/2021	MW-O 11/10/2021
Volatile Organic Compounds (con't)																				
4-Methyl-2-pentanone			0.01 U					0.01 U					0.01 U					0.01 U		
Acetone			0.01 U					0.01 U					0.01 U					0.01 U		
Acrylonitrile			0.1 U					0.1 U					0.1 U					0.1 U		
Benzene			0.005 U					0.005 U					0.005 U					0.005 U		
Bromochloromethane			0.005 U					0.005 U					0.005 U					0.005 U		
Bromodichloromethane			0.005 U					0.005 U					0.005 U					0.005 U		
Bromoform			0.005 U					0.005 U					0.005 U					0.005 U		
Bromomethane			0.005 U					0.005 U					0.005 UJ					0.005 U		
Carbon disulfide			0.01 U					0.01 U					0.01 U					0.01 U		
Carbon tetrachloride			0.005 U					0.005 U					0.005 U					0.005 U		
Chlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
Chloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
Chloroform			0.005 U					0.005 U					0.005 U					0.005 U		
Chloromethane			0.005 U					0.005 U					0.005 U					0.005 U		
cis-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
cis-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U					0.005 U		
Dibromochloromethane			0.005 U					0.005 U					0.005 U					0.005 U		
Dibromomethane			0.005 U					0.005 U					0.005 U					0.005 U		
Dichloromethane (Methylene chloride)			0.005 U					0.005 U					0.005 U					0.005 U		
Ethyl benzene			0.005 U					0.005 U					0.005 U					0.005 U		
Iodomethane			0.01 U					0.01 U					0.01 U					0.01 U		
m&p-Xylene			0.005 U					0.005 U					0.005 U					0.005 U		
o-Xylene			0.005 U					0.005 U					0.005 U					0.005 U		
Styrene			0.005 U					0.005 U					0.005 U					0.005 U		
Tetrachloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
Toluene			0.005 U					0.005 U					0.005 U					0.005 U		
trans-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
trans-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U					0.005 U		
trans-1,4-Dichloro-2-butene			0.005 U					0.005 U					0.005 U					0.005 U		
Trichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
Trichlorofluoromethane			0.005 U					0.005 U					0.005 U					0.005 U		
Vinyl acetate			0.01 U					0.01 U					0.01 U					0.01 U		
Vinyl chloride			0.005 U					0.005 U					0.005 U					0.005 U		

General Chemistry																				
	326	333	351	335	339	328	342	346	343	355	430	474	401	459	469	180	187	197	188	168
Alkalinity																				
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.032 J	0.32	0.206	0.13	0.174	0.132	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.3	2 U	3.2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chemical Oxygen Demand	5 U	5 U	5 U	5 J	5 U	5 U	6.3	5 U	5 U	5 U	4 J	8.1	5 U	10.5	5.3	5 U	4.3 J	5 U	5 U	5 U
Chloride	4.6	7.4	7.7	8.1	8.3	150	149	155	149	137	3.1	3.2	3.3	2.8	2.2	1.8 J	1.7 J	1.1 J	1.8 J	1.7 J
Color (True) (C.U.)			9					10					10					9		
Cyanide			0.005 U					0.005 U					0.005 UJ					0.005 U		
Hardness	354	345	343	349	348	400	420	375	365	337	429	435	428	438	423	171	157	167	165	137
Nitrate Nitrogen	1 U	0.3 J	0.5 J	0.5 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
pH of Color Analysis			6.87					7.18					6.88					7.99		
Sulfate	26.2	25.4	28	26.4	25.7	59.8	55.6	61	62.7	55.5	24.8	24.8	28.4	28.5	28.4	18.5	19	20.8	20.7	18.9
Total Dissolved Solids	386	362	395	391	378	643	666	668	663	655	506	489	440	504	498	205	205	221	227	195
Total Kjeldahl Nitrogen	0.2 U	0.18 J	0.2 U	0.19 J	0.2 U	0.16 J	0.26	0.17 J	0.2 U	0.2 U	0.62	0.68	1.25	0.63	0.54	0.2 U	0.26	0.2 U	0.2 U	0.2 U
Total Organic Carbon (TOC)	0.7 J	1.1	1	0.8 J	1 J	1.3	1.5	1.6	1.9	1.5	2.1	3.6	7.8	3.2	2.2	1 U	0.6 J	0.7 J	0.5 J	1 U
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells																			
	MW-O(BR) 12/16/2020	MW-O(BR) 2/8-9/2021	MW-O(BR) 5/5-6/2021	MW-O(BR) 8/24/2021	MW-O(BR) 11/11/2021	MW-P 11/9/2020	MW-P 2/8/2021	MW-P 5/6/2021	MW-P 8/26/2021	MW-P 11/11/2021	MW-T(BR) 12/15/2020	MW-T(BR) 2/11/2021	MW-T(BR) 5/11/2021	MW-T(BR) 8/24/2021	MW-T(BR) 11/11/2021	MW-U(BR) 12/16/2020	MW-U(BR) 2/12/2021	MW-U(BR) 5/11/2021	MW-U(BR) 8/24/2021	MW-U(BR) 11/11/2021

Field Parameters

Depth to Groundwater (ft)	53.62	56.47	53.13	52.1	52.38	22.83	20.86	18.8	18.7	18.63	5.53	5.04	4.16	3.7	4.3	13.73	13.62	12.97	12.67	12.59
Dissolved Oxygen						0.37	0.69	0.65	0.43	1.98	0.75	0.25	0.19	0.29	0.57	0.4	0.61	0.43	0.14	0.36
Field pH (std. units)	7.47	8.44	11.06	8.56	8.38	7.42	7.49	7.34	7.19	7.24	7.7	7.73	7.6	7.63	7.59	7.69	7.64	7.66	7.64	7.66
ORP (mV)	132.4	129.7	74.1	52.4	95.5	30.8	83.7	45.8	58.8	184.3	172.1	137.3	211.4	69.8	164.9	126.2	100.8	202.9	-10.2	152.8
Specific Conductivity (us/cm)	422.9	236.2	256.1	267.3	181.5	486.9	466.9	472.1	494.2	499.5	292.3	273.1	274.7	319.6	343.4	281.4	269.7	270	283	272.3
Temperature (deg. C)	10.6	5.2	11.5	14	11.7	19.1	7.7	11.4	19.3	11.4	7.7	4.3	7.8	17.8	12.1	9.2	5.6	8.7	17.8	9.5
Turbidity (NTU)	9.55	5.8	5.41	7.49	11.3	8.5	2.71	3.51	5.01	18.6	7.44	2.35	1.71	1.41	1.81	1.5	3.13	4.1	3.99	1.12

Inorganic Compounds

Aluminum			0.0671 J					0.1 U					0.0442 J					0.0527 J		
Antimony			0.06 U					0.06 U					0.06 U					0.06 U		
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium			0.0152 J					0.0309					0.106					0.133		
Beryllium			0.003 U					0.003 U					0.003 U					0.003 U		
Boron			0.0176 J					0.0671 J					0.0326 J					0.0312 J		
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	52.1	17	12.4	23.1	28.7	63.1	65.2	62.7	64.9	65.3	42.3	40.9	39.4	45.1	49.5	41.5	42	39	39.5	39.2
Chromium			0.0011 J					0.01 U					0.01 U					0.01 U		
Chromium, hexavalent			0.01 UJ					0.01 U					0.01 UJ					0.01 UJ		
Cobalt			0.05 U					0.05 U					0.05 U					0.05 U		
Copper			0.02 U					0.02 U					0.02 U					0.02 U		
Iron	0.33	0.15	0.1 U	0.09 J	0.08 J	0.32	0.13	0.1 U	0.37	0.79	0.31	0.16	0.0677 J	0.1 U	0.21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	15.9	8.6	2.91	9.4	10.3	17.9	18.4	17.7	18.5	18.3	10.2	10	9.74	10.8	11.3	10	9.9	9.46	9.5	9.2
Manganese	0.195	0.008 J	0.0072 J	0.01 U	0.007 J	1.53	0.984	0.834	3.15	1.72	0.663	0.298	0.539	0.512	0.461	0.366	0.405	0.949	0.404	0.745
Mercury			0.0002 U					0.0002 U					0.0002 U					0.0002 U		
Nickel			0.0032 J					0.04 U					0.04 U					0.04 U		
Potassium	4.6	5.6	3.34	4.6	4	1.9 J	2	1.82 J	2 J	2.1	1.6 J	1.5 J	1.33 J	1.5 J	1.6 J	1.6 J	1.6 J	1.37 J	1.5 J	1.5 J
Selenium			0.01 U					0.01 U					0.01 U					0.01 U		
Silver			0.01 U					0.01 U					0.01 U					0.01 U		
Sodium	21.7	20	14.7	21.4	20.4	22.6	23.1	22.5	23.2	23.6	10.8	10.2	9.51	10.8	11.7	10.9	10.6	9.66	10.1	10.4
Thallium			0.01 U					0.01 U					0.01 U					0.01 U		
Vanadium			0.0028 J					0.05 U					0.05 U					0.05 U		
Zinc			0.02 U					0.02 U					0.02 U					0.02 U		

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,1-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2,2-Tetrachloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1,2-Trichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,1-Dichloroethene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2,3-Trichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromo-3-chloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dibromoethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloroethane			0.005 U					0.005 U					0.005 U					0.005 U		
1,2-Dichloropropane			0.005 U					0.005 U					0.005 U					0.005 U		
1,4-Dichlorobenzene			0.005 U					0.005 U					0.005 U					0.005 U		
2-Butanone (MEK)			0.01 U					0.01 U					0.01 U					0.01 U		
2-Hexanone			0.01 U					0.01 U					0.01 U					0.01 U		

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells																				
	MW-O(BR) 12/16/2020	MW-O(BR) 2/8-9/2021	MW-O(BR) 5/5-6/2021	MW-O(BR) 8/24/2021	MW-O(BR) 11/11/2021	MW-P 11/9/2020	MW-P 2/8/2021	MW-P 5/6/2021	MW-P 8/26/2021	MW-P 11/11/2021	MW-T(BR) 12/15/2020	MW-T(BR) 2/11/2021	MW-T(BR) 5/11/2021	MW-T(BR) 8/24/2021	MW-T(BR) 11/11/2021	MW-U(BR) 12/16/2020	MW-U(BR) 2/12/2021	MW-U(BR) 5/11/2021	MW-U(BR) 8/24/2021	MW-U(BR) 11/11/2021	
Volatile Organic Compounds (con't)																					
4-Methyl-2-pentanone			0.01 U					0.01 U					0.01 U						0.01 U		
Acetone			0.01 U					0.01 U					0.01 U						0.01 U		
Acrylonitrile			0.1 U					0.1 U					0.1 U						0.1 U		
Benzene			0.005 U					0.005 U					0.005 U						0.005 U		
Bromochloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Bromodichloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Bromoform			0.005 U					0.005 U					0.005 U						0.005 U		
Bromomethane			0.005 UJ					0.005 U					0.005 UJ						0.005 UJ		
Carbon disulfide			0.01 U					0.01 U					0.01 U						0.01 U		
Carbon tetrachloride			0.005 U					0.005 U					0.005 U						0.005 U		
Chlorobenzene			0.005 U					0.005 U					0.005 U						0.005 U		
Chloroethane			0.005 U					0.005 U					0.005 U						0.005 U		
Chloroform			0.005 U					0.005 U					0.005 U						0.005 U		
Chloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
cis-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
cis-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U						0.005 U		
Dibromochloromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Dibromomethane			0.005 U					0.005 U					0.005 U						0.005 U		
Dichloromethane (Methylene chloride)			0.005 U					0.005 U					0.005 U						0.005 U		
Ethyl benzene			0.005 U					0.005 U					0.005 U						0.005 U		
Iodomethane			0.01 U					0.01 U					0.01 U						0.01 U		
m&p-Xylene			0.005 U					0.005 U					0.005 U						0.005 U		
o-Xylene			0.005 U					0.005 U					0.005 U						0.005 U		
Styrene			0.005 U					0.005 U					0.005 U						0.005 U		
Tetrachloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
Toluene			0.005 U					0.005 U					0.005 U						0.005 U		
trans-1,2-Dichloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
trans-1,3-Dichloropropene			0.005 U					0.005 U					0.005 U						0.005 U		
trans-1,4-Dichloro-2-butene			0.005 U					0.005 U					0.005 U						0.005 U		
Trichloroethene			0.005 U					0.005 U					0.005 U						0.005 U		
Trichlorofluoromethane			0.005 U					0.005 U					0.005 U						0.005 U		
Vinyl acetate			0.01 U					0.01 U					0.01 U						0.01 U		
Vinyl chloride			0.005 U					0.005 U					0.005 U						0.005 U		

General Chemistry																				
	202	79.3	78.2	123	159	214	230	228	227	233	136	144	142	156	175	137	151	147	145	150
Alkalinity	0.032 J	0.05 U	0.043 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.041 J	0.05 U	0.05 U
Ammonia Nitrogen	2.2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Biochemical Oxygen Demand	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromide	5 U	5 U	5 U	5 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4.6 J	5 U
Chemical Oxygen Demand	1.7 J	2.8	3.1	1.9 J	1.5 J	8.3	8.1	8	7.3	7	1.4 J	1.2 J	0.6 J	1.2 J	1.1 J	1 J	1.1 J	1.8 J	1 J	0.9 J
Chloride			10					6					8					7		
Color (True) (C.U.)			0.005 U					0.005 U					0.01 U					0.01 U		
Cyanide	196	77.8	42.9	96.5	114	231	239	229	238	238	148	143	139	157	170	145	146	136	138	136
Hardness	0.2 J	0.6 J	0.7 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3.1	1 U	1 U
Nitrate Nitrogen			7.01					7.45					7.62					7.6		
pH of Color Analysis	32.8	18.8	17.8	19.1	16.9	52.1	48.7	47.6	51.9	49.6	22.2	21.6	21.7	24.4	25.4	15.1	15.5	9.8	15.4	14.7
Sulfate	272	114	125	163	175	297	306	300	312	314	189	173	176	202	209	175	180	75	175	165
Total Dissolved Solids	0.53	0.3	0.23	0.2 U	0.2 U	0.2 U	0.21	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total Kjeldahl Nitrogen	2.1	0.7 J	1.2	0.8 J	0.8 J	0.5 J	0.6 J	0.5 J	0.6 J	1 U	0.6 J	1 U	0.6 J	0.5 J	1 U	1 U	1 U	0.5 J	1 U	1 U
Total Organic Carbon (TOC)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Phenolics																				

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells									
	MW-V 12/15/2020	MW-V 2/8/2021	MW-V 5/6/2021	MW-V 8/25/2021	MW-V 11/10/2021	MW-V(BR) 12/15/2020	MW-V(BR) 2/9/2021	MW-V(BR) 5/11/2021	MW-V(BR) 8/24/2021	MW-V(BR) 11/11/2021

Field Parameters

Depth to Groundwater (ft)	16.37	17.28	16.65	15.29	15.08	28.66	28.41	27.39	26.76	26.24
Dissolved Oxygen	1.5	1.8	2.49	0.93	0.65	1.16	1.38	1.37	0.4	0.51
Field pH (std. units)	7.78	7.85	8.38	7.44	7.54	7.72	7.57	7.58	7.41	7.59
ORP (mV)	192.1	155.2	200.7	101.3	117.2	-96.6	-73.2	-109.1	-76.1	-77.8
Specific Conductivity (us/cm)	1086	1057	1051	1043	895	508.9	510.2	551.6	563.7	478.3
Temperature (deg. C)	7.8	6	14.6	18.7	12.2	9.8	8.8	9.8	15.1	11.5
Turbidity (NTU)	4.51	3.25	3.8	4.05	4.71	5.71	3.07	2.03	8.2	3.86

Inorganic Compounds

Aluminum			0.1 U					0.1 U		
Antimony			0.06 U					0.06 U		
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium			0.0076 J					0.0424		
Beryllium			0.003 U					0.003 U		
Boron			0.0992 J					0.0737 J		
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	87.4	78.9	22.4	83.1	77.9	64.3	68.1	76.4	89.7	73.2
Chromium			0.0014 J					0.01 U		
Chromium, hexavalent			0.01 U					0.01 UJ		
Cobalt			0.05 U					0.05 U		
Copper			0.02 U					0.02 U		
Iron	0.09 J	0.16	0.1 U	0.1 U	0.1 U	0.48	0.45	0.26	0.59	0.22
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	51.9	51.3	49.8	49.4	45.8	20	21.8	23.8	23.8	22.7
Manganese	0.921	0.564	0.0485	0.308	0.245	0.677	0.73	0.838	0.916	0.792
Mercury			0.0002 U					0.0002 U		
Nickel			0.0029 J					0.04 U		
Potassium	49.5	73.8	113	43.9	45.9	4.3	3.3	2.69	2.3	2.3
Selenium			0.01 U					0.01 U		
Silver			0.01 U					0.01 U		
Sodium	78.2	79	92.8	77.1	82.8	26.3	24.1	24.6	23.7	23.6
Thallium			0.01 U					0.01 U		
Vanadium			0.05 U					0.05 U		
Zinc			0.02 U					0.02 U		

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane			0.005 U					0.005 U		
1,1,1-Trichloroethane			0.005 U					0.005 U		
1,1,2,2-Tetrachloroethane			0.005 U					0.005 U		
1,1,2-Trichloroethane			0.005 U					0.005 U		
1,1-Dichloroethane			0.005 U					0.005 U		
1,1-Dichloroethene			0.005 U					0.005 U		
1,2,3-Trichloropropane			0.005 U					0.005 U		
1,2-Dibromo-3-chloropropane			0.005 U					0.005 U		
1,2-Dibromoethane			0.005 U					0.005 U		
1,2-Dichlorobenzene			0.005 U					0.005 U		
1,2-Dichloroethane			0.005 U					0.005 U		
1,2-Dichloropropane			0.005 U					0.005 U		
1,4-Dichlorobenzene			0.005 U					0.005 U		
2-Butanone (MEK)			0.01 U					0.01 U		
2-Hexanone			0.01 U					0.01 U		

Current and Historic Groundwater Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	Downgradient Wells									
	MW-V 12/15/2020	MW-V 2/8/2021	MW-V 5/6/2021	MW-V 8/25/2021	MW-V 11/10/2021	MW-V(BR) 12/15/2020	MW-V(BR) 2/9/2021	MW-V(BR) 5/11/2021	MW-V(BR) 8/24/2021	MW-V(BR) 11/11/2021
Volatile Organic Compounds (con't)										
4-Methyl-2-pentanone			0.01 U					0.01 U		
Acetone			0.01 U					0.01 U		
Acrylonitrile			0.1 U					0.1 U		
Benzene			0.005 U					0.005 U		
Bromochloromethane			0.005 U					0.005 U		
Bromodichloromethane			0.005 U					0.005 U		
Bromoform			0.005 U					0.005 U		
Bromomethane			0.005 U					0.005 UJ		
Carbon disulfide			0.01 U					0.01 U		
Carbon tetrachloride			0.005 U					0.005 U		
Chlorobenzene			0.005 U					0.005 U		
Chloroethane			0.005 U					0.005 U		
Chloroform			0.005 U					0.005 U		
Chloromethane			0.005 U					0.005 U		
cis-1,2-Dichloroethene			0.005 U					0.005 U		
cis-1,3-Dichloropropene			0.005 U					0.005 U		
Dibromochloromethane			0.005 U					0.005 U		
Dibromomethane			0.005 U					0.005 U		
Dichloromethane (Methylene chloride)			0.005 U					0.005 U		
Ethyl benzene			0.005 U					0.005 U		
Iodomethane			0.01 U					0.01 U		
m&p-Xylene			0.005 U					0.005 U		
o-Xylene			0.005 U					0.005 U		
Styrene			0.005 U					0.005 U		
Tetrachloroethene			0.005 U					0.005 U		
Toluene			0.005 U					0.005 U		
trans-1,2-Dichloroethene			0.005 U					0.005 U		
trans-1,3-Dichloropropene			0.005 U					0.005 U		
trans-1,4-Dichloro-2-butene			0.005 U					0.005 U		
Trichloroethene			0.005 U					0.005 U		
Trichlorofluoromethane			0.005 U					0.005 U		
Vinyl acetate			0.01 U					0.01 U		
Vinyl chloride			0.005 U					0.005 U		

General Chemistry										
Alkalinity	408	474	417	435	447	190	222	242	247	253
Ammonia Nitrogen	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.034 J	0.027 J	0.046 J	0.05 U	0.034 J
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chemical Oxygen Demand	5 U	5.6	36.5	5 U	5 U	5 U	5 U	5 UJ	4 J	5 U
Chloride	1.6 J	1.7 J	0.8 J	1.6 J	1.5 J	1.2 J	1.2 J	2 U	1 J	0.8 J
Color (True) (C.U.)			11					10		
Cyanide			0.005 U					0.01 U		
Hardness	432	408	261	411	383	243	260	289	322	276
Nitrate Nitrogen	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
pH of Color Analysis			8.34					7.55		
Sulfate	206	204	185	197	179	98.6	93.2	92.4	90.7	87.5
Total Dissolved Solids	725	752	689	732	709	350	345	381	374	361
Total Kjeldahl Nitrogen	0.2 U	0.21	0.2 U	0.15 J	0.2 U	0.2 U	0.27	0.17 J	0.15 J	0.2 U
Total Organic Carbon (TOC)	1.7	1.8	1.5	1.6	1.1	0.7 J	0.5 J	1 J	0.5 J	1 U
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U

Notes:

U - Concentration not detected at specified detection limit

J/UJ - Estimated value

* - Quality control parameter exceeds laboratory limits

- 100 Parameter exceeds Trigger Value but remains below Class GA water quality standard if standard exists
- 100 Parameter exceeds both the Trigger value and Class GA water quality standard

Table 5A - Part 1
EWQVs and Trigger Values
Landfill Cells 1 - 8 Routine Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter	Number Samples	Number Detects	Minimum	Maximum	Mean	Standard Deviation	Trigger Value	Class GA Standard
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Note: The EWQVs on this table apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Field Parameters

Field pH (std. units)	36	36	5.94	8.77	7.25	0.62	5.39-9.11	6.5-8.5
ORP (mV)	36	36	-110.2	310	38.3	128.1	422.7	
Specific Conductivity (us/cm)	36	36	178	1800	611	376	1740	
Turbidity (NTU)	35	35	3.8	94	26.7	23	96	5

Inorganic Compounds

Aluminum	14	11	0.038	6.8	1.37	2.09	7.66	
Antimony	14	1	0.0005	0.061	0.0063	0.016	0.0544	0.003
Arsenic	14	4	0.0005	0.0193	0.0027	0.005	0.0179	0.025
Barium	14	13	0.008	0.118	0.049	0.026	0.127	1
Beryllium	14	0	0.002	0.003	0.0022	0.0004	0.0035	
Boron	14	2	0.024	0.25	0.084	0.096	0.372	1
Cadmium	34	2	0.0005	0.004	0.0018	0.0011	0.0051	0.005
Calcium	34	34	17.4	196	64	45	199	
Chromium	14	6	0.001	0.012	0.0039	0.004	0.016	0.05
Chromium, hexavalent	13	0	0.01	0.01	0.01	0	0.01	
Cobalt	14	1	0.005	0.013	0.007	0.003	0.015	
Copper	14	2	0.005	0.0148	0.0091	0.0025	0.0166	0.2
Iron	34	34	0.051	3.76	1.38	1.27	5.2	0.3
Lead	34	17	0.0005	0.021	0.0033	0.0048	0.018	0.025
Magnesium	34	34	4.8	75.8	21.2	16.3	70	
Manganese	34	34	0.032	4.69	0.98	1.06	4.15	0.3
Mercury	14	0	0.0002	0.0002	0.0002	0	0.0002	0.0007
Nickel	14	1	0.006	0.015	0.008	0.004	0.02	0.1
Potassium	34	32	0.5	20	8.2	7.3	30.1	
Selenium	14	1	0.0005	0.004	0.0012	0.0012	0.0047	0.01
Silver	14	0	0.001	0.01	0.0032	0.0038	0.0147	0.05
Sodium	34	34	4.45	87.6	25.7	19.2	83.2	20
Thallium	14	0	0.001	0.01	0.0029	0.0038	0.0144	
Vanadium	14	0	0.005	0.03	0.01	0.011	0.042	
Zinc	14	7	0.01	0.052	0.022	0.015	0.067	

General Chemistry

Alkalinity	115	115	12.4	520	131	98.3	426	
Ammonia Nitrogen	117	66	0.01	2.61	0.174	0.29	1.04	2
Biochemical Oxygen Demand	51	4	1.5	6	2	1.1	5.3	
Bromide	31	0	0.1	1	0.6	0.3	1.5	
Chemical Oxygen Demand	116	37	5	891	26.6	91.2	300	
Chloride	117	117	0.5	290	21.7	28.3	106	250
Color (True) (C.U.)	32	28	2.5	1250	148	306	1066	15
Cyanide	34	1	0.003	0.006	0.003	0.001	0.006	0.2
Hardness	118	118	35.2	802	206	131	598	
Nitrate Nitrogen	114	63	0.05	1.49	0.191	0.226	0.869	10
Sulfate	117	115	2.5	550	59	69	266	250
Total Dissolved Solids	117	117	60	1220	273	185	828	500
Total Kjeldahl Nitrogen	50	18	0.25	10.2	1.17	1.68	6.22	
Total Organic Carbon (TOC)	118	99	0.4	151	6.7	18.9	63.3	
Total Phenolics	115	28	0.001	0.017	0.003	0.003	0.012	0.001

Notes:

- 1) Existing Water Quality Values (EWQVs) Revision: May 28, 2008
- 2) Class GA Standard - Class GA Groundwater Standards from NYSDEC Water Quality Regulations Parts 700-705
- 3) Trigger Value = Mean +3 Standard Deviations

Table 5A - Part 2
EWQVs and Trigger Values
Landfill Cells 1 - 8 Additional Parameters
(As required by permit condition 59)
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table supplement EWQVs on Table 5A-Part 1 and apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Inorganic Compounds

Tin	5	5	100.0%	0.25	0.25	0.25	0.25	0.00	0.00	Yes	No	Type B	0.25	0.25	0.25
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Polychlorinated Biphenyls (PCBs)

Aroclor-1016	5	5	100.0%	0.000490	0.000500	0.000497	0.000500	0.000004	0.01	Yes	No	Type B	0.000510	0.000500	0.000500
Aroclor-1221	5	5	100.0%	0.001	0.001	0.001	0.001	0.000	0.00	Yes	No	Type B	0.001	0.001	0.001
Aroclor-1232	5	5	100.0%	0.0005	0.0005	0.0005	0.0005	0.0000	0.01	Yes	No	Type B	0.0005	0.0005	0.0005
Aroclor-1242	5	5	100.0%	0.0005	0.0005	0.0005	0.0005	0.0000	0.01	Yes	No	Type B	0.0005	0.0005	0.0005
Aroclor-1248	5	5	100.0%	0.0005	0.0005	0.0005	0.0005	0.0000	0.01	Yes	No	Type B	0.0005	0.0005	0.0005
Aroclor-1254	5	5	100.0%	0.0005	0.0005	0.0005	0.0005	0.0000	0.01	Yes	No	Type B	0.0005	0.0005	0.0005
Aroclor-1260	5	5	100.0%	0.0005	0.0005	0.0005	0.0005	0.0000	0.01	Yes	No	Type B	0.0005	0.0005	0.0005

Pesticides

4,4'-DDD	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
4,4'-DDE	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
4,4'-DDT	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
Aldrin	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
alpha-BHC	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
alpha-Chlordane	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
beta-BHC	5	5	100.0%	0.000025	0.000026	0.000025	0.000026	0.000000	0.02	Yes	No	Type B	0.000027	0.000026	0.000026
Chlorobenzilate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
delta-BHC	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Dieldrin	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Dinoseb	5	5	100.0%	0.000250	0.000260	0.000254	0.000255	0.000004	0.02	Yes	No	Type B	0.000267	0.000258	0.000258
Endosulfan I	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Endosulfan II	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Endosulfan sulfate	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Endrin	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Endrin aldehyde	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
gamma-BHC (Lindane)	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
gamma-Chlordane	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Heptachlor	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Heptachlor epoxide	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Methoxychlor	5	5	100.0%	0.0000245	0.0000255	0.0000252	0.0000255	0.0000004	0.02	Yes	No	Type B	0.0000265	0.0000255	0.0000255
Methyl parathion	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Parathion	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Toxaphene	5	5	100.0%	0.000	0.000	0.000	0.000	0.000	0.01	Yes	No	Type B	0.000	0.000	0.000

Table 5A - Part 2
EWQVs and Trigger Values
Landfill Cells 1 - 8 Additional Parameters
(As required by permit condition 59)
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table supplement EWQVs on Table 5A-Part 1 and apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Per- and Polyfluoroalkyl Substances (PFAS)

6:2 Fluorotelomer sulfonate	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
N-ethylperfluoro-1-octanesulfonamidoacetic acid	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
N-methylperfluoro-1-octanesulfonamidoacetic acid	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluorobutanesulfonic Acid	5	2	40.0%	0.00000059	0.00000270	0.00000168	0.00000210	0.00000092	0.55	No	No	Type B	0.00000445	0.00000250	0.00000250
Perfluorobutanoic Acid	5	1	20.0%	0.00000100	0.00001600	0.00000682	0.00000700	0.00000593	0.87	No	No	Type B	0.00002461	0.00001276	0.00001276
Perfluorodecane Sulfonate	5	5	100.0%	0.0000002	0.0000002	0.0000002	0.0000002	0.0000000	0.03	Yes	No	Type B	0.0000002	0.0000002	0.0000002
Perfluorodecanoic Acid	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluorododecanoic Acid	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluoroheptane sulfonate	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluoroheptanoic Acid	5	2	40.0%	0.0000009	0.0000071	0.0000027	0.0000021	0.0000026	0.96	No	No	Type B	0.0000103	0.0000051	0.0000051
Perfluorohexanesulfonic Acid	5	4	80.0%	0.0000013	0.0000023	0.0000020	0.0000022	0.0000004	0.20	Yes	No	Type B	0.0000032	0.0000023	0.0000023
Perfluorohexanoic Acid	5	4	80.0%	0.0000046	0.0000150	0.0000067	0.0000046	0.0000047	0.70	No	No	Type B	0.0000206	0.0000108	0.0000108
Perfluorononanoic Acid	5	4	80.0%	0.0000015	0.0000023	0.0000020	0.0000021	0.0000003	0.15	Yes	No	Type B	0.0000029	0.0000022	0.0000022
Perfluoro-n-tridecanoic acid	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluorooctanesulfonamide	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluorooctanesulfonic Acid	5	4	80.0%	0.00000085	0.00000110	0.00000092	0.00000090	0.0000010	0.11	Yes	No	Type B	0.00000123	0.00000102	0.00000102
Perfluorooctanoic Acid	5	2	40.0%	0.00000085	0.00001300	0.00000355	0.00000130	0.00000529	1.49	No	No	Type B	0.00001943	0.00000848	0.00000848
Perfluoropentanoic Acid	5	4	80.0%	0.0000021	0.0000150	0.0000047	0.0000022	0.0000057	1.21	No	No	Type B	0.0000220	0.0000099	0.0000099
Perfluorotetradecanoic acid (PFTeDA)	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023
Perfluoroundecanoic Acid	5	5	100.0%	0.0000021	0.0000023	0.0000022	0.0000022	0.0000001	0.03	Yes	No	Type B	0.0000024	0.0000023	0.0000023

Herbicides

2,4,5-T	5	5	100.0%	0.000250	0.000260	0.000254	0.000255	0.000004	0.02	Yes	No	Type B	0.000267	0.000258	0.000258
2,4,5-TP	5	5	100.0%	0.000250	0.000260	0.000254	0.000255	0.000004	0.02	Yes	No	Type B	0.000267	0.000258	0.000258
2,4-D	5	5	100.0%	0.000250	0.000260	0.000254	0.000255	0.000004	0.02	Yes	No	Type B	0.000267	0.000258	0.000258

Radionuclides (pCi/L)

Radium-226, Dissolved (EPA 903.1) (pCi/L)	5	1	20.0%	-0.090	0.240	0.078	0.060	0.127	1.63	No	No	Type B	0.460	0.208	0.208
Radium-226, Total (EPA 903.1) (pCi/L)	5	1	20.0%	-0.100	0.220	0.090	0.080	0.129	1.44	No	No	Type B	0.478	0.212	0.212
Radium-228, Dissolved (EPA 904.0) (pCi/L)	5	1	20.0%	0.170	0.750	0.464	0.510	0.265	0.57	No	No	Type B	1.260	0.722	0.722
Radium-228, Total (EPA 904.0) (pCi/L)	5	1	20.0%	0.350	0.750	0.590	0.620	0.151	0.26	Yes	No	Type B	1.043	0.718	0.718
Total Uranium, Total (EPA 908.0) (pCi/L)	5	1	20.0%	0.068	4.060	2.240	1.890	1.545	0.69	No	No	Type B	6.876	3.776	3.776

Semi Volatile Organic Compounds

1,2,4,5-Tetrachlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
1,3,5-Trinitrobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
1,3-Dinitrobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
1,4-Dioxane	5	2	40.0%	0.000020	0.000730	0.000173	0.000034	0.000312	1.80	No	No	Type B	0.001108	0.000462	0.000462
1,4-Naphthoquinone	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255

Table 5A - Part 2
EWQVs and Trigger Values
Landfill Cells 1 - 8 Additional Parameters
(As required by permit condition 59)
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table supplement EWQVs on Table 5A-Part 1 and apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Semi Volatile Organic Compounds (con't)

1,4-Phenylenediamine	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
1-Naphthylamine	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
2,3,4,6-Tetrachlorophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,4,5-Trichlorophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,4,6-Trichlorophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,4-Dichlorophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,4-Dimethylphenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,4-Dinitrophenol	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
2,4-Dinitrotoluene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,6-Dichlorophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,6-Dinitrotoluene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Acetylaminofluorene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Chloronaphthalene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Chlorophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Methyl-5-nitroaniline	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Methylnaphthalene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Methylphenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2-Naphthylamine	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
2-Nitroaniline	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
2-Nitrophenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
3,3-Dichlorobenzidine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
3,3-Dimethylbenzidine	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
3/4-Methylphenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
3-Methylcholanthrene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
3-Nitroaniline	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
4,6-Dinitro-2-methylphenol	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
4-Aminobiphenyl	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
4-Bromophenyl-phenylether	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
4-Chloro-3-methylphenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
4-Chloroaniline	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
4-Chlorophenyl-phenylether	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
4-Nitroaniline	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
4-Nitrophenol	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
7,12-Dimethylbenz(a)anthracene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Acenaphthene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Acenaphthylene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Acetophenone	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Anthracene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Benzo(a)anthracene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Benzo(a)pyrene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005

Table 5A - Part 2
EWQVs and Trigger Values
Landfill Cells 1 - 8 Additional Parameters
(As required by permit condition 59)
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table supplement EWQVs on Table 5A-Part 1 and apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Semi Volatile Organic Compounds (con't)

Benzo(b)fluoranthene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Benzo(g,h,i)perylene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Benzo(k)fluoranthene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Benzyl alcohol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Bis(1-chloroisopropyl) Ether	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
bis(2-Chloroethoxy) methane	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
bis(2-Chloroethyl) ether	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
bis(2-Ethylhexyl) phthalate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Butylbenzylphthalate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Chrysene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Diallate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Dibenzo(a,h)anthracene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Dibenzofuran	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Diethylphthalate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Dimethoate	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
Dimethylphthalate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Di-n-butylphthalate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Di-n-octylphthalate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Diphenylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Disulfoton	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Ethyl methanesulfonate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Famphur	5	5	100.0%	0.00049	0.00050	0.00050	0.00050	0.00000	0.01	Yes	No	Type B	0.00051	0.00050	0.00050
Fluoranthene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Fluorene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Hexachlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Hexachlorocyclopentadiene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Hexachloroethane	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Hexachloropropene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Indeno(1,2,3-cd)pyrene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Isodrin	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Isophorone	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Isosafrole	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Kepone	5	5	100.0%	0.00245	0.00255	0.00252	0.00255	0.00004	0.02	Yes	No	Type B	0.00265	0.00255	0.00255
Methapyrilene	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
Methyl methanesulfonate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Nitrobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodibutylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodiethylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodimethylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005

Table 5A - Part 2
EWQVs and Trigger Values
Landfill Cells 1 - 8 Additional Parameters
(As required by permit condition 59)
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table supplement EWQVs on Table 5A-Part 1 and apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Semi Volatile Organic Compounds (con't)

N-Nitrosodi-n-propylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodiphenylamine/Diphenylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosomethylethylamine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosopiperidine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosopyrrolidine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
o,o,o-Triethyl phosphorothioate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
o-Toluidine	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
p-(Dimethylamino)azobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Pentachlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Pentachloronitrobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Pentachlorophenol	5	5	100.0%	0.0245	0.0255	0.0252	0.0255	0.0004	0.02	Yes	No	Type B	0.0265	0.0255	0.0255
Phenacetin	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Phenanthrene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Phorate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Pronamide	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Pyrene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Safrole	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Thionazin	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,1-Trichloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,2,2-Tetrachloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,2-Trichloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloroethene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloropropene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2,3-Trichloropropane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dibromo-3-chloropropane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dibromoethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dichlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
1,2-Dichloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dichloropropane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,3-Dichlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
1,3-Dichloropropane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,4-Dichlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
2,2-Dichloropropane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
2-Butanone (MEK)	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
2-Chloro-1,3-butadiene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025

Table 5A - Part 2
EWQVs and Trigger Values
Landfill Cells 1 - 8 Additional Parameters
(As required by permit condition 59)
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table supplement EWQVs on Table 5A-Part 1 and apply to Cells 1-8 wells: MW-CR, MW-D, MW-E, MW-F, MW-GR, MW-H, MW-J, MW-N, MW-O, MW-P & MW-QR

Volatile Organic Compounds (con't)

2-Hexanone	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
4-Methyl-2-pentanone	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Acetone	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Acetonitrile	5	5	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Acrolein	5	5	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Acrylonitrile	5	5	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Allyl chloride	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Benzene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromochloromethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromodichloromethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromoform	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromomethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Carbon disulfide	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Carbon tetrachloride	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chlorobenzene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloroethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloroform	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloromethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
cis-1,2-Dichloroethene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
cis-1,3-Dichloropropene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dibromochloromethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dibromomethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dichlorodifluoromethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dichloromethane (Methylene chloride)	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Ethyl benzene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Ethyl methacrylate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Iodomethane	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Isobutyl alcohol	5	5	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
m&p-Xylene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Methacrylonitrile	5	5	100.0%	0.01	0.01	0.01	0.01	0.00	0.00	Yes	No	Type B	0.01	0.01	0.01
Methyl methacrylate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
o-Xylene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Phenol	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Propionitrile	5	5	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Styrene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Tetrachloroethene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Toluene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,2-Dichloroethene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,3-Dichloropropene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,4-Dichloro-2-butene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Trichloroethene	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Trichlorofluoromethane	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Vinyl acetate	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Vinyl chloride	5	5	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2,4-Trichlorobenzene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Hexachlorobutadiene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005
Naphthalene	5	5	100.0%	0.005	0.005	0.005	0.005	0.000	0.01	Yes	No	Type B	0.005	0.005	0.005

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

Field Parameters

Field pH (std. units)	45	0	0.0%	6.46	9.21	7.61	7.63	0.41	0.05	Yes	Yes	Type A	8.85	7.95	6.37 - 8.85
ORP (mV)	45	0	0.0%	-175.40	217.80	-4.96	-6.20	92.67	-18.70	Yes	Yes	Type A	273.05	112.09	273.05
Specific Conductivity (us/cm)	45	0	0.0%	111.90	589.40	371.11	332.20	116.59	0.31	Yes	Yes	Type A	720.89	554.68	720.89
Temperature (deg. C)	45	0	0.0%	3.10	20.00	9.66	8.45	3.47	0.36	Yes	Yes	Type A	20.07	14.25	20.07
Turbidity (NTU)	45	0	0.0%	0.45	200	14.08	5.31	33.94	2.41	No	Yes	Type B	115.91	17.26	17.26

Inorganic Compounds

Aluminum	27	5	18.5%	0.0234	3.88	0.409	0.141	0.80	1.96	No	No	Type B	2.8130	0.7422	0.7422
Antimony	27	27	100.0%	0.03	0.03	0.03	0.03	0.00	0.00	Yes	No	Type B	0.03	0.03	0.03
Arsenic	33	27	81.8%	0.0044	0.0056	0.0050071	0.005	0.00	0.03	Yes	No	Type B	0.006	0.005	0.005
Barium	28	0	0.0%	0.0208	0.1430	0.0721	0.0699	0.04	0.50	Yes	Yes	Type A	0.1794	0.1241	0.1794
Beryllium	27	26	96.3%	0.0002	0.0015	0.0014	0.0015	0.00	0.19	Yes	No	Type B	0.0023	0.0015	0.0015
Boron	27	1	3.7%	0.0124	0.1000	0.0529	0.0470	0.02	0.43	Yes	Yes	Type A	0.1204	0.0856	0.1204
Cadmium	44	44	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Calcium	44	0	0.0%	14.40	82.50	51.58	48.00	14.61	0.28	Yes	Yes	Type A	95.41	71.68	95.41
Chromium	27	18	66.7%	0.000	0.005	0.004	0.005	0.00	0.44	Yes	No	Type B	0.009	0.005	0.005
Chromium, hexavalent	27	23	85.2%	0.003	0.009	0.005	0.005	0.00	0.20	Yes	No	Type B	0.008	0.005	0.005
Cobalt	27	25	92.6%	0.002	0.025	0.024	0.025	0.00	0.20	Yes	No	Type B	0.039	0.025	0.025
Copper	27	23	85.2%	0.001	0.010	0.009	0.010	0.00	0.32	Yes	No	Type B	0.018	0.010	0.010
Iron	44	5	11.4%	0.022	3.530	0.450	0.226	0.68	1.51	No	Yes	Type B	2.490	0.926	0.926
Lead	44	44	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Magnesium	44	0	0.0%	3.8	28.9	14.7	12.3	6.13	0.42	Yes	Yes	Type A	33.1	24.5	33.1
Manganese	44	0	0.0%	0.01	1.10	0.53	0.45	0.26	0.49	Yes	Yes	Type A	1.31	0.87	1.31
Mercury	27	27	100.0%	0.0001	0.0001	0.0001	0.0001	0.00	0.00	Yes	No	Type B	0.0001	0.0001	0.0001
Nickel	27	26	96.3%	0.02	0.02	0.02	0.02	0.00	0.00	Yes	No	Type B	0.02	0.02	0.02
Potassium	44	0	0.0%	1.55	18.8	3.43	2.1	3.54	1.03	No	Yes	Type B	14.04	5.87	5.87
Selenium	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Silver	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Sodium	44	0	0.0%	3.84	30.00	15.73	11.60	7.33	0.47	Yes	Yes	Type A	37.71	26.62	37.71
Thallium	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Tin	7	7	100.0%	0.25	0.25	0.25	0.25	0.00	0.00	Yes	No	Type B	0.25	0.25	0.25
Vanadium	27	18	66.7%	0.0007	0.025	0.0169957	0.025	0.01	0.66	No	No	Type B	0.0507792	0.025	0.025
Zinc	27	21	77.8%	0.0019	0.01	0.0089783	0.01	0.00	0.26	Yes	No	Type B	0.0161069	0.01	0.01

Polychlorinated Biphenyls (PCBs)

Aroclor-1016	7	7	100.0%	0.000465	0.0005	0.0004892	0.000495	0.00	0.03	Yes	No	Type B	0.000532	0.0005	0.0005
Aroclor-1221	7	7	100.0%	0.00095	0.001	0.0009833	0.001	0.00	0.03	Yes	No	Type B	0.0010608	0.001	0.001
Aroclor-1232	7	7	100.0%	0.000465	0.0005	0.0004892	0.000495	0.00	0.03	Yes	No	Type B	0.000532	0.0005	0.0005
Aroclor-1242	7	7	100.0%	0.000465	0.0005	0.0004892	0.000495	0.00	0.03	Yes	No	Type B	0.000532	0.0005	0.0005
Aroclor-1248	7	7	100.0%	0.000465	0.0005	0.0004892	0.000495	0.00	0.03	Yes	No	Type B	0.000532	0.0005	0.0005
Aroclor-1254	7	7	100.0%	0.000465	0.0005	0.0004892	0.000495	0.00	0.03	Yes	No	Type B	0.000532	0.0005	0.0005
Aroclor-1260	7	7	100.0%	0.000465	0.0005	0.0004892	0.000495	0.00	0.03	Yes	No	Type B	0.000532	0.0005	0.0005

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

Pesticides															
4,4'-DDD	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
4,4'-DDE	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
4,4'-DDT	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Aldrin	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
alpha-BHC	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
alpha-Chlordane	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
beta-BHC	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Chlorobenzilate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
delta-BHC	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Dieldrin	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Dinoseb	7	7	100.0%	0.00025	0.00026	0.0002517	0.00025	0.00	0.02	Yes	No	Type B	0.00026391	0.000255	0.000255
Endosulfan I	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Endosulfan II	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Endosulfan sulfate	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Endrin	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Endrin aldehyde	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
gamma-BHC (Lindane)	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
gamma-Chlordane	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Heptachlor	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Heptachlor epoxide	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Methoxychlor	7	7	100.0%	0.0000235	0.0000255	0.0000246	0.00002475	0.00	0.03	Yes	No	Type B	0.00002679	0.00002525	0.00002525
Methyl parathion	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Parathion	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Toxaphene	7	7	100.0%	0.00025	0.000255	0.0002508	0.00025	0.00	0.01	Yes	No	Type B	0.000257	0.0002525	0.0002525

Per- and Polyfluoroalkyl Substances (PFAS)															
6:2 Fluorotelomer sulfonate	7	6	85.7%	0.0000006	0.0000022	0.0000019	0.0000021	0.00	0.33	Yes	No	Type B	0.00000367	0.00000215	0.00000215
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
N-ethylperfluoro-1-octanesulfonamidoacetic acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
N-methylperfluoro-1-octanesulfonamidoacetic acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorobutanesulfonic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorobutanoic Acid	7	4	57.1%	0.0000004	0.0000022	0.0000018	0.000002075	0.00	0.39	Yes	No	Type B	0.00000382	0.00000215	0.00000215
Perfluorodecane Sulfonate	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorodecanoic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorododecanoic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluoroheptane sulfonate	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluoroheptanoic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorohexanesulfonic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorohexanoic Acid	7	7	100.0%	0.0000046	0.0000046	0.0000046	0.0000046	0.00	0.00	Yes	No	Type B	0.00000460	0.0000046	0.0000046
Perfluorononanoic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluoro-n-tridecanoic acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorooctanesulfonamide	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorooctanesulfonic Acid	7	7	100.0%	0.0000008	0.0000009	0.0000008	0.00000085	0.00	0.03	Yes	No	Type B	0.00000091	0.00000085	0.00000085
Perfluorooctanoic Acid	7	4	57.1%	0.0000004	0.0000012	0.0000008	0.00000085	0.00	0.33	Yes	No	Type B	0.00000163	0.00000103	0.00000103
Perfluoropentanoic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluorotetradecanoic acid (PFTeDA)	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215
Perfluoroundecanoic Acid	7	7	100.0%	0.0000020	0.0000022	0.0000021	0.00000215	0.00	0.03	Yes	No	Type B	0.00000231	0.00000215	0.00000215

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

Herbicides

2,4,5-T	7	7	100.0%	0.00025	0.00026	0.0002517	0.00025	0.00	0.02	Yes	No	Type B	0.0002639	0.000255	0.000255
2,4,5-TP	7	7	100.0%	0.00025	0.00026	0.0002517	0.00025	0.00	0.02	Yes	No	Type B	0.0002639	0.000255	0.000255
2,4-D	7	7	100.0%	0.00025	0.00026	0.0002517	0.00025	0.00	0.02	Yes	No	Type B	0.0002639	0.000255	0.000255

Radionuclides (pCi/L) Act ± Unc (MDC)

Radium-226, Dissolved (EPA 903.1) (pCi/L)	13	0	0.0%	0.08	3.3	0.57	0.22	0.93	1.65	No	Yes	Type B	3.36	0.81	0.81
Radium-226, Total (EPA 903.1) (pCi/L)	13	0	0.0%	-0.07	0.58	0.26	0.24	0.17	0.65	No	Yes	Type B	0.75	0.39	0.39
Radium-228, Dissolved (EPA 904.0) (pCi/L)	13	0	0.0%	-0.4	1.16	0.36	0.42	0.47	1.31	No	Yes	Type B	1.76	0.92	0.92
Radium-228, Total (EPA 904.0) (pCi/L)	13	0	0.0%	-0.26	5	0.84	0.62	1.42	1.70	No	Yes	Type B	5.11	0.76	0.76
Total Uranium, Dissolved (EPA 908.0) (pCi/L)	13	0	0.0%	0.27	2.15	1.14	0.81	0.74	0.65	No	Yes	Type B	3.35	2.12	2.12
Total Uranium, Total (EPA 908.0) (pCi/L)	13	0	0.0%	0.189	2.18	1.12	0.82	0.75	0.67	No	Yes	Type B	3.36	2.15	2.15

Semi Volatile Organic Compounds

1,2,4,5-Tetrachlorobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
1,3,5-Trinitrobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
1,3-Dinitrobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
1,4-Dioxane	8	6	75.0%	0.00002	0.00002	0.00002	0.00002	0.00	0.00	Yes	No	Type B	0.00002	0.00002	0.00002
1,4-Naphthoquinone	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
1,4-Phenylenediamine	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
1-Naphthylamine	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
2,3,4,6-Tetrachlorophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,4,5-Trichlorophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,4,6-Trichlorophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,4-Dichlorophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,4-Dimethylphenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,4-Dinitrophenol	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
2,4-Dinitrotoluene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,6-Dichlorophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2,6-Dinitrotoluene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Acetylaminofluorene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Chloronaphthalene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Chlorophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Methyl-5-nitroaniline	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Methylnaphthalene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Methylphenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
2-Naphthylamine	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
2-Nitroaniline	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
2-Nitrophenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
3,3-Dichlorobenzidine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
3,3-Dimethylbenzidine	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
3/4-Methylphenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
3-Methylcholanthrene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
3-Nitroaniline	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
4,6-Dinitro-2-methylphenol	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
4-Aminobiphenyl	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
4-Bromophenyl-phenylether	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

Semi Volatile Organic Compounds (con't)

4-Chloro-3-methylphenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
4-Chloroaniline	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
4-Chlorophenyl-phenylether	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
4-Nitroaniline	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
4-Nitrophenol	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
7,12-Dimethylbenz(a)anthracene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Acenaphthene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Acenaphthylene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Acetophenone	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Anthracene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Benzo(a)anthracene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Benzo(a)pyrene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Benzo(b)fluoranthene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Benzo(g,h,i)perylene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Benzo(k)fluoranthene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Benzyl alcohol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Bis(1-chloroisopropyl) Ether	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
bis(2-Chloroethoxy) methane	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
bis(2-Chloroethyl) ether	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
bis(2-Ethylhexyl) phthalate	9	7	77.8%	0.005	0.017	0.007	0.005	0.00	0.69	No	No	Type B	0.020	0.010	0.010
Butylbenzylphthalate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Chrysene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Diallate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Dibenzo(a,h)anthracene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Dibenzofuran	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Diethylphthalate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Dimethoate	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
Dimethylphthalate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Di-n-butylphthalate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Di-n-octylphthalate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Diphenylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Disulfoton	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Ethyl methanesulfonate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Famphur	7	7	100.0%	0.000	0.001	0.000	0.000	0.00	0.03	Yes	No	Type B	0.001	0.0005	0.0005
Fluoranthene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Fluorene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Hexachlorobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Hexachlorocyclopentadiene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Hexachloroethane	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Hexachloropropene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Indeno(1,2,3-cd)pyrene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Isodrin	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Isophorone	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Isosafrole	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Kepone	7	7	100.0%	0.0024	0.0026	0.0025	0.0025	0.00	0.03	Yes	No	Type B	0.0027	0.0025	0.0025

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

Semi Volatile Organic Compounds (con't)

Methapyrilene	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
Methyl methanesulfonate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Nitrobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodibutylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodiethylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodimethylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodi-n-propylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosodiphenylamine/Diphenylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosomethylethylamine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosopiperidine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
N-Nitrosopyrrolidine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
o,o,o-Triethyl phosphorothioate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
o-Toluidine	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
p-(Dimethylamino)azobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Pentachlorobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Pentachloronitrobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Pentachlorophenol	7	7	100.0%	0.0235	0.0255	0.0241	0.0240	0.00	0.03	Yes	No	Type B	0.0263	0.0248	0.0248
Phenacetin	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Phenanthrene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Phorate	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Pronamide	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Pyrene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Safrole	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Thionazin	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,1-Trichloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,2,2-Tetrachloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,2-Trichloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloroethene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloropropene	13	13	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2,3-Trichloropropane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dibromo-3-chloropropane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dibromoethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dichlorobenzene	21	21	100.0%	0.0025	0.005	0.0033	0.0025	0.00	0.34	Yes	No	Type B	0.0066	0.0048	0.0048
1,2-Dichloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dichloropropane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,3-Dichlorobenzene	7	7	100.0%	0.00465	0.005	0.004775	0.004775	0.00	0.03	Yes	No	Type B	0.0052	0.0049	0.0049
1,3-Dichloropropane	13	13	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,4-Dichlorobenzene	21	21	100.0%	0.0025	0.005	0.0033	0.0025	0.00	0.34	Yes	No	Type B	0.0066	0.0048	0.0048
2,2-Dichloropropane	13	13	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
2-Butanone (MEK)	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

Volatiles Organic Compounds (con't)

2-Chloro-1,3-butadiene	13	13	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
2-Hexanone	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
4-Methyl-2-pentanone	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Acetone	27	25	92.6%	0.0025	0.005	0.005	0.005	0.00	0.11	Yes	No	Type B	0.006	0.005	0.005
Acetonitrile	13	13	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Acrolein	13	13	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Acrylonitrile	27	27	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Allyl chloride	13	13	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Benzene	27	26	96.3%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromochloromethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromodichloromethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromoform	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromomethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Carbon disulfide	27	25	92.6%	0.00072	0.005	0.005	0.005	0.00	0.19	Yes	No	Type B	0.007	0.005	0.005
Carbon tetrachloride	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chlorobenzene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloroethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloroform	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloromethane	27	23	85.2%	0.00029	0.0025	0.0021	0.0025	0.00	0.40	Yes	No	Type B	0.0047	0.0025	0.0025
cis-1,2-Dichloroethene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
cis-1,3-Dichloropropene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dibromochloromethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dibromomethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dichlorodifluoromethane	13	13	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dichloromethane (Methylene chloride)	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Ethyl benzene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Ethyl methacrylate	13	13	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Iodomethane	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Isobutyl alcohol	13	13	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
m&p-Xylene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Methacrylonitrile	13	13	100.0%	0.01	0.01	0.01	0.01	0.00	0.00	Yes	No	Type B	0.01	0.01	0.01
Methyl methacrylate	13	13	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
o-Xylene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Phenol	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Propionitrile	13	13	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Styrene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Tetrachloroethene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Toluene	27	26	96.3%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,2-Dichloroethene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,3-Dichloropropene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,4-Dichloro-2-butene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Trichloroethene	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Trichlorofluoromethane	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Vinyl acetate	27	27	100.0%	0.005	0.005	0.005	0.005	0.00	0.00	Yes	No	Type B	0.005	0.005	0.005
Vinyl chloride	27	27	100.0%	0.0025	0.0025	0.0025	0.0025	0.00	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2,4-Trichlorobenzene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Hexachlorobutadiene	7	7	100.0%	0.005	0.005	0.005	0.005	0.00	0.03	Yes	No	Type B	0.005	0.005	0.005
Naphthalene	8	8	100.0%	0.003	0.005	0.004	0.005	0.00	0.20	Yes	No	Type B	0.007	0.005	0.005

Table 5A - Part 3
EWQVs and Trigger Values
Landfill Cell 9 Inter-well Expanded Parameter
Hakes C and D Landfill
Campbell New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed of non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90th Percentile	Trigger Value
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Note: The EWQV's on this table apply to Cell 9 wells: MW-O(BR), MW-R(BR), MW-S(BR), MW-T(BR), MW-U(BR) & MW-V(BR)

General Chemistry

Alkalinity	44	0	0.0%	46.00	250.00	173	160	44	0.26	Yes	Yes	Type A	305	230	305
Ammonia Nitrogen	44	26	59.1%	0.010	0.060	0.025	0.025	0.01	0.33	Yes	No	Type B	0.050	0.033	0.033
Biochemical Oxygen Demand	45	42	93.3%	1.00	3.00	1.14	1.00	0.50	0.44	Yes	No	Type B	2.65	1.00	1.00
Bromide	44	44	100.0%	0.5	0.5	0.5	0.5	0.00	0.00	Yes	No	Type B	0.5	0.5	0.5
Chemical Oxygen Demand	44	19	43.2%	2.5	23.6	4.88	2.5	3.92	0.80	No	No	Type B	16.65	8.04	8.04
Chloride	44	0	0.0%	0.70	3.10	1.44	1.30	0.49	0.34	Yes	Yes	Type A	2.91	2.00	2.91
Color (True) (C.U.)	27	0	0.0%	4.00	25.00	13.83	15.00	5.97	0.43	Yes	Yes	Type A	31.75	20.00	31.75
Cyanide	27	27	100.0%	0.0025	0.0050	0.0033	0.0025	0.00	0.36	Yes	No	Type B	0.0068	0.0050	0.0050
Hardness	44	0	0.0%	51.80	325.00	189.35	171.00	61.23	0.32	Yes	Yes	Type A	373.04	281.40	373.04
Nitrate Nitrogen	44	39	88.6%	0.50	0.70	0.51	0.50	0.05	0.09	Yes	No	Type B	0.66	0.50	0.50
pH of Color Analysis	27	0	0.0%	7.05	8.26	7.89	7.96	0.24	0.03	Yes	Yes	Type A	8.60	8.03	8.60
Sulfate	44	0	0.0%	9.80	117.00	44.53	37.10	32.98	0.74	No	Yes	Type B	143.48	99.12	99.12
Total Dissolved Solids	44	0	0.0%	93.00	445.00	246.97	218.00	89.45	0.36	Yes	Yes	Type A	515.33	383.20	515.33
Total Kjeldahl Nitrogen	44	25	56.8%	0.10	0.29	0.13	0.10	0.06	0.42	Yes	No	Type B	0.30	0.20	0.20
Total Organic Carbon (TOC)	44	14	31.8%	0.09	1.80	0.54	0.50	0.30	0.55	No	No	Type B	1.42	0.76	0.76
Total Phenolics	44	39	88.6%	0.0025	0.0074	0.0026	0.0025	0.00	0.31	Yes	No	Type B	0.0050	0.0025	0.0025

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

Field Parameters

Field pH (std. units)	7	0	0.0%	6.67	7.54	7.21	7.28	0.30	0.04	Yes	Yes	Type A	8.11	7.52	6.31 - 8.11
ORP (mV)	7	0	0.0%	-116.40	239.10	12.66	-8.00	123.04	9.72	No	Yes	Type B	381.77	161.16	161.16
Specific Conductivity (us/cm)	7	0	0.0%	1055	1162	1093	1078	41	0.04	Yes	Yes	Type A	1217	1142	1217
Temperature (deg. C)	7	0	0.0%	6.80	20.10	11.03	9.50	4.75	0.43	Yes	Yes	Type A	25.27	16.44	25.27
Turbidity (NTU)	7	0	0.0%	3.10	147.00	26.17	5.55	53.40	2.04	No	Yes	Type B	186.37	66.96	66.96

Inorganic Compounds

Aluminum	4	1	25.0%	0.05	2.68	0.73	0.10	1.30	1.78	No	No	Type B	4.63	1.91	1.91
Antimony	4	4	100.0%	0.03	0.03	0.03	0.03	0.00	0.00	Yes	No	Type B	0.03	0.03	0.03
Arsenic	5	4	80.0%	0.0050	0.0087	0.0057	0.0050	0.0017	0.29	Yes	No	Type B	0.0107	0.0072	0.0072
Barium	4	0	0.0%	0.0221	0.0355	0.0301	0.0313	0.0058	0.19	Yes	Yes	Type A	0.0476	0.0348	0.0476
Beryllium	4	4	100.0%	0.0015	0.0015	0.0015	0.0015	0.0000	0.00	Yes	No	Type B	0.0015	0.0015	0.0015
Boron	4	0	0.0%	0.1250	0.1290	0.1268	0.1265	0.0021	0.02	Yes	Yes	Type A	0.1329	0.1287	0.1329
Cadmium	7	7	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Calcium	7	0	0.0%	99	141	114	112	15	0.13	Yes	Yes	Type A	159	133	159
Chromium	4	1	25.0%	0.0007	0.0054	0.0030	0.0030	0.0025	0.85	No	No	Type B	0.0106	0.0053	0.0053
Chromium, hexavalent	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Cobalt	4	3	75.0%	0.008	0.025	0.021	0.025	0.009	0.41	Yes	No	Type B	0.046	0.025	0.025
Copper	4	3	75.0%	0.00	0.01	0.01	0.01	0.00	0.37	Yes	No	Type B	0.02	0.01	0.01
Iron	7	0	0.0%	0.09	7.68	2.22	1.16	2.67	1.20	No	Yes	Type B	10.24	5.15	5.15
Lead	7	7	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Magnesium	7	0	0.0%	52.6	59.0	55.7	55.5	2.0	0.04	Yes	Yes	Type A	61.7	57.9	61.7
Manganese	7	0	0.0%	0.730	1.810	1.161	1.220	0.378	0.33	Yes	Yes	Type A	2.296	1.528	2.296
Mercury	4	4	100.0%	0.0001	0.0001	0.0001	0.0001	0.0000	0.00	Yes	No	Type B	0.0001	0.0001	0.0001
Nickel	4	3	75.0%	0.01	0.02	0.02	0.02	0.01	0.44	Yes	No	Type B	0.04	0.02	0.02
Potassium	7	0	0.0%	18.3	48.4	40.3	44.6	10.5	0.26	Yes	Yes	Type A	71.9	47.7	71.9
Selenium	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Silver	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Sodium	7	0	0.0%	64.2	84.7	74.0	72.9	6.8	0.09	Yes	Yes	Type A	94.3	82.4	94.3
Thallium	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Tin	1	1	100.0%	0.25	0.25	0.25	0.25	0.00	0.00	Yes	No	Type B	0.25	0.25	0.25
Vanadium	4	3	75.0%	0.005	0.025	0.020	0.025	0.010	0.52	No	No	Type B	0.051	0.025	0.025
Zinc	4	3	75.0%	0.01	0.01	0.01	0.01	0.00	0.14	Yes	No	Type B	0.02	0.01	0.01

Polychlorinated Biphenyls (PCBs)

Aroclor-1016	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495
Aroclor-1221	1	1	100.0%	0.001	0.001	0.001	0.001	0.000	0.00	Yes	No	Type B	0.001	0.001	0.001
Aroclor-1232	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495
Aroclor-1242	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495
Aroclor-1248	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495
Aroclor-1254	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495
Aroclor-1260	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

Pesticides

4,4'-DDD	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
4,4'-DDE	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
4,4'-DDT	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Aldrin	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
alpha-BHC	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
alpha-Chlordane	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
beta-BHC	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Chlorobenzilate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
delta-BHC	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Dieldrin	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Dinoseb	1	1	100.0%	0.000255	0.000255	0.000255	0.000255	0.000000	0.00	Yes	No	Type B	0.000255	0.000255	0.000255
Endosulfan I	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Endosulfan II	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Endosulfan sulfate	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Endrin	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Endrin aldehyde	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
gamma-BHC (Lindane)	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
gamma-Chlordane	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Heptachlor	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Heptachlor epoxide	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Methoxychlor	1	1	100.0%	0.000025	0.000025	0.000025	0.000025	0.000000	0.00	Yes	No	Type B	0.000025	0.000025	0.000025
Methyl parathion	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Parathion	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Toxaphene	1	1	100.0%	0.00025	0.00025	0.00025	0.00025	0.000000	0.00	Yes	No	Type B	0.00025	0.00025	0.00025

Per- and Polyfluoroalkyl Substances (PFAS)

6:2 Fluorotelomer sulfonate	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
N-ethylperfluoro-1-octanesulfonamidoacetic acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
N-methylperfluoro-1-octanesulfonamidoacetic acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorobutanesulfonic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorobutanoic Acid	1	0	0.0%	0.0000013	0.0000013	0.0000013	0.0000013	0.0000000	0.00	Yes	Yes	Type A	0.0000013	0.0000013	0.0000013
Perfluorodecane Sulfonate	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorodecanoic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorododecanoic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluoroheptane sulfonate	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluoroheptanoic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorohexanesulfonic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.0000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorohexanoic Acid	1	1	100.0%	0.00000465	0.00000465	0.00000465	0.00000465	0.00000000	0.00	Yes	No	Type B	0.00000465	0.00000465	0.00000465
Perfluorononanoic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.00000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluoro-n-tridecanoic acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.00000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorooctanesulfonamide	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.00000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorooctanesulfonic Acid	1	1	100.0%	0.00000095	0.00000095	0.00000095	0.00000095	0.00000000	0.00	Yes	No	Type B	0.00000095	0.00000095	0.00000095
Perfluorooctanoic Acid	1	0	0.0%	0.00000056	0.00000056	0.00000056	0.00000056	0.00000000	0.00	Yes	Yes	Type A	0.00000056	0.00000056	0.00000056
Perfluoropentanoic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.00000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluorotetradecanoic acid (PFTeDA)	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.00000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023
Perfluoroundecanoic Acid	1	1	100.0%	0.0000023	0.0000023	0.0000023	0.0000023	0.00000000	0.00	Yes	No	Type B	0.0000023	0.0000023	0.0000023

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

Herbicides

2,4,5-T	1	1	100.0%	0.000255	0.000255	0.000255	0.000255	0.000000	0.00	Yes	No	Type B	0.000255	0.000255	0.000255
2,4,5-TP	1	1	100.0%	0.000255	0.000255	0.000255	0.000255	0.000000	0.00	Yes	No	Type B	0.000255	0.000255	0.000255
2,4-D	1	1	100.0%	0.000255	0.000255	0.000255	0.000255	0.000000	0.00	Yes	No	Type B	0.000255	0.000255	0.000255

Radionuclides (pCi/L)

Radium-226, Dissolved (EPA 903.1) (pCi/L)	2	0	0.0%	0.18	0.27	0.23	0.23	0.06	0.28	Yes	Yes	Type A	0.42	0.26	0.42
Radium-226, Total (EPA 903.1) (pCi/L)	2	0	0.0%	-0.030	0.080	0.025	0.025	0.078	3.11	No	Yes	Type B	0.258	0.069	0.069
Radium-228, Dissolved (EPA 904.0) (pCi/L)	2	0	0.0%	0.090	0.440	0.265	0.265	0.247	0.93	No	Yes	Type B	1.007	0.405	0.405
Radium-228, Total (EPA 904.0) (pCi/L)	2	0	0.0%	-0.100	0.240	0.070	0.070	0.240	3.43	No	Yes	Type B	0.791	0.206	0.206
Total Uranium, Dissolved (EPA 908.0) (pCi/L)	2	0	0.0%	8.500	8.600	8.550	8.550	0.071	0.01	Yes	Yes	Type A	8.762	8.590	8.762
Total Uranium, Total (EPA 908.0) (pCi/L)	2	0	0.0%	6.31	9.10	7.71	7.71	1.97	0.26	Yes	Yes	Type A	13.62	8.82	13.62

Semi Volatile Organic Compounds

1,2,4,5-Tetrachlorobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
1,3,5-Trinitrobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
1,3-Dinitrobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
1,4-Dioxane	2	0	0.0%	0.00023	0.00028	0.00026	0.00026	0.00004	0.14	Yes	Yes	Type A	0.00036	0.00028	0.00036
1,4-Naphthoquinone	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
1,4-Phenylenediamine	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
1-Naphthylamine	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
2,3,4,6-Tetrachlorophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,4,5-Trichlorophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,4,6-Trichlorophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,4-Dichlorophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,4-Dimethylphenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,4-Dinitrophenol	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
2,4-Dinitrotoluene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,6-Dichlorophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2,6-Dinitrotoluene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Acetylaminofluorene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Chloronaphthalene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Chlorophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Methyl-5-nitroaniline	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Methylnaphthalene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Methylphenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
2-Naphthylamine	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
2-Nitroaniline	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
2-Nitrophenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
3,3-Dichlorobenzidine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
3,3-Dimethylbenzidine	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
3/4-Methylphenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
3-Methylcholanthrene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
3-Nitroaniline	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
4,6-Dinitro-2-methylphenol	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
4-Aminobiphenyl	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
4-Bromophenyl-phenylether	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

Semi Volatile Organic Compounds (con't)															
4-Chloro-3-methylphenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
4-Chloroaniline	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
4-Chlorophenyl-phenylether	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
4-Nitroaniline	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
4-Nitrophenol	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
7,12-Dimethylbenz(a)anthracene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Acenaphthene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Acenaphthylene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Acetophenone	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Anthracene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Benzo(a)anthracene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Benzo(a)pyrene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Benzo(b)fluoranthene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Benzo(g,h,i)perylene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Benzo(k)fluoranthene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Benzyl alcohol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Bis(1-chloroisopropyl) Ether	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
bis(2-Chloroethoxy) methane	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
bis(2-Chloroethyl) ether	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
bis(2-Ethylhexyl) phthalate	2	1	50.0%	0.00495	0.02000	0.01248	0.01248	0.01064	0.85	No	No	Type B	0.04440	0.01850	0.01850
Butylbenzylphthalate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Chrysene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Diallate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Dibenzo(a,h)anthracene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Dibenzofuran	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Diethylphthalate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Dimethoate	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
Dimethylphthalate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Di-n-butylphthalate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Di-n-octylphthalate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Diphenylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Disulfoton	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Ethyl methanesulfonate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Famphur	1	1	100.0%	0.000495	0.000495	0.000495	0.000495	0.000000	0.00	Yes	No	Type B	0.000495	0.000495	0.000495
Fluoranthene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Fluorene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Hexachlorobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Hexachlorocyclopentadiene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Hexachloroethane	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Hexachloropropene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Indeno(1,2,3-cd)pyrene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Isodrin	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Isophorone	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Isosafrole	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Kepone	1	1	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

Semi Volatile Organic Compounds (con't)

Methapyrilene	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
Methyl methanesulfonate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Nitrobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosodibutylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosodiethylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosodimethylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosodi-n-propylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosodiphenylamine/Diphenylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosomethylethylamine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosopiperidine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
N-Nitrosopyrrolidine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
o,o,o-Triethyl phosphorothioate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
o-Toluidine	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
p-(Dimethylamino)azobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Pentachlorobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Pentachloronitrobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Pentachlorophenol	1	1	100.0%	0.024	0.024	0.024	0.024	0.000	0.00	Yes	No	Type B	0.024	0.024	0.024
Phenacetin	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Phenanthrene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Phorate	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Pronamide	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Pyrene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Safrole	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Thionazin	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,1-Trichloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,2,2-Tetrachloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1,2-Trichloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloroethene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,1-Dichloropropene	2	2	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2,3-Trichloropropane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dibromo-3-chloropropane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dibromoethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dichlorobenzene	3	3	100.0%	0.0025	0.0048	0.0033	0.0025	0.0013	0.41	Yes	No	Type B	0.0073	0.0043	0.0043
1,2-Dichloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2-Dichloropropane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,3-Dichlorobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
1,3-Dichloropropane	2	2	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,4-Dichlorobenzene	3	3	100.0%	0.0025	0.0048	0.0033	0.0025	0.0013	0.41	Yes	No	Type B	0.0073	0.0043	0.0043
2,2-Dichloropropane	2	2	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
2-Butanone (MEK)	4	4	100.0%	0.0050	0.0050	0.0050	0.0050	0.0000	0.00	Yes	No	Type B	0.0050	0.0050	0.0050

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

Volatile Organic Compounds (con't)															
2-Chloro-1,3-butadiene	2	2	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
2-Hexanone	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
4-Methyl-2-pentanone	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Acetone	4	3	75.0%	0.005	0.014	0.007	0.005	0.005	0.62	No	No	Type B	0.021	0.011	0.011
Acetonitrile	2	2	100.0%	0.050	0.050	0.050	0.050	0.000	0.00	Yes	No	Type B	0.050	0.050	0.050
Acrolein	2	2	100.0%	0.050	0.050	0.050	0.050	0.000	0.00	Yes	No	Type B	0.050	0.050	0.050
Acrylonitrile	4	4	100.0%	0.050	0.050	0.050	0.050	0.000	0.00	Yes	No	Type B	0.050	0.050	0.050
Allyl chloride	2	2	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Benzene	4	3	75.0%	0.0009	0.0025	0.0021	0.0025	0.0008	0.38	Yes	No	Type B	0.0045	0.0025	0.0025
Bromochloromethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromodichloromethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromoform	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Bromomethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Carbon disulfide	4	3	75.0%	0.003	0.005	0.005	0.005	0.001	0.20	Yes	No	Type B	0.007	0.005	0.005
Carbon tetrachloride	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chlorobenzene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloroethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloroform	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Chloromethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
cis-1,2-Dichloroethene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
cis-1,3-Dichloropropene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dibromochloromethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dibromomethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dichlorodifluoromethane	2	2	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Dichloromethane (Methylene chloride)	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Ethyl benzene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Ethyl methacrylate	2	2	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Iodomethane	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Isobutyl alcohol	2	2	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
m&p-Xylene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Methacrylonitrile	2	2	100.0%	0.01	0.01	0.01	0.01	0.00	0.00	Yes	No	Type B	0.01	0.01	0.01
Methyl methacrylate	2	2	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
o-Xylene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Phenol	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Propionitrile	2	2	100.0%	0.05	0.05	0.05	0.05	0.00	0.00	Yes	No	Type B	0.05	0.05	0.05
Styrene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Tetrachloroethene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Toluene	4	3	75.0%	0.0003	0.0025	0.0019	0.0025	0.0011	0.58	No	No	Type B	0.0053	0.0025	0.0025
trans-1,2-Dichloroethene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,3-Dichloropropene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
trans-1,4-Dichloro-2-butene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Trichloroethene	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Trichlorofluoromethane	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
Vinyl acetate	4	4	100.0%	0.005	0.005	0.005	0.005	0.000	0.00	Yes	No	Type B	0.005	0.005	0.005
Vinyl chloride	4	4	100.0%	0.0025	0.0025	0.0025	0.0025	0.0000	0.00	Yes	No	Type B	0.0025	0.0025	0.0025
1,2,4-Trichlorobenzene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Hexachlorobutadiene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048
Naphthalene	1	1	100.0%	0.0048	0.0048	0.0048	0.0048	0.0000	0.00	Yes	No	Type B	0.0048	0.0048	0.0048

Table 5A - Part 4
EWQVs and Trigger Values
MW-V Intra-well Analysis
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter (mg/L except where noted) (one half detection limit listed for non-detects)	Number of Samples	Number of Non-Detects	% Non-Detects	Minimum	Maximum	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV) (SD/Mean)	CV 0.5 or Less?	% ND less than 15%?	Data Set Type	Mean + 3 SD	90 th Percentile	Trigger Value
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Note: The EWQVs on this table are intra-well and apply only to Cell 9 well MW-V

General Chemistry															
Alkalinity	7	0	0.0%	190	460	396	422	92	0.23	Yes	Yes	Type A	671	444	671
Ammonia Nitrogen	7	3	42.9%	0.025	0.203	0.098	0.082	0.077	0.79	No	No	Type B	0.328	0.183	0.183
Biochemical Oxygen Demand	7	6	85.7%	1.0	8.4	2.3	1.0	2.8	1.18	No	No	Type B	10.7	5.2	5.2
Bromide	7	7	100.0%	0.5	0.5	0.5	0.5	0.0	0.00	Yes	No	Type B	0.5	0.5	0.5
Chemical Oxygen Demand	7	0	0.0%	6.6	44.8	16.0	9.5	13.9	0.87	No	Yes	Type B	57.7	31.7	31.7
Chloride	7	0	0.0%	1.8	5.3	2.5	2.0	1.3	0.50	Yes	Yes	Type A	6.3	3.6	6.3
Color (True) (C.U.)	4	0	0.0%	25	32	28	28	4	0.13	Yes	Yes	Type A	39	31	39
Cyanide	4	4	100.0%	0.0025	0.0050	0.0031	0.0025	0.0013	0.40	Yes	No	Type B	0.0069	0.0043	0.0043
Hardness	7	0	0.0%	477	594	514	507	44	0.09	Yes	Yes	Type A	647	569	647
Nitrate Nitrogen	7	6	85.7%	0.5	0.5	0.5	0.5	0.0	0.00	Yes	No	Type B	0.5	0.5	0.5
pH of Color Analysis	4	0	0.0%	6.92	8.09	7.71	7.92	0.53	0.07	Yes	Yes	Type A	9.32	8.05	9.32
Sulfate	7	0	0.0%	102	530	252	228	131	0.52	No	Yes	Type B	646	354	354
Total Dissolved Solids	7	0	0.0%	748	930	799	779	62	0.08	Yes	Yes	Type A	985	861	985
Total Kjeldahl Nitrogen	7	1	14.3%	0.10	1.28	0.42	0.21	0.41	0.99	No	Yes	Type B	1.66	0.83	0.83
Total Organic Carbon (TOC)	7	0	0.0%	1.7	16.0	5.0	3.1	5.0	1.01	No	Yes	Type B	20.1	9.6	9.6
Total Phenolics	7	3	42.9%	0.0022	0.0141	0.0042	0.0025	0.0044	1.04	No	No	Type B	0.0173	0.0075	0.0075

Current and Historic Surface Water Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	SW-1A 11/10/2020	SW-1A 5/20/2021	SW-1A 8/26/2021	SW-1A 11/10/2021	SW-2 11/10/2020	SW-2 2/9/2021	SW-2 5/20/2021	SW-2 8/26/2021	SW-2 11/10/2021	SW-2A 11/10/2020	SW-2A 2/9/2021	SW-2A 5/20/2021	SW-2A 8/26/2021	SW-2A 11/10/2021	SW-3A 11/10/2020	SW-3A 2/9/2021	SW-3A 5/20/2021	SW-3A 8/26/2021
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Field Parameters

Dissolved Oxygen	6.11	6.68	7.61	10.94	9.94	14.63	7.93	7.53	11.23	8.68	13.93	9	8.19	12.9				
Field pH (std. units)	7.39	7.33	7.54	7.25	7.43	7.3	7.35	6.81	7.08	7.13	8.14	7.29	7.06	6.67	8.16	8.21	8.18	7.36
ORP (mV)	113.8	159.3	-26.5	160.3	174.2	203.8	133.5	1	202.7	146.2	190.7	136.7	-15.8	232	154.6	145.6	129.9	-23.1
Specific Conductivity (us/cm)	200.1	73.4	77.7	59.7	246.1	132.7	141.6	84.9	83	206.1	115.7	103.6	71.6	72.8	444.5	393.7	369.3	203.1
Temperature (deg. C)	9.5	12.7	19.1	8.2	9.2	0.5	15.7	19.3	8.9	8.4	0	13.2	18.9	8.1	11.4	2.9	15.8	24.6
Turbidity (NTU)	1.22	2.12	2.33	2.5	10.4	3.53	6.02	24.6	7.46	2.49	1.96	3.53	8.51	7.44	21.5	13.1	7.38	22.7

Inorganic Compounds

Aluminum		0.109					0.33					0.181					0.452	
Antimony		0.06 U					0.06 U					0.06 U					0.06 U	
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium		0.0166 J					0.0286					0.0236					0.0202	
Beryllium		0.003 U					0.003 U					0.003 U					0.003 U	
Boron		0.0184 J					0.0257 J					0.0221 J					0.0633 J	
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	17.5	5.22	6.3	5.1	30.1	15.5	18.7	9.8	8.9	22.6	12.2	12.4	8.2	8.2	52.5	56	42	27.7
Chromium		0.01 U					0.01 U					0.01 U					0.01 U	
Chromium, hexavalent		0.01 U					0.01 U					0.01 U					0.01 U	
Cobalt		0.05 U					0.05 U					0.05 U					0.05 U	
Copper		0.02 U					0.02 U					0.02 U					0.02 U	
Iron	0.1 U	0.0755 J	0.46	0.16	0.47	0.17	0.313	0.65	0.19	0.09 J	0.11	0.17	0.37	0.17	0.76	0.61	0.466	1.44
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	5.3	1.62	1.9	1.6	7.6	4	4.42	2.4	2.3	5.8	3.1	3	2	2.1	12.8	10.5	9.73	5
Manganese	0.016	0.0054 J	0.013	0.005 J	0.009 J	0.006 J	0.0106	0.028	0.009 J	0.022	0.01 U	0.0057 J	0.016	0.006 J	0.02	0.095	0.018	0.165
Mercury		0.0002 U					0.0002 U					0.0002 U					0.0002 U	
Nickel		0.04 U					0.04 U					0.04 U					0.04 U	
Potassium	1.1 J	0.608 J	0.7 J	0.6 J	1.9 J	0.9 J	1.15 J	1.3 J	0.9 J	1.3 J	0.8 J	0.922 J	1.1 J	0.8 J	2.4	2.1	1.62 J	3.1
Selenium		0.01 U					0.01 U					0.01 U					0.01 U	
Silver		0.01 U					0.01 U					0.01 U					0.01 U	
Sodium	10	6.78	6.5	4.7	10.7	8.4	4.97	4	3.9	9.9	7.7	5.17	3.5	3.4	20.7	18	20	6
Thallium		0.01 U					0.01 U					0.01 U					0.01 U	
Vanadium		0.05 U					0.0008 J					0.05 U					0.0007 J	
Zinc		0.02 U					0.02 U					0.02 U					0.003 J	

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,1,1-Trichloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,1,2,2-Tetrachloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,1,2-Trichloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,1-Dichloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,1-Dichloroethene		0.005 U					0.005 U					0.005 U					0.005 U	
1,2,3-Trichloropropane		0.005 U					0.005 U					0.005 U					0.005 U	
1,2-Dibromo-3-chloropropane		0.005 U					0.005 U					0.005 U					0.005 U	
1,2-Dibromoethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,2-Dichlorobenzene		0.005 U					0.005 U					0.005 U					0.005 U	
1,2-Dichloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
1,2-Dichloropropane		0.005 U					0.005 U					0.005 U					0.005 U	
1,4-Dichlorobenzene		0.005 U					0.005 U					0.005 U					0.005 U	
2-Butanone (MEK)		0.01 U					0.01 U					0.01 U					0.01 U	
2-Hexanone		0.01 U					0.01 U					0.01 U					0.01 U	
4-Methyl-2-pentanone		0.01 U					0.01 U					0.01 U					0.01 U	
Acetone		0.01 U					0.01 U					0.01 U					0.01 U	
Acrylonitrile		0.1 U					0.1 U					0.1 U					0.1 U	

Current and Historic Surface Water Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	SW-1A 11/10/2020	SW-1A 5/20/2021	SW-1A 8/26/2021	SW-1A 11/10/2021	SW-2 11/10/2020	SW-2 2/9/2021	SW-2 5/20/2021	SW-2 8/26/2021	SW-2 11/10/2021	SW-2A 11/10/2020	SW-2A 2/9/2021	SW-2A 5/20/2021	SW-2A 8/26/2021	SW-2A 11/10/2021	SW-3A 11/10/2020	SW-3A 2/9/2021	SW-3A 5/20/2021	SW-3A 8/26/2021
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Volatile Organic Compounds (con't)

Benzene		0.005 U					0.005 U					0.005 U					0.005 U	
Bromochloromethane		0.005 U					0.005 U					0.005 U					0.005 U	
Bromodichloromethane		0.005 U					0.005 U					0.005 U					0.005 U	
Bromoform		0.005 U					0.005 U					0.005 U					0.005 U	
Bromomethane		0.005 U					0.005 U					0.005 U					0.005 U	
Carbon disulfide		0.01 U					0.01 U					0.01 U					0.01 U	
Carbon tetrachloride		0.005 U					0.005 U					0.005 U					0.005 U	
Chlorobenzene		0.005 U					0.005 U					0.005 U					0.005 U	
Chloroethane		0.005 U					0.005 U					0.005 U					0.005 U	
Chloroform		0.005 U					0.005 U					0.005 U					0.005 U	
Chloromethane		0.005 U					0.005 U					0.005 U					0.005 U	
cis-1,2-Dichloroethene		0.005 U					0.005 U					0.005 U					0.005 U	
cis-1,3-Dichloropropene		0.005 U					0.005 U					0.005 U					0.005 U	
Dibromochloromethane		0.005 U					0.005 U					0.005 U					0.005 U	
Dibromomethane		0.005 U					0.005 U					0.005 U					0.005 U	
Dichloromethane (Methylene chloride)		0.005 U					0.005 U					0.005 U					0.005 U	
Ethyl benzene		0.005 U					0.005 U					0.005 U					0.005 U	
Iodomethane		0.01 U					0.01 U					0.01 U					0.01 U	
m&p-Xylene		0.005 U					0.005 U					0.005 U					0.005 U	
o-Xylene		0.005 U					0.005 U					0.005 U					0.005 U	
Styrene		0.005 U					0.005 U					0.005 U					0.005 U	
Tetrachloroethene		0.005 U					0.005 U					0.005 U					0.005 U	
Toluene		0.005 U					0.005 U					0.005 U					0.005 U	
trans-1,2-Dichloroethene		0.005 U					0.005 U					0.005 U					0.005 U	
trans-1,3-Dichloropropene		0.005 U					0.005 U					0.005 U					0.005 U	
trans-1,4-Dichloro-2-butene		0.005 U					0.005 U					0.005 U					0.005 U	
Trichloroethene		0.005 U					0.005 U					0.005 U					0.005 U	
Trichlorofluoromethane		0.005 U					0.005 U					0.005 U					0.005 U	
Vinyl acetate		0.01 U					0.01 U					0.01 U					0.01 U	
Vinyl chloride		0.005 U					0.005 U					0.005 U					0.005 U	

General Chemistry

Alkalinity	25.2	17.5	21	15.8	59.2	34.6	41.7	24.4	23.8	48.4	27.4	30.6	23.7	22.8	102	117	77.4	69.9
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.033 J
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chemical Oxygen Demand	8.4	8.4 UJ	21.7	11.7	8.1	9.4	8.4	13.6	8.5	5.9	8.4	7.5	8.5	7.9	13.6	14.2	14.2	4.3 J
Chloride	25.1	6.2	7.8	5.9	11.5	14.5	4.2	4.8	4.9	15.1	12.3	4.2	3.5	3.5	44.5	33.6	39.2	9.9
Color (True) (C.U.)		30					28					18					23	
Cyanide		0.01 U					0.01 U					0.01 U					0.01 U	
Hardness	65.4	19.7	23.7	19.5	107	55.3	64.8	34.5	31.9	80.2	43.4	43.2	28.7	29	184	183	145	89.8
Nitrate Nitrogen	1 U	1 U	1 U	1 U	0.4 J	0.3 J	1 U	1 U	1 U	1 U	0.3 J	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U
pH of Color Analysis		7.11					7.37					7.37					8.11	
Sulfate	25.8	6.9	3.1	3.8	48.4	17.6	26.3	9.4	9.2	32.2	15.6	16.6	6.7	7.8	88.2	56.6	58	19.8
Total Dissolved Solids	116	60	66	49	164	88	111	71	61	127	80	78	58	53	288	250	241	139
Total Kjeldahl Nitrogen	0.2 J	0.2 U	0.33	0.25	0.3	0.28	0.2 U	0.3	0.23	0.22	0.24	0.2 U	0.26	0.2	0.43	0.5	0.28	0.49
Total Organic Carbon (TOC)	2.6	4.5	9.8	5.1	3.4	2.2	4.5	6.4	3.7	1.8	1.9	3.3	5.6	3.3	4.8	4.1	6.3	5.6
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Suspended Solids			8.2	1.1				3.8	1.4				4.8	1.7				11.1

Current and Historic Surface Water Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	SW-7 2/9/2021	SW-7 5/20/2021	SW-7 8/26/2021	SW-7 11/10/2021	SW-7A 11/10/2020	SW-7A 5/20/2021	SW-7A 8/26/2021	SW-7A 11/10/2021	SW-9 11/10/2020	SW-9 5/20/2021	SW-9 8/26/2021	SW-9 11/10/2021	Class C Standard
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Field Parameters

Dissolved Oxygen	13.26	5.76	7.48	10.75	7.72	9.63	8.37	11.82					Not < 5
Field pH (std. units)	7.44	6.69	6.47	6.51	6.76	7.51	6.93	6.8	7.74	8.01	7.69	7.62	6.5 - 8.5
ORP (mV)	198.8	152.9	17.7	223.9	173.8	94.7	-13.3	226.2	177.2	116.3	11.5	172.2	
Specific Conductivity (us/cm)	85.4	63.3	56.5	56.9	159.8	65.4	57.4	59.6	303.6	212.3	175.3	170.4	
Temperature (deg. C)	0.8	10.8	18.3	7.6	8	11.7	18	8	11.1	22.1	24.7	8.8	
Turbidity (NTU)	0.94	1.67	5.84	1.79	1.28	2.2	15.6	2.34	38.6	10.1	33.7	82.1	

Inorganic Compounds

Aluminum		0.0737 J				0.0801 J				0.804			
Antimony		0.06 U				0.06 U				0.06 U			
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
Barium		0.0177 J				0.0169 J				0.033			
Beryllium		0.003 U				0.003 U				0.003 U			
Boron		0.0186 J				0.0187 J				0.0305 J			1
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Calcium	7.2	6.11	6.2	6.2	14.6	6.63	6.5	6.6	38.1	30.7	24.9	24	
Chromium		0.01 U				0.01 U				0.01 U			
Chromium, hexavalent		0.01 U				0.01 U				0.01 U			
Cobalt		0.05 U				0.05 U				0.05 U			0.005
Copper		0.02 U				0.02 U				0.02 U			
Iron	0.1 U	0.0624 J	0.2	0.1 J	0.08 J	0.0614 J	0.25	0.09 J	1.62	0.719	2.56	3.41	
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0041 J	0.005 U	0.008
Magnesium	1.9	1.59	1.6	1.6	3.8	1.68	1.6	1.6	8.6	6.6	5.2	5.4	
Manganese	0.01 U	0.01 U	0.007 J	0.01 U	0.01 U	0.01 U	0.006 J	0.01 U	0.032	0.0307	0.138	0.056	
Mercury		0.0002 U				0.0002 U				0.0002 U			0.000007
Nickel		0.04 U				0.04 U				0.04 U			0.0082
Potassium	0.6 J	0.693 J	0.8 J	0.7 J	0.8 J	0.645 J	0.8 J	0.7 J	3.1	1.65 J	3.2	3.6	
Selenium		0.01 U				0.01 U				0.01 U			
Silver		0.01 U				0.01 U				0.01 U			
Sodium	6.9	4.94	3.2	3	9.7	4.62	3.1	3.2	11.6	3.52	1.9	2.1	
Thallium		0.01 U				0.01 U				0.01 U			0.008
Vanadium		0.05 U				0.05 U				0.0015 J			0.014
Zinc		0.02 U				0.02 U				0.0026 J			

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane		0.005 U				0.005 U				0.005 U			
1,1,1-Trichloroethane		0.005 U				0.005 U				0.005 U			
1,1,2,2-Tetrachloroethane		0.005 U				0.005 U				0.005 U			
1,1,2-Trichloroethane		0.005 U				0.005 U				0.005 U			
1,1-Dichloroethane		0.005 U				0.005 U				0.005 U			
1,1-Dichloroethene		0.005 U				0.005 U				0.005 U			
1,2,3-Trichloropropane		0.005 U				0.005 U				0.005 U			
1,2-Dibromo-3-chloropropane		0.005 U				0.005 U				0.005 U			
1,2-Dibromoethane		0.005 U				0.005 U				0.005 U			
1,2-Dichlorobenzene		0.005 U				0.005 U				0.005 U			
1,2-Dichloroethane		0.005 U				0.005 U				0.005 U			
1,2-Dichloropropane		0.005 U				0.005 U				0.005 U			
1,4-Dichlorobenzene		0.005 U				0.005 U				0.005 U			
2-Butanone (MEK)		0.01 U				0.01 U				0.01 U			
2-Hexanone		0.01 U				0.01 U				0.01 U			
4-Methyl-2-pentanone		0.01 U				0.01 U				0.01 U			
Acetone		0.01 U				0.01 U				0.01 U			
Acrylonitrile		0.1 U				0.1 U				0.1 U			

Current and Historic Surface Water Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	SW-7 2/9/2021	SW-7 5/20/2021	SW-7 8/26/2021	SW-7 11/10/2021	SW-7A 11/10/2020	SW-7A 5/20/2021	SW-7A 8/26/2021	SW-7A 11/10/2021	SW-9 11/10/2020	SW-9 5/20/2021	SW-9 8/26/2021	SW-9 11/10/2021	Class C Standard
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Volatile Organic Compounds (con't)

Benzene		0.005 U				0.005 U				0.005 U			0.01
Bromochloromethane		0.005 U				0.005 U				0.005 U			
Bromodichloromethane		0.005 U				0.005 U				0.005 U			
Bromoform		0.005 U				0.005 U				0.005 U			
Bromomethane		0.005 U				0.005 U				0.005 U			
Carbon disulfide		0.01 U				0.01 U				0.01 U			
Carbon tetrachloride		0.005 U				0.005 U				0.005 U			
Chlorobenzene		0.005 U				0.005 U				0.005 U			0.005
Chloroethane		0.005 U				0.005 U				0.005 U			
Chloroform		0.005 U				0.005 U				0.005 U			
Chloromethane		0.005 U				0.005 U				0.005 U			
cis-1,2-Dichloroethene		0.005 U				0.005 U				0.005 U			
cis-1,3-Dichloropropene		0.005 U				0.005 U				0.005 U			
Dibromochloromethane		0.005 U				0.005 U				0.005 U			
Dibromomethane		0.005 U				0.005 U				0.005 U			
Dichloromethane (Methylene chloride)		0.005 U				0.005 U				0.005 U			0.2
Ethyl benzene		0.005 U				0.005 U				0.005 U			
Iodomethane		0.01 U				0.01 U				0.01 U			
m&p-Xylene		0.005 U				0.005 U				0.005 U			
o-Xylene		0.005 U				0.005 U				0.005 U			
Styrene		0.005 U				0.005 U				0.005 U			
Tetrachloroethene		0.005 U				0.005 U				0.005 U			
Toluene		0.005 U				0.005 U				0.005 U			6
trans-1,2-Dichloroethene		0.005 U				0.005 U				0.005 U			
trans-1,3-Dichloropropene		0.005 U				0.005 U				0.005 U			
trans-1,4-Dichloro-2-butene		0.005 U				0.005 U				0.005 U			
Trichloroethene		0.005 U				0.005 U				0.005 U			0.04
Trichlorofluoromethane		0.005 U				0.005 U				0.005 U			
Vinyl acetate		0.01 U				0.01 U				0.01 U			
Vinyl chloride		0.005 U				0.005 U				0.005 U			

General Chemistry

Alkalinity	15.4	19.7	20.7	18.2	20.8	19.2	21.1	20	68	62.6	55	48.3	
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.032 J	0.053	0.038 J	2
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Chemical Oxygen Demand	8.4	5 U	11.4	8.2	5.3	4.3 J	10.8	8.9	14.5	10.9	12.6	13	
Chloride	10	3.6	2.4	3.2	26.4	4.5	2.5	3.2	10.7	0.5 J	1.6 J	1.1 J	
Color (True) (C.U.)		9				16				33			
Cyanide		0.01 U				0.01 U				0.01 U			9
Hardness	25.9	21.8	22	22	51.9	23.5	22.9	23.2	131	104	83.5	82	
Nitrate Nitrogen	0.4 J	1 U	0.2 J	1 U	1 U	1 U	0.2 J	1 U	0.7 J	1 U	0.2 J	1 U	
pH of Color Analysis		6.77				7.34				7.83			
Sulfate	10.9	7.4	4.2	4.7	15.1	7.1	4.1	4.2	71	45.1	28.7	31.5	
Total Dissolved Solids	56	41	43	44	95	55	52	49	212	155	135	136	500
Total Kjeldahl Nitrogen	0.21	0.2 U	0.48	0.24	0.21	0.2 U	0.22	0.21	0.66	0.43	0.57	0.6	
Total Organic Carbon (TOC)	1.9	2.5	5	3.2	1.6	2.8	5.5	3.7	4.5	6.1	6.2	4.1	
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Total Suspended Solids			3.6	1.1			2.2	1.3			3.6	7.8	

Notes:
Class C Standard - NYSDEC Class C Surface Water Standard
Concentrations in **bold** exceed Class C Standards
U - Concentration not detected at specified detection limit
J/UJ - Estimated value

Current and Historic Groundwater Suppression System Analytical Results
 Hakes C and D Landfill
 Campbell, New York
 (mg/L except where noted)

Parameter	GSS-1A 11/10/2020	GSS-1A 2/9/2021	GSS-1A 5/20/2021	GSS-1A 8/26/2021	GSS-1A 11/10/2021	GSS-3 5/20/2021	GSS-4 5/20/2021	GSS-4 8/26/2021	GSS-4 11/10/2021	GSS-5 11/10/2020	GSS-5 5/20/2021	GSS-5 8/26/2021	GSS-5 11/10/2021	GSS-6 11/10/2020	GSS-6 2/9/2021	GSS-6 5/20/2021	GSS-6 8/25/2021	GSS-6 11/10/2021
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Field Parameters

Field pH (std. units)	6.58	7.56	6.38	6.37	6.61	8.11	8.23	5.82	7.78	8.12	8.1	7.81	8.29	7.24	7.08	7.04	7.05	6.95
ORP (mV)	-3	99.8	93.8	-34.7	111.6	108	100.3	92.6	84.2	176.7	84.6	-5.9	88.4	84.1	103.6	32.7	77.8	107.6
Specific Conductivity (us/cm)	723	318.7	317.9	445.8	553.7	474.4	489	491.8	492.8	581	638.7	362.7	606.8	1324	1100	1017	1054	1011
Temperature (deg. C)	14.1	6.1	13	18	13.4	13.5	16.7	21	17.5	13.5	10.8	17.1	13.7	14.5	13	19.6	21.5	19.6
Turbidity (NTU)	6.77	18.1	18.8	48.3	4.08	0.33	0.27	3.56	1.02	0.93	0.42	4.2	0.35	10.2	15.6	19.6	4.63	3.56

Inorganic Compounds

Aluminum			0.587			0.1 U	0.1 U				0.1 U					0.228		
Antimony			0.06 U			0.06 U	0.06 U				0.06 U					0.06 U		
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium			0.0621			0.0657	0.0903				0.0732					0.0779		
Beryllium			0.003 U			0.003 U	0.003 U				0.003 U					0.003 U		
Boron			0.0374 J			0.0414 J	0.0259 J				0.0422 J					0.102 J		
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	121	43.5	44.3	68.7	90.1	65.8	41.2	40	38.2	66.1	69.2	79.7	61.4	202	160	142	153	145
Chromium			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		
Chromium, hexavalent			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		
Cobalt			0.05 U			0.05 U	0.05 U				0.05 U					0.05 U		
Copper			0.02 U			0.02 U	0.02 U				0.02 U					0.02 U		
Iron	3.54	1.25	1.06	4.25	1.36	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.56	0.88	0.711	0.19	0.24
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	23.8	12.9	12	13.9	17.7	15.5	14.1	13.4	12.9	31.7	22.8	25.1	19.2	63.6	51	45.3	41.5	40.2
Manganese	2.83	0.018	0.022	5.28	12.6	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.009 J	0.128	0.035	0.0653	0.048	0.01
Mercury			0.0002 U			0.0002 U	0.0002 U				0.0002 U					0.0002 U		
Nickel			0.04 U			0.04 U	0.04 U				0.04 U					0.04 U		
Potassium	2.3	1.7 J	1.66 J	2.4	2.2	2.06	2.92	2.9	3	2.6	3.08	3.5	3.1	4.5	4.3	4.25	4.2	4.2
Selenium			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		
Silver			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		
Sodium	6.3	5.3	4.4	4.1	5.2	15.8	34	36.1	40.8	16.9	28.8	31.4	32.2	34.2	30.3	32.5	32.7	34.1
Thallium			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		
Vanadium			0.0007 J			0.05 U	0.05 U				0.05 U					0.05 U		
Zinc			0.0031 J			0.02 U	0.02 U				0.02 U					0.02 U		

Volatile Orgnaic Compounds

1,1,1,2-Tetrachloroethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,1,1-Trichloroethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,1,2,2-Tetrachloroethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,1,2-Trichloroethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,1-Dichloroethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,1-Dichloroethene			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,2,3-Trichloropropane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,2-Dibromo-3-chloropropane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,2-Dibromoethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,2-Dichlorobenzene			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,2-Dichloroethane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,2-Dichloropropane			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
1,4-Dichlorobenzene			0.005 U			0.005 U	0.005 U				0.005 U					0.005 U		
2-Butanone (MEK)			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		
2-Hexanone			0.01 U			0.01 U	0.01 U				0.01 U					0.01 U		

Current and Historic Groundwater Suppression System Analytical Results
 Hakes C and D Landfill
 Campbell, New York
 (mg/L except where noted)

Parameter	GSS-1A 11/10/2020	GSS-1A 2/9/2021	GSS-1A 5/20/2021	GSS-1A 8/26/2021	GSS-1A 11/10/2021	GSS-3 5/20/2021	GSS-4 5/20/2021	GSS-4 8/26/2021	GSS-4 11/10/2021	GSS-5 11/10/2020	GSS-5 5/20/2021	GSS-5 8/26/2021	GSS-5 11/10/2021	GSS-6 11/10/2020	GSS-6 2/9/2021	GSS-6 5/20/2021	GSS-6 8/25/2021	GSS-6 11/10/2021
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Volatile Organic Compounds (con't)

4-Methyl-2-pentanone			0.01 U			0.01 U	0.01 U				0.01 U						0.01 U	
Acetone			0.01 U			0.01 U	0.01 U				0.01 U						0.01 U	
Acrylonitrile			0.1 U			0.1 U	0.1 U				0.1 U						0.1 U	
Benzene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Bromochloromethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Bromodichloromethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Bromoform			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Bromomethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Carbon disulfide			0.01 U			0.01 U	0.01 U				0.01 U						0.01 U	
Carbon tetrachloride			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Chlorobenzene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Chloroethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Chloroform			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Chloromethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
cis-1,2-Dichloroethene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
cis-1,3-Dichloropropene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Dibromochloromethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Dibromomethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Dichloromethane (Methylene chloride)			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Ethyl benzene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Iodomethane			0.01 U			0.01 U	0.01 U				0.01 U						0.01 U	
m&p-Xylene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
o-Xylene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Styrene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Tetrachloroethene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Toluene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
trans-1,2-Dichloroethene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
trans-1,3-Dichloropropene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
trans-1,4-Dichloro-2-butene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Trichloroethene			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Trichlorofluoromethane			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	
Vinyl acetate			0.01 U			0.01 U	0.01 U				0.01 U						0.01 U	
Vinyl chloride			0.005 U			0.005 U	0.005 U				0.005 U						0.005 U	

General Chemistry

Alkalinity	336	66.7	111	214	289	197	67.8	63.4	59	232	167	198	138	532	401	372	395	393
Ammonia Nitrogen	0.124	0.05 U	0.05 U	0.274	0.236	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Biochemical Oxygen Demand	2.1	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chemical Oxygen Demand	61.5	16	12.7	36.3	34.2	5 U	5 U	5 U	4.6 J	5 U	5 U	5 U	5 U	5 U	4 J	5 U	5 U	5 U
Chloride	7	1.8 J	2 U	1.5 J	2	37.7	109	106	105	4.3	97.9	92.2	89.5	8.5	43.2	75.3	77.2	70.4
Color (True) (C.U.)			14			10	4				6					5		
Cyanide			0.01 U			0.01 U	0.01 U				0.01 U						0.01 U	
Hardness	401	162	160 U	229	298	228	161	155	148	296	267	302	232	767	609	542	553	528
Nitrate Nitrogen	1 U	7.3	0.4 J	1 U	1 U	1 U	0.6 J	0.6 J	0.3 J	0.7 J	0.5 J	0.4 J	0.2 J	1 U	0.4 J	0.2 J	1 U	1 U
pH of Color Analysis			6.32			8.17	8.04				8.14					7.1		
Sulfate	70.5	75.5	55	31.4	43.4	19.4	27	26.4	26.7	83.6	55.9	47.6	43.1	294	182	146	118	122
Total Dissolved Solids	500	230	210	296	374	302	285	264	264	363	392	403	328	1000	747	689	696	694
Total Kjeldahl Nitrogen	1.43	0.47	0.24	1.01	1.04	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total Organic Carbon (TOC)	25.6	5.7	6.3	14.4	16.4	1	1.2	1.5	1 J	0.8 J	1.5	1.2	1	1.6	1.8	1.6	1.4	1.4
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 J	0.005 U	0.005 U

Current and Historic Groundwater Suppression System Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	GSS-8 11/10/2020	GSS-8 2/9/2021	GSS-8 5/20/2021	GSS-8 8/26/2021	GSS-8 11/10/2021	GSS-9 12/15/2020	GSS-9 2/9/2021	GSS-9 5/20/2021	GSS-9 8/26/2021	GSS-9 11/10/2021	Class GA Standard
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Field Parameters

Field pH (std. units)	6.87	6.85	6.75	6.77	6.76	8.29	8.49	6.16	6.22	6.25	6.5 - 8.5
ORP (mV)	128.4	120.4	118.3	49.3	133.6	104.5	129.7	109.5	66.4	179.4	
Specific Conductivity (us/cm)	941	782	801	728	708	355.6	424.4	481.6	408.8	447.2	
Temperature (deg. C)	18.4	12.2	20.2	21.4	17.5	8.7	7.7	11	18.4	12.9	
Turbidity (NTU)	1.39	6.34	1.48	2.49	0.86	0.52	3.72	1.44	6.01	0.69	5

Inorganic Compounds

Aluminum			0.1 U					0.1 U			
Antimony			0.06 U					0.06 U			0.003
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.025
Barium			0.063					0.0979			1
Beryllium			0.003 U					0.003 U			
Boron			0.07 J					0.0256 J			1
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005
Calcium	123	103	87.3	79.3	83	50	58.2	52.7	43	52	
Chromium			0.01 U					0.01 U			0.05
Chromium, hexavalent			0.01 U					0.01 U			
Cobalt			0.05 U					0.05 U			
Copper			0.006 J					0.02 U			0.2
Iron	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.3
Lead	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025
Magnesium	23.5	22	18.6	17.2	17.9	12.6	14.4	13.1	10	11.8	
Manganese	0.559	0.181	0.0407	0.392	0.54	0.005 J	0.01 U	0.0674	0.052	0.056	0.3
Mercury			0.0002 U					0.0002 U			0.0007
Nickel			0.04 U					0.04 U			0.1
Potassium	2.2	2.1	2.18	2.1	2.1	2.1	1.9 J	1.92 J	1.8 J	2 J	
Selenium			0.01 U					0.01 U			0.01
Silver			0.01 U					0.01 U			0.05
Sodium	49.7	48.3	61.6	47.3	47.2	11.1	13.2	26.1	24.2	25.8	20
Thallium			0.01 U					0.01 U			
Vanadium			0.05 U					0.05 U			
Zinc			0.0044 J					0.02 U			

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane			0.005 U					0.005 U			0.005
1,1,1-Trichloroethane			0.005 U					0.005 U			0.005
1,1,2,2-Tetrachloroethane			0.005 U					0.005 U			0.005
1,1,2-Trichloroethane			0.005 U					0.005 U			0.001
1,1-Dichloroethane			0.005 U					0.005 U			0.005
1,1-Dichloroethene			0.005 U					0.005 U			0.005
1,2,3-Trichloropropane			0.005 U					0.005 U			0.00004
1,2-Dibromo-3-chloropropane			0.005 U					0.005 U			0.00004
1,2-Dibromoethane			0.005 U					0.005 U			0.005
1,2-Dichlorobenzene			0.005 U					0.005 U			0.003
1,2-Dichloroethane			0.005 U					0.005 U			0.0006
1,2-Dichloropropane			0.005 U					0.005 U			0.001
1,4-Dichlorobenzene			0.005 U					0.005 U			0.003
2-Butanone (MEK)			0.01 U					0.01 U			0.005
2-Hexanone			0.01 U					0.01 U			0.005

Current and Historic Groundwater Suppression System Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L except where noted)

Parameter	GSS-8 11/10/2020	GSS-8 2/9/2021	GSS-8 5/20/2021	GSS-8 8/26/2021	GSS-8 11/10/2021	GSS-9 12/15/2020	GSS-9 2/9/2021	GSS-9 5/20/2021	GSS-9 8/26/2021	GSS-9 11/10/2021	Class GA Standard
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Volatile Organic Compounds (con't)

4-Methyl-2-pentanone			0.01 U					0.01 U			0.005
Acetone			0.01 U					0.01 U			0.005
Acrylonitrile			0.1 U					0.1 U			0.005
Benzene			0.005 U					0.005 U			0.001
Bromochloromethane			0.005 U					0.005 U			0.005
Bromodichloromethane			0.005 U					0.005 U			0.005
Bromoform			0.005 U					0.005 U			0.005
Bromomethane			0.005 U					0.005 U			0.005
Carbon disulfide			0.01 U					0.01 U			0.005
Carbon tetrachloride			0.005 U					0.005 U			0.005
Chlorobenzene			0.005 U					0.005 U			0.005
Chloroethane			0.005 U					0.005 U			0.005
Chloroform			0.005 U					0.005 U			0.007
Chloromethane			0.005 U					0.005 U			0.005
cis-1,2-Dichloroethene			0.005 U					0.005 U			0.005
cis-1,3-Dichloropropene			0.005 U					0.005 U			0.0004
Dibromochloromethane			0.005 U					0.005 U			0.005
Dibromomethane			0.005 U					0.005 U			0.005
Dichloromethane (Methylene chloride)			0.005 U					0.005 U			0.005
Ethyl benzene			0.005 U					0.005 U			0.005
Iodomethane			0.01 U					0.01 U			0.005
m&p-Xylene			0.005 U					0.005 U			0.005
o-Xylene			0.005 U					0.005 U			0.005
Styrene			0.005 U					0.005 U			0.005
Tetrachloroethene			0.005 U					0.005 U			0.005
Toluene			0.005 U					0.005 U			0.005
trans-1,2-Dichloroethene			0.005 U					0.005 U			0.005
trans-1,3-Dichloropropene			0.005 U					0.005 U			0.0004
trans-1,4-Dichloro-2-butene			0.005 U					0.005 U			0.005
Trichloroethene			0.005 U					0.005 U			0.005
Trichlorofluoromethane			0.005 U					0.005 U			0.005
Vinyl acetate			0.01 U					0.01 U			0.005
Vinyl chloride			0.005 U					0.005 U			0.002

General Chemistry

Alkalinity	309	251	190	208	219	140	178	132	112	148	
Ammonia Nitrogen	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2
Biochemical Oxygen Demand	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	
Bromide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Chemical Oxygen Demand	8.7	10.6	5 U	5.9	7.2	5 U	5 U	5 U	7.6	5 U	
Chloride	101	111	143	86.5	84.7	7.5	18.7	61.6 UJ	46.7	47.1	250
Color (True) (C.U.)			7					8			15
Cyanide			0.01 U					0.01 U			0.2
Hardness	404	347	295	269	281	177	205	186	149	179	
Nitrate Nitrogen	1 U	0.4 J	0.4 J	0.4 J	0.3 J	0.2 J	1 U	0.3 J	0.4 J	1 U	10
pH of Color Analysis			6.86					6.28			
Sulfate	73.2	59.7	48.1	51.7	44.8	42.8	34.6	31.5	27.6	26.3	250
Total Dissolved Solids	582	517	475	430	427	229	252	274	239	267	500
Total Kjeldahl Nitrogen	0.28	0.2 U	0.23 UJ	0.16 J	0.18 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
Total Organic Carbon (TOC)	3.2	2.8	2.7	3.3	3.1	0.9 J	1 J	1.3	1.6	1	
Total Phenolics	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001

Notes:

Class GA Standard - NYSDEC Class GA Groundwater Standards
Concentrations in **bold** exceed Class GA Standards

U - Concentration not detected at specified detection limit

J/UJ - Estimated value

Table 8

Fourth Quarter 2021 Field Duplicate Comparison
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter	MWH-1121	DUP1-1121
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Inorganic Compounds

Arsenic	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U
Calcium	53.3	53.6
Iron	0.1 J	0.09 J
Lead	0.005 U	0.005 U
Magnesium	22.3	22.4
Manganese	0.072	0.067
Potassium	0.8 J	0.8 J
Sodium	33.8	34

General Chemistry

Alkalinity	118	119
Ammonia Nitrogen	0.05 U	0.05 U
Biochemical Oxygen Demand	2 U	2 U
Bromide	1 U	1 U
Chemical Oxygen Demand	5 U	5 U
Chloride	15.4	16.1
Hardness	225	226
Nitrate Nitrogen	0.4 J	0.4 J
Sulfate	148	147
Total Dissolved Solids	373	376
Total Kjeldahl Nitrogen	0.2 U	0.2 U
Total Organic Carbon (TOC)	0.6 J	0.5 J
Total Phenolics	0.005 U	0.005 U

Notes:

U - Concentration not detected at specified detection limit

J - Estimated value

Table 9

Fourth Quarter 2021 Field Equipment Blank Analytical Results
Hakes C and D Landfill
Campbell, New York
(mg/L)

Parameter	EB1-1121
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Arsenic	0.01 U
Cadmium	0.005 U
Calcium	1 U
Iron	0.1 U
Lead	0.005 U
Magnesium	1 U
Manganese	0.01 U
Potassium	2 U
Sodium	1 U

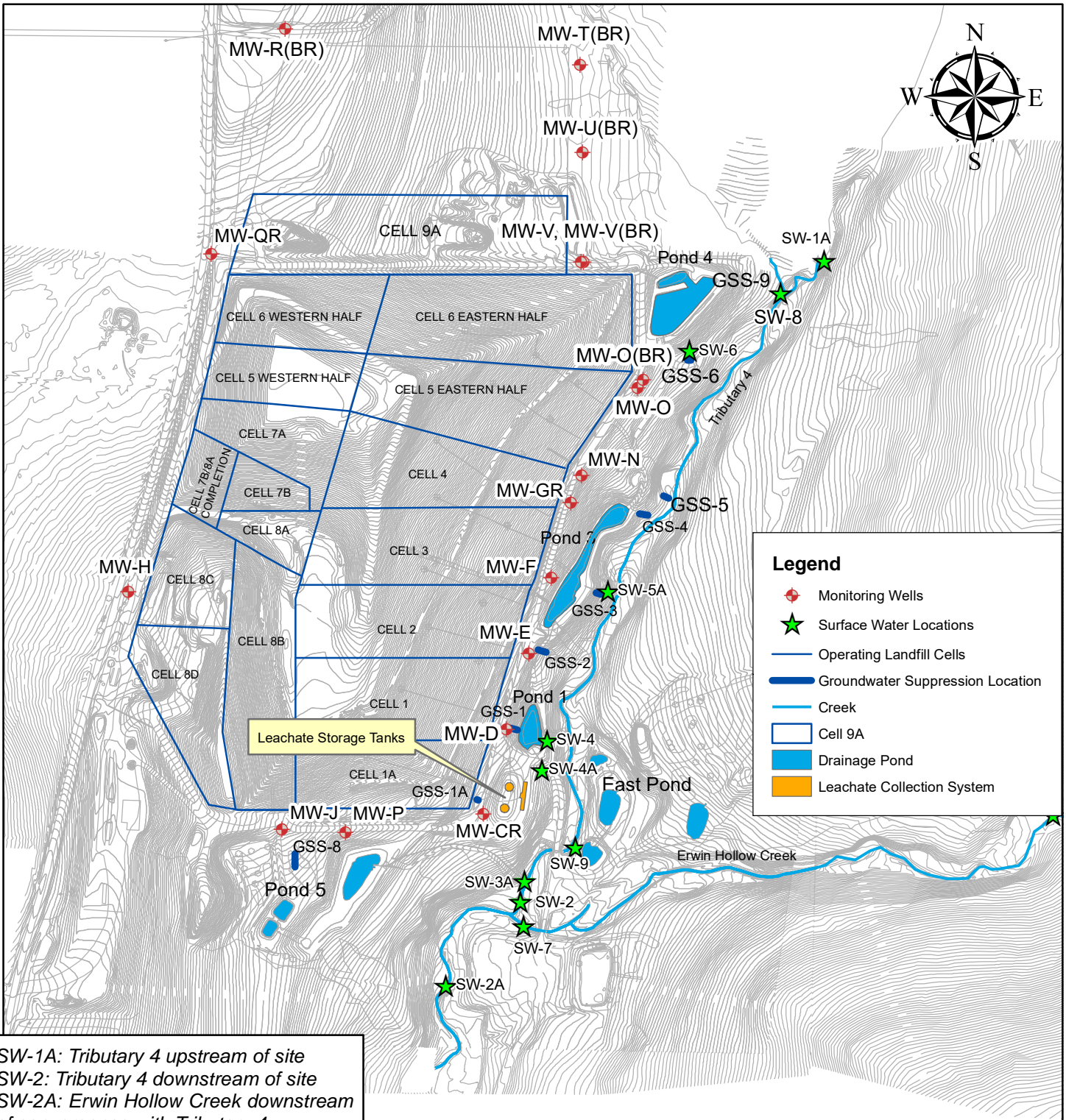
Alkalinity	2 U
Ammonia Nitrogen	0.05 U
Biochemical Oxygen Demand	2 U
Bromide	1 U
Chemical Oxygen Demand	5 U
Chloride	2 U
Hardness	6.62 U
Nitrate Nitrogen	1 U
Sulfate	2 U
Total Dissolved Solids	10 U
Total Kjeldahl Nitrogen	0.2 U
Total Organic Carbon (TOC)	1 U
Total Phenolics	0.005 U

Notes:

U - Concentration not detected at specified detection limit.

Figures

Sampling Locations



SW-1A: Tributary 4 upstream of site
 SW-2: Tributary 4 downstream of site
 SW-2A: Erwin Hollow Creek downstream of convergence with Tributary 4
 SW-3A: Pond 5 discharge pipe
 SW-4: Pond 1 discharge pipe
 SW-4A: Pond 1 Secondary Discharge
 SW-5A: Pond 3 discharge pipe
 SW-6: Pond 4 Discharge
 SW-7: Erwin Hollow Creek upstream of convergence with Tributary 4
 SW-7A: Erwin Hollow Adjacent Borrow Area
 SW-8: North Ditch at Tributary 4

500 250 0 500 Feet

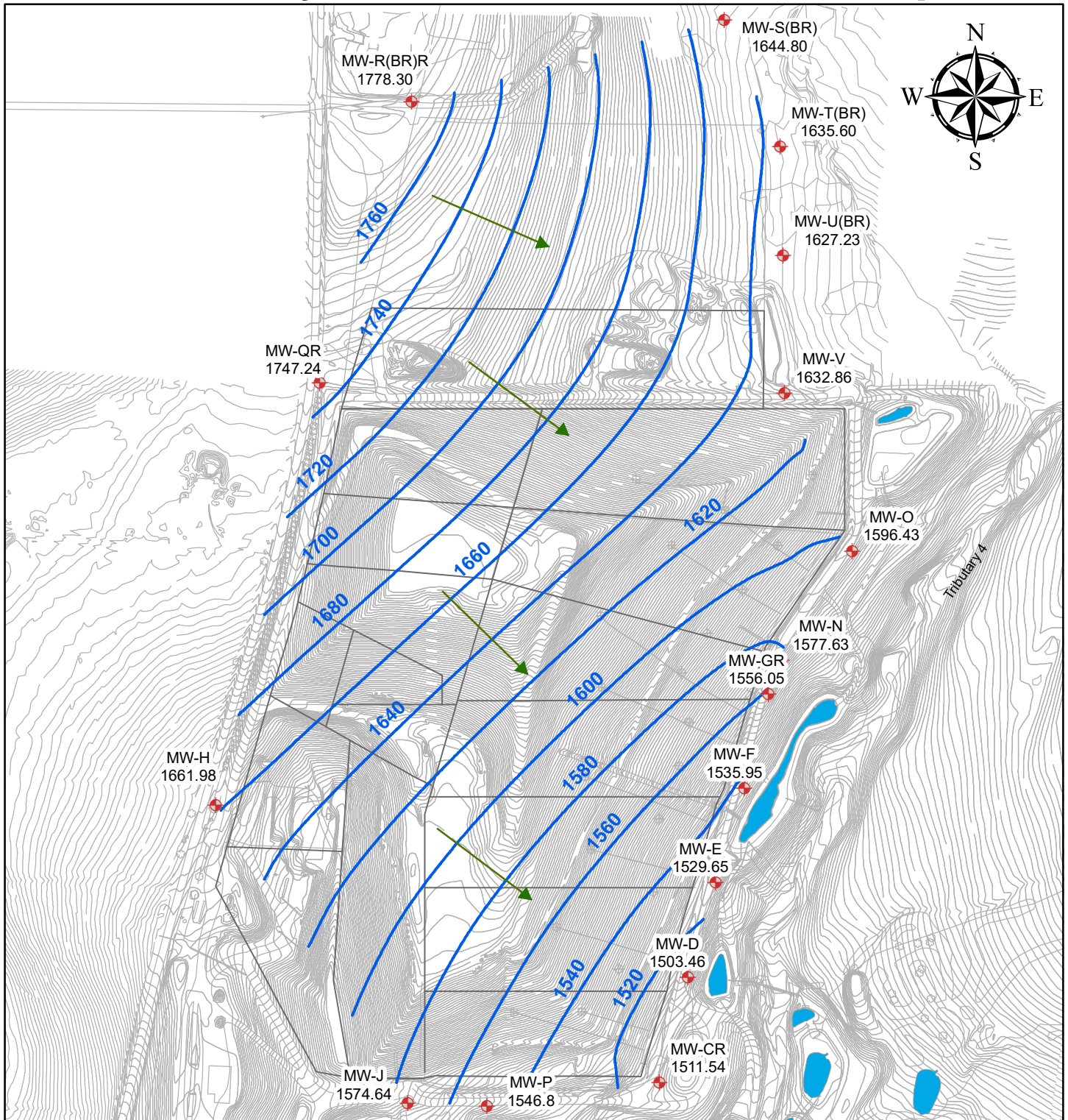
Note: 2018 Topography



On-Site Geological Services
72 Railroad Ave. Wellsville, New York

FIGURE:	1
PROJECT:	HAKES
DOCUMENT:	MONITORING REPORT
FILE/DATE:	SAMPLE LOC.MXD/2.10..2022





February 8, 2021 Potentiometric Map



400 200 0 400 Feet

Note: 2018 Topography

Legend

-  Monitoring Well With 2/8/2021 Groundwater Elevation (ft amsl)
-  2/8/2021 Groundwater Elevation Contour (ft amsl)
-  Operating Landfill Cells
-  Direction of Groundwater Flow



On-Site Geological Services

72 Railroad Ave. Wellsville, New York

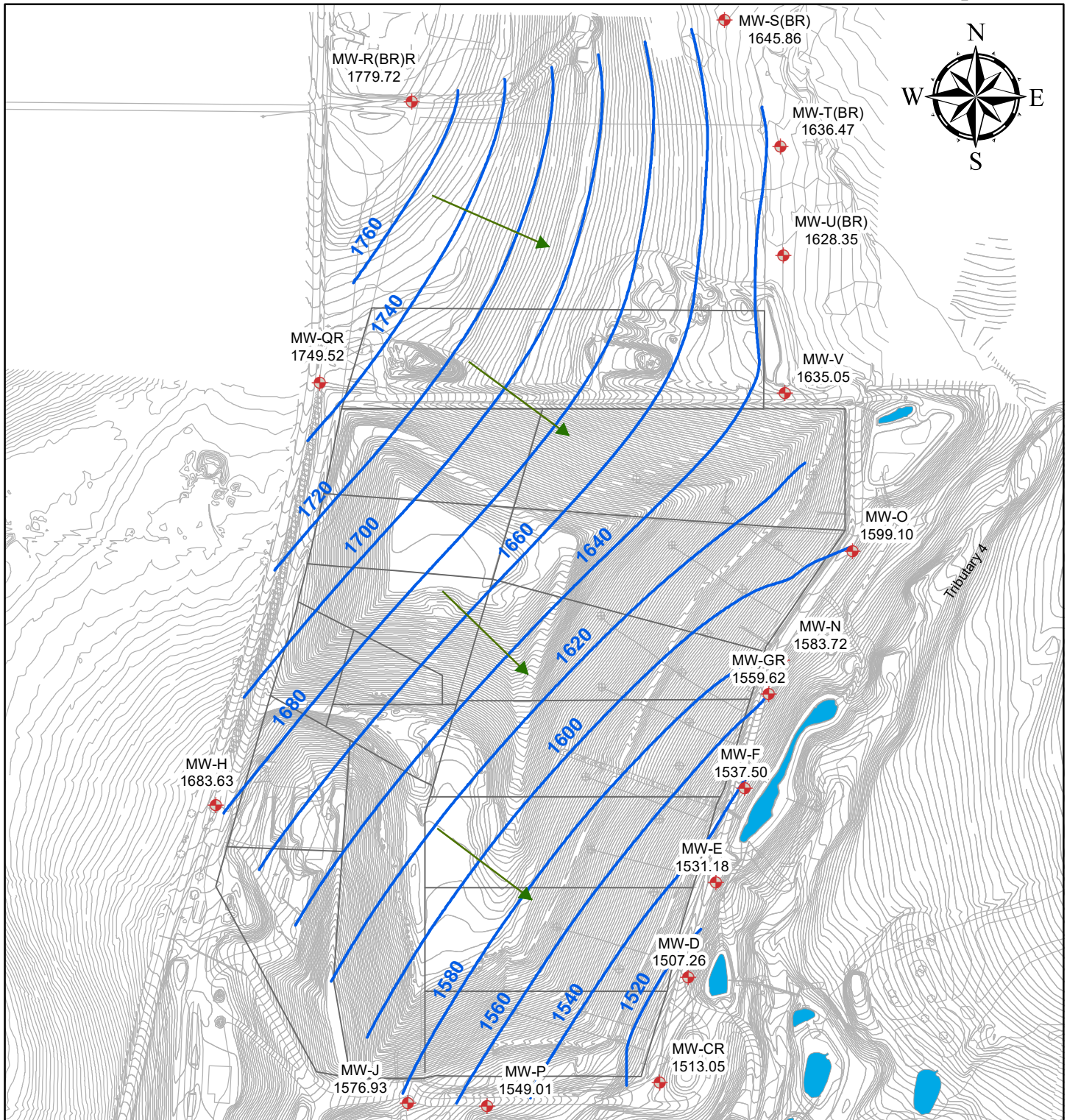
FIGURE: 2

PROJECT: HAKES

DOCUMENT: 2021 ANNUAL REPORT

FILE/DATE: Feb 2021 Pot Map.MXD/2.10..2022

November 10, 2021 Potentiometric Map



Note: 2018 Topography



Legend	
	Monitoring Well With 11/10/2021 Groundwater Elevation (ft amsl)
	11/10/2021 Groundwater Elevation Contour (ft amsl)
	Operating Landfill Cells
	Direction of Groundwater Flow



<i>On-Site Geological Services</i>	
72 Railroad Ave. Wellsville, New York	
FIGURE:	3
PROJECT:	HAKES
DOCUMENT:	2021 ANNUAL REPORT
FILE/DATE:	Nov 2021 Pot Map.MXD/2.10..2022

Appendix A

Field Forms

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11/11/21

Monitoring Well: MW-CR Sample ID: MWCR-1121 Arrival Time: 1515

Weather Conditions

Temp. 54 ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 32.85 ft - SWL: 10.60 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 3.5 gals

Start Purge: 1520 Purging Method: () Bail () Peristaltic () Bladder Pump # 3 () Grundfos Pump

Pumping Rate: 500ml/23^{sec} Start Sampling: 1615 Purge Duration: 55 min Purge Vol: 3.0 gals.

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 09656) Measured in: () Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>2.1</u>	<u>1555</u>	<u>7.09</u>	<u>544.9</u>	<u>3.91</u>	<u>3.28</u>	<u>12.6</u>	<u>89.2</u>	<u>17.55</u>
<u>2.3</u>	<u>1600</u>	<u>7.08</u>	<u>542.4</u>	<u>3.40</u>	<u>3.36</u>	<u>12.6</u>	<u>90.8</u>	<u>18.41</u>
<u>2.5</u>	<u>1605</u>	<u>7.10</u>	<u>540.5</u>	<u>3.26</u>	<u>3.26</u>	<u>12.6</u>	<u>91.2</u>	<u>18.82</u>
<u>2.75</u>	<u>1610</u>	<u>7.12</u>	<u>538.6</u>	<u>4.31</u>	<u>3.47</u>	<u>12.6</u>	<u>91.7</u>	<u>19.30</u>
<u>3.0</u>	<u>1615</u>	<u>7.08</u>	<u>535.8</u>	<u>2.22</u>	<u>3.58</u>	<u>12.6</u>	<u>92.4</u>	<u>19.75</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ± 3% conductivity, ± 10 mv ORP, ± 10% DO, ± 10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bladder Pump Sample clarity/color: Clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1620 Date 11-11-21 Samplers K Dye

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Monitoring Well: MW-D Sample ID: MWD-1121 Arrival Time: 1120

Weather Conditions

Temp. 56° F (Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 35.02 ft - SWL: 25.32 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 1.5 gals

Start Purge: 1125 Purging Method: Bail () Peristaltic () Bladder Pump # _____ () Grundfos Pump

Pumping Rate: NA Start Sampling: 1310 Purge Duration: 10 min Purge Vol: 1.0 gals.
11/11/21

Field Parameters

Meters: YSI (sn: 204101689), Hach 2100P (sn: 05020001331) Measured in: () Flow Cell Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.0</u>	<u>1135</u>	<u>Bailed</u>	<u>to Bottom</u>					
<u>11/11/21</u>	<u>1310</u>	<u>7.41</u>	<u>249.7</u>	<u>23.6</u>	<u>NA</u>	<u>12.6</u>	<u>116.5</u>	<u>- 5.8 deg</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ± 3% conductivity, ± 10 mv ORP, ± 10% DO, ± 10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bailer Sample clarity/color: clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1330 Date 11/11/21 Samplers K Oye / J. Brubaker

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-E Sample ID: MWE-1121 Arrival Time: 1510

Weather Conditions

Temp. 50 ° F () Sunny () Partly Cloudy (X) Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-10mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 30.40 ft – SWL: 17.58 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.1 gals

Start Purge: 1515 Purging Method: () Bail () Peristaltic (X) Bladder Pump # 2 () Grundfos Pump

Pumping Rate: 1065cc/500ml Start Sampling: 1610 Purge Duration: 55 min. Purge Vol: 2.2 gals.

Field Parameters

Meters: YSI (sn: 170108273), Hach 2100P (sn: CO13309) Measured in: (X) Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.2</u>	<u>1545</u>	<u>6.55</u>	<u>730</u>	<u>23.0</u>	<u>1.76</u>	<u>12.8</u>	<u>191.2</u>	<u>21.45</u>
<u>1.4</u>	<u>1550</u>	<u>6.56</u>	<u>732</u>	<u>21.0</u>	<u>2.09</u>	<u>12.7</u>	<u>192.0</u>	<u>21.70</u>
<u>1.6</u>	<u>1555</u>	<u>6.56</u>	<u>733</u>	<u>20.0</u>	<u>2.05</u>	<u>12.8</u>	<u>193.0</u>	<u>21.92</u>
<u>1.8</u>	<u>1600</u>	<u>6.55</u>	<u>730</u>	<u>17.1</u>	<u>1.81</u>	<u>12.7</u>	<u>194.6</u>	<u>22.28</u>
<u>2.0</u>	<u>1605</u>	<u>6.54</u>	<u>727</u>	<u>16.8</u>	<u>1.73</u>	<u>12.8</u>	<u>195.5</u>	<u>22.25</u>
<u>2.2</u>	<u>1610</u>	<u>6.54</u>	<u>726</u>	<u>12.1</u>	<u>1.66</u>	<u>12.6</u>	<u>195.7</u>	<u>22.91</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: bladder pump Sample clarity/color: Clear/Colorless

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine 363 Number of Containers: 6

Well Sampling Completion: Time 1630 Date 11-11-21 Samplers S. Wilson

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-F Sample ID: MWF-1121 Arrival Time: 1129

Weather Conditions

Temp. 50° F Sunny Partly Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-15 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK
Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 38.80 ft - SWL: 25.00 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.2 gals
Start Purge: 1140 Purging Method: () Bail () Peristaltic Bladder Pump # 3 () Grundfos Pump
Pumping Rate: 500 ml / 145 sec Start Sampling: 1240 Purge Duration: 1 hr Purge Vol: 2.75 gals.

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 001656) Measured in: Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.25</u>	<u>1215</u>	<u>6.29</u>	<u>730</u>	<u>39.8</u>	<u>2.81</u>	<u>13.0</u>	<u>158.4</u>	<u>27.59</u>
<u>1.5</u>	<u>1220</u>	<u>6.29</u>	<u>730</u>	<u>36.7</u>	<u>2.69</u>	<u>12.9</u>	<u>158.9</u>	<u>28.00</u>
<u>1.8</u>	<u>1225</u>	<u>6.29</u>	<u>729</u>	<u>26.7</u>	<u>2.79</u>	<u>13.1</u>	<u>159.2</u>	<u>28.28</u>
<u>2.1</u>	<u>1230</u>	<u>6.29</u>	<u>730</u>	<u>23.4</u>	<u>2.91</u>	<u>13.0</u>	<u>139.5</u>	<u>28.69</u>
<u>2.4</u>	<u>1235</u>	<u>6.28</u>	<u>729</u>	<u>17.3</u>	<u>2.86</u>	<u>12.8</u>	<u>159.7</u>	<u>28.91</u>
<u>2.75</u>	<u>1240</u>	<u>6.28</u>	<u>729</u>	<u>18.1</u>	<u>2.98</u>	<u>12.8</u>	<u>159.8</u>	<u>29.27</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ± 3% conductivity, ± 10 mv ORP, ± 10% DO, ± 10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bladder Pump Sample clarity/color: Clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1215 Date 11-11-21 Samplers K Dye

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Monitoring Well: MW-GR Sample ID: MWGR-112 Arrival Time: 1147

Weather Conditions

Temp. 56° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 46.93 ft - SWL: 35.47 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 1.8 gals

Start Purge: 1200 Purging Method: Bail () Peristaltic () Bladder Pump # _____ () Grundfos Pump

Pumping Rate: NA Start Sampling: 1345 Purge Duration: 13 min Purge Vol: 200 gals.
11/11/21

Field Parameters

Meters: YSI (sn: ZOH101689), Hach 2100P (sn: 05020C011331) Measured in: () Flow Cell Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>210</u>	<u>1213</u>	<u>Boiled</u>	<u>To Bottom</u>					
<u>11/11/21</u>	<u>1345</u>	<u>6.92</u>	<u>594.1</u>	<u>11.1</u>	<u>NA</u>	<u>13.1</u>	<u>118.8</u>	<u>J. B. Deje</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bail Sample clarity/color: clear, no color (BOD bottle slightly cloudy)
 Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6
 Well Sampling Completion: Time 1357 Date 11/11/21 Samplers K. Dye / J. B. Deje

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Dupl
11051

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-H Sample ID: MWH-1121 Arrival Time: 0952

Weather Conditions

Temp. 50 F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-15 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 20.29 ft - SWL: 4.77 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.4 gals

Start Purge: 1000 Purging Method: () Bail () Peristaltic Bladder Pump # 3 () Grundfos Pump 4.25

Pumping Rate: 500 ml / 75^{sec} Start Sampling: 1055 Purge Duration: 55 min Purge Vol: 3.9 gals. RD

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 001656) Measured in: Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mv)	DTW (ft)
<u>2.6</u>	<u>1030</u>	<u>6.77</u>	<u>485.1</u>	<u>7.06</u>	<u>3.55</u>	<u>10.9</u>	<u>111.5</u>	<u>5.78</u>
<u>2.9</u>	<u>1035</u>	<u>6.75</u>	<u>479.7</u>	<u>7.35</u>	<u>3.48</u>	<u>10.7</u>	<u>113.3</u>	<u>5.86</u>
<u>3.3</u>	<u>1040</u>	<u>6.74</u>	<u>478.2</u>	<u>6.11</u>	<u>3.42</u>	<u>10.7</u>	<u>113.6</u>	<u>5.92</u>
<u>3.6</u>	<u>1045</u>	<u>6.73</u>	<u>476.4</u>	<u>5.48</u>	<u>3.31</u>	<u>10.7</u>	<u>114.1</u>	<u>5.99</u>
<u>3.9</u>	<u>1050</u>	<u>6.73</u>	<u>474.7</u>	<u>5.08</u>	<u>3.26</u>	<u>10.8</u>	<u>114.9</u>	<u>6.01</u>
<u>4.25</u>	<u>1055</u>	<u>6.72</u>	<u>472.9</u>	<u>3.24</u>	<u>3.12</u>	<u>10.9</u>	<u>115.4</u>	<u>6.09</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ± 3% conductivity, ± 10 mv ORP, ± 10% DO, ± 10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bladder Pump Sample clarity/color: Clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6 + Dupl

Well Sampling Completion: Time 1117 Date 11-11-21 Samplers K Dye

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-J Sample ID: MWJ-1121 Arrival Time: 0805

Weather Conditions

Temp. 34 ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Well Condition Checklist

Bump posts: OK Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 29.56 ft - SWL: 15.19 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.3 gals

Start Purge: 0820 Purging Method: () Bail () Peristaltic () Bladder Pump # 2 () Grundfos Pump

Pumping Rate: 128 gal / 500 mL Start Sampling: 0910 Purge Duration: 50 min. Purge Vol: 2.25 gals.

Field Parameters

Meters: YSI (sn: 17D105273), Hach 2100P (sn: C013209) Measured in: () Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.0</u>	<u>0845</u>	<u>6.72</u>	<u>1097</u>	<u>8.26</u>	<u>1.56</u>	<u>11.6</u>	<u>133.5</u>	<u>19.25</u>
<u>1.5</u>	<u>0855</u>	<u>6.74</u>	<u>1099</u>	<u>7.75</u>	<u>1.59</u>	<u>11.8</u>	<u>133.4</u>	<u>19.51</u>
<u>1.7</u>	<u>0900</u>	<u>6.75</u>	<u>1099</u>	<u>7.71</u>	<u>1.63</u>	<u>11.8</u>	<u>133.5</u>	<u>19.83</u>
<u>2.0</u>	<u>0905</u>	<u>6.75</u>	<u>1100</u>	<u>7.88</u>	<u>1.62</u>	<u>11.7</u>	<u>133.7</u>	<u>20.18</u>
<u>2.25</u>	<u>0910</u>	<u>6.75</u>	<u>1098</u>	<u>7.37</u>	<u>1.61</u>	<u>11.7</u>	<u>134.0</u>	<u>20.44</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: bladder pump Sample clarity/color: Clear/Colorless

Sample Odor (Y) or () Explain: _____ Other Observations/Comments: _____

15/45

Analysis Requested: Routine 363 Number of Containers: 6

Well Sampling Completion: Time 0935 Date 11-11-21 Samplers S. Watson

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York Date: 11/10/21
 Monitoring Well: MW-N Sample ID: MWN-1121 Arrival Time: 1230

Weather Conditions

Temp. 58° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow
 Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK
 Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 35.00 ft - SWL: 19.02 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.5 gals
 Start Purge: 1235 Purging Method: Bail () Peristaltic () Bladder Pump # _____ () Grundfos Pump
 Pumping Rate: NA Start Sampling: 1430 Purge Duration: 11 min Purge Vol: 2.25 gals.
11/11/21

Field Parameters

Meters: YSI (sn: ZOH101689), Hach 2100P (sn: 050200011331) Measured in: () Flow Cell Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>2.25</u>	<u>1246</u>	<u>Bail to Bottom</u>	<u>Bottom</u>					
<u>11/11/21</u>	<u>1430</u>	<u>7.02</u>	<u>757</u>	<u>7.27</u>	<u>NA</u>	<u>13.3</u>	<u>-27.9</u>	<u>57.2</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bailer Sample clarity/color: clear, No Color
 Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6
 Well Sampling Completion: Time 1438 Date 11/11/21 Samplers K Dye / J. B. de

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11/10/21

Monitoring Well: MW-0 **Sample ID:** MW0-1121 **Arrival Time:** 1308

Weather Conditions

Temp. 56° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: N/A Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 40.79 ft - SWL: 16.19 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 3.9 gals

Start Purge: 1315 Purging Method: () Bail () Peristaltic Bladder Pump # Pencil () Grundfos Pump

Pumping Rate: 500 ml 355^{sec} Start Sampling: 1425 Purge Duration: 1hr 10 min Purge Vol: 1.4 gals.

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 021650) Measured in: Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mv)	DTW (ft)
<u>1.1</u>	<u>1405</u>	<u>7.94</u>	<u>296.3</u>	<u>0.84</u>	<u>3.73</u>	<u>12.8</u>	<u>119.5</u>	<u>20.98</u>
<u>1.25</u>	<u>1410</u>	<u>7.96</u>	<u>293.6</u>	<u>0.82</u>	<u>3.95</u>	<u>12.8</u>	<u>118.3</u>	<u>21.40</u>
<u>1.3</u>	<u>1415</u>	<u>7.99</u>	<u>290.1</u>	<u>1.66</u>	<u>3.96</u>	<u>13.0</u>	<u>116.3</u>	<u>21.96</u>
<u>1.4</u>	<u>1420</u>	<u>8.01</u>	<u>288.6</u>	<u>0.78</u>	<u>3.86</u>	<u>13.1</u>	<u>115.4</u>	<u>22.27</u>
<u>1.4</u>	<u>1425</u>	<u>8.03</u>	<u>284.7</u>	<u>0.86</u>	<u>4.07</u>	<u>12.9</u>	<u>113.8</u>	<u>22.65</u>

outer casing
↓

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Pencil Bladder Sample clarity/color: Clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1440 Date 11-10-21 Samplers K D, E

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York Date: 11/10/21
 Monitoring Well: MW-(OBR) Sample ID: MWOB-1121 Arrival Time: 1430

Weather Conditions

Temp. 58° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow
 Wind Conditions: light Breeze

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK
 Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 62.43 ft - SWL: 52.38 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 1.6 gals
 Start Purge: 1455 Purging Method: Bail () Peristaltic () Bladder Pump # _____ () Grundfos Pump
 Pumping Rate: NA Start Sampling: 1410 Purge Duration: 11 min Purge Vol: 1.3 gals.
11/11/21

Field Parameters

Meters: YSI (sn: 20A101689), Hach 2100P (sn: 05020601331) Measured in: () Flow Cell Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.3</u>	<u>1526</u>	<u>Bailed to Bottom</u>	<u>181.5</u>	<u>11.3</u>	<u>NA</u>	<u>11.7</u>	<u>95.5</u>	<u>- J. Brady</u>
<u>11/11/21</u>	<u>1410</u>	<u>8.38</u>						

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bailer Sample clarity/color: clear, No color
 Sample Odor (Y) or Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6
 Well Sampling Completion: Time 1420 Date 11/11/21 Samplers K Dye - J. Brady

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-P Sample ID: MWP-1121 Arrival Time: 0942

Weather Conditions

Temp. 46 ° F () Sunny (X) Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: OK Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 34.56 ft – SWL: 18.63 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.5 gals

Start Purge: 0950 Purging Method: () Bail () Peristaltic (X) Bladder Pump # 2 () Grundfos Pump

Pumping Rate: 14 l/sec / 500 ml Start Sampling: 1055 Purge Duration: 1 hr. 5 min. Purge Vol: 3.3 gals.

Field Parameters

Meters: YSI (sn: 17D108273), Hach 2100P (sn: C013309) Measured in: (X) Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.2</u>	<u>1020</u>	<u>7.56</u>	<u>499.0</u>	<u>45.9</u>	<u>7.68</u>	<u>12.6</u>	<u>167.0</u>	<u>20.25</u>
<u>1.8</u>	<u>1030</u>	<u>7.55</u>	<u>494.8</u>	<u>62.8</u>	<u>8.23</u>	<u>11.2</u>	<u>179.0</u>	<u>20.30</u>
<u>2.4</u>	<u>1040</u>	<u>7.31</u>	<u>499.7</u>	<u>36.7</u>	<u>3.31</u>	<u>11.1</u>	<u>188.4</u>	<u>20.32</u>
<u>2.7</u>	<u>1045</u>	<u>7.24</u>	<u>499.8</u>	<u>30.3</u>	<u>2.19</u>	<u>11.2</u>	<u>186.9</u>	<u>20.34</u>
<u>3.0</u>	<u>1050</u>	<u>7.23</u>	<u>499.6</u>	<u>20.2</u>	<u>2.01</u>	<u>11.3</u>	<u>185.7</u>	<u>20.38</u>
<u>3.3</u>	<u>1055</u>	<u>7.24</u>	<u>499.5</u>	<u>18.6</u>	<u>1.98</u>	<u>11.4</u>	<u>184.3</u>	<u>20.40</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ± 3% conductivity, ± 10 mv ORP, ± 10% DO, ± 10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: bladder pump Sample clarity/color: Clear/Colorless

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Pulled pump at 1030 to fix air leak at pump (causing turbidity)

15/40

Analysis Requested: Routine 363 Number of Containers: 6

Well Sampling Completion: Time 1120 Date 11-11-21 Samplers S. Ward

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York Date: 11-10-21
 Monitoring Well: MW-QR Sample ID: MWQR-1121 Arrival Time: 1042

Weather Conditions

Temp: 60° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow
 Wind Conditions: 0-5 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK
 Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 12.48 ft - SWL: 5.57 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 1.1 gals
 Start Purge: 1045 Purging Method: Bail () Peristaltic () Bladder Pump # _____ () Grundfos Pump
 Pumping Rate: NA Start Sampling: 1230 Purge Duration: 18 min Purge Vol: 2.1 gals.
(11/11/21)

Field Parameters

Meters: YSI (sn: 2014 101689), Hach 2100P (sn: 05023011331) Measured in: () Flow Cell Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>2.1</u>	<u>1056</u>	<u>Bailed</u>	<u>As Bottom</u>					
<u>11/11/21</u>	<u>1230</u>	<u>6.97</u>	<u>180.7</u>	<u>7.66</u>	<u>NA</u>	<u>13.3</u>	<u>72.5</u>	<u>J. Brubaker</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bailer Sample clarity/color: clear, no color
 Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6
 Well Sampling Completion: Time 1245 Date 11/11/21 Samplers K Dye / J. Brubaker

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-R(BR) Sample ID: MWRBR-11A Arrival Time: 0815

Weather Conditions

Temp. 41° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-15 mph

Well Condition Checklist

Bump posts: N/A Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 30.56 ft - SWL: 15.27 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.4 gals

Start Purge: 0825 Purging Method: () Bail () Peristaltic () Bladder Pump # 3 () Grundfos Pump

Pumping Rate: 500 127 ^{gpm} Start Sampling: 0930 Purge Duration: 1hr 5min Purge Vol: 2.75 gals.

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 001656) Measured in: Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.8</u>	<u>0910</u>	<u>7.06</u>	<u>253.3</u>	<u>32.0</u>	<u>0.61</u>	<u>8.7</u>	<u>132.0</u>	<u>17.84</u>
<u>2.0</u>	<u>0915</u>	<u>7.05</u>	<u>250.8</u>	<u>26.5</u>	<u>0.80</u>	<u>8.7</u>	<u>131.5</u>	<u>18.33</u>
<u>2.25</u>	<u>0920</u>	<u>7.01</u>	<u>247.1</u>	<u>27.1</u>	<u>0.77</u>	<u>8.7</u>	<u>130.9</u>	<u>18.84</u>
<u>2.5</u>	<u>0925</u>	<u>6.98</u>	<u>244.2</u>	<u>27.3</u>	<u>0.79</u>	<u>8.7</u>	<u>131.1</u>	<u>19.23</u>
<u>2.75</u>	<u>0930</u>	<u>6.94</u>	<u>241.7</u>	<u>28.1</u>	<u>0.82</u>	<u>8.7</u>	<u>131.3</u>	<u>19.76</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ± 3% conductivity, ± 10 mv ORP, ± 10% DO, ± 10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bladder Pump Sample clarity/color: Clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 0947 Date 11-11-21 Samplers K Dye

MS/MSD

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-S(BR) Sample ID: MWSBR-1121

Arrival Time: 1312

Weather Conditions

Temp. 48 ° F () Sunny () Partly Cloudy (X) Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-10 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 26.09 ft - SWL: 3.40 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 3.6 gals

Start Purge: 1315 Purging Method: () Bail () Peristaltic (X) Bladder Pump # 2 () Grundfos Pump

Pumping Rate: 815 gal / 500 mL Start Sampling: 1410 Purge Duration: 55 min. Purge Vol: 3.8 gals.

Field Parameters

Meters: YSI (sn: 17D108273), Hach 2100P (sn: C013309) Measured in: (X) Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.8</u>	<u>1340</u>	<u>7.54</u>	<u>348.0</u>	<u>1.23</u>	<u>1.80</u>	<u>10.7</u>	<u>61.2</u>	<u>4.60</u>
<u>2.3</u>	<u>1345</u>	<u>7.54</u>	<u>350.4</u>	<u>1.31</u>	<u>1.70</u>	<u>10.7</u>	<u>33.8</u>	<u>4.63</u>
<u>2.6</u>	<u>1350</u>	<u>7.53</u>	<u>351.1</u>	<u>1.06</u>	<u>1.68</u>	<u>10.7</u>	<u>21.4</u>	<u>4.65</u>
<u>2.9</u>	<u>1355</u>	<u>7.52</u>	<u>351.9</u>	<u>.94</u>	<u>1.63</u>	<u>10.7</u>	<u>11.4</u>	<u>4.68</u>
<u>3.2</u>	<u>1400</u>	<u>7.52</u>	<u>352.6</u>	<u>0.88</u>	<u>1.58</u>	<u>10.7</u>	<u>-6.9</u>	<u>4.70</u>
<u>3.5</u>	<u>1405</u>	<u>7.52</u>	<u>352.9</u>	<u>0.83</u>	<u>1.56</u>	<u>10.7</u>	<u>-7.8</u>	<u>4.73</u>
<u>3.8</u>	<u>1410</u>	<u>7.52</u>	<u>353.4</u>	<u>0.77</u>	<u>1.53</u>	<u>10.6</u>	<u>-8.0</u>	<u>4.78</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: bladder pump Sample clarity/color: Clear / colorless

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

10/30

Analysis Requested: Routine 363 Number of Containers: 12

Well Sampling Completion: Time 1450 Date 11-11-21 Samplers S. WATSON

MS/MSD

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-T(BR) Sample ID: MW TBR-1121 Arrival Time: 1140

Weather Conditions

Temp. 48 ° F () Sunny () Partly Cloudy (X) Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-10mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 22.50 ft – SWL: 4.30 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 2.9 gals

Start Purge: 1150 Purging Method: () Bail () Peristaltic (X) Bladder Pump # 2 () Grundfos Pump

Pumping Rate: 100sec/500ML Start Sampling: 1240 Purge Duration: 50min. Purge Vol: 2.9 gals.

Field Parameters

Meters: YSI (sn: 17D108273), Hach 2100P (sn: C013709) Measured in: (X) Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>1.5</u>	<u>1215</u>	<u>7.64</u>	<u>338.9</u>	<u>7.88</u>	<u>4.77</u>	<u>12.4</u>	<u>174.7</u>	<u>6.70</u>
<u>1.7</u>	<u>1220</u>	<u>7.62</u>	<u>340.2</u>	<u>5.34</u>	<u>2.81</u>	<u>12.4</u>	<u>170.3</u>	<u>6.81</u>
<u>2.0</u>	<u>1225</u>	<u>7.61</u>	<u>342.7</u>	<u>3.13</u>	<u>1.16</u>	<u>12.2</u>	<u>169.7</u>	<u>6.92</u>
<u>2.3</u>	<u>1230</u>	<u>7.60</u>	<u>344.4</u>	<u>1.96</u>	<u>0.77</u>	<u>12.2</u>	<u>168.9</u>	<u>7.08</u>
<u>2.6</u>	<u>1235</u>	<u>7.59</u>	<u>343.4</u>	<u>1.90</u>	<u>0.64</u>	<u>12.4</u>	<u>166.5</u>	<u>7.30</u>
<u>2.9</u>	<u>1240</u>	<u>7.59</u>	<u>343.4</u>	<u>1.81</u>	<u>0.57</u>	<u>12.1</u>	<u>164.9</u>	<u>7.48</u>

Stabilization Criteria: 1) field parameters ±0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: bladder pump Sample clarity/color: Clear/Colorless

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine 363 Number of Containers: 6

Well Sampling Completion: Time 1310 Date 11-11-21 Samplers J. WATSON

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11/11/21

Monitoring Well: MW-U(BR) Sample ID: MWUBR-1121 Arrival Time: 0818

Weather Conditions

Temp. 35 ° F () Sunny (X) Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: light - moderate

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 22.85 ft - SWL: 12.59 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 1.16 gals

Start Purge: 0825 Purging Method: () Bail () Peristaltic (X) Bladder Pump #1 () Grundfos Pump

Pumping Rate: 500ml/13min 18sec Start Sampling: 0915 Purge Duration: 50min Purge Vol: 0.9 gals.

Field Parameters

Meters: YSI (sn: 20H101689), Hach 2100P (sn: 050200011331) Measured in: (X) Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>0.2</u>	<u>0835</u>	<u>Switch to cell</u>						<u>12.96</u>
<u>0.4</u>	<u>0845</u>	<u>7.51</u>	<u>273.8</u>	<u>2.41</u>	<u>0.57</u>	<u>9.3</u>	<u>160.9</u>	<u>13.00</u>
<u>0.6</u>	<u>0855</u>	<u>7.55</u>	<u>272.8</u>	<u>1.90</u>	<u>0.45</u>	<u>9.5</u>	<u>158.6</u>	<u>13.05</u>
<u>0.7</u>	<u>0905</u>	<u>7.62</u>	<u>273.5</u>	<u>1.14</u>	<u>0.37</u>	<u>9.3</u>	<u>155.5</u>	<u>13.07</u>
<u>0.8</u>	<u>0910</u>	<u>7.64</u>	<u>272.4</u>	<u>1.17</u>	<u>0.35</u>	<u>9.6</u>	<u>154.1</u>	<u>13.09</u>
<u>0.9</u>	<u>0915</u>	<u>7.66</u>	<u>272.3</u>	<u>1.12</u>	<u>0.36</u>	<u>9.5</u>	<u>152.8</u>	<u>13.07</u>

Stabilization Criteria: 1) field parameters ±0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Pencil Bladder Pump Sample clarity/color: clear, no color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1000 Date 11/11/21 Samplers J. Brandes

Groundwater Purging and Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11/10/21

Monitoring Well: MW-V Sample ID: MWV-1121 Arrival Time: 1510

Weather Conditions

Temp. 58 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK
 Well Visibility (paint) : OK Well Label : OK

Comment: _____

Depth & Purging Information

TD: 41.70 ft - SWL: 15.08 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 4.2 gals

Start Purge: 1515 Purging Method: () Bail () Peristaltic Bladder Pump # 3 () Grundfos Pump

Pumping Rate: 500ml/136^{sec} Start Sampling: 1600 Purge Duration: 45 min Purge Vol: 3.5 gals.

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 001656) Measured in: Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>2.4</u>	<u>1540</u>	<u>7.52</u>	<u>891</u>	<u>7.18</u>	<u>0.52</u>	<u>12.6</u>	<u>121.8</u>	<u>26.80</u>
<u>2.75</u>	<u>1545</u>	<u>7.52</u>	<u>892</u>	<u>6.48</u>	<u>0.59</u>	<u>12.6</u>	<u>120.1</u>	<u>27.98</u>
<u>3.0</u>	<u>1550</u>	<u>7.53</u>	<u>892</u>	<u>6.29</u>	<u>0.64</u>	<u>12.5</u>	<u>118.8</u>	<u>29.13</u>
<u>3.3</u>	<u>1555</u>	<u>7.53</u>	<u>893</u>	<u>5.35</u>	<u>0.63</u>	<u>12.3</u>	<u>118.1</u>	<u>30.42</u>
<u>3.5</u>	<u>1600</u>	<u>7.54</u>	<u>895</u>	<u>4.71</u>	<u>0.65</u>	<u>12.2</u>	<u>117.2</u>	<u>31.20</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bladder Pump Sample clarity/color: Clear No Color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1610 Date 11-10-21 Samplers KDE

Groundwater Purging and Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-11-21

Monitoring Well: MW-V (BR) Sample ID: MWVBR-1121 Arrival Time: 1322

Weather Conditions

Temp. 55 ° F () Sunny () Partly Cloudy Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-15 mph

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK

Comment: _____

Depth & Purging Information

TD: 61.42 ft - SWL: 26.24 ft x 0.16 if 2" or 0.65 if 4" = 1 Well Volume: 5.6 gals

Start Purge: 1330 Purging Method: () Bail () Peristaltic Bladder Pump # 3 () Grundfos Pump

Pumping Rate: 500ml 95^{sec} Start Sampling: 1450 Purge Duration: 1hr 20min Purge Vol: 4.9 gals.

Field Parameters

Meters: YSI (sn: 21A102643), Hach 2100P (sn: 001656) Measured in: Flow Cell () Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
<u>3.3</u>	<u>1430</u>	<u>7.68</u>	<u>469.8</u>	<u>7.50</u>	<u>0.64</u>	<u>11.5</u>	<u>-89.9</u>	<u>29.62</u>
<u>3.75</u>	<u>1435</u>	<u>7.64</u>	<u>472.6</u>	<u>4.81</u>	<u>0.58</u>	<u>11.4</u>	<u>-85.9</u>	<u>29.29</u>
<u>4.1</u>	<u>1440</u>	<u>7.60</u>	<u>477.9</u>	<u>5.25</u>	<u>0.50</u>	<u>11.5</u>	<u>-81.6</u>	<u>29.89</u>
<u>4.3</u>	<u>1445</u>	<u>7.61</u>	<u>480.7</u>	<u>5.02</u>	<u>0.59</u>	<u>11.5</u>	<u>-79.7</u>	<u>30.17</u>
<u>4.9</u>	<u>1450</u>	<u>7.59</u>	<u>478.3</u>	<u>3.86</u>	<u>0.51</u>	<u>11.5</u>	<u>-77.8</u>	<u>30.34</u>

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Sample Collection Method: Bladder Pump Sample clarity/color: Clear No color

Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Well Sampling Completion: Time 1512 Date 11-11-21 Samplers K Dye

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: GSS-1 Sample ID: NO SAMPLE Arrival Time: 1200

Weather Conditions:

Temp. 58°F Sunny Partly Cloudy Cloudy Light Rain Hvy. Rain Snow

Wind Conditions: 0-5mph

Location Type

Groundwater Suppression Leachate Secondary Leachate Surface Water/Sediment Res. Water
 Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: NO FLOW

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: 6013309)

Field Parameters tested in: Submerged Probe Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Type: Grab Composite Sample Location: Discharge Pipe Pond Ditch

Location Description/Condition: _____

Sample Collection Equipment/Method: _____ Sample Time: NA

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____

Other Observations/Comments: NO FLOW

Analysis Requested: Routine 363 Number of Containers: 0

Sampling Completion: Time 1204 Date 11-10-21 Samplers J. WATSON

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: GSS-1A

Sample ID: GSS1A-1121

Arrival Time: 1525

Weather Conditions:

Temp. 54 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-Smph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: 10+ gpm

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: CO13309)

Field Parameters tested in: () Submerged Probe Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1344</u>	<u>6.61</u>	<u>553.7</u>	<u>4.08</u>	<u>NA</u>	<u>13.14</u>	<u>111.6</u>

Sample Information

Sample Type: Grab () Composite Sample Location: Discharge Pipe () Pond () Ditch

Location Description/Condition: 2" flex hose switch activated

Sample Collection Equipment/Method: clean 5gal. bucket

Sample Time: 1535

Sample Description (clarity/color): clear/colorless Sample Odor (Y) or (N) Explain: Slight earthy odor

Other Observations/Comments: _____

Analysis Requested: Routine 363

Number of Containers: 6

Sampling Completion: Time 1350 Date 11-10-21 Samplers S. Watson

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: GSS-2

Sample ID: NO SAMPLE

Arrival Time: 1210

Weather Conditions:

Temp. ____ ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: NO FLOW

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: CO13309)

Field Parameters tested in: () Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Type: () Grab () Composite Sample Location: () Discharge Pipe () Pond () Ditch

Location Description/Condition: 4" HDPE pipe

Sample Collection Equipment/Method: _____ Sample Time: NA

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____

Other Observations/Comments: _____

Analysis Requested: Routine 363 Number of Containers: 0

Sampling Completion: Time 1241 Date 11-10-21 Samplers S. Watson

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: GSS-3

Sample ID: NO SAMPLE

Arrival Time: 1249

Weather Conditions:

Temp. 58 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: NO FLOW

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: C013309)

Field Parameters tested in: () Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Type: () Grab () Composite Sample Location: () Discharge Pipe () Pond () Ditch

Location Description/Condition: 6" HDPE Pipe

Sample Collection Equipment/Method: _____ Sample Time: NA

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____

Other Observations/Comments: _____

Analysis Requested: Routine 363 Number of Containers: 0

Sampling Completion: Time 1253 Date 11-10-21 Samplers SWATS

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: G55-4 Sample ID: G554-1121 Arrival Time: 1300

Weather Conditions:

Temp. 58 ° F (Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: 2 gpm

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: C013309)

Field Parameters tested in: () Submerged Probe Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1305</u>	<u>7.78</u>	<u>492.8</u>	<u>1.02</u>	<u>NA</u>	<u>17.5</u>	<u>84.2</u>

Sample Information

Sample Type: Grab () Composite Sample Location: Discharge Pipe () Pond () Ditch

Location Description/Condition: 4" HDPE Pipe

Sample Collection Equipment/Method: dipper Sample Time: 1305

Sample Description (clarity/color): Clear/colorless Sample Odor (Y) or (N) Explain: _____

Other Observations/Comments: _____

Analysis Requested: Routine 303 Number of Containers: 6

Sampling Completion: Time 1310 Date 11-10-21 Samplers S. WATSON

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: G55-5

Sample ID: G555-1/21

Arrival Time: 1310

Weather Conditions:

Temp. 58 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: 1 gpm

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: C013309)

Field Parameters tested in: () Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1333</u>	<u>8.29</u>	<u>606.8</u>	<u>0.35</u>	<u>NA</u>	<u>13.7</u>	<u>88.4</u>

Sample Information

Sample Type: Grab () Composite Sample Location: Discharge Pipe () Pond () Ditch

Location Description/Condition: 6" HDPE Pipe

Sample Collection Equipment/Method: dipper Sample Time: 1315

Sample Description (clarity/color): Clear/colorless Sample Odor (Y) or Explain: _____

Other Observations/Comments: _____

Analysis Requested: Routine 363 Number of Containers: 6

Sampling Completion: Time 1335 Date 11-10-21 Samplers J. Watson

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: G55-6 Sample ID: G556-1121 Arrival Time: 1350

Weather Conditions:

Temp. 58 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: 20.8 Estimated Flow: 5 gpm

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: CO13309)

Field Parameters tested in: () Submerged Probe Cup
Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1400</u>	<u>6.95</u>	<u>1011</u>	<u>3.56</u>	<u>NA</u>	<u>19.6</u>	<u>107.6</u>

Sample Information

Sample Type: Grab () Composite Sample Location: Discharge Pipe () Pond () Ditch

Location Description/Condition: _____

Sample Collection Equipment/Method: dipper Sample Time: 1355

Sample Description (clarity/color): Clear/colorless Sample Odor (Y) or Explain: _____

Other Observations/Comments: _____

Analysis Requested: Partic Number of Containers: 6

Sampling Completion: Time 1410 Date 11-10-21 Samplers S. WARREN

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: G55-8 Sample ID: G558-1121 Arrival Time: 1355

Weather Conditions:

Temp. 54 ° F () Sunny (X) Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Location Type

(X) Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: 5+gpm

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: C013309)

Field Parameters tested in: () Submerged Probe (X) Cup
Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1607</u>	<u>6.76</u>	<u>708</u>	<u>0.86</u>	<u>NA</u>	<u>17.5</u>	<u>132.6</u>

Sample Information

Sample Type: (X) Grab () Composite Sample Location: (X) Discharge Pipe () Pond () Ditch

Location Description/Condition: 4" HDPE pipe - "ON" when arrived for sample

Sample Collection Equipment/Method: dipper Sample Time: 1650

Sample Description (clarity/color): Clear/colorless Sample Odor (Y) or (N) Explain: _____

Other Observations/Comments: _____

Analysis Requested: Routine 363 Number of Containers: 6

Sampling Completion: Time 1615 Date 11-10-21 Samplers J. Warr

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-10-21

Sampling Location: GSS-9 Sample ID: GSS9-1121 Arrival Time: 1454

Weather Conditions:

Temp. 58° F (Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Location Type

Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: 5 gpm

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 17D108273), Hach 2100P (sn: CO13309)

Field Parameters tested in: () Submerged Probe (Cup
Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1504</u>	<u>6.25</u>	<u>447.2</u>	<u>0.69</u>	<u>NA</u>	<u>12.9</u>	<u>179.4</u>

Sample Information

Sample Type: (Grab () Composite) Sample Location: (Discharge Pipe () Pond () Ditch

Location Description/Condition: 6" HDPE pipe

Sample Collection Equipment/Method: dipper Sample Time: 1500

Sample Description (clarity/color): clear/colorless Sample Odor (Y) or (N) Explain: _____

Other Observations/Comments: _____

Analysis Requested: Routine Number of Containers: 6

Sampling Completion: Time 1510 Date 11-10-21 Samplers J. Warner

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW1A Sample ID: SW1A-1121 Arrival Time: 1440

Weather Conditions

Measured Ambient Temp. 55.6 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: None

Depth and Flow Information

Sample Location Water Depth: 6" Flow: 40 gpm Flow Measurement Method: eye

Is pond discharging to stream () Yes () No NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 170108273) Turbidity Meter: Hach 2100P (sn: C013307)

Field Parameters tested in: Directly Submerged Probe Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1449</u>	<u>7.25</u>	<u>59.7</u>	<u>2.50</u>	<u>10.94</u>	<u>8.2</u>	<u>160.3</u>
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: () Pond Discharge Pipe Stream

Grab Sample Collection Equipment/Method: dipper Sample Time: 1445

Visual Contrast Entering Stream: NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): Clear/colorless Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine 363 + TSS Number of Containers: 7

Sampling Completion: Time 1450 Date 11-10-21 Samplers J. Watson

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-2 Sample ID: SW2-1121 Arrival Time: 1033

Weather Conditions

Measured Ambient Temp 53.7 ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Depth and Flow Information

Sample Location Water Depth: 4" Flow: 40 gpm Flow Measurement Method: eye

Is pond discharging to stream () Yes () No () NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 17D10P273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1045</u>	<u>7.08</u>	<u>83.0</u>	<u>7.46</u>	<u>11.23</u>	<u>8.9</u>	<u>202.7</u>

Sample Information

Sample Location: () Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: dipper Sample Time: 1040

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): clear/colorless Sample Odor (Y) or () Explain: _____ Other

Observations/Comments: _____

Analysis Requested: Routine 363 + TSS Number of Containers: 7

Sampling Completion: Time 1050 Date 11-10-21 Samplers S. Watson

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-2A Sample ID: SW2A-1121 Arrival Time: 0900

Weather Conditions

Measured Ambient Temp. 49.0° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Depth and Flow Information

Sample Location Water Depth: 6" Flow: 60 gpm Flow Measurement Method: eye

Is pond discharging to stream () Yes () No () NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 17D/08273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>0913</u>	<u>6.67</u>	<u>72.8</u>	<u>7.44</u>	<u>12.90</u>	<u>8.1</u>	<u>232.0</u>

Sample Information

Sample Location: () Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: dipper Sample Time: 0905

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): clear/colorless Sample Odor (Y) or () Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine 363 + TSS Number of Containers: 7

Sampling Completion: Time 0925 Date 11-10-21 Samplers J. L. HATON

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-3A Sample ID: NO SAMPLE Arrival Time: 1050

Weather Conditions

Measured Ambient Temp. _____ ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: _____

Depth and Flow Information

Sample Location Water Depth: NA Flow: Drips Flow Measurement Method: eye

Is pond discharging to stream Yes () No () NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 17D108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: _____ Sample Time: NA

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____ Other

Observations/Comments: _____

Analysis Requested: _____ Number of Containers: 0

Sampling Completion: Time 1100 Date 11-10-21 Samplers S. WATKIN

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-4 Sample ID: NO SAMPLE Arrival Time: 1145

Weather Conditions

Measured Ambient Temp. 57° F (Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Depth and Flow Information

Sample Location Water Depth: NA Flow: NO FLOW Flow Measurement Method: eye

Is pond discharging to stream () Yes () No (NA If Yes collect sample

Directed to EAST POND

Field Parameters

Multi Meter: YSI (sn: 17D108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: () Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: NA Sample Time: NA

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____ Other

Observations/Comments: _____

Analysis Requested: _____ Number of Containers: 0

Sampling Completion: Time 1150 Date 11-10-21 Samplers S. WATSON

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-4A Sample ID: NO SAMPLE Arrival Time: 1140

Weather Conditions

Measured Ambient Temp. 59.3 ° F Sunny Partly Cloudy Cloudy Light Rain Hvy. Rain Snow

Wind Conditions: 0-5mph

Depth and Flow Information

Sample Location Water Depth: NA Flow: NO FLOW Flow Measurement Method: eye

Is pond discharging to stream Yes No NA Yes collect sample

Directed to East Pond

Field Parameters

Multi Meter: YSI (sn: 17D108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: Directly Submerged Probe Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: Pond Discharge Pipe Stream

Grab Sample Collection Equipment/Method: NA Sample Time: NA

Visual Contrast Entering Stream: NA Yes No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____ Other

Observations/Comments: _____

Analysis Requested: Routine 36.3 + TSS Number of Containers: 0

Sampling Completion: Time 1144 Date 11-10-21 Samplers S. Watson

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-SA Sample ID: NO SAMPLE Arrival Time: 1255

Weather Conditions

Measured Ambient Temp. 58 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Depth and Flow Information

Sample Location Water Depth: NA Flow: NO FLOW Flow Measurement Method: eye

Is pond discharging to stream () Yes () No NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 17D108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: NA Sample Time: NA

Visual Contrast Entering Stream: NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____ Other

Observations/Comments: _____

Analysis Requested: Routine 363 TSS Number of Containers: 0

Sampling Completion: Time 1258 Date 11-10-21 Samplers S. WATSON

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-6 Sample ID: NO SAMPLE Arrival Time: 1345

Weather Conditions

Measured Ambient Temp. 58° F (Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Depth and Flow Information

Sample Location Water Depth: NA Flow: NO FLOW Flow Measurement Method: eye

Is pond discharging to stream () Yes (No () NA If Yes collect sample

Directed to next pond

Field Parameters

Multi Meter: YSI (sn: 17D108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: () Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: NA Sample Time: NA

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____ Other

Observations/Comments: _____

Analysis Requested: Routine 303 + TSS Number of Containers: 0

Sampling Completion: Time 1350 Date 11-10-21 Samplers S. WATSON

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-7 Sample ID: SW7-1121 Arrival Time: 0925

Weather Conditions

Measured Ambient Temp: 52.9 ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Depth and Flow Information

Sample Location Water Depth: 5" Flow: 25 gpm Flow Measurement Method: eye

Is pond discharging to stream () Yes () No () NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 17D108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>0942</u>	<u>6.51</u>	<u>56.9</u>	<u>1.79</u>	<u>10.75</u>	<u>7.6</u>	<u>2239</u>

Sample Information

Sample Location: () Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: dipper Sample Time: 0935

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): clear/colorless Sample Odor (Y) or () N Explain: _____ Other

Observations/Comments: _____

Analysis Requested: Positive 263 + TSS Number of Containers: 7

Sampling Completion: Time 0950 Date 11-10-21 Samplers S. UARD

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-7A Sample ID: SW7A-1121 Arrival Time: 1000

Weather Conditions

Measured Ambient Temp. 47.3° F () Sunny (X) Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Depth and Flow Information

Sample Location Water Depth: 4" Flow: 25 gpm Flow Measurement Method: eye

Is pond discharging to stream () Yes () No (X) NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 170108273) Turbidity Meter: Hach 2100P (sn: C011339)

Field Parameters tested in: (X) Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1020</u>	<u>6.80</u>	<u>59.6</u>	<u>2.34</u>	<u>11.82</u>	<u>8.0</u>	<u>226.2</u>
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: () Pond Discharge Pipe (X) Stream

Grab Sample Collection Equipment/Method: dipper Sample Time: 1015

Visual Contrast Entering Stream: (X) NA () Yes () No; If yes, notify project manager, explain below and take photograph

Sample Description (clarity/color): clear/colorless Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine 303 + TSS Number of Containers: 7

Sampling Completion: Time 1030 Date 11-10-21 Samplers S. Watson

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-8 North ditch Sample ID: NO SAMPLE Arrival Time: 1435

Weather Conditions

Measured Ambient Temp, 57.1° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Depth and Flow Information

Sample Location Water Depth: NA Flow: NO FLOW Flow Measurement Method: eye

Is pond discharging to stream () Yes () No NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 1D7108273) Turbidity Meter: Hach 2100P (sn: CO13309)

Field Parameters tested in: () Directly Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: () Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: NA Sample Time: NA

Visual Contrast Entering Stream: () NA () Yes () No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): _____ Sample Odor (Y) or (N) Explain: _____ Other

Observations/Comments: _____

Analysis Requested: Routine 363 + TSS Number of Containers: 0

Sampling Completion: Time 1437 Date 11-10-21 Samplers S. WATKINS

Surface Water Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill- Campbell, New York

Date: 11-10-21

Sampling Location: SW-9 Sample ID: SW9-1121 Arrival Time: 1125

Weather Conditions

Measured Ambient Temp 57.4 ° F Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Depth and Flow Information

Sample Location Water Depth: NA Flow: 1 gpm Flow Measurement Method: eye

Is pond discharging to stream Yes () No () NA If Yes collect sample

Field Parameters

Multi Meter: YSI (sn: 170108273) Turbidity Meter: Hach 2100P (sn: C013309)

Field Parameters tested in: () Directly Submerged Probe Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1135</u>	<u>7.62</u>	<u>170.4</u>	<u>82.1</u>	<u>NA</u>	<u>8.8</u>	<u>172.2</u>
_____	_____	_____	_____	_____	_____	_____

Sample Information

Sample Location: Pond Discharge Pipe () Stream

Grab Sample Collection Equipment/Method: dipper Sample Time: 1130

Visual Contrast Entering Stream: () NA () Yes No; If yes, **notify project manager**, explain below and take photograph

Sample Description (clarity/color): Clear / slight whitish tint Sample Odor (Y) or (N) Explain: _____ Other Observations/Comments: _____

Analysis Requested: Routine 363 FTSS Number of Containers: 7

Sampling Completion: Time 1140 Date 11-10-21 Samplers J. WATER

Groundwater Suppression and Leachate Sampling Field Form

On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11/11/21

Sampling Location: LCS Sample ID: LCS-1121 Arrival Time: 1020

Weather Conditions:

Temp. 35 ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow
 Wind Conditions: light-moderate

Location Type

() Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
 () Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: _____

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: 204101689), Hach 2100P (sn: 050200011331)

Field Parameters tested in: () Submerged Probe () Cup
 Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1045</u>	<u>7.30</u>	<u>4303</u>	<u>44.2</u>	<u>NA</u>	<u>13.5</u>	<u>-182.3</u>

Sample Information

Sample Type: () Grab () Composite Sample Location: () Discharge Pipe () Pond () Ditch

Location Description/Condition: Leachate loading Area - Fill from truck 2nd load of day

Sample Collection Equipment/Method: 5 gal bucket (Dedicated) Sample Time: 1045

Sample Description (clarity/color): light Amber Sample Odo () or (N) Explain: moderate leachate

Other Observations/Comments: _____

Analysis Requested: 363 Expanded Number of Containers: 27

Sampling Completion: Time 1145 Date 11/11/21 Samplers Ji Brudes

Groundwater Suppression and Leachate Sampling Field Form On-Site Geological Services, D.P.C.

Project: Hakes C&D Landfill, Campbell, New York

Date: 11-29-21

Sampling Location: LCS Sample ID: LCSSSED-1121 Arrival Time: 1109

Weather Conditions:

Temp. 32 ° F () Sunny Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5 mph

Location Type

() Groundwater Suppression ^{SED} Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: _____ Estimated Flow: NA

Comments: _____

Field Parameters (as appropriate)

Meter: YSI (sn: _____), Hach 2100P (sn: _____)

Field Parameters tested in: () Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1130</u>	_____	_____	_____	_____	_____	_____

Sample Information

Sample Type: Grab () Composite Sample Location: () Discharge Pipe () Pond ^{Tank} ~~Leach~~

Location Description/Condition: Sample from leachate tank in 5 gal bucket by landfill worker

Sample Collection Equipment/Method: 5 gal bucket Sample Time: 1130

Sample Description (clarity/color): wet Black shiny like yogurt Sample Odor (Y) or (N) Explain: leachate odor

Other Observations/Comments: _____

Analysis Requested: RAD Number of Containers: 2

Sampling Completion: Time 1156 Date 11-29-21 Samplers K DYE

Appendix B

Laboratory Analytical Reports



November 23, 2021

Service Request No:R2111947

Ms. Kimberly Crosby
Casella Waste Systems
286 Sand Road
Morrisonville, NY 12962

Laboratory Results for: Hakes C&D - 363 Routine Parameters

Dear Ms.Crosby,

Enclosed are the results of the sample(s) submitted to our laboratory November 12, 2021
For your reference, these analyses have been assigned our service request number **R2111947**.

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Jon Brandes

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Received: 11/11/2021 - 11/12/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Fourteen water samples were received for analysis at ALS Environmental on 11/11/2021 - 11/12/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

A handwritten signature in black ink, appearing to read "Samantha", is written over a horizontal line.

Approved by _____

Date 11/23/2021



SAMPLE DETECTION SUMMARY

CLIENT ID: MWO-1121 **Lab ID: R2111947-001**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	168		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Chloride	1.7	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	137			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	195		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	18.9		0.4	2.0	mg/L	9056A
Calcium, Total	33100		300	1000	ug/L	6010C
Magnesium, Total	13200		30	1000	ug/L	6010C
Manganese, Total	63		4	10	ug/L	6010C
Potassium, Total	4700		400	2000	ug/L	6010C
Sodium, Total	20500		200	1000	ug/L	6010C

CLIENT ID: MWV-1121 **Lab ID: R2111947-002**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	447		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.1		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	1.5	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	383			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	709		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	179		1.2	6.0	mg/L	9056A
Calcium, Total	77900		300	1000	ug/L	6010C
Magnesium, Total	45800		30	1000	ug/L	6010C
Manganese, Total	245		4	10	ug/L	6010C
Potassium, Total	45900		400	2000	ug/L	6010C
Sodium, Total	82800		200	1000	ug/L	6010C

CLIENT ID: GSS4-1121 **Lab ID: R2111947-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	59.0		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.0	J	0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	4.6	J	3.8	5.0	mg/L	410.4
Chloride	105		0.9	4.0	mg/L	9056A
Hardness, Total as CaCO3	148			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	0.3	J	0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	264		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	26.7		0.4	2.0	mg/L	9056A
Calcium, Total	38200		300	1000	ug/L	6010C



SAMPLE DETECTION SUMMARY

CLIENT ID: GSS4-1121 **Lab ID: R2111947-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Magnesium, Total	12900		30	1000	ug/L	6010C
Potassium, Total	3000		400	2000	ug/L	6010C
Sodium, Total	40800		200	1000	ug/L	6010C

CLIENT ID: GSS5-1121 **Lab ID: R2111947-004**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	138		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.0		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	89.5		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	232			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	0.2	J	0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	328		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	43.1		0.4	2.0	mg/L	9056A
Calcium, Total	61400		300	1000	ug/L	6010C
Magnesium, Total	19200		30	1000	ug/L	6010C
Manganese, Total	9	J	4	10	ug/L	6010C
Potassium, Total	3100		400	2000	ug/L	6010C
Sodium, Total	32200		200	1000	ug/L	6010C

CLIENT ID: GSS6-1121 **Lab ID: R2111947-005**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	393		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.4		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	70.4		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	528			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	694		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	122		0.8	4.0	mg/L	9056A
Calcium, Total	145000		300	1000	ug/L	6010C
Iron, Total	240		70	100	ug/L	6010C
Magnesium, Total	40200		30	1000	ug/L	6010C
Manganese, Total	10		4	10	ug/L	6010C
Potassium, Total	4200		400	2000	ug/L	6010C
Sodium, Total	34100		200	1000	ug/L	6010C

CLIENT ID: GSS9-1121 **Lab ID: R2111947-006**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	148		1.8	2.0	mg/L	SM 2320 B-1997 (2011)



SAMPLE DETECTION SUMMARY

CLIENT ID: GSS9-1121 **Lab ID: R2111947-006**

Analyte	Results	Flag	MDL	MRL	Units	Method
Carbon, Total Organic (TOC)	1.0		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	47.1		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	179			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	267		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	26.3		0.4	2.0	mg/L	9056A
Calcium, Total	52000		300	1000	ug/L	6010C
Magnesium, Total	11800		30	1000	ug/L	6010C
Manganese, Total	56		4	10	ug/L	6010C
Potassium, Total	2000	J	400	2000	ug/L	6010C
Sodium, Total	25800		200	1000	ug/L	6010C

CLIENT ID: GSS8-1121 **Lab ID: R2111947-007**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	219		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	3.1		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	7.2		3.8	5.0	mg/L	410.4
Chloride	84.7		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	281			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	0.3	J	0.2	1.0	mg/L	9056A
Nitrogen, Total Kjeldahl (TKN)	0.18	J	0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	427		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	44.8		0.4	2.0	mg/L	9056A
Calcium, Total	83000		300	1000	ug/L	6010C
Magnesium, Total	17900		30	1000	ug/L	6010C
Manganese, Total	540		4	10	ug/L	6010C
Potassium, Total	2100		400	2000	ug/L	6010C
Sodium, Total	47200		200	1000	ug/L	6010C

CLIENT ID: GSS1A-1121 **Lab ID: R2111947-008**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	289		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Ammonia as Nitrogen, undistilled	0.236		0.026	0.050	mg/L	350.1
Carbon, Total Organic (TOC)	16.4		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	34.2		3.8	5.0	mg/L	410.4
Chloride	2.0		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	298			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	1.04		0.15	0.20	mg/L	351.2



SAMPLE DETECTION SUMMARY

CLIENT ID: GSS1A-1121 **Lab ID: R2111947-008**

Analyte	Results	Flag	MDL	MRL	Units	Method
Solids, Total Dissolved (TDS)	374		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	43.4		0.4	2.0	mg/L	9056A
Calcium, Total	90100		300	1000	ug/L	6010C
Iron, Total	1360		70	100	ug/L	6010C
Magnesium, Total	17700		30	1000	ug/L	6010C
Manganese, Total	12600		40	100	ug/L	6010C
Potassium, Total	2200		400	2000	ug/L	6010C
Sodium, Total	5200		200	1000	ug/L	6010C

CLIENT ID: MWUBR-1121 **Lab ID: R2111947-009**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	150		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Chloride	0.9	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	136			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	165		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	14.7		0.4	2.0	mg/L	9056A
Calcium, Total	39200		300	1000	ug/L	6010C
Magnesium, Total	9200		30	1000	ug/L	6010C
Manganese, Total	745		4	10	ug/L	6010C
Potassium, Total	1500	J	400	2000	ug/L	6010C
Sodium, Total	10400		200	1000	ug/L	6010C

CLIENT ID: MWQR-1121 **Lab ID: R2111947-010**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	40.8		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.7		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	4.3	J	3.8	5.0	mg/L	410.4
Chloride	73.4		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	51.9			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	194		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	17.6		0.4	2.0	mg/L	9056A
Calcium, Total	12900		300	1000	ug/L	6010C
Iron, Total	750		70	100	ug/L	6010C
Magnesium, Total	4800		30	1000	ug/L	6010C
Manganese, Total	76		4	10	ug/L	6010C
Potassium, Total	1400	J	400	2000	ug/L	6010C
Sodium, Total	51800		200	1000	ug/L	6010C



SAMPLE DETECTION SUMMARY

CLIENT ID: MWD-1121 **Lab ID: R2111947-011**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	270		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Chloride	11.7		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	290			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	0.4	J	0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	300		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	17.9		0.4	2.0	mg/L	9056A
Calcium, Total	83800		300	1000	ug/L	6010C
Iron, Total	1580		70	100	ug/L	6010C
Magnesium, Total	19600		30	1000	ug/L	6010C
Manganese, Total	50		4	10	ug/L	6010C
Potassium, Total	2400		400	2000	ug/L	6010C
Sodium, Total	12200		200	1000	ug/L	6010C

CLIENT ID: MWGR-1121 **Lab ID: R2111947-012**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	339		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.0	J	0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	8.3		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	348			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	0.4	J	0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	378		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	25.7		0.4	2.0	mg/L	9056A
Calcium, Total	108000		300	1000	ug/L	6010C
Magnesium, Total	19100		30	1000	ug/L	6010C
Potassium, Total	1200	J	400	2000	ug/L	6010C
Sodium, Total	10300		200	1000	ug/L	6010C

CLIENT ID: MWOB-1121 **Lab ID: R2111947-013**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	159		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	0.8	J	0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	1.5	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	114			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	175		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	16.9		0.4	2.0	mg/L	9056A
Calcium, Total	28700		300	1000	ug/L	6010C



SAMPLE DETECTION SUMMARY

CLIENT ID: MWOB-1121 **Lab ID: R2111947-013**

Analyte	Results	Flag	MDL	MRL	Units	Method
Iron, Total	80	J	70	100	ug/L	6010C
Magnesium, Total	10300		30	1000	ug/L	6010C
Manganese, Total	7	J	4	10	ug/L	6010C
Potassium, Total	4000		400	2000	ug/L	6010C
Sodium, Total	20400		200	1000	ug/L	6010C

CLIENT ID: MWN-1121 **Lab ID: R2111947-014**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	469		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Ammonia as Nitrogen, undistilled	0.132		0.026	0.050	mg/L	350.1
Carbon, Total Organic (TOC)	2.2		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	5.3		3.8	5.0	mg/L	410.4
Chloride	2.2		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	423			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.54		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	498		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	28.4		0.4	2.0	mg/L	9056A
Calcium, Total	125000		300	1000	ug/L	6010C
Iron, Total	1110		70	100	ug/L	6010C
Magnesium, Total	27200		30	1000	ug/L	6010C
Manganese, Total	2750		4	10	ug/L	6010C
Potassium, Total	6100		400	2000	ug/L	6010C
Sodium, Total	33300		200	1000	ug/L	6010C



Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters

Service Request:R2111947

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2111947-001	MWO-1121	11/10/2021	1425
R2111947-002	MWV-1121	11/10/2021	1600
R2111947-003	GSS4-1121	11/10/2021	1305
R2111947-004	GSS5-1121	11/10/2021	1315
R2111947-005	GSS6-1121	11/10/2021	1355
R2111947-006	GSS9-1121	11/10/2021	1500
R2111947-007	GSS8-1121	11/10/2021	1600
R2111947-008	GSS1A-1121	11/10/2021	1535
R2111947-009	MWUBR-1121	11/11/2021	0915
R2111947-010	MWQR-1121	11/11/2021	1230
R2111947-011	MWD-1121	11/11/2021	1310
R2111947-012	MWGR-1121	11/11/2021	1345
R2111947-013	MWOBR-1121	11/11/2021	1410
R2111947-014	MWN-1121	11/11/2021	1430



ALS-Environmental
 1565 Jefferson Rd, Bldg 300, Suite 360
 Rochester, NY 14623
 585.288.5380

Client: **Casella/On-Site**
 4376 Manning Ridge Road
 Campbell, NY 14870

Project Manager: **Russ Anderson/Jon Brandes**

CHAIN of CUSTODY

Project: **Hakes C&D - 363 Routine Parameters**

Telephone No. 585-593-1824 Email: jonb@on-sitehs.com

Page 1 of 1

Method of Shipment: **Fed Ex**

Special Detection Limit/Reporting

Sample I.D.	Lab Sample No.	No. of Containers	Matrix				Prsv.		Sampling Date	Sampling Time	BOD (NP)	Phenols & TOC (H2SO4)	Alkalinity (NP)	NH3, TKN, COD (H2SO4)	T-Metals, Hard. (Routine + As) (HNO3)	TDS, NO3, Br, Cl, SO4 (NP)
			Soil	Water	Air	Other	Yes	No								
G554-1121		6	X			X	X	11-10-21	1305	X	X	X	X	X	X	
G555-1121		6	X			X	X		1315	X	X	X	X	X	X	
G556-1121		6	X			X	X		1355	X	X	X	X	X	X	
G559-1121		6	X			X	X		1500	X	X	X	X	X	X	
G558-1121		6	X			X	X	↓	1600	X	X	X	X	X	X	
G551A-1121		6	X			X	X	↓	1535	X	X	X	X	X	X	

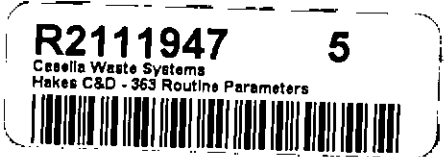
PDF to Russ and On-Site, and EDD to On-Site.
 PO 234953

REMARKS

Sample Received Intact: Yes No Temperature received: Ice No ice

Relinq. by sampler (Sign & Print Name) <i>Scott Warren</i>	Date 11-10-21	Time 1700	Received by (Sign & Print Name) <i>Gregory O. Ementon</i> ALS	Date 11/21	Time 10:40
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by laboratory	Date	Time

Lab Work No.





Cooler Receipt and Preservation Check Form

Project/Client Casefile/On-site Folder Number _____

Cooler received on 11/11/21 by: JE

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	<u>Y</u> N
2	Custody papers properly completed (ink, signed)?	<u>Y</u> N
3	Did all bottles arrive in good condition (unbroken)?	<u>Y</u> N
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	<u>Y</u> N

5a	Perchlorate samples have required headspace?	Y N <u>NA</u>
5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y N <u>NA</u>
6	Where did the bottles originate?	<u>ALS/ROC</u> CLIENT
7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 11/11/21 Time: 10:55 ID: IR#7 IR#11 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>2.1</u>	<u>2.8</u>	<u>2.5</u>				
Within 0-6°C?	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule
& Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-602 by JE on 11/11/21 at 11:03
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 11/11/21 Time: 14:30 by: JE

- 9. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 10. Did all bottle labels and tags agree with custody papers? YES NO
- 11. Were correct containers used for the tests indicated? YES NO
- 12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
- 13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH								
≤2	<u>225370</u>	HNO ₃	✓		<u>1121061</u>					
≤2	<u>↓</u>	H ₂ SO ₄	✓		<u>L120101 215947 6/22</u>					
<4		NaHSO ₄								
5-9		For 608pest.			No=Notify for 3day					
Residual Chlorine (-)		For CN Phenol, 625, 608pest, 522	✓		If +, contact PM to add Na ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 090621-2AK0, 21-07-12, 78612-C2942, 80821-02
Explain all Discrepancies/ Other Comments:

HPRD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: JE
PC Secondary Review: JE 11/16/21

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



ALS-Environmental
1565 Jefferson Rd, Bldg 300, Suite 360
Rochester, NY 14623
585.288.5380

Client: Casella/On-Site	CHAIN of CUSTODY		Page <u> </u> of <u> </u>
4376 Manning Ridge Road	Project: Hakes C&D - 363 Routine Parameters	Method of Shipment <i>On-site Delivered</i>	
Campbell, NY 14870	Telephone No. 585-593-1824	Email: jonb@on-sitehs.com	
Project Manager Russ Anderson/Jon Brandes	Special Detection Limit/Reporting		

Sample I.D.

Lab Sample No.	No. of Containers	Matrix				Prsv.		Sampling Date	Sampling Time	BOD (NP)	Phenols & TOC (H2SO4)	Alkalinity (NP)	NH3, TKN, COD (H2SO4)	T-Metals, Hard. (Routine + As) (HNO3)	TDS, NO3, Br, Cl, SO4 (NP)							
		Soil	Water	Air	Other	Yes	No															
MWUBR-1121	6	X			X		11/11/21	0915	X	X	X	X	X	X								
MWQR-1121	6	X			X			1230	X	X	X	X	X	X								
MWD-1121	6	X			X			1310	X	X	X	X	X	X								
MWGR-1121	6	X			X			1345	X	X	X	X	X	X								
MWOBR-1121	6	X			X			1410	X	X	X	X	X	X								
MWN-1121	6	X			X			1430	X	X	X	X	X	X								

PDF to Russ and On-Site, and EDD to On-Site.
PO 234953

R E M A R K S

Sample Received Intact: Yes No	Temperature received: Ice No ice
--------------------------------	----------------------------------

Relinquished by (Sign & Print Name) <i>Jonathan E Brandes</i>	Date Time 11/12/21 0705	Received by (Sign & Print Name)	Lab Work No.
Relinquished by <i>Kevin Rice</i>	Date Time 11-12-21 1000	Received by	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory <i>Allegro</i>	Date Time 11/12/21 1000

R2111947 5
Casella Waste Systems
Hakes C&D - 363 Routine Parameters



Cooler Receipt and Preservation Check Form

R2111947

5

Casella Waste Systems
Hakes C&D - 363 Routine Parameters



Project/Client Casella/On-Site Folder Number _____

Cooler received on 11/12/21 by: MZ/MM

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y <input checked="" type="radio"/> N <input type="radio"/>
2	Custody papers properly completed (ink, signed)?	Y <input checked="" type="radio"/> N <input type="radio"/>
3	Did all bottles arrive in good condition (unbroken)?	Y <input checked="" type="radio"/> N <input type="radio"/>
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	Y <input checked="" type="radio"/> N <input type="radio"/>

5a	Perchlorate samples have required headspace?	Y <input type="radio"/> N <input checked="" type="radio"/> NA <input type="radio"/>
5b	Did <u>VOA</u> vials, Alk, or Sulfide have sig* bubbles?	Y <input checked="" type="radio"/> N <input type="radio"/> NA <input type="radio"/>
6	Where did the bottles originate?	<u>ALS/ROC</u> CLIENT
7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 11/12/21 Time: 10:04 ID: IR#7 IR#11 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>3.4</u>	<u>3.5</u>	<u>2.1</u>	<u>2.3</u>	<u>3.9</u>	<u>4.9</u>	
Within 0-6°C?	Y <input checked="" type="radio"/> N <input type="radio"/>	Y <input checked="" type="radio"/> N <input type="radio"/>	Y <input checked="" type="radio"/> N <input type="radio"/>	Y <input checked="" type="radio"/> N <input type="radio"/>	Y <input checked="" type="radio"/> N <input type="radio"/>	Y <input checked="" type="radio"/> N <input type="radio"/>	Y <input type="radio"/> N <input type="radio"/>
If <0°C, were samples frozen?	Y <input type="radio"/> N <input checked="" type="radio"/>	Y <input type="radio"/> N <input checked="" type="radio"/>	Y <input type="radio"/> N <input checked="" type="radio"/>	Y <input type="radio"/> N <input checked="" type="radio"/>	Y <input type="radio"/> N <input checked="" type="radio"/>	Y <input type="radio"/> N <input checked="" type="radio"/>	Y <input type="radio"/> N <input checked="" type="radio"/>

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule
& Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: 5035 by MZ on 11/12/21 at 10:17
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 11/12/21 Time: 16:30 by: MM

- 9. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 10. Did all bottle labels and tags agree with custody papers? YES NO
- 11. Were correct containers used for the tests indicated? YES NO
- 12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
- 13. Air Samples: Cassettes / Tubes Intact Y/N with MS Y/N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH								
≤2	<u>205320</u>	HNO ₃	X		<u>112105-2</u>	<u>N/A</u>				
≤2	<u>✓</u>	H ₂ SO ₄	Y	X	<u>L1200-10, 015947</u>	<u>16/22</u>	<u>UWN-1121</u>	<u>1.5 ML</u>	<u>220021</u>	<u>≤2</u>
<4		NaHSO ₄								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add Na ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 21-07-12, 090621-2AA0, 76626+C2715, 21-10-20
Explain all Discrepancies/ Other Comments:

* Trip Blank: lot 3 vials
LCS 11/21: All 3 vials

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: MM
PC Secondary Review: MM 11/16/21 *significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

<p>U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.</p> <p>J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.</p> <p>* Indicates that a quality control parameter has exceeded laboratory limits. Under the “Notes” column of the Form I, this qualifier denotes analysis was performed out of Holding Time.</p> <p>H Analysis was performed out of hold time for tests that have an “immediate” hold time criteria.</p> <p># Spike was diluted out.</p>	<p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p>
---	--

Rochester Lab ID # for State Accreditations¹



NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

¹ Analyses were performed according to our laboratory’s NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to <https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental>

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: MWO-1121
Lab Code: R2111947-001
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWV-1121
Lab Code: R2111947-002
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: GSS4-1121
Lab Code: R2111947-003
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: GSS5-1121
Lab Code: R2111947-004
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: GSS6-1121
Lab Code: R2111947-005
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: GSS9-1121
Lab Code: R2111947-006
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: GSS8-1121
Lab Code: R2111947-007
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: GSS1A-1121
Lab Code: R2111947-008
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: MWUBR-1121
Lab Code: R2111947-009
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWQR-1121
Lab Code: R2111947-010
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: MWD-1121
Lab Code: R2111947-011
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWGR-1121
Lab Code: R2111947-012
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111947

Sample Name: MWOB-1121
Lab Code: R2111947-013
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWN-1121
Lab Code: R2111947-014
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS



INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	



Sample Results

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Metals

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWO-1121
Lab Code: R2111947-001

Service Request: R2111947
Date Collected: 11/10/21 14:25
Date Received: 11/11/21 10:40
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:29	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:29	11/17/21	
Calcium, Total	6010C	33100	ug/L	1000	300	1	11/18/21 20:29	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:29	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:29	11/17/21	
Magnesium, Total	6010C	13200	ug/L	1000	30	1	11/18/21 20:29	11/17/21	
Manganese, Total	6010C	63	ug/L	10	4	1	11/18/21 20:29	11/17/21	
Potassium, Total	6010C	4700	ug/L	2000	400	1	11/18/21 20:29	11/17/21	
Sodium, Total	6010C	20500	ug/L	1000	200	1	11/18/21 20:29	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/10/21 16:00
Date Received: 11/11/21 10:40

Sample Name: MWV-1121
Lab Code: R2111947-002

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:32	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:32	11/17/21	
Calcium, Total	6010C	77900	ug/L	1000	300	1	11/18/21 20:32	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:32	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:32	11/17/21	
Magnesium, Total	6010C	45800	ug/L	1000	30	1	11/18/21 20:32	11/17/21	
Manganese, Total	6010C	245	ug/L	10	4	1	11/18/21 20:32	11/17/21	
Potassium, Total	6010C	45900	ug/L	2000	400	1	11/18/21 20:32	11/17/21	
Sodium, Total	6010C	82800	ug/L	1000	200	1	11/18/21 20:32	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS4-1121
Lab Code: R2111947-003

Service Request: R2111947
Date Collected: 11/10/21 13:05
Date Received: 11/11/21 10:40
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:36	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:36	11/17/21	
Calcium, Total	6010C	38200	ug/L	1000	300	1	11/18/21 20:36	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:36	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:36	11/17/21	
Magnesium, Total	6010C	12900	ug/L	1000	30	1	11/18/21 20:36	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 20:36	11/17/21	
Potassium, Total	6010C	3000	ug/L	2000	400	1	11/18/21 20:36	11/17/21	
Sodium, Total	6010C	40800	ug/L	1000	200	1	11/18/21 20:36	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/10/21 13:15
Date Received: 11/11/21 10:40

Sample Name: GSS5-1121
Lab Code: R2111947-004

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:39	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:39	11/17/21	
Calcium, Total	6010C	61400	ug/L	1000	300	1	11/18/21 20:39	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:39	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:39	11/17/21	
Magnesium, Total	6010C	19200	ug/L	1000	30	1	11/18/21 20:39	11/17/21	
Manganese, Total	6010C	9 J	ug/L	10	4	1	11/18/21 20:39	11/17/21	
Potassium, Total	6010C	3100	ug/L	2000	400	1	11/18/21 20:39	11/17/21	
Sodium, Total	6010C	32200	ug/L	1000	200	1	11/18/21 20:39	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS6-1121
Lab Code: R2111947-005

Service Request: R2111947
Date Collected: 11/10/21 13:55
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:42	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:42	11/17/21	
Calcium, Total	6010C	145000	ug/L	1000	300	1	11/18/21 20:42	11/17/21	
Iron, Total	6010C	240	ug/L	100	70	1	11/18/21 20:42	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:42	11/17/21	
Magnesium, Total	6010C	40200	ug/L	1000	30	1	11/18/21 20:42	11/17/21	
Manganese, Total	6010C	10	ug/L	10	4	1	11/18/21 20:42	11/17/21	
Potassium, Total	6010C	4200	ug/L	2000	400	1	11/18/21 20:42	11/17/21	
Sodium, Total	6010C	34100	ug/L	1000	200	1	11/18/21 20:42	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS9-1121
Lab Code: R2111947-006

Service Request: R2111947
Date Collected: 11/10/21 15:00
Date Received: 11/11/21 10:40
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:45	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:45	11/17/21	
Calcium, Total	6010C	52000	ug/L	1000	300	1	11/18/21 20:45	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:45	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:45	11/17/21	
Magnesium, Total	6010C	11800	ug/L	1000	30	1	11/18/21 20:45	11/17/21	
Manganese, Total	6010C	56	ug/L	10	4	1	11/18/21 20:45	11/17/21	
Potassium, Total	6010C	2000 J	ug/L	2000	400	1	11/18/21 20:45	11/17/21	
Sodium, Total	6010C	25800	ug/L	1000	200	1	11/18/21 20:45	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS8-1121
Lab Code: R2111947-007

Service Request: R2111947
Date Collected: 11/10/21 16:00
Date Received: 11/11/21 10:40
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:49	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:49	11/17/21	
Calcium, Total	6010C	83000	ug/L	1000	300	1	11/18/21 20:49	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:49	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:49	11/17/21	
Magnesium, Total	6010C	17900	ug/L	1000	30	1	11/18/21 20:49	11/17/21	
Manganese, Total	6010C	540	ug/L	10	4	1	11/18/21 20:49	11/17/21	
Potassium, Total	6010C	2100	ug/L	2000	400	1	11/18/21 20:49	11/17/21	
Sodium, Total	6010C	47200	ug/L	1000	200	1	11/18/21 20:49	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/10/21 15:35
Date Received: 11/11/21 10:40

Sample Name: GSS1A-1121
Lab Code: R2111947-008

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:58	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:58	11/17/21	
Calcium, Total	6010C	90100	ug/L	1000	300	1	11/18/21 20:58	11/17/21	
Iron, Total	6010C	1360	ug/L	100	70	1	11/18/21 20:58	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:58	11/17/21	
Magnesium, Total	6010C	17700	ug/L	1000	30	1	11/18/21 20:58	11/17/21	
Manganese, Total	6010C	12600	ug/L	100	40	10	11/19/21 19:04	11/17/21	
Potassium, Total	6010C	2200	ug/L	2000	400	1	11/18/21 20:58	11/17/21	
Sodium, Total	6010C	5200	ug/L	1000	200	1	11/18/21 20:58	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/11/21 09:15
Date Received: 11/12/21 10:00

Sample Name: MWUBR-1121
Lab Code: R2111947-009

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:02	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:02	11/17/21	
Calcium, Total	6010C	39200	ug/L	1000	300	1	11/18/21 21:02	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 21:02	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:02	11/17/21	
Magnesium, Total	6010C	9200	ug/L	1000	30	1	11/18/21 21:02	11/17/21	
Manganese, Total	6010C	745	ug/L	10	4	1	11/18/21 21:02	11/17/21	
Potassium, Total	6010C	1500 J	ug/L	2000	400	1	11/18/21 21:02	11/17/21	
Sodium, Total	6010C	10400	ug/L	1000	200	1	11/18/21 21:02	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWQR-1121
Lab Code: R2111947-010

Service Request: R2111947
Date Collected: 11/11/21 12:30
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:05	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:05	11/17/21	
Calcium, Total	6010C	12900	ug/L	1000	300	1	11/18/21 21:05	11/17/21	
Iron, Total	6010C	750	ug/L	100	70	1	11/18/21 21:05	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:05	11/17/21	
Magnesium, Total	6010C	4800	ug/L	1000	30	1	11/18/21 21:05	11/17/21	
Manganese, Total	6010C	76	ug/L	10	4	1	11/18/21 21:05	11/17/21	
Potassium, Total	6010C	1400 J	ug/L	2000	400	1	11/18/21 21:05	11/17/21	
Sodium, Total	6010C	51800	ug/L	1000	200	1	11/18/21 21:05	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWD-1121
Lab Code: R2111947-011

Service Request: R2111947
Date Collected: 11/11/21 13:10
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:08	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:08	11/17/21	
Calcium, Total	6010C	83800	ug/L	1000	300	1	11/18/21 21:08	11/17/21	
Iron, Total	6010C	1580	ug/L	100	70	1	11/18/21 21:08	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:08	11/17/21	
Magnesium, Total	6010C	19600	ug/L	1000	30	1	11/18/21 21:08	11/17/21	
Manganese, Total	6010C	50	ug/L	10	4	1	11/18/21 21:08	11/17/21	
Potassium, Total	6010C	2400	ug/L	2000	400	1	11/18/21 21:08	11/17/21	
Sodium, Total	6010C	12200	ug/L	1000	200	1	11/18/21 21:08	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWGR-1121
Lab Code: R2111947-012

Service Request: R2111947
Date Collected: 11/11/21 13:45
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:11	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:11	11/17/21	
Calcium, Total	6010C	108000	ug/L	1000	300	1	11/18/21 21:11	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 21:11	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:11	11/17/21	
Magnesium, Total	6010C	19100	ug/L	1000	30	1	11/18/21 21:11	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 21:11	11/17/21	
Potassium, Total	6010C	1200 J	ug/L	2000	400	1	11/18/21 21:11	11/17/21	
Sodium, Total	6010C	10300	ug/L	1000	200	1	11/18/21 21:11	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWOB-1121
Lab Code: R2111947-013

Service Request: R2111947
Date Collected: 11/11/21 14:10
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:15	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:15	11/17/21	
Calcium, Total	6010C	28700	ug/L	1000	300	1	11/18/21 21:15	11/17/21	
Iron, Total	6010C	80 J	ug/L	100	70	1	11/18/21 21:15	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:15	11/17/21	
Magnesium, Total	6010C	10300	ug/L	1000	30	1	11/18/21 21:15	11/17/21	
Manganese, Total	6010C	7 J	ug/L	10	4	1	11/18/21 21:15	11/17/21	
Potassium, Total	6010C	4000	ug/L	2000	400	1	11/18/21 21:15	11/17/21	
Sodium, Total	6010C	20400	ug/L	1000	200	1	11/18/21 21:15	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWN-1121
Lab Code: R2111947-014

Service Request: R2111947
Date Collected: 11/11/21 14:30
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:18	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:18	11/17/21	
Calcium, Total	6010C	125000	ug/L	1000	300	1	11/18/21 21:18	11/17/21	
Iron, Total	6010C	1110	ug/L	100	70	1	11/18/21 21:18	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:18	11/17/21	
Magnesium, Total	6010C	27200	ug/L	1000	30	1	11/18/21 21:18	11/17/21	
Manganese, Total	6010C	2750	ug/L	10	4	1	11/18/21 21:18	11/17/21	
Potassium, Total	6010C	6100	ug/L	2000	400	1	11/18/21 21:18	11/17/21	
Sodium, Total	6010C	33300	ug/L	1000	200	1	11/18/21 21:18	11/17/21	



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWO-1121
Lab Code: R2111947-001

Service Request: R2111947
Date Collected: 11/10/21 14:25
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	168	mg/L	2.0	1.8	1	11/18/21 15:12	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:03	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 12:32	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/11/21 14:50	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 03:10	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	1.7 J	mg/L	2.0	0.5	10	11/11/21 14:50	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	137	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/11/21 14:50	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:40	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 18:57	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	195	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	18.9	mg/L	2.0	0.4	10	11/11/21 14:50	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWV-1121
Lab Code: R2111947-002

Service Request: R2111947
Date Collected: 11/10/21 16:00
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	447	mg/L	2.0	1.8	1	11/18/21 15:19	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:04	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:32	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 14:57	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.1	mg/L	1.0	0.5	1	11/17/21 03:31	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	1.5 J	mg/L	2.0	0.5	10	11/11/21 14:57	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	383	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 14:57	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 13:41	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 19:01	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	709	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	179	mg/L	6.0	1.2	30	11/12/21 19:56	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS4-1121
Lab Code: R2111947-003

Service Request: R2111947
Date Collected: 11/10/21 13:05
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	59.0	mg/L	2.0	1.8	1	11/18/21 15:26	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:06	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:25	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 15:04	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0	J mg/L	1.0	0.5	1	11/17/21 05:15	NA	
Chemical Oxygen Demand, Total	410.4	4.6	J mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	105	mg/L	4.0	0.9	20	11/12/21 20:04	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	148	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.3	J mg/L	1.0	0.2	10	11/11/21 15:04	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 13:42	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 19:05	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	264	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	26.7	mg/L	2.0	0.4	10	11/11/21 15:04	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS5-1121
Lab Code: R2111947-004

Service Request: R2111947
Date Collected: 11/10/21 13:15
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	138	mg/L	2.0	1.8	1	11/18/21 15:32	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:10	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:25	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 15:25	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0	mg/L	1.0	0.5	1	11/17/21 05:36	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	89.5	mg/L	2.0	0.5	10	11/11/21 15:25	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	232	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.2 J	mg/L	1.0	0.2	10	11/11/21 15:25	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 13:43	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 19:17	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	328	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	43.1	mg/L	2.0	0.4	10	11/11/21 15:25	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS6-1121
Lab Code: R2111947-005

Service Request: R2111947
Date Collected: 11/10/21 13:55
Date Received: 11/11/21 10:40
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	393	mg/L	2.0	1.8	1	11/18/21 15:53	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:13	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:26	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 15:31	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.4	mg/L	1.0	0.5	1	11/17/21 05:57	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	70.4	mg/L	2.0	0.5	10	11/11/21 15:31	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	528	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 15:31	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 13:44	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 19:21	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	694	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	122	mg/L	4.0	0.8	20	11/12/21 20:11	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS9-1121
Lab Code: R2111947-006

Service Request: R2111947
Date Collected: 11/10/21 15:00
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	148	mg/L	2.0	1.8	1	11/18/21 16:01	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:15	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 12:27	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/11/21 15:38	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0	mg/L	1.0	0.5	1	11/17/21 06:18	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	47.1	mg/L	2.0	0.5	10	11/11/21 15:38	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	179	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/11/21 15:38	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:45	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 19:25	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	267	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	26.3	mg/L	2.0	0.4	10	11/11/21 15:38	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS8-1121
Lab Code: R2111947-007

Service Request: R2111947
Date Collected: 11/10/21 16:00
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	219	mg/L	2.0	1.8	1	11/18/21 16:08	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:16	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:27	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 15:45	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	3.1	mg/L	1.0	0.5	1	11/17/21 06:39	NA	
Chemical Oxygen Demand, Total	410.4	7.2	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	84.7	mg/L	2.0	0.5	10	11/11/21 15:45	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	281	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.3 J	mg/L	1.0	0.2	10	11/11/21 15:45	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.18 J	mg/L	0.20	0.15	1	11/19/21 13:45	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 19:29	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	427	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	44.8	mg/L	2.0	0.4	10	11/11/21 15:45	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: GSS1A-1121
Lab Code: R2111947-008

Service Request: R2111947
Date Collected: 11/10/21 15:35
Date Received: 11/11/21 10:40

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	289	mg/L	2.0	1.8	1	11/18/21 16:16	NA	
Ammonia as Nitrogen, undistilled	350.1	0.236	mg/L	0.050	0.026	1	11/17/21 14:17	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 12:28	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/11/21 15:52	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	16.4	mg/L	1.0	0.5	1	11/17/21 07:00	NA	
Chemical Oxygen Demand, Total	410.4	34.2	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	2.0	mg/L	2.0	0.5	10	11/11/21 15:52	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	298	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/11/21 15:52	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	1.04	mg/L	0.20	0.15	1	11/19/21 13:48	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 19:49	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	374	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	43.4	mg/L	2.0	0.4	10	11/11/21 15:52	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWUBR-1121
Lab Code: R2111947-009

Service Request: R2111947
Date Collected: 11/11/21 09:15
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	150	mg/L	2.0	1.8	1	11/18/21 16:22	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:18	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:38	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 13:05	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 07:21	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.9 J	mg/L	2.0	0.5	10	11/12/21 13:05	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	136	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 13:05	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:49	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 19:53	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	165	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	14.7	mg/L	2.0	0.4	10	11/12/21 13:05	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWQR-1121
Lab Code: R2111947-010

Service Request: R2111947
Date Collected: 11/11/21 12:30
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	40.8	mg/L	2.0	1.8	1	11/18/21 16:30	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:19	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/12/21 10:38	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/12/21 13:12	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.7	mg/L	1.0	0.5	1	11/17/21 07:42	NA	
Chemical Oxygen Demand, Total	410.4	4.3	J mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	73.4	mg/L	2.0	0.5	10	11/12/21 13:12	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	51.9	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/12/21 13:12	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 13:50	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 19:57	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	194	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	17.6	mg/L	2.0	0.4	10	11/12/21 13:12	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWD-1121
Lab Code: R2111947-011

Service Request: R2111947
Date Collected: 11/11/21 13:10
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	270	mg/L	2.0	1.8	1	11/18/21 16:37	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:22	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:39	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 13:19	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 08:03	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	11.7	mg/L	2.0	0.5	10	11/12/21 13:19	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	290	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.4 J	mg/L	1.0	0.2	10	11/12/21 13:19	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:51	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 20:01	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	300	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	17.9	mg/L	2.0	0.4	10	11/12/21 13:19	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWGR-1121
Lab Code: R2111947-012

Service Request: R2111947
Date Collected: 11/11/21 13:45
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	339	mg/L	2.0	1.8	1	11/18/21 16:45	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:26	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:39	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 13:26	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 J	mg/L	1.0	0.5	1	11/17/21 09:05	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	8.3	mg/L	2.0	0.5	10	11/12/21 13:26	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	348	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.4 J	mg/L	1.0	0.2	10	11/12/21 13:26	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:51	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 20:05	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	378	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	25.7	mg/L	2.0	0.4	10	11/12/21 13:26	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWOBR-1121
Lab Code: R2111947-013

Service Request: R2111947
Date Collected: 11/11/21 14:10
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date</u> <u>Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	159	mg/L	2.0	1.8	1	11/18/21 17:21	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:27	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:40	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 13:33	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	0.8 J	mg/L	1.0	0.5	1	11/17/21 13:01	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	1.5 J	mg/L	2.0	0.5	10	11/12/21 13:33	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	114	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 13:33	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:58	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 20:09	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	175	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	16.9	mg/L	2.0	0.4	10	11/12/21 13:33	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWN-1121
Lab Code: R2111947-014

Service Request: R2111947
Date Collected: 11/11/21 14:30
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date</u> <u>Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	469	mg/L	2.0	1.8	1	11/18/21 17:29	NA	
Ammonia as Nitrogen, undistilled	350.1	0.132	mg/L	0.050	0.026	1	11/17/21 14:28	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:41	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 13:54	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	2.2	mg/L	1.0	0.5	1	11/17/21 13:22	NA	
Chemical Oxygen Demand, Total	410.4	5.3	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	2.2	mg/L	2.0	0.5	10	11/12/21 13:54	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	423	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 13:54	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.54	mg/L	0.20	0.15	1	11/19/21 13:59	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 20:13	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	498	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	28.4	mg/L	2.0	0.4	10	11/12/21 13:54	NA	



QC Summary Forms

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Metals

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111947-MB

Service Request: R2111947
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:20	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:20	11/17/21	
Calcium, Total	6010C	1000 U	ug/L	1000	300	1	11/18/21 20:20	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:20	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:20	11/17/21	
Magnesium, Total	6010C	1000 U	ug/L	1000	30	1	11/18/21 20:20	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 20:20	11/17/21	
Potassium, Total	6010C	2000 U	ug/L	2000	400	1	11/18/21 20:20	11/17/21	
Sodium, Total	6010C	1000 U	ug/L	1000	200	1	11/18/21 20:20	11/17/21	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Analyzed: 11/18/21

Duplicate Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
R2111947-LCS

Duplicate Lab Control Sample
R2111947-DLCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic, Total	6010C	43.3	40	108	39.8	40	100	80-120	8	20
Cadmium, Total	6010C	49.9	50.0	100	49.9	50.0	100	80-120	<1	20
Calcium, Total	6010C	2040	2000	102	2020	2000	101	80-120	<1	20
Iron, Total	6010C	993	1000	99	990	1000	99	80-120	<1	20
Lead, Total	6010C	496	500	99	493	500	99	80-120	<1	20
Magnesium, Total	6010C	1930	2000	96	1920	2000	96	80-120	<1	20
Manganese, Total	6010C	493	500	99	491	500	98	80-120	<1	20
Potassium, Total	6010C	19100	20000	96	19000	20000	95	80-120	<1	20
Sodium, Total	6010C	20400	20000	102	20300	20000	102	80-120	<1	20



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111947-MB1

Service Request: R2111947
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date</u> <u>Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/18/21 12:55	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 13:28	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 15:12	NA	
Bromide	9056A	0.10 U	mg/L	0.10	0.04	1	11/11/21 14:36	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 00:23	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/11/21 14:36	NA	
Nitrate as Nitrogen	9056A	0.10 U	mg/L	0.10	0.02	1	11/11/21 14:36	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:27	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 18:41	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/17/21 16:15	NA	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/11/21 14:36	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111947-MB2

Service Request: R2111947
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:08	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/12/21 14:01	NA	
Bromide	9056A	0.10	U mg/L	0.10	0.04	1	11/12/21 12:24	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0	U mg/L	1.0	0.5	1	11/17/21 09:47	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.20	U mg/L	0.20	0.05	1	11/12/21 12:24	NA	
Nitrate as Nitrogen	9056A	0.10	U mg/L	0.10	0.02	1	11/12/21 12:24	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 13:54	11/18/21	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10	U mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	0.20	U mg/L	0.20	0.04	1	11/12/21 12:24	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111947-MB3

Service Request: R2111947
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 14:01	
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/12/21 17:58	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/12/21 17:58	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111947-MB4

Service Request: R2111947
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	1	11/12/21 14:01	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/10/21
Date Received: 11/11/21
Date Analyzed: 11/17/21

Duplicate Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name: MWV-1121
Lab Code: R2111947-002
Analysis Method: SM 5310 C-2000(2011)

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111947-002MS			Duplicate Matrix Spike R2111947-002DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Carbon, Total Organic (TOC)	1.1	12.3	10.0	112	12.1	10.0	109	48-135	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request:R2111947
Date Collected:11/10/21
Date Received:11/11/21
Date Analyzed:11/11/21 - 11/15/21

Duplicate Matrix Spike Summary
General Chemistry Parameters

Sample Name: GSS4-1121 **Units:**mg/L
Lab Code: R2111947-003 **Basis:**NA

Matrix Spike
R2111947-003MS

Duplicate Matrix Spike
R2111947-003DMS

Analyte Name	Method	Sample			Spike		Duplicate Matrix Spike			% Rec Limits	RPD	RPD Limit
		Result	Result	Amount	% Rec	Result	Amount	% Rec				
Bromide	9056A	1.0 U	9.7	10.0	97	9.7	10.0	97	80-120	<1	15	
Phenolics, Total Recoverable	9066	0.0050 U	0.0393	0.0400	98	0.0390	0.0400	98	49-137	<1	20	
Sulfate	9056A	26.7	44.9	20.0	91	44.9	20.0	91	80-120	<1	15	
Nitrate as Nitrogen	9056A	0.3 J	9.7	10.0	93	9.7	10.0	94	80-120	<1	15	

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/10/21
Date Received: 11/11/21
Date Analyzed: 11/17/21

Duplicate Matrix Spike Summary
Ammonia as Nitrogen, undistilled

Sample Name: GSS5-1121
Lab Code: R2111947-004
Analysis Method: 350.1

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111947-004MS			Duplicate Matrix Spike R2111947-004DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Ammonia as Nitrogen, undistilled	0.050 U	0.238	0.250	95	0.237	0.250	95	90-110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/10/21
Date Received: 11/11/21
Date Analyzed: 11/18/21

**Duplicate Matrix Spike Summary
Chemical Oxygen Demand, Total**

Sample Name: GSS9-1121
Lab Code: R2111947-006
Analysis Method: 410.4

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111947-006MS			Duplicate Matrix Spike R2111947-006DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Chemical Oxygen Demand, Total	5.0 U	24.6	25.0	98	23.1	25.0	93	90-110	6	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/17/21

Duplicate Matrix Spike Summary
Ammonia as Nitrogen, undistilled

Sample Name: MWD-1121
Lab Code: R2111947-011
Analysis Method: 350.1

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111947-011MS			Duplicate Matrix Spike R2111947-011DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Ammonia as Nitrogen, undistilled	0.050 U	0.221	0.250	88 *	0.221	0.250	88 *	90-110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/19/21
Date Extracted: 11/18/21

Duplicate Matrix Spike Summary
Nitrogen, Total Kjeldahl (TKN)

Sample Name: MWGR-1121
Lab Code: R2111947-012
Analysis Method: 351.2
Prep Method: Method

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111947-012MS			Duplicate Matrix Spike R2111947-012DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Nitrogen, Total Kjeldahl (TKN)	0.20 U	2.38	2.50	95	2.32	2.50	93	90-110	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21 - 11/18/21

Duplicate Matrix Spike Summary
General Chemistry Parameters

Sample Name: MWN-1121 **Units:** mg/L
Lab Code: R2111947-014 **Basis:** NA

Matrix Spike
R2111947-014MS

Duplicate Matrix Spike
R2111947-014DMS

Analyte Name	Method	Sample		Spike		Duplicate Matrix Spike		% Rec	Limits	RPD	RPD Limit
		Result	Result	Amount	% Rec	Result	Amount				
Bromide	9056A	1.0 U	9.3	10.0	93	9.4	10.0	94	80-120	<1	15
Chloride	9056A	2.2	20.7	20.0	92	20.8	20.0	93	80-120	<1	15
Chemical Oxygen Demand, Total	410.4	5.3	27.4	25.0	88 *	26.3	25.0	84 *	90-110	4	20
Sulfate	9056A	28.4	46.9	20.0	93	46.8	20.0	92	80-120	<1	15
Nitrate as Nitrogen	9056A	1.0 U	9.2	10.0	92	9.2	10.0	92	80-120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/18/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name: MWGR-1121
Lab Code: R2111947-012

Units: mg/L
Basis: NA

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>MRL</u>	<u>MDL</u>	<u>Sample Result</u>	<u>Duplicate Sample R2111947-012DUP Result</u>	<u>Average</u>	<u>RPD</u>	<u>RPD Limit</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0	1.8	339	341	340	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Analyzed: 11/11/21 - 11/19/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111947-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO ₃	SM 2320 B-1997(2011)	20.6	20.0	103	80-120
Ammonia as Nitrogen, undistilled	350.1	0.248	0.250	99	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	197	198	99	85-115
Bromide	9056A	1.01	1.00	101	80-120
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	10.3	10.0	103	80-121
Chemical Oxygen Demand, Total	410.4	46.9	50.0	94	90-110
Chloride	9056A	2.00	2.00	100	80-120
Nitrate as Nitrogen	9056A	0.979	1.00	98	80-120
Nitrogen, Total Kjeldahl (TKN)	351.2	2.29	2.50	92	90-110
Phenolics, Total Recoverable	9066	0.0386	0.0400	97	85-115
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	860	914	94	90-110
Sulfate	9056A	2.00	2.00	100	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Analyzed: 11/12/21 - 11/19/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111947-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Ammonia as Nitrogen, undistilled	350.1	0.249	0.250	100	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	217	198	109	85-115
Bromide	9056A	0.967	1.00	97	80-120
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	9.81	10.0	98	80-121
Chemical Oxygen Demand, Total	410.4	47.4	50.0	95	90-110
Chloride	9056A	1.92	2.00	96	80-120
Nitrate as Nitrogen	9056A	0.948	1.00	95	80-120
Nitrogen, Total Kjeldahl (TKN)	351.2	2.24	2.50	90	90-110
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	884	914	97	90-110
Sulfate	9056A	1.94	2.00	97	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Analyzed: 11/12/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111947-LCS3

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	203	198	103	85-115
Chloride	9056A	1.95	2.00	97	80-120
Sulfate	9056A	1.97	2.00	99	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111947
Date Analyzed: 11/12/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111947-LCS4

<u>Analyte Name</u>	<u>Analytical Method</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	203	198	103	85-115



November 23, 2021

Service Request No:R2111948

Ms. Kimberly Crosby
Casella Waste Systems
286 Sand Road
Morrisonville, NY 12962

Laboratory Results for: Hakes C&D - Routine Surface Water

Dear Ms.Crosby,

Enclosed are the results of the sample(s) submitted to our laboratory November 11, 2021
For your reference, these analyses have been assigned our service request number **R2111948**.

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Jon Brandes

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Received: 11/11/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Six water samples were received for analysis at ALS Environmental on 11/11/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

A handwritten signature in black ink, appearing to read 'Samantha', is written over a horizontal line.

Approved by _____

Date 11/23/2021



SAMPLE DETECTION SUMMARY

CLIENT ID: SW2A-1121 **Lab ID: R2111948-001**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	22.8		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	3.3		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	7.9		3.8	5.0	mg/L	410.4
Chloride	3.5		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	29.0			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.20		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	53		9	10	mg/L	SM 2540 C-1997 (2011)
Solids, Total Suspended (TSS)	1.7			1.0	mg/L	SM 2540 D-1997 (2011)
Sulfate	7.8		0.4	2.0	mg/L	9056A
Calcium, Total	8200		300	1000	ug/L	6010C
Iron, Total	170		70	100	ug/L	6010C
Magnesium, Total	2100		30	1000	ug/L	6010C
Manganese, Total	6	J	4	10	ug/L	6010C
Potassium, Total	800	J	400	2000	ug/L	6010C
Sodium, Total	3400		200	1000	ug/L	6010C

CLIENT ID: SW7-1121 **Lab ID: R2111948-002**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	18.2		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	3.2		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	8.2		3.8	5.0	mg/L	410.4
Chloride	3.2		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	22.0			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.24		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	44		9	10	mg/L	SM 2540 C-1997 (2011)
Solids, Total Suspended (TSS)	1.1			1.0	mg/L	SM 2540 D-1997 (2011)
Sulfate	4.7		0.4	2.0	mg/L	9056A
Calcium, Total	6200		300	1000	ug/L	6010C
Iron, Total	100	J	70	100	ug/L	6010C
Magnesium, Total	1600		30	1000	ug/L	6010C
Potassium, Total	700	J	400	2000	ug/L	6010C
Sodium, Total	3000		200	1000	ug/L	6010C

CLIENT ID: SW7A-1121 **Lab ID: R2111948-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	20.0		1.8	2.0	mg/L	SM 2320 B-1997 (2011)



SAMPLE DETECTION SUMMARY

CLIENT ID: SW7A-1121 **Lab ID: R2111948-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Carbon, Total Organic (TOC)	3.7		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	8.9		3.8	5.0	mg/L	410.4
Chloride	3.2		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	23.2			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.21		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	49		9	10	mg/L	SM 2540 C-1997 (2011)
Solids, Total Suspended (TSS)	1.3			1.0	mg/L	SM 2540 D-1997 (2011)
Sulfate	4.2		0.4	2.0	mg/L	9056A
Calcium, Total	6600		300	1000	ug/L	6010C
Iron, Total	90	J	70	100	ug/L	6010C
Magnesium, Total	1600		30	1000	ug/L	6010C
Potassium, Total	700	J	400	2000	ug/L	6010C
Sodium, Total	3200		200	1000	ug/L	6010C

CLIENT ID: SW2-1121 **Lab ID: R2111948-004**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	23.8		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	3.7		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	8.5		3.8	5.0	mg/L	410.4
Chloride	4.9		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	31.9			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.23		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	61		9	10	mg/L	SM 2540 C-1997 (2011)
Solids, Total Suspended (TSS)	1.4			1.0	mg/L	SM 2540 D-1997 (2011)
Sulfate	9.2		0.4	2.0	mg/L	9056A
Calcium, Total	8900		300	1000	ug/L	6010C
Iron, Total	190		70	100	ug/L	6010C
Magnesium, Total	2300		30	1000	ug/L	6010C
Manganese, Total	9	J	4	10	ug/L	6010C
Potassium, Total	900	J	400	2000	ug/L	6010C
Sodium, Total	3900		200	1000	ug/L	6010C

CLIENT ID: SW9-1121 **Lab ID: R2111948-005**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	48.3		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Ammonia as Nitrogen, undistilled	0.038	J	0.026	0.050	mg/L	350.1



SAMPLE DETECTION SUMMARY

CLIENT ID: SW9-1121 **Lab ID: R2111948-005**

Analyte	Results	Flag	MDL	MRL	Units	Method
Carbon, Total Organic (TOC)	4.1		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	13.0		3.8	5.0	mg/L	410.4
Chloride	1.1	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	82.0			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.60		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	136		9	10	mg/L	SM 2540 C-1997 (2011)
Solids, Total Suspended (TSS)	7.8			1.0	mg/L	SM 2540 D-1997 (2011)
Sulfate	31.5		0.4	2.0	mg/L	9056A
Calcium, Total	24000		300	1000	ug/L	6010C
Iron, Total	3410		70	100	ug/L	6010C
Magnesium, Total	5400		30	1000	ug/L	6010C
Manganese, Total	56		4	10	ug/L	6010C
Potassium, Total	3600		400	2000	ug/L	6010C
Sodium, Total	2100		200	1000	ug/L	6010C

CLIENT ID: SW1A-1121 **Lab ID: R2111948-006**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	15.8		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	5.1		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	11.7		3.8	5.0	mg/L	410.4
Chloride	5.9		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	19.5			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	0.25		0.15	0.20	mg/L	351.2
Solids, Total Dissolved (TDS)	49		9	10	mg/L	SM 2540 C-1997 (2011)
Solids, Total Suspended (TSS)	1.1			1.0	mg/L	SM 2540 D-1997 (2011)
Sulfate	3.8		0.4	2.0	mg/L	9056A
Calcium, Total	5100		300	1000	ug/L	6010C
Iron, Total	160		70	100	ug/L	6010C
Magnesium, Total	1600		30	1000	ug/L	6010C
Manganese, Total	5	J	4	10	ug/L	6010C
Potassium, Total	600	J	400	2000	ug/L	6010C
Sodium, Total	4700		200	1000	ug/L	6010C



Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water

Service Request:R2111948

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2111948-001	SW2A-1121	11/10/2021	0905
R2111948-002	SW7-1121	11/10/2021	0935
R2111948-003	SW7A-1121	11/10/2021	1015
R2111948-004	SW2-1121	11/10/2021	1040
R2111948-005	SW9-1121	11/10/2021	1130
R2111948-006	SW1A-1121	11/10/2021	1500



ALS-Environmental
1565 Jefferson Rd, Bldg 300, Suite 360
Rochester, NY 14623
585.288.5380

Client: **Casella/On-Site**
4376 Manning Ridge Road
Campbell, NY 14870
Project Manager: **Russ Anderson/Jon Brandes**

CHAIN of CUSTODY

Project: **Hakes C&D - Routine Surface Water**
Telephone No. 585-593-1824
Email: jonb@on-sitchs.com

Page **1** of **1**
Method of Shipment: **Fed Ex**

Special Detection Limit/Reporting

PDF to Russ and On-Site, and EDD to On-Site.
PO 234953

Sample I.D.	Lab Sample No.	No. of Containers	Matrix				Prsv.		Sampling Date	Sampling Time	BOD (NP)	Phenols & TOC (H2SO4)	Alkalinity (NP)	NH3, TKN, COD (H2SO4)	T-Metals, Hard. (Routine + As) (HNO3)	TDS, NO3, Br, Cl, SO4 (NP)	TSS (NP)																							
			Soil	Water	Air	Other	Yes	No																																
SW2A-1121		7	X				X	X	11-10-21	0905	X	X	X	X	X	X	X																							
SW7-1121		7	X				X	X		0935	X	X	X	X	X	X	X																							
SW7A-1121		7	X				X	X		1015	X	X	X	X	X	X	X																							
SW2-1121		7	X				X	X		1040	X	X	X	X	X	X	X																							
SW9-1121		7	X				X	X		1130	X	X	X	X	X	X	X																							
SW1A-1121		7	X				X	X		1500	X	X	X	X	X	X	X																							

REMARKS

Sample Received Intact: Yes No Temperature received: Ice No ice

Relinq. by sampler (Sign & Print Name) <i>[Signature]</i>	Date 11-10-21	Time 1700	Received by (Sign & Print Name) <i>[Signature]</i>	Date 11/11/21	Time 10140	Lab Work No.
Relinquished by	Date	Time	Received by			
Relinquished by	Date	Time	Received by			
Relinquished by	Date	Time	Received by laboratory	Date	Time	

R2111948 5
Casella Waste Systems
Hakes C&D - Routine Surface Water



Cooler Receipt and Preservation Check Form

R2111948

5

Casella Waste Systems
Hakes C&D - Routine Surface Water



Project/Client Casella/On-site Folder Number _____

Cooler received on 11/11/21 by: HE

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	<u>Y</u>	N
2	Custody papers properly completed (ink, signed)?	<u>Y</u>	N
3	Did all bottles arrive in good condition (unbroken)?	<u>Y</u>	N
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	<u>Y</u>	N

5a	Perchlorate samples have required headspace?	Y	N	<u>NA</u>
5b	Did VOA vials, <u>Alk</u> , or Sulfide have sig* bubbles?	Y	N	<u>NA</u>
6	Where did the bottles originate?	<u>ALS/ROC</u>	CLIENT	
7	Soil VOA received as:	Bulk	Encore	5035set NA

8. Temperature Readings Date: 11/11/21 Time: 10:55 ID: IR#7 IR#11 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>2.1</u>	<u>2.8</u>	<u>2.5</u>					
Within 0-6°C?	<u>Y</u>	N	<u>Y</u>	N	<u>Y</u>	N	<u>Y</u>	N
If <0°C, were samples frozen?	<u>Y</u>	N	<u>Y</u>	N	<u>Y</u>	N	<u>Y</u>	N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule
& Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-602 by HE on 11/11/21 at 11:03
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 11/11/21 Time: 14:30 by: HE

- 9. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 10. Did all bottle labels and tags agree with custody papers? YES NO
- 11. Were correct containers used for the tests indicated? YES NO
- 12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
- 13. Air Samples: Cassettes / Tubes Intact Y/N with MS Y/N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH								
≤2	<u>225370</u>	HNO ₃	<u>✓</u>		<u>1121061</u>					
≤2	<u>↓</u>	H ₂ SO ₄	<u>✓</u>		<u>L/2010, 2545947 6/22</u>					
<4		NaHSO ₄								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522	<u>✓</u>		If +, contact PM to add Na ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 090621-2AK0, 21-07-12, 78612-C2942, 80821-02
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: HE
PC Secondary Review: HE

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



Miscellaneous Forms

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REPORT QUALIFIERS AND DEFINITIONS

<p>U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.</p> <p>J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.</p> <p>* Indicates that a quality control parameter has exceeded laboratory limits. Under the “Notes” column of the Form I, this qualifier denotes analysis was performed out of Holding Time.</p> <p>H Analysis was performed out of hold time for tests that have an “immediate” hold time criteria.</p> <p># Spike was diluted out.</p>	<p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p>
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Rochester Lab ID # for State Accreditations¹



NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

¹ Analyses were performed according to our laboratory’s NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to <https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental>

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water/

Service Request: R2111948

Sample Name: SW2A-1121
Lab Code: R2111948-001
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 2540 D-1997(2011)		CLOI
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: SW7-1121
Lab Code: R2111948-002
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 2540 D-1997(2011)		CLOI
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water/

Service Request: R2111948

Sample Name: SW7A-1121
Lab Code: R2111948-003
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 2540 D-1997(2011)		CLOI
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: SW2-1121
Lab Code: R2111948-004
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 2540 D-1997(2011)		CLOI
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water/

Service Request: R2111948

Sample Name: SW9-1121
Lab Code: R2111948-005
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 2540 D-1997(2011)		CLOI
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS

Sample Name: SW1A-1121
Lab Code: R2111948-006
Sample Matrix: Water

Date Collected: 11/10/21
Date Received: 11/11/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 2540 D-1997(2011)		KAWONG
SM 5210 B-2001(2011)		SMEDBURY
SM 5310 C-2000(2011)		CWOODS



INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	



Sample Results

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Metals

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Collected: 11/10/21 09:05
Date Received: 11/11/21 12:35

Sample Name: SW2A-1121
Lab Code: R2111948-001

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:21	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:21	11/17/21	
Calcium, Total	6010C	8200	ug/L	1000	300	1	11/18/21 21:21	11/17/21	
Iron, Total	6010C	170	ug/L	100	70	1	11/18/21 21:21	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:21	11/17/21	
Magnesium, Total	6010C	2100	ug/L	1000	30	1	11/18/21 21:21	11/17/21	
Manganese, Total	6010C	6 J	ug/L	10	4	1	11/18/21 21:21	11/17/21	
Potassium, Total	6010C	800 J	ug/L	2000	400	1	11/18/21 21:21	11/17/21	
Sodium, Total	6010C	3400	ug/L	1000	200	1	11/18/21 21:21	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW7-1121
Lab Code: R2111948-002

Service Request: R2111948
Date Collected: 11/10/21 09:35
Date Received: 11/11/21 12:35

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:24	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:24	11/17/21	
Calcium, Total	6010C	6200	ug/L	1000	300	1	11/18/21 21:24	11/17/21	
Iron, Total	6010C	100 J	ug/L	100	70	1	11/18/21 21:24	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:24	11/17/21	
Magnesium, Total	6010C	1600	ug/L	1000	30	1	11/18/21 21:24	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 21:24	11/17/21	
Potassium, Total	6010C	700 J	ug/L	2000	400	1	11/18/21 21:24	11/17/21	
Sodium, Total	6010C	3000	ug/L	1000	200	1	11/18/21 21:24	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW7A-1121
Lab Code: R2111948-003

Service Request: R2111948
Date Collected: 11/10/21 10:15
Date Received: 11/11/21 12:35
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:28	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:28	11/17/21	
Calcium, Total	6010C	6600	ug/L	1000	300	1	11/18/21 21:28	11/17/21	
Iron, Total	6010C	90 J	ug/L	100	70	1	11/18/21 21:28	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:28	11/17/21	
Magnesium, Total	6010C	1600	ug/L	1000	30	1	11/18/21 21:28	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 21:28	11/17/21	
Potassium, Total	6010C	700 J	ug/L	2000	400	1	11/18/21 21:28	11/17/21	
Sodium, Total	6010C	3200	ug/L	1000	200	1	11/18/21 21:28	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW2-1121
Lab Code: R2111948-004

Service Request: R2111948
Date Collected: 11/10/21 10:40
Date Received: 11/11/21 12:35

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:37	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:37	11/17/21	
Calcium, Total	6010C	8900	ug/L	1000	300	1	11/18/21 21:37	11/17/21	
Iron, Total	6010C	190	ug/L	100	70	1	11/18/21 21:37	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:37	11/17/21	
Magnesium, Total	6010C	2300	ug/L	1000	30	1	11/18/21 21:37	11/17/21	
Manganese, Total	6010C	9 J	ug/L	10	4	1	11/18/21 21:37	11/17/21	
Potassium, Total	6010C	900 J	ug/L	2000	400	1	11/18/21 21:37	11/17/21	
Sodium, Total	6010C	3900	ug/L	1000	200	1	11/18/21 21:37	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW9-1121
Lab Code: R2111948-005

Service Request: R2111948
Date Collected: 11/10/21 11:30
Date Received: 11/11/21 12:35

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:41	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:41	11/17/21	
Calcium, Total	6010C	24000	ug/L	1000	300	1	11/18/21 21:41	11/17/21	
Iron, Total	6010C	3410	ug/L	100	70	1	11/18/21 21:41	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:41	11/17/21	
Magnesium, Total	6010C	5400	ug/L	1000	30	1	11/18/21 21:41	11/17/21	
Manganese, Total	6010C	56	ug/L	10	4	1	11/18/21 21:41	11/17/21	
Potassium, Total	6010C	3600	ug/L	2000	400	1	11/18/21 21:41	11/17/21	
Sodium, Total	6010C	2100	ug/L	1000	200	1	11/18/21 21:41	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Collected: 11/10/21 15:00
Date Received: 11/11/21 12:35

Sample Name: SW1A-1121
Lab Code: R2111948-006

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 21:44	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 21:44	11/17/21	
Calcium, Total	6010C	5100	ug/L	1000	300	1	11/18/21 21:44	11/17/21	
Iron, Total	6010C	160	ug/L	100	70	1	11/18/21 21:44	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 21:44	11/17/21	
Magnesium, Total	6010C	1600	ug/L	1000	30	1	11/18/21 21:44	11/17/21	
Manganese, Total	6010C	5 J	ug/L	10	4	1	11/18/21 21:44	11/17/21	
Potassium, Total	6010C	600 J	ug/L	2000	400	1	11/18/21 21:44	11/17/21	
Sodium, Total	6010C	4700	ug/L	1000	200	1	11/18/21 21:44	11/17/21	



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW2A-1121
Lab Code: R2111948-001

Service Request: R2111948
Date Collected: 11/10/21 09:05
Date Received: 11/11/21 12:35
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	22.8	mg/L	2.0	1.8	1	11/18/21 17:01	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:29	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:29	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 16:13	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	3.3	mg/L	1.0	0.5	1	11/17/21 13:42	NA	
Chemical Oxygen Demand, Total	410.4	7.9	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	3.5	mg/L	2.0	0.5	10	11/11/21 16:13	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	29.0	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 16:13	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	mg/L	0.20	0.15	1	11/19/21 13:04	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 20:17	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	53	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.7	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	7.8	mg/L	2.0	0.4	10	11/11/21 16:13	NA	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW7-1121
Lab Code: R2111948-002

Service Request: R2111948
Date Collected: 11/10/21 09:35
Date Received: 11/11/21 12:35
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	18.2	mg/L	2.0	1.8	1	11/18/21 17:48	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:30	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:30	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 16:34	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	3.2	mg/L	1.0	0.5	1	11/17/21 14:03	NA	
Chemical Oxygen Demand, Total	410.4	8.2	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	3.2	mg/L	2.0	0.5	10	11/11/21 16:34	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	22.0	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 16:34	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.24	mg/L	0.20	0.15	1	11/19/21 13:05	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 20:21	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	44	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.1	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	4.7	mg/L	2.0	0.4	10	11/11/21 16:34	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW7A-1121
Lab Code: R2111948-003

Service Request: R2111948
Date Collected: 11/10/21 10:15
Date Received: 11/11/21 12:35
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	20.0	mg/L	2.0	1.8	1	11/18/21 17:58	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:31	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:30	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 16:41	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	3.7	mg/L	1.0	0.5	1	11/17/21 14:24	NA	
Chemical Oxygen Demand, Total	410.4	8.9	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	3.2	mg/L	2.0	0.5	10	11/11/21 16:41	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	23.2	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 16:41	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.21	mg/L	0.20	0.15	1	11/19/21 13:06	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 20:25	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	49	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.3	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	4.2	mg/L	2.0	0.4	10	11/11/21 16:41	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW2-1121
Lab Code: R2111948-004

Service Request: R2111948
Date Collected: 11/10/21 10:40
Date Received: 11/11/21 12:35

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	23.8	mg/L	2.0	1.8	1	11/18/21 18:06	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:32	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:31	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 16:48	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	3.7	mg/L	1.0	0.5	1	11/17/21 14:45	NA	
Chemical Oxygen Demand, Total	410.4	8.5	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	4.9	mg/L	2.0	0.5	10	11/11/21 16:48	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	31.9	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 16:48	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.23	mg/L	0.20	0.15	1	11/19/21 13:07	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 20:45	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	61	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.4	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	9.2	mg/L	2.0	0.4	10	11/11/21 16:48	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW9-1121
Lab Code: R2111948-005

Service Request: R2111948
Date Collected: 11/10/21 11:30
Date Received: 11/11/21 12:35
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	48.3	mg/L	2.0	1.8	1	11/18/21 18:14	NA	
Ammonia as Nitrogen, undistilled	350.1	0.038 J	mg/L	0.050	0.026	1	11/17/21 14:36	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 12:31	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/11/21 16:55	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	4.1	mg/L	1.0	0.5	1	11/17/21 15:48	NA	
Chemical Oxygen Demand, Total	410.4	13.0	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	1.1 J	mg/L	2.0	0.5	10	11/11/21 16:55	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	82.0	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/11/21 16:55	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.60	mg/L	0.20	0.15	1	11/19/21 13:08	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 20:57	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	136	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	7.8	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	31.5	mg/L	2.0	0.4	10	11/11/21 16:55	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: SW1A-1121
Lab Code: R2111948-006

Service Request: R2111948
Date Collected: 11/10/21 15:00
Date Received: 11/11/21 12:35
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	15.8	mg/L	2.0	1.8	1	11/18/21 18:22	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:37	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/11/21 12:32	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/11/21 17:02	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	5.1	mg/L	1.0	0.5	1	11/17/21 16:09	NA	
Chemical Oxygen Demand, Total	410.4	11.7	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	5.9	mg/L	2.0	0.5	10	11/11/21 17:02	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	19.5	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/11/21 17:02	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.25	mg/L	0.20	0.15	1	11/19/21 13:09	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 21:01	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	49	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.1	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	3.8	mg/L	2.0	0.4	10	11/11/21 17:02	NA	



QC Summary Forms

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Metals

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111948-MB

Service Request: R2111948
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 20:20	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 20:20	11/17/21	
Calcium, Total	6010C	1000 U	ug/L	1000	300	1	11/18/21 20:20	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 20:20	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 20:20	11/17/21	
Magnesium, Total	6010C	1000 U	ug/L	1000	30	1	11/18/21 20:20	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 20:20	11/17/21	
Potassium, Total	6010C	2000 U	ug/L	2000	400	1	11/18/21 20:20	11/17/21	
Sodium, Total	6010C	1000 U	ug/L	1000	200	1	11/18/21 20:20	11/17/21	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Analyzed: 11/18/21

Duplicate Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
R2111948-LCS

Duplicate Lab Control Sample
R2111948-DLCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic, Total	6010C	43.3	40	108	39.8	40	100	80-120	8	20
Cadmium, Total	6010C	49.9	50.0	100	49.9	50.0	100	80-120	<1	20
Calcium, Total	6010C	2040	2000	102	2020	2000	101	80-120	<1	20
Iron, Total	6010C	993	1000	99	990	1000	99	80-120	<1	20
Lead, Total	6010C	496	500	99	493	500	99	80-120	<1	20
Magnesium, Total	6010C	1930	2000	96	1920	2000	96	80-120	<1	20
Manganese, Total	6010C	493	500	99	491	500	98	80-120	<1	20
Potassium, Total	6010C	19100	20000	96	19000	20000	95	80-120	<1	20
Sodium, Total	6010C	20400	20000	102	20300	20000	102	80-120	<1	20



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111948-MB1

Service Request: R2111948
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date</u> <u>Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/18/21 12:55	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:08	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 16:10	NA	
Bromide	9056A	0.10 U	mg/L	0.10	0.04	1	11/11/21 14:36	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 09:47	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/11/21 14:36	NA	
Nitrate as Nitrogen	9056A	0.10 U	mg/L	0.10	0.02	1	11/11/21 14:36	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 12:47	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 18:41	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/17/21 16:15	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.0 U	mg/L	1.0	-	1	11/17/21 09:15	NA	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/11/21 14:36	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111948-MB2

Service Request: R2111948
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/18/21 17:14	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/11/21 15:12	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/17/21 16:15	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.0 U	mg/L	1.0	-	1	11/17/21 09:15	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request:R2111948
Date Collected:11/10/21
Date Received:11/11/21
Date Analyzed:11/11/21

**Duplicate Matrix Spike Summary
General Chemistry Parameters**

Sample Name: SW2A-1121 **Units:**mg/L
Lab Code: R2111948-001 **Basis:**NA

Analyte Name	Method	Sample Result	Result	Matrix Spike R2111948-001MS		Duplicate Matrix Spike R2111948-001DMS		% Rec	% Rec Limits	RPD	RPD Limit
				Spike Amount	% Rec	Result	Spike Amount					% Rec
Bromide	9056A	1.0 U	9.7	10.0	97	9.6	10.0	96	80-120	1	15
Chloride	9056A	3.5	22.6	20.0	96	22.4	20.0	94	80-120	1	15
Sulfate	9056A	7.8	27.0	20.0	96	26.6	20.0	94	80-120	1	15
Nitrate as Nitrogen	9056A	1.0 U	9.5	10.0	95	9.4	10.0	94	80-120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Collected: 11/10/21
Date Received: 11/11/21
Date Analyzed: 11/15/21

Duplicate Matrix Spike Summary
Phenolics, Total Recoverable

Sample Name: SW2-1121
Lab Code: R2111948-004
Analysis Method: 9066

Units: mg/L
Basis: NA

Analyte Name	Matrix Spike R2111948-004MS				Duplicate Matrix Spike R2111948-004DMS				% Rec Limits	RPD	RPD Limit
	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec				
Phenolics, Total Recoverable	0.0050 U	0.0386	0.0400	97	0.0390	0.0400	97	49-137	<1	20	

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Collected: 11/10/21
Date Received: 11/11/21
Date Analyzed: 11/11/21 - 11/18/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name: SW1A-1121
Lab Code: R2111948-006

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample R2111948-006DUP Result	Average	RPD	RPD Limit
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0	1.8	15.8	15.8	15.8	<1	20
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0		2.0 U	2.0 U	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Analyzed: 11/11/21 - 11/19/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111948-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO ₃	SM 2320 B-1997(2011)	20.6	20.0	103	80-120
Ammonia as Nitrogen, undistilled	350.1	0.249	0.250	100	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	188	198	95	85-115
Bromide	9056A	1.01	1.00	101	80-120
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	9.81	10.0	98	80-121
Chemical Oxygen Demand, Total	410.4	47.4	50.0	95	90-110
Chloride	9056A	2.00	2.00	100	80-120
Nitrate as Nitrogen	9056A	0.979	1.00	98	80-120
Nitrogen, Total Kjeldahl (TKN)	351.2	2.55	2.50	102	90-110
Phenolics, Total Recoverable	9066	0.0386	0.0400	97	85-115
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	860	914	94	90-110
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	193	214	90	80-120
Sulfate	9056A	2.00	2.00	100	80-120

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Analyzed: 11/11/21 - 11/18/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111948-LCS3

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	20.8	20.0	104	80-120
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	197	198	99	85-115
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	191	214	89	80-120

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Routine Surface Water
Sample Matrix: Water

Service Request: R2111948
Date Analyzed: 11/17/21

Duplicate Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111948-LCS1

Duplicate Lab Control Sample
R2111948-DLCS1

<u>Analyte Name</u>	<u>Analytical Method</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>	<u>RPD</u>	<u>RPD Limit</u>
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	900	914	98	888	914	97	90-110	1	10



November 24, 2021

Service Request No:R2111992

Ms. Kimberly Crosby
Casella Waste Systems
286 Sand Road
Morrisonville, NY 12962

Laboratory Results for: Hakes C&D - 363 Routine Parameters

Dear Ms.Crosby,

Enclosed are the results of the sample(s) submitted to our laboratory November 12, 2021
For your reference, these analyses have been assigned our service request number **R2111992**.

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Jon Brandes

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Received: 11/12/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Twelve water samples were received for analysis at ALS Environmental on 11/12/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

SM2540C, R2111992-012: The minimum target residue of 2.5mg, as described by the reference method, was not achieved. The laboratory Method Reporting Limit (MRL) of 10 mg/L is based on 100 mL of sample and 1 mg of residue. The analytical balances used by the laboratory are capable of accurate quantitation of 1 mg of residue.

A handwritten signature in black ink, appearing to read 'Samantha', is written over a horizontal line.

Approved by _____

Date 11/24/2021



SAMPLE DETECTION SUMMARY

CLIENT ID: MWRBR-1121 **Lab ID: R2111992-001**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	106		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.2		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	1.8	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	125			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	1.9		0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	142		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	11.9		0.4	2.0	mg/L	9056A
Calcium, Total	39600		300	1000	ug/L	6010C
Iron, Total	1820		70	100	ug/L	6010C
Magnesium, Total	6300		30	1000	ug/L	6010C
Manganese, Total	90		4	10	ug/L	6010C
Potassium, Total	2400		400	2000	ug/L	6010C
Sodium, Total	3700		200	1000	ug/L	6010C

CLIENT ID: MWH-1121 **Lab ID: R2111992-002**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	118		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	0.6	J	0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	15.4		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	225			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrate as Nitrogen	0.4	J	0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	373		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	148		0.8	4.0	mg/L	9056A
Calcium, Total	53300		300	1000	ug/L	6010C
Iron, Total	100	J	70	100	ug/L	6010C
Magnesium, Total	22300		30	1000	ug/L	6010C
Manganese, Total	72		4	10	ug/L	6010C
Potassium, Total	800	J	400	2000	ug/L	6010C
Sodium, Total	33800		200	1000	ug/L	6010C

CLIENT ID: DUP1-1121 **Lab ID: R2111992-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	119		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	0.5	J	0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	16.1		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	226			6.62	mg/L	SM 2340 B-1997 (2011)



SAMPLE DETECTION SUMMARY

CLIENT ID: DUP1-1121 **Lab ID: R2111992-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Nitrate as Nitrogen	0.4	J	0.2	1.0	mg/L	9056A
Solids, Total Dissolved (TDS)	376		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	147		0.8	4.0	mg/L	9056A
Calcium, Total	53600		300	1000	ug/L	6010C
Iron, Total	90	J	70	100	ug/L	6010C
Magnesium, Total	22400		30	1000	ug/L	6010C
Manganese, Total	67		4	10	ug/L	6010C
Potassium, Total	800	J	400	2000	ug/L	6010C
Sodium, Total	34000		200	1000	ug/L	6010C

CLIENT ID: MWF-1121 **Lab ID: R2111992-004**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	419		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	3.2		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	4.6	J	3.8	5.0	mg/L	410.4
Chloride	18.5		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	470			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	526		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	70.9		0.4	2.0	mg/L	9056A
Calcium, Total	133000		300	1000	ug/L	6010C
Iron, Total	780		70	100	ug/L	6010C
Magnesium, Total	33900		30	1000	ug/L	6010C
Manganese, Total	75		4	10	ug/L	6010C
Potassium, Total	3200		400	2000	ug/L	6010C
Sodium, Total	20300		200	1000	ug/L	6010C

CLIENT ID: MWVBR-1121 **Lab ID: R2111992-005**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	253		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Ammonia as Nitrogen, undistilled	0.034	J	0.026	0.050	mg/L	350.1
Chloride	0.8	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	276			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	361		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	87.5		0.4	2.0	mg/L	9056A
Calcium, Total	73200		300	1000	ug/L	6010C
Iron, Total	220		70	100	ug/L	6010C
Magnesium, Total	22700		30	1000	ug/L	6010C
Manganese, Total	792		4	10	ug/L	6010C



SAMPLE DETECTION SUMMARY

CLIENT ID: MWVBR-1121 Lab ID: R2111992-005

Analyte	Results	Flag	MDL	MRL	Units	Method
Potassium, Total	2300		400	2000	ug/L	6010C
Sodium, Total	23600		200	1000	ug/L	6010C

CLIENT ID: MWCR-1121 Lab ID: R2111992-006

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	353		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	1.0	J	0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	13.6		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	365			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	391		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	27.1		0.4	2.0	mg/L	9056A
Calcium, Total	98300		300	1000	ug/L	6010C
Magnesium, Total	29100		30	1000	ug/L	6010C
Manganese, Total	10	J	4	10	ug/L	6010C
Potassium, Total	2800		400	2000	ug/L	6010C
Sodium, Total	14500		200	1000	ug/L	6010C

CLIENT ID: MWJ-1121 Lab ID: R2111992-007

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	355		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Ammonia as Nitrogen, undistilled	0.032	J	0.026	0.050	mg/L	350.1
Carbon, Total Organic (TOC)	1.5		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	137		1.3	6.0	mg/L	9056A
Hardness, Total as CaCO3	337			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	655		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	55.5		0.4	2.0	mg/L	9056A
Calcium, Total	95400		300	1000	ug/L	6010C
Iron, Total	250		70	100	ug/L	6010C
Magnesium, Total	24100		30	1000	ug/L	6010C
Manganese, Total	132		4	10	ug/L	6010C
Potassium, Total	3000		400	2000	ug/L	6010C
Sodium, Total	123000		200	1000	ug/L	6010C

CLIENT ID: MWP-1121 Lab ID: R2111992-008

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	233		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Chloride	7.0		0.5	2.0	mg/L	9056A



SAMPLE DETECTION SUMMARY

CLIENT ID: MWP-1121 **Lab ID: R2111992-008**

Analyte	Results	Flag	MDL	MRL	Units	Method
Hardness, Total as CaCO3	238			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	314		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	49.6		0.4	2.0	mg/L	9056A
Calcium, Total	65300		300	1000	ug/L	6010C
Iron, Total	790		70	100	ug/L	6010C
Magnesium, Total	18300		30	1000	ug/L	6010C
Manganese, Total	1720		4	10	ug/L	6010C
Potassium, Total	2100		400	2000	ug/L	6010C
Sodium, Total	23600		200	1000	ug/L	6010C

CLIENT ID: MWTBR-1121 **Lab ID: R2111992-009**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	175		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Chloride	1.1	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	170			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	209		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	25.4		0.4	2.0	mg/L	9056A
Calcium, Total	49500		300	1000	ug/L	6010C
Iron, Total	210		70	100	ug/L	6010C
Magnesium, Total	11300		30	1000	ug/L	6010C
Manganese, Total	461		4	10	ug/L	6010C
Potassium, Total	1600	J	400	2000	ug/L	6010C
Sodium, Total	11700		200	1000	ug/L	6010C

CLIENT ID: MWSBR-1121 **Lab ID: R2111992-010**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	166		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Chloride	0.6	J	0.5	2.0	mg/L	9056A
Hardness, Total as CaCO3	171			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	214		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	37.3		0.4	2.0	mg/L	9056A
Calcium, Total	48100		300	1000	ug/L	6010C
Magnesium, Total	12400		30	1000	ug/L	6010C
Manganese, Total	607		4	10	ug/L	6010C
Potassium, Total	1600	J	400	2000	ug/L	6010C
Sodium, Total	11300		200	1000	ug/L	6010C

SAMPLE DETECTION SUMMARY

CLIENT ID: MWE-1121 **Lab ID: R2111992-011**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO ₃	370		1.8	2.0	mg/L	SM 2320 B-1997 (2011)
Carbon, Total Organic (TOC)	2.0		0.5	1.0	mg/L	SM 5310 C-2000 (2011)
Chloride	7.7		0.5	2.0	mg/L	9056A
Hardness, Total as CaCO ₃	395			6.62	mg/L	SM 2340 B-1997 (2011)
Solids, Total Dissolved (TDS)	466		9	10	mg/L	SM 2540 C-1997 (2011)
Sulfate	64.9		0.4	2.0	mg/L	9056A
Calcium, Total	107000		300	1000	ug/L	6010C
Iron, Total	540		70	100	ug/L	6010C
Magnesium, Total	30700		30	1000	ug/L	6010C
Manganese, Total	370		4	10	ug/L	6010C
Potassium, Total	1400	J	400	2000	ug/L	6010C
Sodium, Total	16600		200	1000	ug/L	6010C



Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters

Service Request:R2111992

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2111992-001	MWRBR-1121	11/11/2021	0930
R2111992-002	MWH-1121	11/11/2021	1055
R2111992-003	DUP1-1121	11/11/2021	1105
R2111992-004	MWF-1121	11/11/2021	1240
R2111992-005	MWVBR-1121	11/11/2021	1450
R2111992-006	MWCR-1121	11/11/2021	1615
R2111992-007	MWJ-1121	11/11/2021	0910
R2111992-008	MWP-1121	11/11/2021	1055
R2111992-009	MWTBR-1121	11/11/2021	1240
R2111992-010	MWSBR-1121	11/11/2021	1410
R2111992-011	MWE-1121	11/11/2021	1610
R2111992-012	EB1-1121	11/11/2021	0740



ALS-Environmental
1565 Jefferson Rd, Bldg 300, Suite 360
Rochester, NY 14623
585.288.5380

Client: Casella/On-Site
4376 Manning Ridge Road
Campbell, NY 14870

Project Manager: Russ Anderson/Jon Brandes

CHAIN of CUSTODY

Project: Hakes C&D - 363 Routine Parameters
Telephone No. 585-593-1824
Email: jonb@on-sitehs.com

Page 1 of 1

Method of Shipment:
On-Site

Special Detection Limit/Reporting

PDF to Russ and On-Site,
and EDD to On-Site.
PO 234953

Sample I.D.	Lab Sample No.	No. of Containers	Matrix				Prsv.		Sampling Date	Sampling Time	BOD (NP)	Phenols & TOC (H2SO4)	Alkalinity (NP)	NH3, TKN, COD (H2SO4)	T-Metals, Hard. (Routine + As) (HNO3)	TDS, NO3, Br, Cl, SO4 (NP)																						
			Soil	Water	Air	Other	Yes	No																														
MWRBR-1121	6	6	X				X	X	11-11-21	0930	X	X	X	X	X	X																						
MWH-1121	6	6	X				X	X	11-11-21	1055	X	X	X	X	X	X																						
DuPI-1121	6	6	X				X	X	11-11-21	1105	X	X	X	X	X	X																						
MWF-1121	6	6	X				X	X	11-11-21	1240	X	X	X	X	X	X																						
MWVBR-1121	6	6	X				X	X	11-11-21	1450	X	X	X	X	X	X																						
MWCR-1121	6	6	X				X	X	11-11-21	1615	X	X	X	X	X	X																						

R
E
M
A
R
K
S

Sample Received Intact: Yes No	Temperature received: Ice No ice		
Relinq. by sampler (Sign & Print Name) <i>Kevin Dye / Kevin Dye</i>	Date Time 11-12-21 1000	Received by (Sign & Print Name)	Lab Work No.
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory <i>[Signature]</i>		Date 11/12/21 Time 1006

R2111992 5
Casella Waste Systems
Hakes C&D - 363 Routine Parameters



ALS-Environmental
1565 Jefferson Rd, Bldg 300, Suite 360
Rochester, NY 14623
585.288.5380

Client: **Casella/On-Site**
4376 Manning Ridge Road
Campbell, NY 14870
Project Manager: **Russ Anderson/Jon Brandes**

CHAIN of CUSTODY

Project: **Hakes C&D - 363 Routine Parameters**
Telephone No. 585-593-1824
Email: jonb@on-sitehs.com

Page 1 of 1

Method of Shipment

On Site

Special Detection Limit/Reporting

PDF to Russ and On-Site, and EDD to On-Site.
PO 234953

Sample I.D.

Lab Sample No.	No. of Containers	Matrix				Prsv.		Sampling Date	Sampling Time	BOD (NP)	Phenols & TOC (H2SO4)	Alkalinity (NP)	NH3, TKN, COD (H2SO4)	T-Metals, Hard. (Routine + As) (HNO3)	TDS, NO3, Br, Cl, SO4 (NP)																									
		Soil	Water	Air	Other	Yes	No																																	
MWJ-1121	6	X				X	X	11-11-21	0910	X	X	X	X	X	X																									
MWP-1121	6	X				X	X	11-11-21	1055	X	X	X	X	X	X																									
MWTBR-1121	6	X				X	X	11-11-21	1240	X	X	X	X	X	X																									
MWSBR-1121	2	X				X	X	11-11-21	1410	X	X	X	X	X	X																									
MWF-1121	6	X				X	X	11-11-21	1610	X	X	X	X	X	X																									
EBI-1121	6	X				X	X	11-11-21	0740	X	X	X	X	X	X																									

in 5/msd
R E M A R K S

Sample Received Intact: Yes No Temperature received: Ice No ice

Relinqu. by sampler (Sign & Print Name) <i>Scott Watson</i>	Date 11-12-21	Time 0705	Received by (Sign & Print Name)
Relinquished by <i>Karen Dye</i>	Date 11-12-21	Time 1000	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory <i>[Signature]</i>
	Date	Time	Date 11/21/21
			Time 1000

Lab Work No.

R2111992 5
Casella Waste Systems
Hakes C&D - 363 Routine Parameters



Cooler Receipt and Preservation Check Form

R2111992
Casella Waste Systems
Hakes C&D - 363 Routine Parameters

5



Project/Client Casella/On-Site Folder Number _____

Cooler received on 11/12/21 by: RZ/MM

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y <u>N</u>
2	Custody papers properly completed (ink, signed)?	<u>Y</u> N
3	Did all bottles arrive in good condition (unbroken)?	<u>Y</u> N
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	<u>Y</u> N

5a	Perchlorate samples have required headspace?	Y N <u>NA</u>
5b	Did <u>VOA vials</u> Alk, or Sulfide have sig* bubbles?	<u>Y</u> N NA
6	Where did the bottles originate?	<u>ALS/ROC</u> CLIENT
7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 11/12/21 Time: 10:04 ID: IR#7 IR#11 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>3.4</u>	<u>3.5</u>	<u>2.1</u>	<u>2.3</u>	<u>3.9</u>	<u>4.9</u>	
Within 0-6°C?	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule
& Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-012 by RZ on 11/12/21 at 10:17
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 11/12/21 Time: 16:30 by: MM

- 9. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 10. Did all bottle labels and tags agree with custody papers? YES NO
- 11. Were correct containers used for the tests indicated? YES NO
- 12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
- 13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH								
<2	<u>225-320</u>	HNO ₃	X		<u>112 1052</u>	<u>N/A</u>				
<2		H ₂ SO ₄	X		<u>L120-10, 215947</u>	<u>6/22</u>				
<4		NaHSO ₄								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add Na ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 21-07-12, 090621-2AA0, 76626-C2715, 21-10-20
Explain all Discrepancies/ Other Comments:

* Trip Blank: lot 3 vials
LCS 11/21: All 3 vials

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: MM
PC Secondary Review: MM 11/15/21

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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REPORT QUALIFIERS AND DEFINITIONS

<p>U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.</p> <p>J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.</p> <p>* Indicates that a quality control parameter has exceeded laboratory limits. Under the “Notes” column of the Form I, this qualifier denotes analysis was performed out of Holding Time.</p> <p>H Analysis was performed out of hold time for tests that have an “immediate” hold time criteria.</p> <p># Spike was diluted out.</p>	<p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p>
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Rochester Lab ID # for State Accreditations¹



NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

¹ Analyses were performed according to our laboratory’s NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to <https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental>

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111992

Sample Name: MWRBR-1121
Lab Code: R2111992-001
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWH-1121
Lab Code: R2111992-002
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111992

Sample Name: DUP1-1121
Lab Code: R2111992-003
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWF-1121
Lab Code: R2111992-004
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

ALS Group USA, Corp.
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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111992

Sample Name: MWVBR-1121
Lab Code: R2111992-005
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWCR-1121
Lab Code: R2111992-006
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111992

Sample Name: MWJ-1121
Lab Code: R2111992-007
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWP-1121
Lab Code: R2111992-008
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111992

Sample Name: MWTBR-1121
Lab Code: R2111992-009
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: MWSBR-1121
Lab Code: R2111992-010
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters/

Service Request: R2111992

Sample Name: MWE-1121
Lab Code: R2111992-011
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS

Sample Name: EB1-1121
Lab Code: R2111992-012
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		GNITAJOUPPI
351.2	STALARICO	GNITAJOUPPI
410.4		MROGERSON
6010C	BDIAMOND	KMCLAEN
9056A		SMORGAN
9066		BBOWE
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		CWOODS



INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	



Sample Results

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Metals

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWRBR-1121
Lab Code: R2111992-001

Service Request: R2111992
Date Collected: 11/11/21 09:30
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:22	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:22	11/17/21	
Calcium, Total	6010C	39600	ug/L	1000	300	1	11/18/21 18:22	11/17/21	
Iron, Total	6010C	1820	ug/L	100	70	1	11/18/21 18:22	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:22	11/17/21	
Magnesium, Total	6010C	6300	ug/L	1000	30	1	11/18/21 18:22	11/17/21	
Manganese, Total	6010C	90	ug/L	10	4	1	11/18/21 18:22	11/17/21	
Potassium, Total	6010C	2400	ug/L	2000	400	1	11/18/21 18:22	11/17/21	
Sodium, Total	6010C	3700	ug/L	1000	200	1	11/18/21 18:22	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWH-1121
Lab Code: R2111992-002

Service Request: R2111992
Date Collected: 11/11/21 10:55
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:26	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:26	11/17/21	
Calcium, Total	6010C	53300	ug/L	1000	300	1	11/18/21 18:26	11/17/21	
Iron, Total	6010C	100 J	ug/L	100	70	1	11/18/21 18:26	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:26	11/17/21	
Magnesium, Total	6010C	22300	ug/L	1000	30	1	11/18/21 18:26	11/17/21	
Manganese, Total	6010C	72	ug/L	10	4	1	11/18/21 18:26	11/17/21	
Potassium, Total	6010C	800 J	ug/L	2000	400	1	11/18/21 18:26	11/17/21	
Sodium, Total	6010C	33800	ug/L	1000	200	1	11/18/21 18:26	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: DUP1-1121
Lab Code: R2111992-003

Service Request: R2111992
Date Collected: 11/11/21 11:05
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:29	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:29	11/17/21	
Calcium, Total	6010C	53600	ug/L	1000	300	1	11/18/21 18:29	11/17/21	
Iron, Total	6010C	90 J	ug/L	100	70	1	11/18/21 18:29	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:29	11/17/21	
Magnesium, Total	6010C	22400	ug/L	1000	30	1	11/18/21 18:29	11/17/21	
Manganese, Total	6010C	67	ug/L	10	4	1	11/18/21 18:29	11/17/21	
Potassium, Total	6010C	800 J	ug/L	2000	400	1	11/18/21 18:29	11/17/21	
Sodium, Total	6010C	34000	ug/L	1000	200	1	11/18/21 18:29	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWF-1121
Lab Code: R2111992-004

Service Request: R2111992
Date Collected: 11/11/21 12:40
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:32	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:32	11/17/21	
Calcium, Total	6010C	133000	ug/L	1000	300	1	11/18/21 18:32	11/17/21	
Iron, Total	6010C	780	ug/L	100	70	1	11/18/21 18:32	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:32	11/17/21	
Magnesium, Total	6010C	33900	ug/L	1000	30	1	11/18/21 18:32	11/17/21	
Manganese, Total	6010C	75	ug/L	10	4	1	11/18/21 18:32	11/17/21	
Potassium, Total	6010C	3200	ug/L	2000	400	1	11/18/21 18:32	11/17/21	
Sodium, Total	6010C	20300	ug/L	1000	200	1	11/18/21 18:32	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21 14:50
Date Received: 11/12/21 10:00

Sample Name: MWVBR-1121
Lab Code: R2111992-005

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:35	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:35	11/17/21	
Calcium, Total	6010C	73200	ug/L	1000	300	1	11/18/21 18:35	11/17/21	
Iron, Total	6010C	220	ug/L	100	70	1	11/18/21 18:35	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:35	11/17/21	
Magnesium, Total	6010C	22700	ug/L	1000	30	1	11/18/21 18:35	11/17/21	
Manganese, Total	6010C	792	ug/L	10	4	1	11/18/21 18:35	11/17/21	
Potassium, Total	6010C	2300	ug/L	2000	400	1	11/18/21 18:35	11/17/21	
Sodium, Total	6010C	23600	ug/L	1000	200	1	11/18/21 18:35	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21 16:15
Date Received: 11/12/21 10:00

Sample Name: MWCR-1121
Lab Code: R2111992-006

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:39	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:39	11/17/21	
Calcium, Total	6010C	98300	ug/L	1000	300	1	11/18/21 18:39	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 18:39	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:39	11/17/21	
Magnesium, Total	6010C	29100	ug/L	1000	30	1	11/18/21 18:39	11/17/21	
Manganese, Total	6010C	10 J	ug/L	10	4	1	11/18/21 18:39	11/17/21	
Potassium, Total	6010C	2800	ug/L	2000	400	1	11/18/21 18:39	11/17/21	
Sodium, Total	6010C	14500	ug/L	1000	200	1	11/18/21 18:39	11/17/21	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWJ-1121
Lab Code: R2111992-007

Service Request: R2111992
Date Collected: 11/11/21 09:10
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:42	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:42	11/17/21	
Calcium, Total	6010C	95400	ug/L	1000	300	1	11/18/21 18:42	11/17/21	
Iron, Total	6010C	250	ug/L	100	70	1	11/18/21 18:42	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:42	11/17/21	
Magnesium, Total	6010C	24100	ug/L	1000	30	1	11/18/21 18:42	11/17/21	
Manganese, Total	6010C	132	ug/L	10	4	1	11/18/21 18:42	11/17/21	
Potassium, Total	6010C	3000	ug/L	2000	400	1	11/18/21 18:42	11/17/21	
Sodium, Total	6010C	123000	ug/L	1000	200	1	11/18/21 18:42	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWP-1121
Lab Code: R2111992-008

Service Request: R2111992
Date Collected: 11/11/21 10:55
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:45	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:45	11/17/21	
Calcium, Total	6010C	65300	ug/L	1000	300	1	11/18/21 18:45	11/17/21	
Iron, Total	6010C	790	ug/L	100	70	1	11/18/21 18:45	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:45	11/17/21	
Magnesium, Total	6010C	18300	ug/L	1000	30	1	11/18/21 18:45	11/17/21	
Manganese, Total	6010C	1720	ug/L	10	4	1	11/18/21 18:45	11/17/21	
Potassium, Total	6010C	2100	ug/L	2000	400	1	11/18/21 18:45	11/17/21	
Sodium, Total	6010C	23600	ug/L	1000	200	1	11/18/21 18:45	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21 12:40
Date Received: 11/12/21 10:00

Sample Name: MWTBR-1121
Lab Code: R2111992-009

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:55	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:55	11/17/21	
Calcium, Total	6010C	49500	ug/L	1000	300	1	11/18/21 18:55	11/17/21	
Iron, Total	6010C	210	ug/L	100	70	1	11/18/21 18:55	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:55	11/17/21	
Magnesium, Total	6010C	11300	ug/L	1000	30	1	11/18/21 18:55	11/17/21	
Manganese, Total	6010C	461	ug/L	10	4	1	11/18/21 18:55	11/17/21	
Potassium, Total	6010C	1600 J	ug/L	2000	400	1	11/18/21 18:55	11/17/21	
Sodium, Total	6010C	11700	ug/L	1000	200	1	11/18/21 18:55	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21 14:10
Date Received: 11/12/21 10:00

Sample Name: MWSBR-1121
Lab Code: R2111992-010

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:58	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:58	11/17/21	
Calcium, Total	6010C	48100	ug/L	1000	300	1	11/18/21 18:58	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 18:58	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:58	11/17/21	
Magnesium, Total	6010C	12400	ug/L	1000	30	1	11/18/21 18:58	11/17/21	
Manganese, Total	6010C	607	ug/L	10	4	1	11/18/21 18:58	11/17/21	
Potassium, Total	6010C	1600 J	ug/L	2000	400	1	11/18/21 18:58	11/17/21	
Sodium, Total	6010C	11300	ug/L	1000	200	1	11/18/21 18:58	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWE-1121
Lab Code: R2111992-011

Service Request: R2111992
Date Collected: 11/11/21 16:10
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 19:14	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 19:14	11/17/21	
Calcium, Total	6010C	107000	ug/L	1000	300	1	11/18/21 19:14	11/17/21	
Iron, Total	6010C	540	ug/L	100	70	1	11/18/21 19:14	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 19:14	11/17/21	
Magnesium, Total	6010C	30700	ug/L	1000	30	1	11/18/21 19:14	11/17/21	
Manganese, Total	6010C	370	ug/L	10	4	1	11/18/21 19:14	11/17/21	
Potassium, Total	6010C	1400 J	ug/L	2000	400	1	11/18/21 19:14	11/17/21	
Sodium, Total	6010C	16600	ug/L	1000	200	1	11/18/21 19:14	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21 07:40
Date Received: 11/12/21 10:00

Sample Name: EB1-1121
Lab Code: R2111992-012

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 19:18	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 19:18	11/17/21	
Calcium, Total	6010C	1000 U	ug/L	1000	300	1	11/18/21 19:18	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 19:18	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 19:18	11/17/21	
Magnesium, Total	6010C	1000 U	ug/L	1000	30	1	11/18/21 19:18	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 19:18	11/17/21	
Potassium, Total	6010C	2000 U	ug/L	2000	400	1	11/18/21 19:18	11/17/21	
Sodium, Total	6010C	1000 U	ug/L	1000	200	1	11/18/21 19:18	11/17/21	



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWRBR-1121
Lab Code: R2111992-001

Service Request: R2111992
Date Collected: 11/11/21 09:30
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	106	mg/L	2.0	1.8	1	11/18/21 19:54	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:40	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/12/21 10:44	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/12/21 14:15	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.2	mg/L	1.0	0.5	1	11/17/21 16:30	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	1.8 J	mg/L	2.0	0.5	10	11/12/21 14:15	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	125	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.9	mg/L	1.0	0.2	10	11/12/21 14:15	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 14:00	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 21:45	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	142	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	11.9	mg/L	2.0	0.4	10	11/12/21 14:15	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWH-1121
Lab Code: R2111992-002

Service Request: R2111992
Date Collected: 11/11/21 10:55
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	118	mg/L	2.0	1.8	1	11/18/21 20:01	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:42	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:44	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 14:22	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	0.6 J	mg/L	1.0	0.5	1	11/17/21 17:01	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	15.4	mg/L	2.0	0.5	10	11/12/21 14:22	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	225	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.4 J	mg/L	1.0	0.2	10	11/12/21 14:22	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:01	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 21:49	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	373	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	148	mg/L	4.0	0.8	20	11/15/21 14:53	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: DUP1-1121
Lab Code: R2111992-003

Service Request: R2111992
Date Collected: 11/11/21 11:05
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	119	mg/L	2.0	1.8	1	11/18/21 20:20	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:46	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/12/21 10:45	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/12/21 14:43	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	0.5	J mg/L	1.0	0.5	1	11/17/21 18:03	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	16.1	mg/L	2.0	0.5	10	11/12/21 14:43	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	226	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	0.4	J mg/L	1.0	0.2	10	11/12/21 14:43	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 14:02	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 22:01	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	376	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	147	mg/L	4.0	0.8	20	11/15/21 15:00	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWF-1121
Lab Code: R2111992-004

Service Request: R2111992
Date Collected: 11/11/21 12:40
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	419	mg/L	2.0	1.8	1	11/18/21 20:28	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:49	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:46	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 14:50	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	3.2	mg/L	1.0	0.5	1	11/17/21 18:24	NA	
Chemical Oxygen Demand, Total	410.4	4.6 J	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	18.5	mg/L	2.0	0.5	10	11/12/21 14:50	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	470	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 14:50	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:03	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 22:05	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	526	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	70.9	mg/L	2.0	0.4	10	11/12/21 14:50	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWVBR-1121
Lab Code: R2111992-005

Service Request: R2111992
Date Collected: 11/11/21 14:50
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	253	mg/L	2.0	1.8	1	11/18/21 20:35	NA	
Ammonia as Nitrogen, undistilled	350.1	0.034 J	mg/L	0.050	0.026	1	11/17/21 14:50	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:46	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 14:57	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 18:45	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.8 J	mg/L	2.0	0.5	10	11/12/21 14:57	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	276	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 14:57	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:04	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 22:09	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	361	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	87.5	mg/L	2.0	0.4	10	11/12/21 14:57	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWCR-1121
Lab Code: R2111992-006

Service Request: R2111992
Date Collected: 11/11/21 16:15
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	353	mg/L	2.0	1.8	1	11/18/21 20:43	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:51	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:47	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 15:25	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 J	mg/L	1.0	0.5	1	11/17/21 19:06	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	13.6	mg/L	2.0	0.5	10	11/12/21 15:25	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	365	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 15:25	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:04	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 22:13	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	391	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	27.1	mg/L	2.0	0.4	10	11/12/21 15:25	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWJ-1121
Lab Code: R2111992-007

Service Request: R2111992
Date Collected: 11/11/21 09:10
Date Received: 11/12/21 10:00
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	355	mg/L	2.0	1.8	1	11/19/21 08:04	NA	
Ammonia as Nitrogen, undistilled	350.1	0.032 J	mg/L	0.050	0.026	1	11/17/21 14:53	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:48	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 15:32	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.5	mg/L	1.0	0.5	1	11/17/21 20:29	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	137	mg/L	6.0	1.3	30	11/15/21 15:07	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	337	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 15:32	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:05	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 22:17	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	655	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	55.5	mg/L	2.0	0.4	10	11/12/21 15:32	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21 10:55
Date Received: 11/12/21 10:00

Sample Name: MWP-1121
Lab Code: R2111992-008

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	233	mg/L	2.0	1.8	1	11/19/21 08:12	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:54	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:48	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 15:39	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 20:50	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	7.0	mg/L	2.0	0.5	10	11/12/21 15:39	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	238	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 15:39	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:06	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 22:37	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	314	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	49.6	mg/L	2.0	0.4	10	11/12/21 15:39	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWTBR-1121
Lab Code: R2111992-009

Service Request: R2111992
Date Collected: 11/11/21 12:40
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	175	mg/L	2.0	1.8	1	11/19/21 08:19	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:55	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/12/21 10:49	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/12/21 15:46	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0	U mg/L	1.0	0.5	1	11/17/21 21:11	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	1.1	J mg/L	2.0	0.5	10	11/12/21 15:46	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	170	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/12/21 15:46	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 14:09	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 22:41	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	209	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	25.4	mg/L	2.0	0.4	10	11/12/21 15:46	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWSBR-1121
Lab Code: R2111992-010

Service Request: R2111992
Date Collected: 11/11/21 14:10
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	166	mg/L	2.0	1.8	1	11/19/21 08:26	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:56	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:50	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 15:53	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 21:32	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.6 J	mg/L	2.0	0.5	10	11/12/21 15:53	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	171	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 15:53	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:10	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 22:45	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	214	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	37.3	mg/L	2.0	0.4	10	11/12/21 15:53	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: MWE-1121
Lab Code: R2111992-011

Service Request: R2111992
Date Collected: 11/11/21 16:10
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	370	mg/L	2.0	1.8	1	11/19/21 08:55	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050	U mg/L	0.050	0.026	1	11/17/21 14:59	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U mg/L	2.0	-	1	11/12/21 10:50	NA	
Bromide	9056A	1.0	U mg/L	1.0	0.4	10	11/12/21 16:14	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	2.0	mg/L	1.0	0.5	1	11/17/21 22:35	NA	
Chemical Oxygen Demand, Total	410.4	5.0	U mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	7.7	mg/L	2.0	0.5	10	11/12/21 16:14	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	395	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0	U mg/L	1.0	0.2	10	11/12/21 16:14	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20	U mg/L	0.20	0.15	1	11/19/21 14:11	11/18/21	
Phenolics, Total Recoverable	9066	0.0050	U mg/L	0.0050	0.0029	1	11/15/21 22:57	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	466	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	64.9	mg/L	2.0	0.4	10	11/12/21 16:14	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: EB1-1121
Lab Code: R2111992-012

Service Request: R2111992
Date Collected: 11/11/21 07:40
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/19/21 08:59	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 15:03	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 10:51	NA	
Bromide	9056A	1.0 U	mg/L	1.0	0.4	10	11/12/21 16:21	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 22:55	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	2.0 U	mg/L	2.0	0.5	10	11/12/21 16:21	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	6.62 U	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 16:21	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 14:13	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 23:01	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	2.0 U	mg/L	2.0	0.4	10	11/12/21 16:21	NA	



QC Summary Forms

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Metals

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111992-MB

Service Request: R2111992
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	6	1	11/18/21 18:16	11/17/21	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	11/18/21 18:16	11/17/21	
Calcium, Total	6010C	1000 U	ug/L	1000	300	1	11/18/21 18:16	11/17/21	
Iron, Total	6010C	100 U	ug/L	100	70	1	11/18/21 18:16	11/17/21	
Lead, Total	6010C	5.0 U	ug/L	5.0	2.1	1	11/18/21 18:16	11/17/21	
Magnesium, Total	6010C	1000 U	ug/L	1000	30	1	11/18/21 18:16	11/17/21	
Manganese, Total	6010C	10 U	ug/L	10	4	1	11/18/21 18:16	11/17/21	
Potassium, Total	6010C	2000 U	ug/L	2000	400	1	11/18/21 18:16	11/17/21	
Sodium, Total	6010C	1000 U	ug/L	1000	200	1	11/18/21 18:16	11/17/21	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request:R2111992
Date Collected:11/11/21
Date Received:11/12/21
Date Analyzed:11/18/21

**Duplicate Matrix Spike Summary
Inorganic Parameters**

Sample Name: MWSBR-1121
Lab Code: R2111992-010

Units:ug/L
Basis:NA

Analyte Name	Method	Sample Result	Result	Matrix Spike R2111992-010MS		Duplicate Matrix Spike R2111992-010DMS					
				Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic, Total	6010C	10 U	43	40	108	41	40	102	75-125	5	20
Cadmium, Total	6010C	5.0 U	49.2	50.0	98	48.5	50.0	97	75-125	1	20
Calcium, Total	6010C	48100	51300	2000	159 #	50000	2000	94 #	75-125	3	20
Iron, Total	6010C	100 U	1050	1000	105	1040	1000	104	75-125	<1	20
Lead, Total	6010C	5.0 U	486	500	97	485	500	97	75-125	<1	20
Magnesium, Total	6010C	12400	14700	2000	119 #	14400	2000	101 #	75-125	2	20
Manganese, Total	6010C	607	1120	500	103	1100	500	99	75-125	2	20
Potassium, Total	6010C	1600 J	21200	20000	98	21000	20000	97	75-125	<1	20
Sodium, Total	6010C	11300	31900	20000	103	31600	20000	101	75-125	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Analyzed: 11/18/21

Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
R2111992-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total	6010C	42.7	40	107	80-120
Cadmium, Total	6010C	51.4	50.0	103	80-120
Calcium, Total	6010C	2070	2000	103	80-120
Iron, Total	6010C	1020	1000	102	80-120
Lead, Total	6010C	504	500	101	80-120
Magnesium, Total	6010C	1950	2000	98	80-120
Manganese, Total	6010C	504	500	101	80-120
Potassium, Total	6010C	19400	20000	97	80-120
Sodium, Total	6010C	20300	20000	101	80-120



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111992-MB1

Service Request: R2111992
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date</u> <u>Extracted</u>	<u>Q</u>
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/18/21 17:14	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:08	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 14:01	NA	
Bromide	9056A	0.10 U	mg/L	0.10	0.04	1	11/12/21 12:24	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 09:47	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	NA	
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/12/21 12:24	NA	
Nitrate as Nitrogen	9056A	0.10 U	mg/L	0.10	0.02	1	11/12/21 12:24	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/19/21 13:54	11/18/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 20:33	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/12/21 12:24	NA	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111992-MB2

Service Request: R2111992
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/19/21 07:10	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/17/21 14:35	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 17:36	
Bromide	9056A	0.10 U	mg/L	0.10	0.04	1	11/12/21 15:11	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/17/21 19:48	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/18/21 18:45	
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/12/21 15:11	
Nitrate as Nitrogen	9056A	0.10 U	mg/L	0.10	0.02	1	11/12/21 15:11	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/18/21 14:35	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/12/21 15:11	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111992-MB3

Service Request: R2111992
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/15/21 13:08	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/15/21 13:08	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21 - 11/17/21

**Duplicate Matrix Spike Summary
General Chemistry Parameters**

Sample Name: MWH-1121
Lab Code: R2111992-002

Units: mg/L
Basis: NA

Matrix Spike
R2111992-002MS

Duplicate Matrix Spike
R2111992-002DMS

Analyte Name	Method	Sample Result		Spike Amount		% Rec		Spike Amount		% Rec		RPD	Limit
		Result	U	Result	U	Result	Rec	Result	Rec	Limits	RPD		
Ammonia as Nitrogen, undistilled	350.1	0.050	U	0.239	0.250	95		0.237	0.250	95	90-110	<1	20
Bromide	9056A	1.0	U	9.3	10.0	93		9.3	10.0	93	80-120	<1	15
Chloride	9056A	15.4		33.6	20.0	91		33.4	20.0	90	80-120	<1	15
Phenolics, Total Recoverable	9066	0.0050	U	0.0389	0.0400	97		0.0389	0.0400	97	49-137	<1	20
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	0.6	J	10.8	10.0	102		11.2	10.0	107	48-135	4	20
Nitrate as Nitrogen	9056A	0.4	J	9.6	10.0	91		9.6	10.0	91	80-120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/18/21

**Duplicate Matrix Spike Summary
Chemical Oxygen Demand, Total**

Sample Name: MWJ-1121
Lab Code: R2111992-007
Analysis Method: 410.4

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111992-007MS			Duplicate Matrix Spike R2111992-007DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Chemical Oxygen Demand, Total	5.0 U	26.8	25.0	107	27.7	25.0	111 *	90-110	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21 - 11/18/21

**Duplicate Matrix Spike Summary
General Chemistry Parameters**

Sample Name: MWSBR-1121
Lab Code: R2111992-010

Units: mg/L
Basis: NA

Matrix Spike
R2111992-010MS

Duplicate Matrix Spike
R2111992-010DMS

Analyte Name	Method	Sample Result		Spike Amount		% Rec		Spike Amount		% Rec		% Rec Limits	RPD	Limit
		Result	U	Result	U	Result	Rec	Result	Rec					
Ammonia as Nitrogen, undistilled	350.1	0.050	U	0.255	0.250	102		0.254	0.250	102		90-110	<1	20
Bromide	9056A	1.0	U	9.4	10.0	94		9.5	10.0	95		80-120	<1	15
Chloride	9056A	0.6	J	19.1	20.0	93		19.2	20.0	93		80-120	<1	15
Chemical Oxygen Demand, Total	410.4	5.0	U	24.0	25.0	96		22.6	25.0	90		90-110	6	20
Phenolics, Total Recoverable	9066	0.0050	U	0.0388	0.0400	97		0.0390	0.0400	98		49-137	<1	20
Sulfate	9056A	37.3		55.1	20.0	89		54.9	20.0	88		80-120	<1	15
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0	U	10.6	10.0	106		11.2	10.0	112		48-135	6	20
Nitrate as Nitrogen	9056A	1.0	U	9.1	10.0	91		9.2	10.0	92		80-120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/19/21
Date Extracted: 11/18/21

Duplicate Matrix Spike Summary
Nitrogen, Total Kjeldahl (TKN)

Sample Name: MWE-1121
Lab Code: R2111992-011
Analysis Method: 351.2
Prep Method: Method

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike R2111992-011MS			Duplicate Matrix Spike R2111992-011DMS			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Nitrogen, Total Kjeldahl (TKN)	0.20 U	2.42	2.50	97	2.40	2.50	96	90-110	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/18/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name: MWVBR-1121
Lab Code: R2111992-005

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample R2111992-005DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10	9	361	358	360	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name: MWCR-1121
Lab Code: R2111992-006

Units: mg/L
Basis: NA

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>MRL</u>	<u>Sample Result</u>	<u>Duplicate Sample R2111992-006DUP Result</u>	<u>Average</u>	<u>RPD</u>	<u>RPD Limit</u>
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	2.0 U	2.0 U	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21 - 11/19/21

**Replicate Sample Summary
 General Chemistry Parameters**

Sample Name: MWSBR-1121
Lab Code: R2111992-010

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample R2111992-010DUP Result	Average	RPD	RPD Limit
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0	1.8	166	167	166	<1	20
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0		2.0 U	2.0 U	NC	NC	20
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10	9	214	224	219	5	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Analyzed: 11/12/21 - 11/19/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111992-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO ₃	SM 2320 B-1997(2011)	20.8	20.0	104	80-120
Ammonia as Nitrogen, undistilled	350.1	0.249	0.250	100	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	203	198	103	85-115
Bromide	9056A	0.967	1.00	97	80-120
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	9.81	10.0	98	80-121
Chemical Oxygen Demand, Total	410.4	47.4	50.0	95	90-110
Chloride	9056A	1.92	2.00	96	80-120
Nitrate as Nitrogen	9056A	0.948	1.00	95	80-120
Nitrogen, Total Kjeldahl (TKN)	351.2	2.24	2.50	90	90-110
Phenolics, Total Recoverable	9066	0.0384	0.0400	96	85-115
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	884	914	97	90-110
Sulfate	9056A	1.94	2.00	97	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Analyzed: 11/12/21 - 11/19/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111992-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	19.1	20.0	96	80-120
Ammonia as Nitrogen, undistilled	350.1	0.249	0.250	100	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	200	198	101	85-115
Bromide	9056A	0.981	1.00	98	80-120
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	10.1	10.0	101	80-121
Chemical Oxygen Demand, Total	410.4	48.8	50.0	98	90-110
Chloride	9056A	1.95	2.00	98	80-120
Nitrate as Nitrogen	9056A	0.965	1.00	97	80-120
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	894	914	98	90-110
Sulfate	9056A	1.97	2.00	99	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - 363 Routine Parameters
Sample Matrix: Water

Service Request: R2111992
Date Analyzed: 11/15/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111992-LCS3

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	1.91	2.00	96	80-120
Sulfate	9056A	1.91	2.00	96	80-120



January 13, 2022

Service Request No:R2111994

Ms. Kimberly Crosby
Casella Waste Systems
286 Sand Road
Morrisonville, NY 12962

Laboratory Results for: Hakes C&D - Park 363 Expanded Leachate

Dear Ms.Crosby,

Enclosed are the results of the sample(s) submitted to our laboratory November 12, 2021
For your reference, these analyses have been assigned our service request number **R2111994**.

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Jon Brandes

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Received: 11/12/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Three water samples were received for analysis at ALS Environmental on 11/12/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 11/23/2021: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). Since there were no detections of the analyte(s) above the MRL in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

8270D: An MDL and LCS/LCSD recovery cannot be determined for p-Phenylenediamine. p-Phenylenediamine is degraded in the extraction procedure. The compound has been flagged with an "X" and should be considered as indeterminate.

N-Nitrosodiphenylamine and Diphenylamine identity cannot be distinguished since N-Nitrosodiphenylamine breaks down to diphenylamine in the injection port of the instrument. Quantitation provided for either compound is from the instrument response of both compounds.

Method 8270D SIM: The extraction of one or more sample(s) was initially performed within holding time, but were re-extracted due to a QC failure. Efforts were made to re-extract the samples as soon as possible. The re-extraction was performed past the recommended holding time. The data are flagged to indicate the holding time exceedance.

Method 8270D SIM, 746909s: The control limits were exceeded for one or more surrogates due to matrix interferences. Due to the presence of non-target background components that prevented adequate resolution of the surrogate, accurate quantitation was not possible. Sample is scheduled for re-extraction using less sample volume.

Semivolatile GC:

Method 8081B, 11/22/2021: The lower control limit for the spike recovery of the Laboratory Control Sample (LCS) was exceeded for one or more analyte. There were no detections of the analyte(s) in the associated field samples. The discrepancy associated with reduced recovery equates to a potential low bias. The analytes affected are flagged in the LCS Summary. DLCS, MS, and DMS recoveries were all within acceptable limits.

Method 8151A, 11/18/2021: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

The RPD between the LCS and the LCSD was greater than the RPD limit. The percent recovery limit was met for both the LCS and the LCSD.

Method 8151A, 11/18/2021: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV) on one column. The secondary column was within limits for the affected analytes. Since there were no detections of the analyte(s) above the MRL in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

Metals:

A handwritten signature in black ink, appearing to read "Samantha", is written over a horizontal line.

Approved by _____

Date 01/12/2022



No significant anomalies were noted with this analysis.

General Chemistry:

Method 7196A: One or more samples were received with insufficient hold time remaining to complete the analysis within the recommended limit. The analysis was performed as soon as possible after receipt by the laboratory. The data is flagged to indicate the holding time exceedance.

Method 7196A, R2111994-001: Sample(s) required dilution due to the nature of the matrix. The reporting limits are adjusted to reflect the dilution.

Subcontracted Analytical Parameters:

One or more samples were subcontracted to another laboratory for testing. The certified analytical report from the subcontractor has been included in its entirety at the end of this report and includes the name and address of the subcontracted laboratory.

Volatiles by GC/MS:

Method 8260C, 11/19/2021: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) above the MRL in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate.

Method 8260C, 746755: Sample(s) required dilution due to the foaming nature of the matrix. The reporting limits are adjusted to reflect the dilution.

Method 8260C, 11/19/2021: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). Since there were no detections of the analyte(s) above the MRL in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

Method 8260C, 11/19/2021: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

A handwritten signature in black ink, appearing to read 'Samantha', is written over a horizontal line.

Approved by _____

Date 01/12/2022



SAMPLE DETECTION SUMMARY

CLIENT ID: LCS-1121 **Lab ID: R2111994-001**

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity, Total as CaCO3	2260			20	mg/L	SM 2320 B-1997 (2011)
Ammonia as Nitrogen, undistilled	253		26	50	mg/L	350.1
Biochemical Oxygen Demand (BOD)	110			2.0	mg/L	SM 5210 B-2001 (2011)
Bromide	7.3		0.4	1.0	mg/L	9056A
Carbon, Total Organic (TOC)	443		9	20	mg/L	SM 5310 C-2000 (2011)
Chemical Oxygen Demand, Total	1210		3.8	5.0	mg/L	410.4
Chloride	1830		9	40	mg/L	9056A
Color, True	600			50	ColorUnits	SM 2120 B-2001 (2011)
Cyanide, Total	0.299		0.040	0.050	mg/L	Kelada-01
Hardness, Total as CaCO3	2190			6.62	mg/L	SM 2340 B-1997 (2011)
Nitrogen, Total Kjeldahl (TKN)	216		6.0	8.0	mg/L	351.2
pH of Color Analysis	7.19				pH Units	SM 2120 B-2001 (2011)
Phenolics, Total Recoverable	0.075		0.015	0.025	mg/L	9066
Solids, Total Dissolved (TDS)	6050		75	83	mg/L	SM 2540 C-1997 (2011)
Sulfate	646		4	20	mg/L	9056A
2-Butanone (MEK)	130	J	20	250	ug/L	8260C
4-Methyl-2-pentanone	15	J	5.0	250	ug/L	8260C
Acetone	260		130	250	ug/L	8260C
Carbon Disulfide	44	J	11	250	ug/L	8260C
m,p-Xylenes	5.4	J	5.0	130	ug/L	8260C
1,4-Dioxane	45		0.14	0.20	ug/L	8270D SIM
2,4-Dimethylphenol	3.0	J	1.4	10	ug/L	8270D
2-Methylnaphthalene	9.2	J	1.3	10	ug/L	8270D
2-Methylphenol	2.5	J	1.0	10	ug/L	8270D
3- and 4-Methylphenol Coelution	53		1.2	10	ug/L	8270D
Acenaphthene	10		1.4	10	ug/L	8270D
Acetophenone	3.4	J	1.3	10	ug/L	8270D
Anthracene	1.6	J	1.3	10	ug/L	8270D
Benzyl Alcohol	1.8	J	1.6	10	ug/L	8270D
Dibenzofuran	5.3	J	1.4	10	ug/L	8270D
Fluorene	4.0	J	1.3	10	ug/L	8270D
Naphthalene	28		1.2	10	ug/L	8270D
Phenanthrene	1.7	J	1.4	10	ug/L	8270D
Phenol	7.7	J	1.0	10	ug/L	8270D
1,4-Dioxane	53		0.54	0.80	ug/L	8270D SIM
Endosulfan I	0.25		0.020	0.050	ug/L	8081B



Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate

Service Request:R2111994

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2111994-001	LCS-1121	11/11/2021	1045



ALS-Environmental
1565 Jefferson Rd, Bldg 300, Suite 360
Rochester, NY 14623
585.288.5380

Client: Casella/On-Site		CHAIN of CUSTODY											Page <u>1</u> of <u>1</u>														
4376 Manning Ridge Road Campbell, NY 14870		Project Hakes C&D - Part 363 Expanded Leachate											Method of Shipment <i>On-Site Delivered</i>														
Project Manager Russ Anderson/Jon Brandes		Telephone No. 585-593-1824					Email: jonb@on-sitehs.com						Special Detection Limit/Reporting														
Sample I.D.	Lab Sample No.	No. of Containers	Matrix				Prsv.		Sampling Date	Sampling Time	VOC's 8260 (HCL)	TOC, Phenols (H2SO4)	BOD, Alkalinity, Total Color (NP)	8081/8082/8151/8270 (NP)	T-Metals (Exp List), Hard (HNO3)	T-CN (NaOH)	TDS, Cr+6, NO3, Br, Cl, SO4 (NP)	NH3, TKN, COD (H2SO4)	T- Ra-226(903.1),Ra-228(904.0)(HNO3)	Total: Uranium (908.0) (HNO3)	Diss: Ra-226 (903.1), Ra-228 (904.0) (HNO3)	Dissolved: Uranium (908.0) (NP)	PFAS (EPA 537) (NP)	1,4 Dioxane (EPA 8270 SIM) (NP)			
			Soil	Water	Air	Other	Yes	No																			
<i>LCS-1121</i>		<i>27</i>	<input checked="" type="checkbox"/>					<i>11/11/21</i>	<i>1045</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Sample Received Intact: Yes No		Temperature received: Ice No ice																									
Relinq. by sampler (Sign & Print Name) <i>Jon Brandes / Jonathan E Brandes</i>			Date Time <i>11/12/21 0705</i>		Received by (Sign & Print Name)																					Lab Work No.	
Relinquished by <i>Kevin Dye</i>			Date Time <i>11-12-21 1000</i>		Received by																						
Relinquished by			Date Time		Received by																						
Relinquished by			Date Time		Received by laboratory <i>[Signature]</i>											Date Time <i>11/12/21 1000</i>											

PDF to Russ and On-Site, and EDD to On-Site.
PO 234953

R2111994 **5**
Casella Waste Systems
Hakes C&D - Park 363 Expanded Leachate



Cooler Receipt and Preservation Check Form

R2111994

5

Casella Waste Systems
Hakes C&D - Park 363 Expanded Leachate



Project/Client Casella/On-Site Folder Number _____

Cooler received on 11/12/21 by: RZ/MM

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y <u>N</u>
2	Custody papers properly completed (ink, signed)?	<u>Y</u> N
3	Did all bottles arrive in good condition (unbroken)?	<u>Y</u> N
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	<u>Y</u> N

5a	Perchlorate samples have required headspace?	Y N <u>NA</u>
5b	Did <u>VOA vials</u> Alk, or Sulfide have sig* bubbles?	<u>Y</u> N NA
6	Where did the bottles originate?	<u>ALS/ROC</u> CLIENT
7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 11/12/21 Time: 10:04 ID: IR#7 IR#11 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>3.4</u>	<u>3.5</u>	<u>2.1</u>	<u>2.3</u>	<u>3.9</u>	<u>4.9</u>	
Within 0-6°C?	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	<u>Y</u> N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule
& Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: 5035 by RZ on 11/12/21 at 10:17
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 11/12/21 Time: 15:00 by: MM

- 9. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 10. Did all bottle labels and tags agree with custody papers? YES NO
- 11. Were correct containers used for the tests indicated? YES NO
- 12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
- 13. Air Samples: Cassettes / Tubes Intact Y/N with MS Y/N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12	<u>225 320</u>	NaOH	X							
≤2	<u>225 320</u>	HNO ₃	X	X	<u>112 1052</u>	<u>N/A</u>	<u>LCS-1121</u>	<u>15 mL</u>	<u>B28 031D</u>	<u>6.2</u>
≤2	<u>225 320</u>	H ₂ SO ₄	X							
<4		NaHSO ₄								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522	X		If +, contact PM to add Na ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 21-10-20, 090621-2AA0, 0596, 80821-02, 021918-BLT, 77327-62724

Explain all Discrepancies/ Other Comments: 21-07-12,

* Trip Blank: lot 3 vials
LCS 1121: All 3 vials

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: MM
PC Secondary Review: MM 11/15/21

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: Casella Waste Systems
Project: Hakes C&D - Park 363 Expanded Leachate

Service Request: R2111994

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2111994-001.01	8151A	11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
R2111994-001.02		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
		11/18/2021	0901	In Lab / MMCMAHON	
R2111994-001.03		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
R2111994-001.04	SM 2120 B-2001(2011)	11/12/2021	1441	SMO / GESMERIAN	
R2111994-001.05	8270D,8270D	11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
		11/17/2021	0748	In Lab / MMCMAHON	
R2111994-001.06	7196A,9056A,9056A,9056A,9056A,SM 2540 C-1997(2011)	11/12/2021	1441	SMO / GESMERIAN	
		11/15/2021	1227	R-017 / GLAFORCE	
		11/15/2021	1228	RT000701 / GLAFORCE	
		12/7/2021	1455	R-002 / GLAFORCE	
R2111994-001.07		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1508	SUBBED / GESMERIAN	
R2111994-001.08	SM 5210 B-2001(2011)	11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1758	RT000424 / GLAFORCE	
		11/12/2021	1800	R-002 / GLAFORCE	
R2111994-001.09		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1508	SUBBED / GESMERIAN	

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Internal Chain of Custody Report

Client: Casella Waste Systems
Project: Hakes C&D - Park 363 Expanded Leachate

Service Request: R2111994

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2111994-001.10					
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1508	SUBBED / GESMERIAN	
R2111994-001.11					
	8081B,8082A				
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
		11/15/2021	0827	In Lab / MMCMAHON	
R2111994-001.12					
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
R2111994-001.13					
	7470A				
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1500	R-002 / GESMERIAN	
		11/12/2021	1507	R-002 / GESMERIAN	
		11/15/2021	1112	In Lab / BDIAMOND	
		11/15/2021	1543	R-A01 / BDIAMOND	
R2111994-001.14					
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1508	SUBBED / GESMERIAN	
R2111994-001.15					
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1502	R-001 / GESMERIAN	
R2111994-001.16					
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1502	R-001 / GESMERIAN	
R2111994-001.17					
	8260C				
		11/12/2021	1441	SMO / GESMERIAN	
		11/12/2021	1502	R-001 / GESMERIAN	
		11/19/2021	1424	In Lab / KRUEST	
		11/19/2021	1446	R-001-S12 / KRUEST	
R2111994-001.18					
	8270D SIM,8270D SIM				
		11/12/2021	1441	SMO / GESMERIAN	



Miscellaneous Forms

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REPORT QUALIFIERS AND DEFINITIONS

- | | |
|---|--|
| <p>U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.</p> <p>J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.</p> <p>* Indicates that a quality control parameter has exceeded laboratory limits. Under the “Notes” column of the Form I, this qualifier denotes analysis was performed out of Holding Time.</p> <p>H Analysis was performed out of hold time for tests that have an “immediate” hold time criteria.</p> <p># Spike was diluted out.</p> | <p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p> |
|---|--|

Rochester Lab ID # for State Accreditations¹



NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

¹ Analyses were performed according to our laboratory’s NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to <https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental>

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

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Analyst Summary report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate/

Service Request: R2111994

Sample Name: LCS-1121
Lab Code: R2111994-001
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
350.1		MROGERSON
351.2	STALARICO	GNITAJOUPI
410.4		SMEDBURY
6010C	BDIAMOND	KMCLAEN
7196A		SMEDBURY
7470A	BDIAMOND	NMANSEN
8081B	KSERCU	AFELSER
8082A	KSERCU	BALLGEIER
8151A	KSERCU	AFELSER
8260C		KRUEST
8270D	AMOSSES	AMOSSES
8270D SIM	AFELSER	AFELSER
9056A		SMORGAN
9066		BBOWE
Kelada-01		CWOODS
SM 2120 B-2001(2011)		KWONG
SM 2320 B-1997(2011)		KAWONG
SM 2540 C-1997(2011)		KAWONG
SM 5210 B-2001(2011)		STALARICO
SM 5310 C-2000(2011)		SMORGAN

Sample Name: LCS-1121
Lab Code: R2111994-001.R01
Sample Matrix: Water

Date Collected: 11/11/21
Date Received: 11/12/21

Analysis Method	Extracted/Digested By	Analyzed By
8270D	AMOSSES	JMISIUREWICZ
8270D SIM	AFELSER	AFELSER



INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	



Sample Results

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Volatile Organic Compounds by GC/MS

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ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	130 U	130	5.0	25	11/19/21 20:06	
1,1,1-Trichloroethane (TCA)	130 U	130	5.0	25	11/19/21 20:06	
1,1,2,2-Tetrachloroethane	130 U	130	5.0	25	11/19/21 20:06	
1,1,2-Trichloroethane	130 U	130	5.0	25	11/19/21 20:06	
1,1-Dichloroethane (1,1-DCA)	130 U	130	5.0	25	11/19/21 20:06	
1,1-Dichloroethene (1,1-DCE)	130 U	130	5.0	25	11/19/21 20:06	
1,1-Dichloropropene	130 U	130	5.0	25	11/19/21 20:06	
1,2,3-Trichloropropane	130 U	130	6.5	25	11/19/21 20:06	
1,2-Dibromo-3-chloropropane (DBCP)	130 U	130	12	25	11/19/21 20:06	
1,2-Dibromoethane	130 U	130	5.0	25	11/19/21 20:06	
1,2-Dichloroethane	130 U	130	5.0	25	11/19/21 20:06	
1,2-Dichloropropane	130 U	130	5.0	25	11/19/21 20:06	
1,3-Dichloropropane	130 U	130	5.0	25	11/19/21 20:06	
2,2-Dichloropropane	130 U	130	6.0	25	11/19/21 20:06	
2-Butanone (MEK)	130 J	250	20	25	11/19/21 20:06	
2-Chloro-1,3-butadiene	130 U	130	5.0	25	11/19/21 20:06	
2-Hexanone	250 U	250	5.0	25	11/19/21 20:06	
2-Methyl-1-propanol (Isobutyl Alcohol)	2500 U	2500	830	25	11/19/21 20:06	
3-Chloro-1-propene	130 U	130	9.0	25	11/19/21 20:06	
4-Methyl-2-pentanone	15 J	250	5.0	25	11/19/21 20:06	
Acetone	260	250	130	25	11/19/21 20:06	
Acetonitrile	2500 U	2500	130	25	11/19/21 20:06	
Acrolein	2500 U	2500	23	25	11/19/21 20:06	
Acrylonitrile	2500 U	2500	23	25	11/19/21 20:06	
Benzene	130 U	130	5.0	25	11/19/21 20:06	
Bromochloromethane	130 U	130	5.0	25	11/19/21 20:06	
Bromodichloromethane	130 U	130	5.0	25	11/19/21 20:06	
Bromoform	130 U	130	6.3	25	11/19/21 20:06	
Bromomethane	130 U	130	18	25	11/19/21 20:06	
Carbon Disulfide	44 J	250	11	25	11/19/21 20:06	
Carbon Tetrachloride	130 U	130	8.5	25	11/19/21 20:06	
Chlorobenzene	130 U	130	5.0	25	11/19/21 20:06	
Chloroethane	130 U	130	5.8	25	11/19/21 20:06	
Chloroform	130 U	130	6.0	25	11/19/21 20:06	
Chloromethane	130 U	130	7.0	25	11/19/21 20:06	
Dibromochloromethane	130 U	130	5.0	25	11/19/21 20:06	
Dibromomethane	130 U	130	5.0	25	11/19/21 20:06	
Dichlorodifluoromethane (CFC 12)	130 U	130	5.3	25	11/19/21 20:06	
Dichloromethane	130 U	130	17	25	11/19/21 20:06	
Ethyl Methacrylate	250 U	250	5.0	25	11/19/21 20:06	
Ethylbenzene	130 U	130	5.0	25	11/19/21 20:06	
Iodomethane	250 U	250	110	25	11/19/21 20:06	
Methacrylonitrile	500 U	500	13	25	11/19/21 20:06	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Methyl Methacrylate	250 U	250	6.0	25	11/19/21 20:06	
Propionitrile	2500 U	2500	75	25	11/19/21 20:06	
Styrene	130 U	130	5.0	25	11/19/21 20:06	
Tetrachloroethene (PCE)	130 U	130	5.3	25	11/19/21 20:06	
Toluene	130 U	130	5.0	25	11/19/21 20:06	
Trichloroethene (TCE)	130 U	130	5.0	25	11/19/21 20:06	
Trichlorofluoromethane (CFC 11)	130 U	130	6.0	25	11/19/21 20:06	
Vinyl Acetate	250 U	250	28	25	11/19/21 20:06	
Vinyl Chloride	130 U	130	5.0	25	11/19/21 20:06	
cis-1,2-Dichloroethene	130 U	130	5.8	25	11/19/21 20:06	
cis-1,3-Dichloropropene	130 U	130	5.0	25	11/19/21 20:06	
m,p-Xylenes	5.4 J	130	5.0	25	11/19/21 20:06	
o-Xylene	130 U	130	5.0	25	11/19/21 20:06	
trans-1,2-Dichloroethene	130 U	130	5.0	25	11/19/21 20:06	
trans-1,3-Dichloropropene	130 U	130	5.8	25	11/19/21 20:06	
trans-1,4-Dichloro-2-butene	130 U	130	20	25	11/19/21 20:06	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85 - 122	11/19/21 20:06	
Dibromofluoromethane	105	80 - 116	11/19/21 20:06	
Toluene-d8	107	87 - 121	11/19/21 20:06	



Semivolatile Organic Compounds by GC/MS

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4,5-Tetrachlorobenzene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
1,2,4-Trichlorobenzene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
1,2-Dichlorobenzene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
1,3,5-Trinitrobenzene	10 U	10	4.4	1	11/23/21 19:52	11/17/21	
1,3-Dichlorobenzene	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
1,3-Dinitrobenzene	10 U	10	1.8	1	11/23/21 19:52	11/17/21	
1,4-Dichlorobenzene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
1,4-Naphthoquinone	50 U	50	1.4	1	11/23/21 19:52	11/17/21	
p-Phenylenediamine	50 UX	50	-	1	11/23/21 19:52	11/17/21	
1-Naphthylamine	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
2,3,4,6-Tetrachlorophenol	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
2,4,5-Trichlorophenol	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
2,4,6-Trichlorophenol	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
2,4-Dichlorophenol	10 U	10	1.3	1	11/23/21 19:52	11/17/21	
2,4-Dimethylphenol	3.0 J	10	1.4	1	11/23/21 19:52	11/17/21	
2,4-Dinitrophenol	50 U	50	20	1	11/23/21 19:52	11/17/21	
2,4-Dinitrotoluene	10 U	10	2.4	1	11/23/21 19:52	11/17/21	
2,6-Dichlorophenol	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
2,6-Dinitrotoluene	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
2-Acetylaminofluorene	10 U	10	1.6	1	11/23/21 19:52	11/17/21	
2-Chloronaphthalene	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
2-Chlorophenol	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
5-Nitro-2-methylaniline	10 U	10	1.9	1	11/23/21 19:52	11/17/21	
2-Methylnaphthalene	9.2 J	10	1.3	1	11/23/21 19:52	11/17/21	
2-Methylphenol	2.5 J	10	1.0	1	11/23/21 19:52	11/17/21	
2-Naphthylamine	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
2-Nitroaniline	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
2-Nitrophenol	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
3,3'-Dichlorobenzidine	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
3,3'-Dimethylbenzidine	50 U	50	8.2	1	11/23/21 19:52	11/17/21	
3- and 4-Methylphenol Coelution	53	10	1.2	1	11/23/21 19:52	11/17/21	
3-Methylcholanthrene	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
3-Nitroaniline	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
4,6-Dinitro-2-methylphenol	50 U	50	8.7	1	11/23/21 19:52	11/17/21	
4-Aminobiphenyl	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
4-Bromophenyl Phenyl Ether	10 U	10	1.7	1	11/23/21 19:52	11/17/21	
4-Chloro-3-methylphenol	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
4-Chloroaniline	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
4-Chlorophenyl Phenyl Ether	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
4-Nitroaniline	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
4-Nitrophenol	50 U	50	6.4	1	11/23/21 19:52	11/17/21	
7,12-Dimethylbenz(a)anthracene	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
Acenaphthene	10	10	1.4	1	11/23/21 19:52	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Acenaphthylene	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Acetophenone	3.4 J	10	1.3	1	11/23/21 19:52	11/17/21	
Anthracene	1.6 J	10	1.3	1	11/23/21 19:52	11/17/21	
Benz(a)anthracene	10 U	10	1.6	1	11/23/21 19:52	11/17/21	
Benzo(a)pyrene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
Benzo(b)fluoranthene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
Benzo(g,h,i)perylene	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
Benzo(k)fluoranthene	10 U	10	1.3	1	11/23/21 19:52	11/17/21	
Benzyl Alcohol	1.8 J	10	1.6	1	11/23/21 19:52	11/17/21	
2,2'-Oxybis(1-chloropropane)	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Bis(2-chloroethoxy)methane	10 U	10	1.9	1	11/23/21 19:52	11/17/21	
Bis(2-chloroethyl) Ether	10 U	10	1.3	1	11/23/21 19:52	11/17/21	
Bis(2-ethylhexyl) Phthalate	10 U	10	7.8	1	11/23/21 19:52	11/17/21	
Butyl Benzyl Phthalate	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Chlorobenzilate	10 U	10	1.3	1	11/23/21 19:52	11/17/21	
Chrysene	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
Di-n-butyl Phthalate	10 U	10	1.7	1	11/23/21 19:52	11/17/21	
Di-n-octyl Phthalate	10 U	10	3.3	1	11/23/21 19:52	11/17/21	
Diallate	10 U	10	2.0	1	11/23/21 19:52	11/17/21	
Dibenz(a,h)anthracene	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
Dibenzofuran	5.3 J	10	1.4	1	11/23/21 19:52	11/17/21	
Diethyl Phthalate	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
Dimethoate	10 U	10	1.8	1	11/23/21 19:52	11/17/21	
Dimethyl Phthalate	10 U	10	1.3	1	11/23/21 19:52	11/17/21	
Diphenylamine	10 U	10	2.7	1	11/23/21 19:52	11/17/21	
Disulfoton	10 U	10	3.0	1	11/23/21 19:52	11/17/21	
Ethyl Methanesulfonate	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
Fluoranthene	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
Fluorene	4.0 J	10	1.3	1	11/23/21 19:52	11/17/21	
Hexachlorobenzene	10 U	10	1.6	1	11/23/21 19:52	11/17/21	
Hexachlorobutadiene	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
Hexachlorocyclopentadiene	10 U	10	2.2	1	11/23/21 19:52	11/17/21	
Hexachloroethane	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
Hexachloropropene	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
Indeno(1,2,3-cd)pyrene	10 U	10	1.8	1	11/23/21 19:52	11/17/21	
Isodrin	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
Isophorone	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Isosafrole	10 U	10	1.7	1	11/23/21 19:52	11/17/21	
Methapyrilene	50 U	50	44	1	11/23/21 19:52	11/17/21	
Methyl Methanesulfonate	10 U	10	1.1	1	11/23/21 19:52	11/17/21	
Methyl Parathion	10 U	10	1.7	1	11/23/21 19:52	11/17/21	
N-Nitrosodi-n-butylamine	10 U	10	2.1	1	11/23/21 19:52	11/17/21	
N-Nitrosodi-n-propylamine	10 U	10	1.2	1	11/23/21 19:52	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
N-Nitrosodiethylamine	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
N-Nitrosodimethylamine	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
N-Nitrosodiphenylamine	10 U	10	2.7	1	11/23/21 19:52	11/17/21	
N-Nitrosomethylethylamine	10 U	10	1.2	1	11/23/21 19:52	11/17/21	
N-Nitrosopiperidine	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
N-Nitrosopyrrolidine	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
Naphthalene	28	10	1.2	1	11/23/21 19:52	11/17/21	
Nitrobenzene	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
O,O,O-Triethyl Phosphorothioate	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Parathion	10 U	10	3.5	1	11/23/21 19:52	11/17/21	
Pentachlorobenzene	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Pentachloronitrobenzene (PCNB)	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
Pentachlorophenol (PCP)	50 U	50	9.7	1	11/23/21 19:52	11/17/21	
Phenacetin	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
Phenanthrene	1.7 J	10	1.4	1	11/23/21 19:52	11/17/21	
Phenol	7.7 J	10	1.0	1	11/23/21 19:52	11/17/21	
Phorate	10 U	10	1.4	1	11/23/21 19:52	11/17/21	
Pronamide	10 U	10	1.8	1	11/23/21 19:52	11/17/21	
Pyrene	10 U	10	1.5	1	11/23/21 19:52	11/17/21	
Safrole	10 U	10	1.3	1	11/23/21 19:52	11/17/21	
Thionazin	10 U	10	1.6	1	11/23/21 19:52	11/17/21	
o-Toluidine	10 U	10	1.0	1	11/23/21 19:52	11/17/21	
p-Dimethylaminoazobenzene	10 U	10	1.3	1	11/23/21 19:52	11/17/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	81	35 - 141	11/23/21 19:52	
2-Fluorobiphenyl	48	31 - 118	11/23/21 19:52	
2-Fluorophenol	33	10 - 105	11/23/21 19:52	
Nitrobenzene-d5	52	31 - 110	11/23/21 19:52	
Phenol-d6	29	10 - 107	11/23/21 19:52	
p-Terphenyl-d14	53	10 - 165	11/23/21 19:52	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Famphur	10 U	10	5.4	1	12/01/21 18:57	11/17/21	
Kepone	10 U	10	9.7	1	12/01/21 18:57	11/17/21	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	53	0.80	0.54	1	11/24/21 12:25	11/23/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	65	64 - 124	11/24/21 12:25	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	45	0.20	0.14	1	11/18/21 21:14	11/18/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	55 *	64 - 124	11/18/21 21:14	*



Semivolatile Organic Compounds by GC

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
4,4'-DDD	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
4,4'-DDE	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
4,4'-DDT	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Aldrin	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Dieldrin	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Endosulfan I	0.25	0.050	0.020	1	11/22/21 21:24	11/15/21	
Endosulfan II	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Endosulfan Sulfate	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Endrin	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Endrin Aldehyde	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Heptachlor	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Heptachlor Epoxide	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Methoxychlor	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
Toxaphene	0.50 U	0.50	0.50	1	11/22/21 21:24	11/15/21	
alpha-BHC	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
alpha-Chlordane	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
beta-BHC	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
delta-BHC	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
gamma-BHC (Lindane)	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	
gamma-Chlordane	0.050 U	0.050	0.020	1	11/22/21 21:24	11/15/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	11	10 - 164	11/22/21 21:24	
Tetrachloro-m-xylene	26	10 - 147	11/22/21 21:24	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Polychlorinated Biphenyls (PCBs) by GC

Analysis Method: 8082A
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aroclor 1016	1.0 U	1.0	0.50	1	11/16/21 21:54	11/15/21	
Aroclor 1221	2.0 U	2.0	1.0	1	11/16/21 21:54	11/15/21	
Aroclor 1232	1.0 U	1.0	0.50	1	11/16/21 21:54	11/15/21	
Aroclor 1242	1.0 U	1.0	0.50	1	11/16/21 21:54	11/15/21	
Aroclor 1248	1.0 U	1.0	0.50	1	11/16/21 21:54	11/15/21	
Aroclor 1254	1.0 U	1.0	0.50	1	11/16/21 21:54	11/15/21	
Aroclor 1260	1.0 U	1.0	0.50	1	11/16/21 21:54	11/15/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	19	10 - 152	11/16/21 21:54	
Tetrachloro-m-xylene	32	14 - 129	11/16/21 21:54	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ug/L
Basis: NA

Chlorinated Herbicides by GC

Analysis Method: 8151A
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4,5-T	0.50 U	0.50	0.14	1	11/18/21 18:55	11/17/21	
2,4,5-TP	0.50 U	0.50	0.12	1	11/18/21 18:55	11/17/21	
2,4-D	0.50 U	0.50	0.35	1	11/18/21 18:55	11/17/21	
Dinoseb	0.50 U	0.50	0.21	1	11/18/21 18:55	11/17/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
DCAA	70	10 - 136	11/18/21 18:55	



Metals

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METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Casella Waste Systems (Hampden M Service Request: LCS-1121
Project No.: R2111994 Date Collected: 11/11/2021
Project Name: Date Received: 11/12/2021
Matrix: WATER Units: ug/L
Basis:

Sample Name: LCS-1121 Lab Code: R2111994-001

Analyte	Analysis Method	PQL	MDL	Dil. Factor	Result	C	Q
Aluminum	6010C	100	23.0	1.0	373		
Antimony	6010C	60.0	6.3	1.0	60.0	U	
Arsenic	6010C	10.0	5.5	1.0	84.0		
Barium	6010C	20.0	3.0	1.0	936		
Beryllium	6010C	3.0	0.130	1.0	3.0	U	
Boron	6010C	2000	120	10.0	17700		
Cadmium	6010C	5.0	0.350	1.0	5.0	U	
Mercury	7470A	0.200	0.077	1.0	0.200	U	
Calcium	6010C	10000	2200	10.0	419000		
Chromium	6010C	10.0	1.4	1.0	80.0		
Cobalt	6010C	50.0	0.890	1.0	3.1	J	
Copper	6010C	20.0	3.9	1.0	23.1		
Iron	6010C	100	61.0	1.0	1940		
Lead	6010C	5.0	2.1	1.0	5.0	U	
Magnesium	6010C	1000	29.0	1.0	278000		
Manganese	6010C	10.0	3.7	1.0	5260		
Nickel	6010C	40.0	2.6	1.0	5.8	J	
Potassium	6010C	20000	3800	10.0	187000		
Selenium	6010C	10.0	6.4	1.0	10.0	U	
Silver	6010C	10.0	0.570	1.0	10.0	U	
Sodium	6010C	10000	1300	10.0	1070000		
Thallium	6010C	10.0	6.6	1.0	17.1		
Tin	6010C	500	8.0	1.0	500	U	
Vanadium	6010C	50.0	0.670	1.0	26.7	J	
Zinc	6010C	20.0	2.4	1.0	47.5		

% Solids: 0.0

Comments:



General Chemistry

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water
Sample Name: LCS-1121
Lab Code: R2111994-001

Service Request: R2111994
Date Collected: 11/11/21 10:45
Date Received: 11/12/21 10:00

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2260	mg/L	20	18	10	11/19/21 11:39	NA	
Ammonia as Nitrogen, undistilled	350.1	253	mg/L	50	26	1000	11/19/21 21:43	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	110	mg/L	2.0	-	1	11/12/21 10:41	NA	
Bromide	9056A	7.3	mg/L	1.0	0.4	10	11/12/21 12:38	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	443	mg/L	20	9	20	11/23/21 13:31	NA	
Chemical Oxygen Demand, Total	410.4	1210	mg/L	5.0	3.8	1	11/20/21 13:50	NA	
Chloride	9056A	1830	mg/L	40	9	200	11/15/21 15:13	NA	
Chromium, Hexavalent	7196A	0.20 U	mg/L	0.20	0.05	20	11/12/21 18:06	NA	*
Color, True	SM 2120 B-2001(2011)	600	ColorUnits	50	-	50	11/12/21 14:20	NA	
Cyanide, Total	Kelada-01	0.299	mg/L	0.050	0.040	10	11/18/21 16:31	NA	
Hardness, Total as CaCO3	SM 2340 B-1997(2011)	2190	mg/L	6.62	-	1	NA	NA	
Nitrate as Nitrogen	9056A	1.0 U	mg/L	1.0	0.2	10	11/12/21 12:38	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	216	mg/L	8.0	6.0	40	11/23/21 12:08	11/22/21	
pH of Color Analysis	SM 2120 B-2001(2011)	7.19	pH Units	-	-	50	11/12/21 14:20	NA	
Phenolics, Total Recoverable	9066	0.075	mg/L	0.025	0.015	5	11/15/21 16:09	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	6050	mg/L	83	75	1	11/18/21 14:35	NA	
Sulfate	9056A	646	mg/L	20	4	100	11/12/21 12:52	NA	



QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Extraction Method: EPA 5030C

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		85-122	80-116	87-121
LCS-1121	R2111994-001	97	105	107
Method Blank	RQ2114948-04	96	100	105
Lab Control Sample	RQ2114948-03	98	102	105

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114948-04

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,1,1-Trichloroethane (TCA)	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,1,2,2-Tetrachloroethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,1,2-Trichloroethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,1-Dichloroethane (1,1-DCA)	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,1-Dichloroethene (1,1-DCE)	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,1-Dichloropropene	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,2,3-Trichloropropane	5.0 U	5.0	0.26	1	11/19/21 11:57	
1,2-Dibromo-3-chloropropane (DBCP)	5.0 U	5.0	0.45	1	11/19/21 11:57	
1,2-Dibromoethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,2-Dichloroethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,2-Dichloropropane	5.0 U	5.0	0.20	1	11/19/21 11:57	
1,3-Dichloropropane	5.0 U	5.0	0.20	1	11/19/21 11:57	
2,2-Dichloropropane	5.0 U	5.0	0.24	1	11/19/21 11:57	
2-Butanone (MEK)	10 U	10	0.78	1	11/19/21 11:57	
2-Chloro-1,3-butadiene	5.0 U	5.0	0.20	1	11/19/21 11:57	
2-Hexanone	10 U	10	0.20	1	11/19/21 11:57	
2-Methyl-1-propanol (Isobutyl Alcohol)	100 U	100	33	1	11/19/21 11:57	
3-Chloro-1-propene	5.0 U	5.0	0.36	1	11/19/21 11:57	
4-Methyl-2-pentanone	10 U	10	0.20	1	11/19/21 11:57	
Acetone	10 U	10	5.0	1	11/19/21 11:57	
Acetonitrile	100 U	100	5.2	1	11/19/21 11:57	
Acrolein	100 U	100	0.90	1	11/19/21 11:57	
Acrylonitrile	100 U	100	0.90	1	11/19/21 11:57	
Benzene	5.0 U	5.0	0.20	1	11/19/21 11:57	
Bromochloromethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
Bromodichloromethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
Bromoform	5.0 U	5.0	0.25	1	11/19/21 11:57	
Bromomethane	5.0 U	5.0	0.70	1	11/19/21 11:57	
Carbon Disulfide	10 U	10	0.42	1	11/19/21 11:57	
Carbon Tetrachloride	5.0 U	5.0	0.34	1	11/19/21 11:57	
Chlorobenzene	5.0 U	5.0	0.20	1	11/19/21 11:57	
Chloroethane	5.0 U	5.0	0.23	1	11/19/21 11:57	
Chloroform	5.0 U	5.0	0.24	1	11/19/21 11:57	
Chloromethane	5.0 U	5.0	0.28	1	11/19/21 11:57	
Dibromochloromethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
Dibromomethane	5.0 U	5.0	0.20	1	11/19/21 11:57	
Dichlorodifluoromethane (CFC 12)	5.0 U	5.0	0.21	1	11/19/21 11:57	
Dichloromethane	5.0 U	5.0	0.65	1	11/19/21 11:57	
Ethyl Methacrylate	10 U	10	0.20	1	11/19/21 11:57	
Ethylbenzene	5.0 U	5.0	0.20	1	11/19/21 11:57	
Iodomethane	10 U	10	4.3	1	11/19/21 11:57	
Methacrylonitrile	20 U	20	0.52	1	11/19/21 11:57	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114948-04

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Methyl Methacrylate	10 U	10	0.24	1	11/19/21 11:57	
Propionitrile	100 U	100	3.0	1	11/19/21 11:57	
Styrene	5.0 U	5.0	0.20	1	11/19/21 11:57	
Tetrachloroethene (PCE)	5.0 U	5.0	0.21	1	11/19/21 11:57	
Toluene	5.0 U	5.0	0.20	1	11/19/21 11:57	
Trichloroethene (TCE)	5.0 U	5.0	0.20	1	11/19/21 11:57	
Trichlorofluoromethane (CFC 11)	5.0 U	5.0	0.24	1	11/19/21 11:57	
Vinyl Acetate	10 U	10	1.1	1	11/19/21 11:57	
Vinyl Chloride	5.0 U	5.0	0.20	1	11/19/21 11:57	
cis-1,2-Dichloroethene	5.0 U	5.0	0.23	1	11/19/21 11:57	
cis-1,3-Dichloropropene	5.0 U	5.0	0.20	1	11/19/21 11:57	
m,p-Xylenes	5.0 U	5.0	0.20	1	11/19/21 11:57	
o-Xylene	5.0 U	5.0	0.20	1	11/19/21 11:57	
trans-1,2-Dichloroethene	5.0 U	5.0	0.20	1	11/19/21 11:57	
trans-1,3-Dichloropropene	5.0 U	5.0	0.23	1	11/19/21 11:57	
trans-1,4-Dichloro-2-butene	5.0 U	5.0	0.78	1	11/19/21 11:57	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85 - 122	11/19/21 11:57	
Dibromofluoromethane	100	80 - 116	11/19/21 11:57	
Toluene-d8	105	87 - 121	11/19/21 11:57	

ALS Group USA, Corp.
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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/19/21

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ2114948-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	8260C	21.1	20.0	106	76-129
1,1,1-Trichloroethane (TCA)	8260C	19.2	20.0	96	75-125
1,1,2,2-Tetrachloroethane	8260C	21.5	20.0	107	78-126
1,1,2-Trichloroethane	8260C	20.3	20.0	101	82-121
1,1-Dichloroethane (1,1-DCA)	8260C	20.0	20.0	100	80-124
1,1-Dichloroethene (1,1-DCE)	8260C	20.8	20.0	104	71-118
1,1-Dichloropropene	8260C	21.5	20.0	107	76-118
1,2,3-Trichloropropane	8260C	18.8	20.0	94	75-118
1,2-Dibromo-3-chloropropane (DBCP)	8260C	19.7	20.0	98	55-136
1,2-Dibromoethane	8260C	20.4	20.0	102	82-127
1,2-Dichloroethane	8260C	17.9	20.0	90	71-127
1,2-Dichloropropane	8260C	20.3	20.0	101	80-119
1,3-Dichloropropane	8260C	20.5	20.0	103	83-119
2,2-Dichloropropane	8260C	20.3	20.0	102	61-139
2-Butanone (MEK)	8260C	18.7	20.0	94	61-137
2-Chloro-1,3-butadiene	8260C	21.5	20.0	108	68-139
2-Hexanone	8260C	19.2	20.0	96	63-124
2-Methyl-1-propanol (Isobutyl Alcohol)	8260C	335	400	84	51-143
3-Chloro-1-propene	8260C	20.2	20.0	101	61-143
4-Methyl-2-pentanone	8260C	18.7	20.0	94	66-124
Acetone	8260C	16.1	20.0	80	40-161
Acetonitrile	8260C	97.4 J	100	97	46-154
Acrolein	8260C	32.5 J	40.0	81	13-165
Acrylonitrile	8260C	99.6 J	100	100	71-130
Benzene	8260C	20.8	20.0	104	79-119
Bromochloromethane	8260C	20.6	20.0	103	81-126
Bromodichloromethane	8260C	18.0	20.0	90	81-123
Bromoform	8260C	18.2	20.0	91	65-146
Bromomethane	8260C	20.3	20.0	102	42-166
Carbon Disulfide	8260C	25.5	20.0	127	66-128
Carbon Tetrachloride	8260C	17.7	20.0	89	70-127
Chlorobenzene	8260C	20.9	20.0	105	80-121
Chloroethane	8260C	22.2	20.0	111	62-131

ALS Group USA, Corp.
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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/19/21

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ2114948-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloroform	8260C	19.6	20.0	98	79-120
Chloromethane	8260C	30.7	20.0	153 *	65-135
Dibromochloromethane	8260C	18.5	20.0	92	72-128
Dibromomethane	8260C	20.5	20.0	102	80-118
Dichlorodifluoromethane (CFC 12)	8260C	20.8	20.0	104	59-155
Dichloromethane	8260C	20.2	20.0	101	73-122
Ethyl Methacrylate	8260C	18.7	20.0	93	68-132
Ethylbenzene	8260C	20.4	20.0	102	76-120
Iodomethane	8260C	23.0	20.0	115	18-160
Methacrylonitrile	8260C	20.5	20.0	103	68-123
Methyl Methacrylate	8260C	19.8	20.0	99	68-129
Propionitrile	8260C	93.4 J	100	93	69-126
Styrene	8260C	20.5	20.0	102	80-124
Tetrachloroethene (PCE)	8260C	20.1	20.0	101	72-125
Toluene	8260C	21.2	20.0	106	79-119
Trichloroethene (TCE)	8260C	20.5	20.0	102	74-122
Trichlorofluoromethane (CFC 11)	8260C	18.9	20.0	94	71-136
Vinyl Acetate	8260C	15.9	20.0	79	52-174
Vinyl Chloride	8260C	23.5	20.0	118	74-159
cis-1,2-Dichloroethene	8260C	20.6	20.0	103	80-121
cis-1,3-Dichloropropene	8260C	21.4	20.0	107	77-122
m,p-Xylenes	8260C	43.0	40.0	108	80-126
o-Xylene	8260C	20.6	20.0	103	79-123
trans-1,2-Dichloroethene	8260C	20.6	20.0	103	73-118
trans-1,3-Dichloropropene	8260C	21.3	20.0	107	71-133
trans-1,4-Dichloro-2-butene	8260C	18.9	20.0	95	39-137



Semivolatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3510C

Sample Name	Lab Code	2,4,6-Tribromophenol	2-Fluorobiphenyl	2-Fluorophenol
		35-141	31-118	10-105
LCS-1121	R2111994-001	81	48	33
Lab Control Sample	RQ2114843-02	81	66	41
Lab Control Sample	RQ2114843-02	86	66	39
Duplicate Lab Control Sample	RQ2114843-03	80	64	42
Duplicate Lab Control Sample	RQ2114843-03	80	66	42
Method Blank	RQ2114843-04	79	54	38

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3510C

Sample Name	Lab Code	Nitrobenzene-d5	Phenol-d6	p-Terphenyl-d14
		31-110	10-107	10-165
LCS-1121	R2111994-001	52	29	53
Lab Control Sample	RQ2114843-02	63	33	86
Lab Control Sample	RQ2114843-02	64	31	94
Duplicate Lab Control Sample	RQ2114843-03	64	33	88
Duplicate Lab Control Sample	RQ2114843-03	63	31	94
Method Blank	RQ2114843-04	58	28	94

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114843-04

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4,5-Tetrachlorobenzene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
1,2,4-Trichlorobenzene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
1,2-Dichlorobenzene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
1,3,5-Trinitrobenzene	10 U	10	4.4	1	11/23/21 18:27	11/17/21	
1,3-Dichlorobenzene	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
1,3-Dinitrobenzene	10 U	10	1.8	1	11/23/21 18:27	11/17/21	
1,4-Dichlorobenzene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
1,4-Naphthoquinone	50 U	50	1.4	1	11/23/21 18:27	11/17/21	
p-Phenylenediamine	50 U	50	-	1	11/23/21 18:27	11/17/21	
1-Naphthylamine	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
2,3,4,6-Tetrachlorophenol	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
2,4,5-Trichlorophenol	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
2,4,6-Trichlorophenol	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
2,4-Dichlorophenol	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
2,4-Dimethylphenol	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
2,4-Dinitrophenol	50 U	50	20	1	11/23/21 18:27	11/17/21	
2,4-Dinitrotoluene	10 U	10	2.4	1	11/23/21 18:27	11/17/21	
2,6-Dichlorophenol	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
2,6-Dinitrotoluene	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
2-Acetylaminofluorene	10 U	10	1.6	1	11/23/21 18:27	11/17/21	
2-Chloronaphthalene	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
2-Chlorophenol	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
5-Nitro-2-methylaniline	10 U	10	1.9	1	11/23/21 18:27	11/17/21	
2-Methylnaphthalene	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
2-Methylphenol	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
2-Naphthylamine	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
2-Nitroaniline	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
2-Nitrophenol	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
3,3'-Dichlorobenzidine	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
3,3'-Dimethylbenzidine	50 U	50	8.2	1	11/23/21 18:27	11/17/21	
3- and 4-Methylphenol Coelution	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
3-Methylcholanthrene	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
3-Nitroaniline	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
4,6-Dinitro-2-methylphenol	50 U	50	8.7	1	11/23/21 18:27	11/17/21	
4-Aminobiphenyl	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
4-Bromophenyl Phenyl Ether	10 U	10	1.7	1	11/23/21 18:27	11/17/21	
4-Chloro-3-methylphenol	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
4-Chloroaniline	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
4-Chlorophenyl Phenyl Ether	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
4-Nitroaniline	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
4-Nitrophenol	50 U	50	6.4	1	11/23/21 18:27	11/17/21	
7,12-Dimethylbenz(a)anthracene	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
Acenaphthene	10 U	10	1.4	1	11/23/21 18:27	11/17/21	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114843-04

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Acenaphthylene	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Acetophenone	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Anthracene	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Benz(a)anthracene	10 U	10	1.6	1	11/23/21 18:27	11/17/21	
Benzo(a)pyrene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
Benzo(b)fluoranthene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
Benzo(g,h,i)perylene	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
Benzo(k)fluoranthene	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Benzyl Alcohol	10 U	10	1.6	1	11/23/21 18:27	11/17/21	
2,2'-Oxybis(1-chloropropane)	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Bis(2-chloroethoxy)methane	10 U	10	1.9	1	11/23/21 18:27	11/17/21	
Bis(2-chloroethyl) Ether	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Bis(2-ethylhexyl) Phthalate	10 U	10	7.8	1	11/23/21 18:27	11/17/21	
Butyl Benzyl Phthalate	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Chlorobenzilate	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Chrysene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
Di-n-butyl Phthalate	10 U	10	1.7	1	11/23/21 18:27	11/17/21	
Di-n-octyl Phthalate	10 U	10	3.3	1	11/23/21 18:27	11/17/21	
Diallate	10 U	10	2.0	1	11/23/21 18:27	11/17/21	
Dibenz(a,h)anthracene	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
Dibenzofuran	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Diethyl Phthalate	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
Dimethoate	10 U	10	1.8	1	11/23/21 18:27	11/17/21	
Dimethyl Phthalate	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Diphenylamine	10 U	10	2.7	1	11/23/21 18:27	11/17/21	
Disulfoton	10 U	10	3.0	1	11/23/21 18:27	11/17/21	
Ethyl Methanesulfonate	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
Fluoranthene	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
Fluorene	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Hexachlorobenzene	10 U	10	1.6	1	11/23/21 18:27	11/17/21	
Hexachlorobutadiene	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
Hexachlorocyclopentadiene	10 U	10	2.2	1	11/23/21 18:27	11/17/21	
Hexachloroethane	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
Hexachloropropene	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
Indeno(1,2,3-cd)pyrene	10 U	10	1.8	1	11/23/21 18:27	11/17/21	
Isodrin	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
Isophorone	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Isosafrole	10 U	10	1.7	1	11/23/21 18:27	11/17/21	
Methapyrilene	50 U	50	44	1	11/23/21 18:27	11/17/21	
Methyl Methanesulfonate	10 U	10	1.1	1	11/23/21 18:27	11/17/21	
Methyl Parathion	10 U	10	1.7	1	11/23/21 18:27	11/17/21	
N-Nitrosodi-n-butylamine	10 U	10	2.1	1	11/23/21 18:27	11/17/21	
N-Nitrosodi-n-propylamine	10 U	10	1.2	1	11/23/21 18:27	11/17/21	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114843-04

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
N-Nitrosodiethylamine	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
N-Nitrosodimethylamine	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
N-Nitrosodiphenylamine	10 U	10	2.7	1	11/23/21 18:27	11/17/21	
N-Nitrosomethylethylamine	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
N-Nitrosopiperidine	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
N-Nitrosopyrrolidine	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
Naphthalene	10 U	10	1.2	1	11/23/21 18:27	11/17/21	
Nitrobenzene	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
O,O,O-Triethyl Phosphorothioate	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Parathion	10 U	10	3.5	1	11/23/21 18:27	11/17/21	
Pentachlorobenzene	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Pentachloronitrobenzene (PCNB)	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
Pentachlorophenol (PCP)	50 U	50	9.7	1	11/23/21 18:27	11/17/21	
Phenacetin	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
Phenanthrene	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Phenol	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
Phorate	10 U	10	1.4	1	11/23/21 18:27	11/17/21	
Pronamide	10 U	10	1.8	1	11/23/21 18:27	11/17/21	
Pyrene	10 U	10	1.5	1	11/23/21 18:27	11/17/21	
Safrole	10 U	10	1.3	1	11/23/21 18:27	11/17/21	
Thionazin	10 U	10	1.6	1	11/23/21 18:27	11/17/21	
o-Toluidine	10 U	10	1.0	1	11/23/21 18:27	11/17/21	
p-Dimethylaminoazobenzene	10 U	10	1.3	1	11/23/21 18:27	11/17/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	79	35 - 141	11/23/21 18:27	
2-Fluorobiphenyl	54	31 - 118	11/23/21 18:27	
2-Fluorophenol	38	10 - 105	11/23/21 18:27	
Nitrobenzene-d5	58	31 - 110	11/23/21 18:27	
Phenol-d6	28	10 - 107	11/23/21 18:27	
p-Terphenyl-d14	94	10 - 165	11/23/21 18:27	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114843-04

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Famphur	10 U	10	5.4	1	12/01/21 17:33	11/17/21	
Kepone	10 U	10	9.7	1	12/01/21 17:33	11/17/21	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/23/21

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Analyte Name	Lab Control Sample RQ2114843-02				Duplicate Lab Control Sample RQ2114843-03				RPD	RPD Limit
	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits		
1,2,4,5-Tetrachlorobenzene	8270D	53.6	80.1	67	53.2	80.1	66	15-132	2	30
1,2,4-Trichlorobenzene	8270D	39.9	80.0	50	41.1	80.0	51	10-127	2	30
1,2-Dichlorobenzene	8270D	37.3	80.0	47	35.6	80.0	45	23-130	4	30
1,3-Dichlorobenzene	8270D	36.0	80.0	45	34.5	80.0	43	21-90	5	30
1,3-Dinitrobenzene	8270D	80.2	80.0	100	80.6	80.0	101	55-130	<1	30
1,4-Dichlorobenzene	8270D	34.0	80.0	42	32.8	80.0	41	10-124	2	30
2,3,4,6-Tetrachlorophenol	8270D	76.1	80.0	95	78.9	80.0	99	42-136	4	30
2,4,5-Trichlorophenol	8270D	70.4	80.0	88	71.4	80.0	89	48-134	1	30
2,4,6-Trichlorophenol	8270D	61.2	80.0	76	65.0	80.0	81	44-135	6	30
2,4-Dichlorophenol	8270D	57.2	80.0	71	57.4	80.0	72	48-127	1	30
2,4-Dimethylphenol	8270D	54.6	80.0	68	57.0	80.0	71	35-99	4	30
2,4-Dinitrophenol	8270D	40.3 J	80.0	50	48.3 J	80.0	60	21-154	18	30
2,4-Dinitrotoluene	8270D	68.8	80.0	86	77.9	80.0	97	54-130	12	30
2,6-Dinitrotoluene	8270D	78.7	80.0	98	79.6	80.0	99	51-127	1	30
2-Chloronaphthalene	8270D	51.7	80.0	65	51.8	80.0	65	40-108	<1	30
2-Chlorophenol	8270D	46.3	80.0	58	46.2	80.0	58	42-112	<1	30
2-Methylnaphthalene	8270D	49.3	80.0	62	47.8	80.0	60	34-102	3	30
2-Methylphenol	8270D	52.5	80.0	66	53.3	80.0	67	47-100	2	30
2-Nitroaniline	8270D	73.7	80.0	92	76.4	80.0	96	52-133	4	30
2-Nitrophenol	8270D	53.3	80.0	67	53.6	80.0	67	43-131	<1	30
3,3'-Dichlorobenzidine	8270D	70.5	80.0	88	74.1	80.0	93	57-131	6	30
3- and 4-Methylphenol Coelution	8270D	51.0	80.0	64	52.1	80.0	65	40-92	2	30
3-Nitroaniline	8270D	65.7	80.0	82	69.9	80.0	87	50-125	6	30
4,6-Dinitro-2-methylphenol	8270D	62.2	80.0	78	65.4	80.0	82	36-152	5	30
4-Bromophenyl Phenyl Ether	8270D	74.2	80.0	93	76.0	80.0	95	48-114	2	30
4-Chloro-3-methylphenol	8270D	62.7	80.0	78	63.8	80.0	80	52-113	3	30
4-Chloroaniline	8270D	62.0	80.0	77	63.7	80.0	80	44-109	4	30
4-Chlorophenyl Phenyl Ether	8270D	70.9	80.0	89	70.6	80.0	88	51-107	1	30
4-Nitroaniline	8270D	68.4	80.0	86	75.5	80.0	94	54-133	9	30
4-Nitrophenol	8270D	36.8 J	80.0	46	42.0 J	80.0	53	10-126	14	30
Acenaphthene	8270D	60.3	80.0	75	61.0	80.0	76	52-107	1	30
Acenaphthylene	8270D	66.1	80.0	83	68.6	80.0	86	55-109	4	30
Acetophenone	8270D	112	160	70	116	160	72	46-114	3	30

ALS Group USA, Corp.
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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/23/21

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Analyte Name	Lab Control Sample				Duplicate Lab Control Sample				RPD	RPD Limit
	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits		
Anthracene	8270D	74.4	80.0	93	75.4	80.0	94	55-116	1	30
Benz(a)anthracene	8270D	70.6	80.0	88	75.2	80.0	94	61-121	7	30
Benzo(a)pyrene	8270D	86.0	80.0	107	92.3	80.0	115	68-144	7	30
Benzo(b)fluoranthene	8270D	72.6	80.0	91	76.8	80.0	96	62-115	5	30
Benzo(g,h,i)perylene	8270D	72.2	80.0	90	76.4	80.0	96	63-136	6	30
Benzo(k)fluoranthene	8270D	76.8	80.0	96	79.6	80.0	99	49-133	3	30
Benzyl Alcohol	8270D	63.4	80.0	79	61.9	80.0	77	31-109	3	30
2,2'-Oxybis(1-chloropropane)	8270D	54.4	80.0	68	55.3	80.0	69	32-122	1	30
Bis(2-chloroethoxy)methane	8270D	78.5	80.0	98	79.1	80.0	99	53-124	1	30
Bis(2-chloroethyl) Ether	8270D	54.0	80.0	67	54.6	80.0	68	46-102	1	30
Bis(2-ethylhexyl) Phthalate	8270D	79.4	80.0	99	84.7	80.0	106	51-132	7	30
Butyl Benzyl Phthalate	8270D	77.0	80.0	96	81.4	80.0	102	41-148	6	30
Chrysene	8270D	72.9	80.0	91	77.3	80.0	97	57-118	6	30
Di-n-butyl Phthalate	8270D	92.8	80.0	116	96.4	80.0	121	75-144	4	30
Di-n-octyl Phthalate	8270D	80.3	80.0	100	84.2	80.0	105	33-151	5	30
Dibenz(a,h)anthracene	8270D	78.3	80.0	98	80.6	80.0	101	54-135	3	30
Dibenzofuran	8270D	64.0	80.0	80	65.5	80.0	82	55-110	2	30
Diethyl Phthalate	8270D	71.4	80.0	89	75.4	80.0	94	55-120	5	30
Dimethyl Phthalate	8270D	76.8	80.0	96	79.4	80.0	99	51-112	3	30
Fluoranthene	8270D	79.8	80.0	100	83.5	80.0	104	66-127	4	30
Fluorene	8270D	67.0	80.0	84	69.2	80.0	87	54-106	4	30
Hexachlorobenzene	8270D	79.8	80.0	100	80.1	80.0	100	53-123	<1	30
Hexachlorobutadiene	8270D	41.0	80.0	51	42.0	80.0	53	16-95	4	30
Hexachlorocyclopentadiene	8270D	26.5	80.0	33	27.6	80.0	35	10-99	6	30
Hexachloroethane	8270D	32.5	80.0	41	34.1	80.0	43	15-92	5	30
Indeno(1,2,3-cd)pyrene	8270D	65.2	80.0	81	74.7	80.0	93	62-137	14	30
Isophorone	8270D	65.9	80.0	82	65.5	80.0	82	50-116	<1	30
N-Nitrosodi-n-propylamine	8270D	60.1	80.0	75	62.1	80.0	78	49-115	4	30
N-Nitrosodimethylamine	8270D	35.9	80.0	45	34.8	80.0	44	31-70	2	30
N-Nitrosodiphenylamine	8270D	83.2	80.0	104	83.7	80.0	105	45-123	<1	30
Naphthalene	8270D	44.9	80.0	56	44.4	80.0	56	38-99	<1	30
Nitrobenzene	8270D	53.5	80.0	67	53.4	80.0	67	46-108	<1	30
Pentachlorophenol (PCP)	8270D	74.6	80.0	93	69.9	80.0	87	29-164	7	30

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/23/21

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Analyte Name	Lab Control Sample RQ2114843-02				Duplicate Lab Control Sample RQ2114843-03				RPD	RPD Limit
	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits		
Phenanthrene	8270D	73.1	80.0	91	75.0	80.0	94	58-118	3	30
Phenol	8270D	28.2	80.0	35	30.3	80.0	38	10-113	8	30
Pyrene	8270D	75.1	80.0	94	80.9	80.0	101	61-122	7	30

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Extraction Method: EPA 3535A

Sample Name	Lab Code	1,4-Dioxane-d8
		64-124
LCS-1121	R2111994-001	55*
LCS-1121 RE	R2111994-001	65
Method Blank	RQ2114881-01	82
Method Blank	RQ2115137-01	75
Lab Control Sample	RQ2114881-02	80
Duplicate Lab Control Sample	RQ2114881-03	89
Lab Control Sample	RQ2115137-02	83
Duplicate Lab Control Sample	RQ2115137-03	74

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114881-01

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	0.040 U	0.040	0.027	1	11/18/21 20:06	11/18/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	82	64 - 124	11/18/21 20:06	

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2115137-01

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	0.040 U	0.040	0.027	1	11/24/21 11:32	11/23/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	75	64 - 124	11/24/21 11:32	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/18/21

Duplicate Lab Control Sample Summary
1,4-Dioxane by GC/MS

Units:ug/L
Basis:NA

Analyte Name	Analytical Method	Result	Lab Control Sample		Duplicate Lab Control Sample		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	8270D SIM	7.93	10.0	79	8.99	10.0	90	58-124	12	30

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/24/21

Duplicate Lab Control Sample Summary
1,4-Dioxane by GC/MS

Units:ug/L
Basis:NA

Analyte Name	Analytical Method	Result	Lab Control Sample		Duplicate Lab Control Sample		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	8270D SIM	7.88	10.0	79	7.13	10.0	71	58-124	10	30



Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Extraction Method: EPA 3510C

Sample Name	Lab Code	Decachlorobiphenyl	Tetrachloro-m-xylene
		10-164	10-147
LCS-1121	R2111994-001	11	26
Method Blank	RQ2114622-01	51	41
Method Blank	RQ2114622-01	40	46
Lab Control Sample	RQ2114622-02	66	39
Lab Control Sample	RQ2114622-02	52	42
Duplicate Lab Control Sample	RQ2114622-03	64	38
Duplicate Lab Control Sample	RQ2114622-03	51	38

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114622-01

Units: ug/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
4,4'-DDD	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
4,4'-DDE	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
4,4'-DDT	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Aldrin	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Dieldrin	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Endosulfan I	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Endosulfan II	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Endosulfan Sulfate	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Endrin	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Endrin Aldehyde	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Heptachlor	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Heptachlor Epoxide	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Methoxychlor	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
Toxaphene	0.50 U	0.50	0.50	1	11/16/21 23:58	11/15/21	
alpha-BHC	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
alpha-Chlordane	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
beta-BHC	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
delta-BHC	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
gamma-BHC (Lindane)	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	
gamma-Chlordane	0.050 U	0.050	0.020	1	11/16/21 23:58	11/15/21	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114622-01

Units: ug/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	51	10 - 164	11/16/21 23:58	
Tetrachloro-m-xylene	41	10 - 147	11/16/21 23:58	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114622-01

Units: ug/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
4,4'-DDD	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
4,4'-DDE	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
4,4'-DDT	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Aldrin	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Dieldrin	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Endosulfan I	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Endosulfan II	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Endosulfan Sulfate	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Endrin	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Endrin Aldehyde	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Heptachlor	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Heptachlor Epoxide	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Methoxychlor	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
Toxaphene	0.50 U	0.50	0.50	1	11/22/21 20:24	11/15/21	
alpha-BHC	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
alpha-Chlordane	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
beta-BHC	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
delta-BHC	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
gamma-BHC (Lindane)	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	
gamma-Chlordane	0.050 U	0.050	0.020	1	11/22/21 20:24	11/15/21	

ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114622-01

Units: ug/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analysis Method: 8081B
Prep Method: EPA 3510C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	40	10 - 164	11/22/21 20:24	
Tetrachloro-m-xylene	46	10 - 147	11/22/21 20:24	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/17/21

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by Gas Chromatography

Units:ug/L
Basis:NA

Analyte Name	Lab Control Sample RQ2114622-02				Duplicate Lab Control Sample RQ2114622-03				RPD	RPD Limit
	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits		
4,4'-DDD	8081B	0.0618	0.400	15 *	0.276	0.400	69	42-159	127*	30
4,4'-DDE	8081B	0.0538	0.400	13 *	0.258	0.400	64	47-147	131*	30
4,4'-DDT	8081B	0.0672	0.400	17 *	0.294	0.400	73	41-149	126*	30
Aldrin	8081B	0.0354 J	0.400	9 *	0.194	0.400	48	22-137	138*	30
Dieldrin	8081B	0.0588	0.400	15 *	0.273	0.400	68	52-144	129*	30
Endosulfan I	8081B	0.0608	0.400	15 *	0.268	0.400	67	52-136	126*	30
Endosulfan II	8081B	0.0640	0.400	16 *	0.284	0.400	71	57-138	126*	30
Endosulfan Sulfate	8081B	0.0660	0.400	16 *	0.292	0.400	73	34-156	126*	30
Endrin	8081B	0.0625	0.400	16 *	0.286	0.400	72	56-143	128*	30
Endrin Aldehyde	8081B	0.0669	0.400	17	0.276	0.400	69	10-166	122*	30
Heptachlor	8081B	0.0391 J	0.400	10 *	0.195	0.400	49	32-141	133*	30
Heptachlor Epoxide	8081B	0.0592	0.400	15 *	0.263	0.400	66	51-143	127*	30
Methoxychlor	8081B	0.0761	0.400	19 *	0.310	0.400	78	56-149	121*	30
alpha-BHC	8081B	0.0473 J	0.400	12 *	0.203	0.400	51	36-151	124*	30
alpha-Chlordane	8081B	0.0582	0.400	15 *	0.258	0.400	65	50-139	126*	30
beta-BHC	8081B	0.0599	0.400	15 *	0.257	0.400	64	55-149	124*	30
delta-BHC	8081B	0.0526	0.400	13 *	0.250	0.400	62	29-159	130*	30
gamma-BHC (Lindane)	8081B	0.0456 J	0.400	11 *	0.219	0.400	55	41-149	131*	30
gamma-Chlordane	8081B	0.0557	0.400	14 *	0.252	0.400	63	50-140	128*	30

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY
Polychlorinated Biphenyls (PCBs) by GC

Analysis Method: 8082A
Extraction Method: EPA 3510C

Sample Name	Lab Code	Decachlorobiphenyl	Tetrachloro-m-xylene
		10-152	14-129
LCS-1121	R2111994-001	19	32
Method Blank	RQ2114622-01	53	48
Lab Control Sample	RQ2114622-02	65	55
Duplicate Lab Control Sample	RQ2114622-03	57	64

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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114622-01

Units: ug/L
Basis: NA

Polychlorinated Biphenyls (PCBs) by GC

Analysis Method: 8082A
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aroclor 1016	1.0 U	1.0	0.50	1	11/16/21 20:36	11/15/21	
Aroclor 1221	2.0 U	2.0	1.0	1	11/16/21 20:36	11/15/21	
Aroclor 1232	1.0 U	1.0	0.50	1	11/16/21 20:36	11/15/21	
Aroclor 1242	1.0 U	1.0	0.50	1	11/16/21 20:36	11/15/21	
Aroclor 1248	1.0 U	1.0	0.50	1	11/16/21 20:36	11/15/21	
Aroclor 1254	1.0 U	1.0	0.50	1	11/16/21 20:36	11/15/21	
Aroclor 1260	1.0 U	1.0	0.50	1	11/16/21 20:36	11/15/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	53	10 - 152	11/16/21 20:36	
Tetrachloro-m-xylene	48	14 - 129	11/16/21 20:36	

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dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/16/21

Duplicate Lab Control Sample Summary
Polychlorinated Biphenyls (PCBs) by GC

Units:ug/L
Basis:NA

Analyte Name	Lab Control Sample				Duplicate Lab Control Sample					
	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Aroclor 1016	8082A	2.58	4.00	64	2.76	4.00	69	49-123	7	30
Aroclor 1260	8082A	3.13	4.00	78	3.04	4.00	76	30-120	3	30

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994

SURROGATE RECOVERY SUMMARY
Chlorinated Herbicides by GC

Analysis Method: 8151A
Extraction Method: Method

Sample Name	Lab Code	DCAA 10-136
LCS-1121	R2111994-001	70
Method Blank	RQ2114774-01	42
Lab Control Sample	RQ2114774-02	43
Duplicate Lab Control Sample	RQ2114774-03	58

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2114774-01

Units: ug/L
Basis: NA

Chlorinated Herbicides by GC

Analysis Method: 8151A
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4,5-T	0.50 U	0.50	0.14	1	11/18/21 17:55	11/17/21	
2,4,5-TP	0.50 U	0.50	0.12	1	11/18/21 17:55	11/17/21	
2,4-D	0.50 U	0.50	0.35	1	11/18/21 17:55	11/17/21	
Dinoseb	0.50 U	0.50	0.21	1	11/18/21 17:55	11/17/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
DCAA	42	10 - 136	11/18/21 17:55	

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/18/21

Duplicate Lab Control Sample Summary
Chlorinated Herbicides by GC

Units:ug/L
Basis:NA

Lab Control Sample
RQ2114774-02

Duplicate Lab Control Sample
RQ2114774-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
2,4,5-T	8151A	0.945	2.00	47	1.30	2.00	65	21-125	31*	30
2,4,5-TP	8151A	0.712	2.00	36	1.05	2.00	52	21-120	38*	30
2,4-D	8151A	0.970	2.00	48	1.34	2.00	67	26-154	32*	30
Dinoseb	8151A	0.268 J	2.00	13	0.423 J	2.00	21	13-112	45*	30



Metals

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METALS

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BLANKS

Contract: R2111994

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: LCS-1121

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L, ppt, or mg/kg): UG/L

Analyte	Initial Calib. Blank ug/L	Continuing Calibration Blank ug/L						Preparation Blank		M
		1	C	2	C	3	C	C		
Aluminum	23.00 U	23.00	U	23.00	U	23.00	U	23.00	U	P
Antimony	6.30 U	6.30	U	6.30	U	6.30	U	6.300	U	P
Arsenic	5.50 U	5.50	U	5.50	U	5.50	U	5.500	U	P
Barium	3.00 U	3.00	U	3.00	U	3.00	U	3.000	U	P
Beryllium	0.13 U	0.13	U	0.13	U	0.13	U	0.130	U	P
Boron	12.00 U	12.00	U	12.00	U	12.00	U	12.000	U	P
Cadmium	0.35 U	0.35	U	0.35	U	0.35	U	0.350	U	P
Mercury	0.077 U	0.077	U	0.077	U	0.077	U	0.077	U	CV
Calcium	220.00 U	220.00	U	220.00	U	220.00	U	220.000	U	P
Chromium	1.40 U	1.40	U	1.40	U	1.40	U	1.400	U	P
Cobalt	0.89 U	0.89	U	0.89	U	0.89	U	0.890	U	P
Copper	3.90 U	3.90	U	3.90	U	3.90	U	3.900	U	P
Iron	61.00 U	61.00	U	61.00	U	61.00	U	61.000	U	P
Lead	2.10 U	2.10	U	2.10	U	2.10	U	2.100	U	P
Magnesium	29.00 U	29.00	U	29.00	U	29.00	U	29.000	U	P
Manganese	3.70 U	3.70	U	3.70	U	3.70	U	3.700	U	P
Nickel	2.60 U	2.60	U	2.60	U	2.60	U	2.600	U	P
Potassium	380.00 U	380.00	U	380.00	U	380.00	U	380.000	U	P
Selenium	6.40 U	6.40	U	6.40	U	6.40	U	6.400	U	P
Silver	0.57 U	0.57	U	0.57	U	0.57	U	0.570	U	P
Sodium	130.00 U	130.00	U	130.00	U	130.00	U	130.000	U	P
Thallium	6.60 U	6.60	U	6.60	U	6.60	U	6.600	U	P
Tin	8.00 U	8.00	U	8.00	U	8.00	U	8.000	U	P
Vanadium	0.67 U	0.67	U	0.67	U	0.67	U	0.670	U	P
Zinc	2.40 U	2.40	U	2.40	U	2.40	U	2.400	U	P

Comments:

METALS

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BLANKS

Contract: R2111994

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: LCS-1121

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L, ppt, or mg/kg): UG/L

Analyte	Initial Calib. Blank ug/L	Continuing Calibration Blank ug/L						Preparation Blank	C	M
		1	C	2	C	3	C			
Aluminum		23.00	U	23.00	U					P
Antimony		6.30	U	6.30	U					P
Arsenic		5.50	U	5.50	U					P
Barium		3.00	U	3.00	U					P
Beryllium		0.13	U	0.13	U					P
Boron		12.00	U							P
Cadmium		0.35	U	0.35	U					P
Mercury		0.077	U	0.077	U					CV
Calcium		220.00	U							P
Chromium		1.40	U	1.40	U					P
Cobalt		0.89	U	0.89	U					P
Copper		3.90	U	3.90	U					P
Iron		61.00	U	61.00	U					P
Lead		2.10	U	2.10	U					P
Magnesium		29.00	U	29.00	U					P
Manganese		3.70	U	3.70	U					P
Nickel		2.60	U	2.60	U					P
Potassium		380.00	U							P
Selenium		6.40	U	6.40	U					P
Silver		0.57	U	0.57	U					P
Sodium		130.00	U							P
Thallium		6.60	U							P
Tin		8.00	U	8.00	U					P
Vanadium		0.67	U	0.67	U					P
Zinc		2.40	U	2.40	U					P

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R2111994

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: LCS-1121

Solid LCS Source: _____

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L)			Solid (mg/K)				
	True	Found	%R	True	Found	C	Limits	%R
Aluminum	2000	2010	100					
Antimony	500	486	97					
Arsenic	40	44	110					
Barium	2000	2080	104					
Beryllium	50	51	102					
Boron	1000	1000	100					
Cadmium	50	52	104					
Mercury	1.000	1.110	111					
Calcium	2000	2050	102					
Chromium	200	207	104					
Cobalt	500	524	105					
Copper	250	248	99					
Iron	1000	1020	102					
Lead	500	510	102					
Magnesium	2000	1960	98					
Manganese	500	506	101					
Nickel	500	519	104					
Potassium	20000	19400	97					
Selenium	1010	1010	100					
Silver	50	49	98					
Sodium	20000	20000	100					
Thallium	2000	1880	94					
Tin	5000	5000	100					
Vanadium	500	504	101					
Zinc	500	513	103					

Comments: _____



General Chemistry

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ALS Group USA, Corp.
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Analytical Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R2111994-MB

Service Request: R2111994
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0 U	mg/L	2.0	1.8	1	11/19/21 10:08	NA	
Ammonia as Nitrogen, undistilled	350.1	0.050 U	mg/L	0.050	0.026	1	11/19/21 21:11	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	-	1	11/12/21 17:36	NA	
Bromide	9056A	0.10 U	mg/L	0.10	0.04	1	11/12/21 12:24	NA	
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	1.0 U	mg/L	1.0	0.5	1	11/23/21 12:22	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	3.8	1	11/20/21 13:50	NA	
Chloride	9056A	0.20 U	mg/L	0.20	0.05	1	11/15/21 13:08	NA	
Chromium, Hexavalent	7196A	0.010 U	mg/L	0.010	0.003	1	11/12/21 18:03	NA	
Color, True	SM 2120 B-2001(2011)	1.0	ColorUnits	1.0	-	1	11/12/21 14:20	NA	
Cyanide, Total	Kelada-01	0.0050 U	mg/L	0.0050	0.0040	1	11/18/21 16:11	NA	
Nitrate as Nitrogen	9056A	0.10 U	mg/L	0.10	0.02	1	11/12/21 12:24	NA	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	0.15	1	11/23/21 11:36	11/22/21	
Phenolics, Total Recoverable	9066	0.0050 U	mg/L	0.0050	0.0029	1	11/15/21 14:01	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	9	1	11/18/21 14:35	NA	
Sulfate	9056A	0.20 U	mg/L	0.20	0.04	1	11/12/21 12:24	NA	

ALS Group USA, Corp.

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QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: ColorUnits
Basis: NA

Table with 8 columns: Analyte Name, Analysis Method, MRL, Sample Result, Duplicate Sample R2111994-001DUP Result, Average, RPD, RPD Limit. Row 1: Color, True, SM 2120 B-2001(2011), 50, 600, 600, 600, <1, 5.

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Collected: 11/11/21
Date Received: 11/12/21
Date Analyzed: 11/12/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LCS-1121
Lab Code: R2111994-001

Units: pH Units
Basis: NA

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>MRL</u>	<u>Sample Result</u>	<u>Duplicate Sample R2111994-001DUP Result</u>	<u>Average</u>	<u>RPD</u>	<u>RPD Limit</u>
pH of Color Analysis	SM 2120 B-2001(2011)	-	7.19	7.19	7.19	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D - Park 363 Expanded Leachate
Sample Matrix: Water

Service Request: R2111994
Date Analyzed: 11/12/21 - 11/23/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2111994-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	21.0	20.0	105	80-120
Ammonia as Nitrogen, undistilled	350.1	0.248	0.250	99	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	200	198	101	85-115
Bromide	9056A	0.967	1.00	97	80-120
Carbon, Total Organic (TOC)	SM 5310 C-2000(2011)	9.71	10.0	97	80-121
Chemical Oxygen Demand, Total	410.4	501	500	100	90-110
Chloride	9056A	1.91	2.00	96	80-120
Chromium, Hexavalent	7196A	0.109	0.100	109	80-120
Cyanide, Total	Kelada-01	0.0958	0.100	96	90-110
Nitrate as Nitrogen	9056A	0.948	1.00	95	80-120
Nitrogen, Total Kjeldahl (TKN)	351.2	2.39	2.50	96	90-110
Phenolics, Total Recoverable	9066	0.0389	0.0400	97	85-115
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	894	914	98	90-110
Sulfate	9056A	1.94	2.00	97	80-120



Subcontracted Analytical Parameters

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Friday, December 31, 2021

Janice Jaeger
ALS Environmental
1565 Jefferson Rd., Bldg 300
Rochester, NY 14623

Re: ALS Workorder: 2111444
Project Name:
Project Number: R2111994

Dear Ms. Jaeger:

Two water samples were received from ALS Environmental, on 11/17/2021. The samples were scheduled for the following analyses:

Radium-226
Radium-228
Total Uranium

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Janice Winn-Shilling
Project Manager

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Arizona	AZ0828
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
Oklahoma	1301
PJLA (DoD ELAP/ISO 170250)	95377
PJLA (DOE-AP/ISO 17025)	95377
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280
Virginia	460305

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2111444

Client Name: ALS Environmental

Client Project Name:

Client Project Number: R2111994

Client PO Number: 58R2111994

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LCS-1121	2111444-1		WATER	11-Nov-21	10:45
LCS-Diss-1121	2111444-2		WATER	11-Nov-21	10:45

ALS Environmental Chain of Custody

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ALS Contact: Janice Jaeger

Project Number: R2111994
 Project Manager: Janice Jaeger
 QAP: LAB QAP

2111444



Lab Code	Sample ID	# of Cont.	Matrix	Sample		Lab ID	Nat U 908.0	Radium 226 903.1	Radium 228 904.0
				Date	Time				
R2111994-001	LCS-1121	3	Water	11/11/21	1045	Fort Collins ALS	X	X	X
R2111994-002	LCS Diss-1121	3	Water	11/11/21	1045	Fort Collins ALS	X	X	X

dissolved needs in lab filter

<p>Special Instructions/Comments</p> <p style="font-size: 2em;"><i>standard edd</i></p> <p>NPDES</p> <p>H - Test is On Hold P - Test is Authorized for Prep Only</p>	<p>Turnaround Requirements</p> <p><input type="checkbox"/> RUSH (Surcharges Apply)</p> <p>PLEASE CIRCLE WORK DAYS</p> <p style="text-align: center;">1 2 3 4 5</p> <p><input checked="" type="checkbox"/> STANDARD</p> <p>Requested FAX Date: _____</p> <p>Requested Report Date: <u>11/28/21</u></p>	<p>Report Requirements</p> <p><input type="checkbox"/> I. Results Only</p> <p><input checked="" type="checkbox"/> II. Results + QC Summaries</p> <p><input type="checkbox"/> III. Results + QC and Calibration Summaries</p> <p><input checked="" type="checkbox"/> IV. Data Validation Report with Raw Data</p> <p>PQL/MDL/J <u>Y</u></p> <p>EDD <u>Y</u></p>	<p>Invoice Information</p> <hr/> <p>PO# 58R2111994</p> <hr/> <p>Bill to</p>
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Relinquished By: *Angela L 11/18/21 1510*

Received By: *[Signature] 11/16/21 1547*

Airbill Number: 9889-5097-4947

R2111994

2111444

K **Ship To: Fort Collins ALS**
ALS Laboratory Group
225 Commerce Drive
Fort Collins, CO 80524

Instructions:

Ice _____
Dry Ice _____
No Ice _____

Shipping:

Overnight _____
2nd Day _____
Ground _____

PC *SMG* Date 11/15/21
SMO _____ Date _____

Bill to Client Account _____

Comments:

ALS Group USA, Corp.
www.alsglobal.com
An ALS Limited Company



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS KELSO

Workorder No: 2111444

Project Manager: JWS

Initials: AXK

Date: 11/17/2021

		N/A	YES	NO	
1.	Are airbills / shipping documents present and/or removable? Tracking number: _____		X		
2.	Are custody seals on shipping containers intact?		X		
3.	Are custody seals on sample containers intact?	X			
4.	Is there a COC (chain-of-custody) present?		X		
5.	Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X		
6.	Are short-hold samples present?			X	
7.	Are all samples within holding times for the requested analyses?		X		
8.	Were all sample containers received intact? (not broken or leaking)		X		
9.	Is there sufficient sample for the requested analyses?		X		
10.	Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X		
11.	Are all aqueous samples preserved correctly, if required? (excluding volatiles)			X	
12.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X			
13.	Were the samples shipped on ice?			X	
14.	Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*:	#5	RAD ONLY	X
Cooler #: <u>1</u> Temperature (°C): <u>AMB</u> # of custody seals on cooler: <u>1</u> External µR/hr reading: <u>11</u> Background µR/hr reading: <u>8</u> Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES (If no, see Form 008.)					

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Sample 1 bottles 1-3 had initial pH of 7 added 1.0ml HNO3 lot 267725 to achieve pH <2.

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: AK

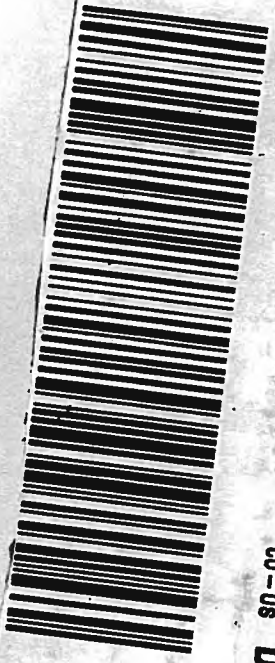
If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date:  11/22/21



2111444

Part # 158148-434 MTW EXP 08/22



U1 FTGA

PK# 9889 5097 4947
201

TUE - 16 NOV 4:30P
STANDARD OVERNIGHT

80524
CO - US DEN



PO: RADIOLOGICAL SAMPLES
(970) 480-1611
FORT COLLINS CO 80524

AMB

SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

11-1

ORIGIN ID: ONH (585) 872-7484
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
RICHMOND NY 14823
UNITED STATES US

SHIP DATE: 15NOV21
ACTWT: 16.65 LB
CND: 0288737/CHFE3507
BILL THIRD PARTY



2211020121101

To Activate
Fold Up & Pull

570C2/PATE/540

Client: ALS Environmental
Project: R2111994
Sample ID: LCS-1121
Legal Location:
Collection Date: 11/11/2021 10:45

Date: 31-Dec-21
Work Order: 2111444
Lab ID: 2111444-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1						
Ra-226	0.37 (+/- 0.23)		SOP 783		Prep Date: 12/16/2021	PrepBy: EJE
<i>Carr: BARIUM</i>	90.1		0.23	pCi/l	NA	12/28/2021 10:56
			40-110	%REC	DL = NA	12/28/2021 10:56
Radium-228 Analysis by GFPC						
Ra-228	1.58 (+/- 0.58)		SOP 724		Prep Date: 12/27/2021	PrepBy: MMS
<i>Carr: BARIUM</i>	95.8		0.84	pCi/l	NA	12/30/2021 12:07
			40-110	%REC	DL = NA	12/30/2021 12:07
Total Uranium by Alpha Spectroscopy						
<i>Tracer: U-232</i>	80.5		SOP 714		Prep Date: 11/28/2021	PrepBy: ZAL
U-234	0.29 (+/- 0.12)		30-110	%REC	DL = NA	12/12/2021 08:58
U-235	-0.004 (+/- 0.041)	U	0.07	pCi/l	NA	12/12/2021 08:58
U-238	0.23 (+/- 0.1)		0.061	pCi/l	NA	12/12/2021 08:58
URANIUM, TOTAL	0.51 (+/- 0.16)		0.08	pCi/l	NA	12/12/2021 08:58
			0.1	pCi/l	NA	12/12/2021 08:58

Client: ALS Environmental
Project: R2111994
Sample ID: LCS-Diss-1121
Legal Location:
Collection Date: 11/11/2021 10:45

Date: 31-Dec-21
Work Order: 2111444
Lab ID: 2111444-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dissolved Radium-226 by Radon Emanation - Method 903. SOP 783						
Ra-226	0.65 (+/- 0.39)		0.46	pCi/l	NA	12/28/2021 10:56
Carr: BARIUM	68		40-110	%REC	DL = NA	12/28/2021 10:56
Dissolved Radium-228 Analysis by GFPC SOP 724						
Ra-228	2.08 (+/- 0.68)		0.86	pCi/l	NA	12/30/2021 12:07
Carr: BARIUM	92.7		40-110	%REC	DL = NA	12/30/2021 12:07
Dissolved Total Uranium by Alpha Spectroscopy SOP 714						
Tracer: U-232	74.4		30-110	%REC	DL = NA	12/12/2021 08:58
U-234	0.49 (+/- 0.16)		0.07	pCi/l	NA	12/12/2021 08:58
U-235	0.011 (+/- 0.043)	U	0.089	pCi/l	NA	12/12/2021 08:58
U-238	0.27 (+/- 0.12)		0.07	pCi/l	NA	12/12/2021 08:58
URANIUM, TOTAL	0.78 (+/- 0.2)		0.1	pCi/l	NA	12/12/2021 08:58

Client: ALS Environmental
Project: R2111994
Sample ID: LCS-Diss-1121
Legal Location:
Collection Date: 11/11/2021 10:45

Date: 31-Dec-21
Work Order: 2111444
Lab ID: 2111444-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC
- U or ND - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
- G - Sample density differs by more than 15% of LCS density.
- D - DER is greater than Control Limit
- M - Requested MDC not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits
- NC - Not Calculated for duplicate results less than 5 times MDC
- B - Analyte concentration greater than MDC.
- B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

- B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
- U or ND - Indicates that the compound was analyzed for but not detected.
- E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
- M - Duplicate injection precision was not met.
- N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
- Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
- * - Duplicate analysis (relative percent difference) not within control limits.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS -- Fort Collins

Date: 12/31/2021 1:31

Client: ALS Environmental

QC BATCH REPORT

Work Order: 2111444

Project: R2111994

Batch ID: RE211216-1-1

Instrument ID Alpha Scin

Method: Radium-226 by Radon Emanation

LCS		Sample ID: RE211216-1			Units: pCi/l			Analysis Date: 12/28/2021 12:42				
Client ID:		Run ID: RE211216-1A			Prep Date: 12/16/2021			DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual	
Ra-226	45 (+/- 11)	0	46.42		96.2	67-120					P	
Carr: BARIUM	14690		15230		96.5	40-110						

LCSD		Sample ID: RE211216-1			Units: pCi/l			Analysis Date: 12/28/2021 12:42				
Client ID:		Run ID: RE211216-1A			Prep Date: 12/16/2021			DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual	
Ra-226	44 (+/- 11)	0	46.42		94.4	67-120		45	0.05	2.1	P	
Carr: BARIUM	14620		15230		96	40-110		14690				

MB		Sample ID: RE211216-1			Units: pCi/l			Analysis Date: 12/28/2021 11:21				
Client ID:		Run ID: RE211216-1A			Prep Date: 12/16/2021			DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual	
Ra-226	0.06 (+/- 0.11)	0.2									U	
Carr: BARIUM	14220		15230		93.4	40-110						

The following samples were analyzed in this batch:

2111444-1	2111444-2
-----------	-----------

Client: ALS Environmental
 Work Order: 2111444
 Project: R2111994

QC BATCH REPORT

Batch ID: **AS211128-8-4** Instrument ID **AlphaSpec2** Method: **Total Uranium by Alpha Spectro**

LCS		Sample ID: AS211128-8			Units: pCi/l		Analysis Date: 12/12/2021 09:00				
Client ID:		Run ID: AS211128-8U			Prep Date: 11/28/2021		DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
U-234	4.11 (+/- 0.72)	0.03	4.35		94.4	82-122					P
U-235	0.115 (+/- 0.054)	0.036	0.2083		55						
U-238	4.42 (+/- 0.77)	0.04	4.523		97.7	78-126					P
URANIUM, TOTAL	8.6 (+/- 1.1)	0	9.082		95.1	82-122					P
Tracer: U-232	4	0.06	4.568		87.6	30-110					

LCSD		Sample ID: AS211128-8			Units: pCi/l		Analysis Date: 12/12/2021 09:00				
Client ID:		Run ID: AS211128-8U			Prep Date: 11/28/2021		DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
U-234	4.26 (+/- 0.75)	0.04	4.35		97.9	82-122		4.11	0.1	2.1	P
U-235	0.258 (+/- 0.087)	0.015	0.2083		124			0.115	1.4	2.1	
U-238	4.5 (+/- 0.79)	0.03	4.523		99.5	78-126		4.42	0.08	2.1	P
URANIUM, TOTAL	9 (+/- 1.1)	0	9.082		99.3	82-122		8.6	0.5	2.1	P
Tracer: U-232	3.69	0.06	4.568		80.7	30-110			4		

MB		Sample ID: AS211128-8			Units: pCi/l		Analysis Date: 12/12/2021 09:00				
Client ID:		Run ID: AS211128-8U			Prep Date: 11/28/2021		DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
U-234	0.029 (+/- 0.026)	0.028									B3
U-235	0.012 (+/- 0.022)	0.016									U
U-238	0.01 (+/- 0.019)	0.014									U
URANIUM, TOTAL	0.051 (+/- 0.039)	0.028									B3
Tracer: U-232	3.73	0.06	4.568		81.7	30-110					

The following samples were analyzed in this batch:

2111444-1

Client: ALS Environmental
 Work Order: 2111444
 Project: R2111994

QC BATCH REPORT

Batch ID: RA211227-1-1 Instrument ID LB4100-C Method: Radium-228 Analysis by GFPC

LCS		Sample ID: RA211227-1		Units: pCi/l			Analysis Date: 12/30/2021 11:56				
Client ID:		Run ID: RA211227-1A			Prep Date: 12/27/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	24.4 (+/- 5.7)	0.8	22.67		108	70-130					P
Carr: BARIUM	30680		32690		93.8	40-110					

LCSD		Sample ID: RA211227-1		Units: pCi/l			Analysis Date: 12/30/2021 11:56				
Client ID:		Run ID: RA211227-1A			Prep Date: 12/27/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	23.8 (+/- 5.6)	0.8	22.67		105	70-130		24.4	0.08	2.1	P
Carr: BARIUM	30730		32750		93.8	40-110		30680			

MB		Sample ID: RA211227-1		Units: pCi/l			Analysis Date: 12/30/2021 11:56				
Client ID:		Run ID: RA211227-1A			Prep Date: 12/27/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	0.07 (+/- 0.33)	0.73									U
Carr: BARIUM	32100		32690		98.2	40-110					

The following samples were analyzed in this batch:

2111444-1

Client: ALS Environmental
 Work Order: 2111444
 Project: R2111994

QC BATCH REPORT

Batch ID: RA211227-1-3 Instrument ID LB4100-C Method: Radium-228 Analysis by GFPC

LCS		Sample ID: RA211227-1		Units: pCi/l			Analysis Date: 12/30/2021 11:56				
Client ID:		Run ID: RA211227-1A			Prep Date: 12/27/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	24.4 (+/- 5.7)	0.8	22.67		108	70-130					P
Carr: BARIUM	30680		32690		93.8	40-110					

LCSD		Sample ID: RA211227-1		Units: pCi/l			Analysis Date: 12/30/2021 11:56				
Client ID:		Run ID: RA211227-1A			Prep Date: 12/27/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	23.8 (+/- 5.6)	0.8	22.67		105	70-130		24.4	0.08	2.1	P
Carr: BARIUM	30730		32750		93.8	40-110		30680			

MB		Sample ID: RA211227-1		Units: pCi/l			Analysis Date: 12/30/2021 11:56				
Client ID:		Run ID: RA211227-1A			Prep Date: 12/27/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	0.07 (+/- 0.33)	0.73									U
Carr: BARIUM	32100		32690		98.2	40-110					

The following samples were analyzed in this batch:

2111444-2



24-Nov-2021

Janice Jaeger
ALS Environmental
1565 Jefferson Rd
Bldg 300
Rochester, NY 14623

Re: **R2111994**

Work Order: **21111621**

Dear Janice,

ALS Environmental received 2 samples on 16-Nov-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 18.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in cursive script that reads "Jodi Blouw".

Electronically approved by: Jodi Blouw

Jodi Blouw

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: ALS Environmental
Project: R2111994
Work Order: 21111621

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
21111621-01	LCS-1121	Water		11/11/2021 10:45	11/16/2021 09:30	<input type="checkbox"/>
21111621-02	Field Blank	Water		11/11/2021 10:45	11/16/2021 09:30	<input type="checkbox"/>

Client: ALS Environmental
Project: R2111994
WorkOrder: 21111621

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
ng/L	Nanograms per Liter

Client: ALS Environmental
Project: R2111994
Work Order: 21111621

Case Narrative

Samples for the above noted Work Order were received on 11/16/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics:

Batch 187718, Method E537 Mod, Sample LCS-1121 (21111621-01A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFBA, 13C-PFPeA, 13C_HFPO_DA, 13C-PFHxA, 13C-PFHpA, 13C-PFTeDA, 13C2-PFHxDA

Batch 187718, Method E537 Mod, Sample LCS-1121 (21111621-01A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C2-FtS 6:2, 13C2-FtS 8:2

Batch 187718, Method E537 Mod, Sample LCS-1121 (21111621-01A): Surrogate high due to matrix interference. 13C2-FtS 6:2, 13C2-FtS 8:2

Batch 187718, Method E537 Mod, Sample LCS-1121 (21111621-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C2-PFHxA, 13C2-PFTeA, 13C3-HFPO-DA, 13C4-PFBA, 13C4-PFHpA, 13C5-PFPeA

Batch 187718, Method E537 Mod, Sample LCS-1121 (21111621-01A): Dirty/foamy sample matrix. 5x dilution. Required additional acid to reach pH of 3.

No other deviations or anomalies were noted.

Client: ALS Environmental
 Project: R2111994
 Sample ID: LCS-1121
 Collection Date: 11/11/2021 10:45 AM

Work Order: 21111621
 Lab ID: 21111621-01
 Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED							
			Method: E537 MOD			Prep: E537 Mod / 11/22/21	Analyst: SK
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	370		3.5	26	ng/L	1	11/23/2021 12:26
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	17	J	5.9	26	ng/L	1	11/23/2021 12:26
Perfluorobutanesulfonic Acid (PFBS)	470		1.8	26	ng/L	1	11/23/2021 12:26
Perfluorobutanoic Acid (PFBA)	1,900		140	260	ng/L	10	11/23/2021 15:57
Perfluorodecanesulfonic Acid (PFDS)	U		7.1	26	ng/L	1	11/23/2021 12:26
Perfluorodecanoic Acid (PFDA)	33		6.5	26	ng/L	1	11/23/2021 12:26
Perfluorododecanoic Acid (PFDoA)	U		7.4	26	ng/L	1	11/23/2021 12:26
Perfluoroheptanesulfonic Acid (PFHpS)	U		2.9	26	ng/L	1	11/23/2021 12:26
Perfluoroheptanoic Acid (PFHpA)	970		2.3	26	ng/L	1	11/23/2021 12:26
Perfluorohexanesulfonic Acid (PFHxS)	240		1.9	26	ng/L	1	11/23/2021 12:26
Perfluorohexanoic Acid (PFHxA)	2,600		63	260	ng/L	10	11/23/2021 15:57
Perfluorononanoic Acid (PFNA)	58		4.5	26	ng/L	1	11/23/2021 12:26
Perfluorooctanesulfonamide (PFOSA)	U		3.7	26	ng/L	1	11/23/2021 12:26
Perfluorooctanesulfonic Acid (PFOS)	180		4.6	10	ng/L	1	11/23/2021 12:26
Perfluorooctanoic Acid (PFOA)	1,600		3.3	10	ng/L	1	11/23/2021 12:26
Perfluoropentanoic Acid (PFPeA)	2,700		67	260	ng/L	10	11/23/2021 15:57
Perfluorotetradecanoic Acid (PFTeA)	U		14	26	ng/L	1	11/23/2021 12:26
Perfluorotridecanoic Acid (PFTriA)	U		4.0	26	ng/L	1	11/23/2021 12:26
Perfluoroundecanoic Acid (PFUnA)	5.6	J	5.1	26	ng/L	1	11/23/2021 12:26
N-Ethylperfluorooctanesulfonamidoacetic Acid	20	J	3.3	26	ng/L	1	11/23/2021 12:26
N-Methylperfluorooctanesulfonamidoacetic Acid	68		3.4	26	ng/L	1	11/23/2021 12:26
Surr: 13C2-FtS 6:2	251	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C2-FtS 8:2	396	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C2-PFDA	105			50-150	%REC	1	11/23/2021 12:26
Surr: 13C2-PFDoA	71.4			50-150	%REC	1	11/23/2021 12:26
Surr: 13C2-PFHxA	31.2	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C2-PFTeA	40.1	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C2-PFUnA	77.8			50-150	%REC	1	11/23/2021 12:26
Surr: 13C3-HFPO-DA	39.4	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C3-PFBS	57.9			50-150	%REC	1	11/23/2021 12:26
Surr: 13C4-PFBA	29.2	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C4-PFHxA	31.3	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C4-PFOA	64.9			50-150	%REC	1	11/23/2021 12:26

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Nov-21

Client: ALS Environmental
Project: R2111994
Sample ID: LCS-1121
Collection Date: 11/11/2021 10:45 AM

Work Order: 21111621
Lab ID: 21111621-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C4-PFOS	71.9			50-150	%REC	1	11/23/2021 12:26
Surr: 13C5-PFNA	92.1			50-150	%REC	1	11/23/2021 12:26
Surr: 13C5-PFPeA	30.1	S		50-150	%REC	1	11/23/2021 12:26
Surr: 13C8-FOSA	85.3			50-150	%REC	1	11/23/2021 12:26
Surr: 18O2-PFHxS	77.6			50-150	%REC	1	11/23/2021 12:26
Surr: d5-N-EtFOSA	89.4			50-150	%REC	1	11/23/2021 12:26
Surr: d5-N-EtFOSAA	119			50-150	%REC	1	11/23/2021 12:26
Surr: d9-N-EtFOSE	69.8			50-150	%REC	1	11/23/2021 12:26
Surr: d3-N-MeFOSA	85.1			50-150	%REC	1	11/23/2021 12:26
Surr: d3-N-MeFOSAA	76.9			50-150	%REC	1	11/23/2021 12:26
Surr: d7-N-MeFOSE	85.2			50-150	%REC	1	11/23/2021 12:26

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Nov-21

Client: ALS Environmental
Project: R2111994
Sample ID: Field Blank
Collection Date: 11/11/2021 10:45 AM

Work Order: 21111621
Lab ID: 21111621-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED							
			Method: E537 MOD			Prep: E537 Mod / 11/22/21	Analyst: SK
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.59	4.4	ng/L	1	11/23/2021 12:34
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.0	4.4	ng/L	1	11/23/2021 12:34
Perfluorobutanesulfonic Acid (PFBS)	U		0.31	4.4	ng/L	1	11/23/2021 12:34
Perfluorobutanoic Acid (PFBA)	U		2.3	4.4	ng/L	1	11/23/2021 12:34
Perfluorodecanesulfonic Acid (PFDS)	U		1.2	4.4	ng/L	1	11/23/2021 12:34
Perfluorodecanoic Acid (PFDA)	U		1.1	4.4	ng/L	1	11/23/2021 12:34
Perfluorododecanoic Acid (PFDoA)	U		1.3	4.4	ng/L	1	11/23/2021 12:34
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.50	4.4	ng/L	1	11/23/2021 12:34
Perfluoroheptanoic Acid (PFHpA)	U		0.39	4.4	ng/L	1	11/23/2021 12:34
Perfluorohexanesulfonic Acid (PFHxS)	U		0.33	4.4	ng/L	1	11/23/2021 12:34
Perfluorohexanoic Acid (PFHxA)	U		1.1	4.4	ng/L	1	11/23/2021 12:34
Perfluorononanoic Acid (PFNA)	U		0.77	4.4	ng/L	1	11/23/2021 12:34
Perfluorooctanesulfonamide (PFOSA)	U		0.63	4.4	ng/L	1	11/23/2021 12:34
Perfluorooctanesulfonic Acid (PFOS)	U		0.79	1.8	ng/L	1	11/23/2021 12:34
Perfluorooctanoic Acid (PFOA)	U		0.56	1.8	ng/L	1	11/23/2021 12:34
Perfluoropentanoic Acid (PFPeA)	U		1.1	4.4	ng/L	1	11/23/2021 12:34
Perfluorotetradecanoic Acid (PFTeA)	U		2.3	4.4	ng/L	1	11/23/2021 12:34
Perfluorotridecanoic Acid (PFTriA)	U		0.69	4.4	ng/L	1	11/23/2021 12:34
Perfluoroundecanoic Acid (PFUnA)	U		0.87	4.4	ng/L	1	11/23/2021 12:34
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.56	4.4	ng/L	1	11/23/2021 12:34
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.57	4.4	ng/L	1	11/23/2021 12:34
Surr: 13C2-FtS 6:2	98.2			50-150	%REC	1	11/23/2021 12:34
Surr: 13C2-FtS 8:2	102			50-150	%REC	1	11/23/2021 12:34
Surr: 13C2-PFDA	79.8			50-150	%REC	1	11/23/2021 12:34
Surr: 13C2-PFDoA	54.8			50-150	%REC	1	11/23/2021 12:34
Surr: 13C2-PFHxA	79.4			50-150	%REC	1	11/23/2021 12:34
Surr: 13C2-PFTeA	70.1			50-150	%REC	1	11/23/2021 12:34
Surr: 13C2-PFUnA	68.4			50-150	%REC	1	11/23/2021 12:34
Surr: 13C3-HFPO-DA	86.5			50-150	%REC	1	11/23/2021 12:34
Surr: 13C3-PFBS	84.4			50-150	%REC	1	11/23/2021 12:34
Surr: 13C4-PFBA	79.4			50-150	%REC	1	11/23/2021 12:34
Surr: 13C4-PFHpA	67.3			50-150	%REC	1	11/23/2021 12:34
Surr: 13C4-PFOA	86.8			50-150	%REC	1	11/23/2021 12:34
Surr: 13C4-PFOS	70.4			50-150	%REC	1	11/23/2021 12:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Nov-21

Client: ALS Environmental
Project: R2111994
Sample ID: Field Blank
Collection Date: 11/11/2021 10:45 AM

Work Order: 21111621
Lab ID: 21111621-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFNA	94.7			50-150	%REC	1	11/23/2021 12:34
Surr: 13C5-PFPeA	82.8			50-150	%REC	1	11/23/2021 12:34
Surr: 13C8-FOSA	90.7			50-150	%REC	1	11/23/2021 12:34
Surr: 18O2-PFHxS	91.2			50-150	%REC	1	11/23/2021 12:34
Surr: d5-N-EtFOSA	79.1			50-150	%REC	1	11/23/2021 12:34
Surr: d5-N-EtFOSAA	100			50-150	%REC	1	11/23/2021 12:34
Surr: d9-N-EtFOSE	75.8			50-150	%REC	1	11/23/2021 12:34
Surr: d3-N-MeFOSA	83.9			50-150	%REC	1	11/23/2021 12:34
Surr: d3-N-MeFOSAA	82.2			50-150	%REC	1	11/23/2021 12:34
Surr: d7-N-MeFOSE	97.5			50-150	%REC	1	11/23/2021 12:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
 Work Order: 21111621
 Project: R2111994

QC BATCH REPORT

Batch ID: 187718 Instrument ID LCMS1 Method: E537 Mod

MBLK		Sample ID: MBLK-187717-187718			Units: ng/L			Analysis Date: 11/23/2021 11:53 A			
Client ID:		Run ID: LCMS1_211123B			SeqNo: 7976714			Prep Date: 11/22/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.66	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Perfluorobutanesulfonic Acid	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA)	U	1.2	5.0								
Perfluorododecanoic Acid (PFDDA)	U	1.4	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFH7A)	U	0.44	5.0								
Perfluorohexanesulfonic Acid	U	0.37	5.0								
Perfluorohexanoic Acid (PFH6A)	U	1.2	5.0								
Perfluorononanoic Acid (PFNA)	U	0.87	5.0								
Perfluorooctanesulfonamide (PFOSA)	U	0.71	5.0								
Perfluorooctanesulfonic Acid (PFOS)	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanoic Acid (PFPA)	U	1.3	5.0								
Perfluorotetradecanoic Acid (PFTEA)	U	2.6	5.0								
Perfluorotridecanoic Acid (PFTA)	U	0.77	5.0								
Perfluoroundecanoic Acid (PFUdA)	U	0.97	5.0								
N-Ethylperfluorooctanesulfonate	U	0.63	5.0								
N-Methylperfluorooctanesulfonate	U	0.64	5.0								
Surr: 13C2-FtS 6:2	173.1	0	0	152	0	114	50-150	0			
Surr: 13C2-FtS 8:2	176	0	0	153.3	0	115	50-150	0			
Surr: 13C2-PFDA	142.9	0	0	160	0	89.3	50-150	0			
Surr: 13C2-PFDoA	118.6	0	0	160	0	74.1	50-150	0			
Surr: 13C2-PFHxA	151.1	0	0	160	0	94.4	50-150	0			
Surr: 13C2-PFTeA	118	0	0	160	0	73.8	50-150	0			
Surr: 13C2-PFUnA	144.7	0	0	160	0	90.4	50-150	0			
Surr: 13C3-HFPO-DA	142.7	0	0	160	0	89.2	50-150	0			
Surr: 13C3-PFBS	136.3	0	0	148.8	0	91.6	50-150	0			
Surr: 13C4-PFBA	140.5	0	0	160	0	87.8	50-150	0			
Surr: 13C4-PFHpA	111.5	0	0	160	0	69.7	50-150	0			
Surr: 13C4-PFOA	185.6	0	0	160	0	116	50-150	0			
Surr: 13C4-PFOS	123.4	0	0	152.8	0	80.8	50-150	0			
Surr: 13C5-PFNA	163	0	0	160	0	102	50-150	0			
Surr: 13C5-PFPeA	144.6	0	0	160	0	90.4	50-150	0			
Surr: 13C8-FOSA	120.9	0	0	160	0	75.6	50-150	0			
Surr: 18O2-PFHxS	152.2	0	0	151.2	0	101	50-150	0			
Surr: d5-N-EtFOSA	163.9	0	0	160	0	102	50-150	0			
Surr: d5-N-EtFOSAA	190	0	0	160	0	119	50-150	0			
Surr: d9-N-EtFOSE	131.6	0	0	160	0	82.3	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 21111621
Project: R2111994

QC BATCH REPORT

Batch ID: 187718	Instrument ID LCMS1	Method: E537 Mod							
<i>Surr: d3-N-MeFOSA</i>	157.6	0	0	160	0	98.5	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	155.8	0	0	160	0	97.4	50-150	0	
<i>Surr: d7-N-MeFOSE</i>	215	0	0	160	0	134	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 21111621
 Project: R2111994

QC BATCH REPORT

Batch ID: 187718 Instrument ID LCMS1 Method: E537 Mod

LCS		Sample ID: LCS-187717-187718				Units: ng/L			Analysis Date: 11/23/2021 12:01 PM		
Client ID:		Run ID: LCMS1_211123B				SeqNo: 7976717		Prep Date: 11/22/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	36.61	0.66	5.0	30.3	0	121	64-140	0			
Fluorotelomer Sulphonic Acid	31.56	1.1	5.0	30.7	0	103	67-138	0			
Perfluorobutanesulfonic Acid	30.31	0.35	5.0	28.3	0	107	72-130	0			
Perfluorobutanoic Acid (PFBA)	34	2.6	5.0	32	0	106	73-129	0			
Perfluorodecanesulfonic Acid	23.41	1.4	5.0	30.8	0	76	53-142	0			
Perfluorodecanoic Acid (PFDA)	34.4	1.2	5.0	32	0	107	71-129	0			
Perfluorododecanoic Acid (PFDDA)	37.74	1.4	5.0	32	0	118	72-134	0			
Perfluoroheptanesulfonic Acid	32.6	0.57	5.0	30.5	0	107	69-134	0			
Perfluoroheptanoic Acid (PFH7)	31.88	0.44	5.0	32	0	99.6	72-130	0			
Perfluorohexanesulfonic Acid	32.59	0.37	5.0	29.1	0	112	68-131	0			
Perfluorohexanoic Acid (PFH6)	30.92	1.2	5.0	32	0	96.6	72-129	0			
Perfluorononanoic Acid (PFNA)	29.56	0.87	5.0	32	0	92.4	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	31.94	0.71	5.0	32	0	99.8	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	34.11	0.89	2.0	29.7	0	115	65-140	0			
Perfluorooctanoic Acid (PFOA)	33.98	0.63	2.0	32	0	106	71-133	0			
Perfluoropentanoic Acid (PFPA)	34.28	1.3	5.0	32	0	107	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	34.92	2.6	5.0	32	0	109	71-132	0			
Perfluorotridecanoic Acid (PFTDA)	28.79	0.77	5.0	32	0	90	65-144	0			
Perfluoroundecanoic Acid (PFUdA)	33.68	0.97	5.0	32	0	105	69-133	0			
N-Ethylperfluorooctanesulfonamide	32.8	0.63	5.0	32	0	102	61-135	0			
N-Methylperfluorooctanesulfonamide	36.78	0.64	5.0	32	0	115	65-136	0			
Surr: 13C2-FtS 6:2	169.2	0	0	152	0	111	50-150	0			
Surr: 13C2-PFDA	192.6	0	0	160	0	120	50-150	0			
Surr: 13C2-PFDoA	165.8	0	0	160	0	104	50-150	0			
Surr: 13C2-PFHxA	180.4	0	0	160	0	113	50-150	0			
Surr: 13C2-PFTeA	172.5	0	0	160	0	108	50-150	0			
Surr: 13C2-PFUnA	136.5	0	0	160	0	85.3	50-150	0			
Surr: 13C3-HFPO-DA	163.1	0	0	160	0	102	50-150	0			
Surr: 13C3-PFBS	170	0	0	148.8	0	114	50-150	0			
Surr: 13C4-PFBA	170.8	0	0	160	0	107	50-150	0			
Surr: 13C4-PFHpA	201.2	0	0	160	0	126	50-150	0			
Surr: 13C4-PFOA	160.6	0	0	160	0	100	50-150	0			
Surr: 13C4-PFOS	175.2	0	0	152.8	0	115	50-150	0			
Surr: 13C5-PFNA	193.2	0	0	160	0	121	50-150	0			
Surr: 13C5-PFPeA	176.9	0	0	160	0	111	50-150	0			
Surr: 13C8-FOSA	172.5	0	0	160	0	108	50-150	0			
Surr: 18O2-PFHxS	146.5	0	0	151.2	0	96.9	50-150	0			
Surr: d5-N-EtFOSA	195.5	0	0	160	0	122	50-150	0			
Surr: d5-N-EtFOSAA	204.8	0	0	160	0	128	50-150	0			
Surr: d9-N-EtFOSE	187.8	0	0	160	0	117	50-150	0			
Surr: d3-N-MeFOSA	185.1	0	0	160	0	116	50-150	0			
Surr: d3-N-MeFOSAA	169.2	0	0	160	0	106	50-150	0			
Surr: d7-N-MeFOSE	211.9	0	0	160	0	132	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 21111621
 Project: R2111994

QC BATCH REPORT

Batch ID: 187718 Instrument ID LCMS1 Method: E537 Mod

MS		Sample ID: 21111725-01A MS				Units: ng/L		Analysis Date: 11/23/2021 12:09 PM			
Client ID:		Run ID: LCMS1_211123B				SeqNo: 7976720		Prep Date: 11/22/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	31.88	0.65	4.9	29.82	0	107	64-140	0			
Fluorotelomer Sulphonic Acid	30.59	1.1	4.9	30.22	0	101	67-138	0			
Perfluorobutanesulfonic Acid	41.14	0.35	4.9	27.85	14.79	94.6	72-130	0			
Perfluorobutanoic Acid (PFBA)	41.5	2.6	4.9	31.5	6.177	112	73-129	0			
Perfluorodecanesulfonic Acid	29.67	1.3	4.9	30.32	0	97.9	53-142	0			
Perfluorodecanoic Acid (PFDA)	37.58	1.2	4.9	31.5	0	119	71-129	0			
Perfluorododecanoic Acid (PFD	37.67	1.4	4.9	31.5	0	120	72-134	0			
Perfluoroheptanesulfonic Acid	29.62	0.56	4.9	30.02	0	98.7	69-134	0			
Perfluoroheptanoic Acid (PFH	30.02	0.43	4.9	31.5	0	95.3	72-130	0			
Perfluorohexanesulfonic Acid	31.95	0.36	4.9	28.64	0.6033	109	68-131	0			
Perfluorohexanoic Acid (PFHx	33.52	1.2	4.9	31.5	0	106	72-129	0			
Perfluorononanoic Acid (PFNA	31.27	0.86	4.9	31.5	0	99.3	69-130	0			
Perfluorooctanesulfonamide (F	30.98	0.7	4.9	31.5	0	98.3	67-137	0			
Perfluorooctanesulfonic Acid	34.24	0.88	2.0	29.23	0	117	65-140	0			
Perfluorooctanoic Acid (PFOA	36.85	0.62	2.0	31.5	1.05	114	71-133	0			
Perfluoropentanoic Acid (PFPe	31.37	1.3	4.9	31.5	0	99.6	72-129	0			
Perfluorotetradecanoic Acid (F	30.15	2.6	4.9	31.5	0	95.7	71-132	0			
Perfluorotridecanoic Acid (PFT	30.29	0.76	4.9	31.5	0	96.2	65-144	0			
Perfluoroundecanoic Acid (PFI	33.9	0.96	4.9	31.5	0	108	69-133	0			
N-Ethylperfluorooctanesulfona	28.77	0.62	4.9	31.5	0	91.4	61-135	0			
N-Methylperfluorooctanesulfor	33.62	0.63	4.9	31.5	0	107	65-136	0			
Surr: 13C2-FtS 6:2	165.2	0	0	149.6	0	110	50-150	0			
Surr: 13C2-FtS 8:2	202.2	0	0	150.9	0	134	50-150	0			
Surr: 13C2-PFDA	141.4	0	0	157.5	0	89.8	50-150	0			
Surr: 13C2-PFDoA	106.7	0	0	157.5	0	67.8	50-150	0			
Surr: 13C2-PFHxA	129.2	0	0	157.5	0	82	50-150	0			
Surr: 13C2-PFTeA	131.3	0	0	157.5	0	83.4	50-150	0			
Surr: 13C2-PFUnA	111.8	0	0	157.5	0	71	50-150	0			
Surr: 13C3-HFPO-DA	142.8	0	0	157.5	0	90.7	50-150	0			
Surr: 13C3-PFBS	129.9	0	0	146.5	0	88.7	50-150	0			
Surr: 13C4-PFBA	121.4	0	0	157.5	0	77.1	50-150	0			
Surr: 13C4-PFHpA	131.7	0	0	157.5	0	83.6	50-150	0			
Surr: 13C4-PFOA	129.1	0	0	157.5	0	82	50-150	0			
Surr: 13C4-PFOS	119.3	0	0	150.4	0	79.3	50-150	0			
Surr: 13C5-PFNA	154	0	0	157.5	0	97.8	50-150	0			
Surr: 13C5-PFPeA	136.5	0	0	157.5	0	86.7	50-150	0			
Surr: 13C8-FOSA	165.2	0	0	157.5	0	105	50-150	0			
Surr: 18O2-PFHxS	127.1	0	0	148.8	0	85.4	50-150	0			
Surr: d5-N-EtFOSA	150	0	0	157.5	0	95.3	50-150	0			
Surr: d5-N-EtFOSAA	177.3	0	0	157.5	0	113	50-150	0			
Surr: d9-N-EtFOSE	132.6	0	0	157.5	0	84.2	50-150	0			
Surr: d3-N-MeFOSA	163.4	0	0	157.5	0	104	50-150	0			
Surr: d3-N-MeFOSAA	140.7	0	0	157.5	0	89.4	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 21111621
Project: R2111994

QC BATCH REPORT

Batch ID: 187718	Instrument ID LCMS1	Method: E537 Mod							
<i>Surr: d7-N-MeFOSE</i>	173.8	0	0	157.5	0	110	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 21111621
 Project: R2111994

QC BATCH REPORT

Batch ID: 187718 Instrument ID LCMS1 Method: E537 Mod

DUP		Sample ID: 21111723-01A DUP				Units: ng/L			Analysis Date: 11/23/2021 12:51 PM		
Client ID:		Run ID: LCMS1_211123B				SeqNo: 7976728		Prep Date: 11/22/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid (	1.022	0.64	4.8	0	0	0	0-0	1.111	0	30	J
Fluorotelomer Sulphonic Acid (	U	1.1	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	14.7	0.34	4.8	0	0	0	0-0	14.12	4.02	30	
Perfluorobutanoic Acid (PFBA)	102	2.5	4.8	0	0	0	0-0	109.1	6.73	30	
Perfluorodecanesulfonic Acid (	U	1.3	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	U	1.2	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PF	U	1.4	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid	U	0.54	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFH)	16.72	0.42	4.8	0	0	0	0-0	15.66	6.58	30	
Perfluorohexanesulfonic Acid (	25.1	0.35	4.8	0	0	0	0-0	26.41	5.11	30	
Perfluorohexanoic Acid (PFHx	50.98	1.2	4.8	0	0	0	0-0	55.58	8.63	30	
Perfluorononanoic Acid (PFNA	0.8554	0.84	4.8	0	0	0	0-0	0.8244	0	30	J
Perfluorooctanesulfonamide (F	U	0.68	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (l	34.71	0.86	1.9	0	0	0	0-0	35.95	3.49	30	
Perfluorooctanoic Acid (PFOA	51.33	0.61	1.9	0	0	0	0-0	50.8	1.04	30	
Perfluoropentanoic Acid (PFPe	18.79	1.2	4.8	0	0	0	0-0	21.59	13.9	30	
Perfluorotetradecanoic Acid (F	U	2.5	4.8	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	0.74	4.8	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PF	U	0.94	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	3.72	0.6	4.8	0	0	0	0-0	3.295	0	30	J
N-Methylperfluorooctanesulfor	1.363	0.62	4.8	0	0	0	0-0	1.148	0	30	J
Surr: 13C2-FtS 6:2	395.1	0	0	146.2	0	270	50-150	440.6	10.9	30	S
Surr: 13C2-FtS 8:2	575	0	0	147.4	0	390	50-150	537.1	6.81	30	S
Surr: 13C2-PFDA	173.6	0	0	153.8	0	113	50-150	165	5.03	30	
Surr: 13C2-PFDoA	125.6	0	0	153.8	0	81.7	50-150	114.4	9.36	30	
Surr: 13C2-PFHxA	117.5	0	0	153.8	0	76.4	50-150	101.7	14.4	30	
Surr: 13C2-PFTeA	119.3	0	0	153.8	0	77.6	50-150	123.6	3.52	30	
Surr: 13C2-PFUnA	122.5	0	0	153.8	0	79.6	50-150	110.3	10.5	30	
Surr: 13C3-HFPO-DA	111.2	0	0	153.8	0	72.3	50-150	115.1	3.4	30	
Surr: 13C3-PFBS	118.1	0	0	143.1	0	82.6	50-150	116.5	1.37	30	
Surr: 13C4-PFBA	106.4	0	0	153.8	0	69.1	50-150	97.22	9	30	
Surr: 13C4-PFHpA	133.5	0	0	153.8	0	86.7	50-150	114.9	15	30	
Surr: 13C4-PFOA	121.9	0	0	153.8	0	79.3	50-150	130	6.39	30	
Surr: 13C4-PFOS	121.8	0	0	146.9	0	82.9	50-150	107	13	30	
Surr: 13C5-PFNA	158.6	0	0	153.8	0	103	50-150	162	2.1	30	
Surr: 13C5-PFPeA	111.5	0	0	153.8	0	72.5	50-150	109.4	1.88	30	
Surr: 13C8-FOSA	143.5	0	0	153.8	0	93.3	50-150	140.6	2.05	30	
Surr: 18O2-PFHxS	114.3	0	0	145.4	0	78.6	50-150	113.8	0.442	30	
Surr: d5-N-EtFOSA	165.4	0	0	153.8	0	108	50-150	162.9	1.56	30	
Surr: d5-N-EtFOSAA	211.8	0	0	153.8	0	138	50-150	207.9	1.89	30	
Surr: d9-N-EtFOSE	144.7	0	0	153.8	0	94	50-150	136.5	5.79	30	
Surr: d3-N-MeFOSA	155.7	0	0	153.8	0	101	50-150	162.4	4.22	30	
Surr: d3-N-MeFOSAA	145.4	0	0	153.8	0	94.5	50-150	144	0.997	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 21111621
Project: R2111994

QC BATCH REPORT

Batch ID: 187718	Instrument ID LCMS1	Method: E537 Mod								
<i>Surr: d7-N-MeFOSE</i>	173.8	0	0	153.8	0	113	50-150	166.1	4.52	30

The following samples were analyzed in this batch: 21111621-01A 21111621-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Janice Jaeger

2111621

Project Number: R2111994
 Project Manager: Janice Jaeger
 QAP: LAB QAP

PFAS
PFC/537M

537MadNY

Lab Code	Sample ID	# of Cont.	Matrix	Sample		Lab ID	
				Date	Time		
R2111994-001	LCS-1121	2	Water	11/11/21	1045	Holland ALS	X
R2111994-003	Field Blank	1	Water	11/11/21	1045	Holland ALS	X

Test Comments
 PFAS - PFC/537M R2111994-001.3 NYS 21 list

537

Special Instructions/Comments <div style="font-size: 24px; font-family: cursive;">excel add</div> NPDES H - Test is On Hold P - Test is Authorized for Prep Only	Turnaround Requirements _____ RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <u>X</u> STANDARD Requested FAX Date: _____ Requested Report Date: <u>11/26/21</u>	Report Requirements _____ I. Results Only <u>X</u> II. Results + QC Summaries _____ III. Results + QC and Calibration Summaries <u>X</u> IV. Data Validation Report with Raw Data PQL/MDL/J <u>Y</u> EDD <u>Y</u>	Invoice Information <hr/> PO# 58R2111994 <hr/> Bill to
--	--	---	---

Relinquished By: *[Signature]* 11/15/21 1520 Received By: *[Signature]* 11/16/21 0930 Airbill Number: 449C IR1

R2111994

X **Ship To: Holland ALS**
ALS Laboratory Group
3352 128th Avenue
Holland, MI 49424

PC Date 11/15/21
SMO Date

Instructions:

Ice
Dry Ice
No Ice

Shipping:

Overnight
2nd Day
Ground

Bill to Client Account

Comments:

Sample Receipt Checklist

Client Name: **ALS - ROCHESTER**

Date/Time Received: **16-Nov-21 09:30**

Work Order: **21111621**

Received by: **KRW**

Checklist completed by Keith Wierenga 17-Nov-21
eSignature Date

Reviewed by: Jadi Blawie 17-Nov-21
eSignature Date

Matrices: **Water**

Carrier name: **FedEx**

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container/Temp Blank temperature in compliance? Yes No
- Sample(s) received on ice? Yes No

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

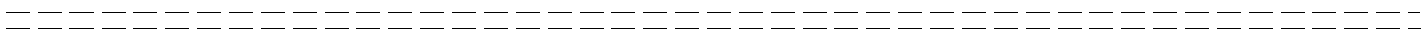
Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:



Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



February 01, 2022

Service Request No:R2112516

Ms. Kimberly Crosby
Casella Waste Systems
286 Sand Road
Morrisonville, NY 12962

Laboratory Results for: Hakes C&D Landfill - Tank SED RAD

Dear Ms.Crosby,

Enclosed are the results of the sample(s) submitted to our laboratory November 30, 2021
For your reference, these analyses have been assigned our service request number **R2112516**.

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Jon Brandes

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Client: Casella Waste Systems (Hampden ME)
Project: Hakes C&D Landfill - Tank SED RAD
Sample Matrix: Soil

Service Request: R2112516
Date Received: 11/30/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One soil sample was received for analysis at ALS Environmental on 11/30/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Subcontracted Analytical Parameters:

One or more samples were subcontracted to another laboratory for testing. The certified analytical report from the subcontractor has been included in its entirety at the end of this report and includes the name and address of the subcontracted laboratory.

A handwritten signature in black ink, appearing to read 'Samantha', is written over a horizontal line.

Approved by _____

Date 02/01/2022



Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Cooler Receipt and Preservation Check Form

R2112516

5

Casella Waste Systems
Hakes C&D Landfill - Tank SED RAD



Project/Client Casella Folder Number _____

Cooler received on 11/30/21 by: e COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	<input checked="" type="radio"/> Y <input type="radio"/> N
2	Custody papers properly completed (ink, signed)?	<input checked="" type="radio"/> Y <input type="radio"/> N
3	Did all bottles arrive in good condition (unbroken)?	<input checked="" type="radio"/> Y <input type="radio"/> N
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	<input checked="" type="radio"/> Y <input type="radio"/> N

5a	Perchlorate samples have required headspace?	Y N <u>NA</u>
5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y N <u>NA</u>
6	Where did the bottles originate?	<u>ALS/ROC</u> CLIENT
7	Soil VOA received as: Bulk Encore 5035set	<u>NA</u>

8. Temperature Readings Date: 11/30/21 Time: 1120 ID: IR#7 IR#11 From: Temp Blank Sample Bottle

Observed Temp (°C)	<u>3.3</u>						
Within 0-6°C?	<input checked="" type="radio"/> Y <input type="radio"/> N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	<input type="radio"/> Y <input type="radio"/> N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule
& Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-012 by e on 11/30/21 at 1125
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check** Date: 11/21 Time: 054 by: e

- 9. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 10. Did all bottle labels and tags agree with custody papers? YES NO
- 11. Were correct containers used for the tests indicated? YES NO
- 12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO
- 13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated NA

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH								
≤2		HNO ₃								
≤2		H ₂ SO ₄								
<4		NaHSO ₄								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add Na ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 052019-1761
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
<u>SUB</u>	HGFB
ALS	LL3541

Labels secondary reviewed by: e
PC Secondary Review: AMS 10/9/21 *significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

- | | |
|---|--|
| <p>U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.</p> <p>J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.</p> <p>* Indicates that a quality control parameter has exceeded laboratory limits. Under the “Notes” column of the Form I, this qualifier denotes analysis was performed out of Holding Time.</p> <p>H Analysis was performed out of hold time for tests that have an “immediate” hold time criteria.</p> <p># Spike was diluted out.</p> | <p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p> |
|---|--|

Rochester Lab ID # for State Accreditations¹



NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

¹ Analyses were performed according to our laboratory’s NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to <https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental>

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.



INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	



Subcontracted Analytical Parameters

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com



Radium-226 Case Narrative

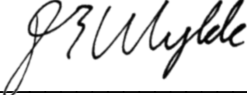
ALS Environmental

R2112516

Work Order Number: 2112143


1. This report consists of the analytical results and supporting documentation for one soil sample received by ALS on 12/7/2021.
2. This sample was prepared and analyzed according to the current revisions of SOP 783 and SOP 736. The analysis was completed on 1/6/2022.
3. The analysis results for this sample is reported on an 'As Received' basis in units of pCi/gram.
4. No further anomalous situations were encountered during the preparation or analysis of this sample. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Dakota Wylde
Radiochemistry Primary Data Reviewer

1/11/22
Date



Radiochemistry Final Data Reviewer

1/31/22
Date

Section 1

CHAIN OF CUSTODY

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2112143

Client Name: ALS Environmental

Client Project Name:

Client Project Number: R2112516

Client PO Number: 58R2112516

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LCSSD-1121	2112143-1		SOIL	29-Nov-21	11:30

ALS Contact: Janice Jaeger

Project Number: R2112516
 Project Manager: Janice Jaeger
 QAP: LAB QAP

2112143



Lab Code	Sample ID	# of Cont.	Matrix	Sample			Gamma Spec 901.1	Nat U 908.0	
				Date	Time	Lab ID			
R2112516-002	LCSSED-1121	1	2	Soil	11/29/21	1130	Fort Collins ALS	X	X

gamma - Rad 226, 228

Special Instructions/Comments Standard eeld NPDES H - Test is On Hold P - Test is Authorized for Prep Only	Turnaround Requirements RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 STANDARD	Report Requirements I. Results Only II. Results + QC Summaries III. Results + QC and Calibration Summaries IV. Data Validation Report with Raw Data PQL/MDL/J N EDD Y	Invoice Information PO# 58R2112516 Bill to
	Requested FAX Date: _____	Requested Report Date: 12/10/21	

Relinquished By: Seung Lee 12/6/21 1630

Received By: Chait Shennel 12/7/21 1405

Airbill Number: _____

R2112516

2112143

X Ship To: Fort Collins ALS
ALS Laboratory Group
225 Commerce Drive
Fort Collins, CO 80524

Instructions:

Ice _____
Dry Ice _____
No Ice _____

Shipping:

Overnight _____
2nd Day _____
Ground _____

PC Date 11/30/21
SMO _____ Date _____

Bill to Client Account _____

Comments:



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS ROCHESTER

Workorder No: 2112143

Project Manager: JWS

Initials: CXT

Date: 12/8/2021

		N/A	YES	NO					
1.	Are airbills / shipping documents present and/or removable? Tracking number: 9889 5097 8493/9889 5097 8508/9889 5097 8519/9889 5097 8520/9889 5097 8530/9889 5097 8541/9889 5097 8552/9889 5097 8563		X						
2.	Are custody seals on shipping containers intact?		X						
3.	Are custody seals on sample containers intact?	X							
4.	Is there a COC (chain-of-custody) present?		X						
5.	Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X						
6.	Are short-hold samples present?			X					
7.	Are all samples within holding times for the requested analyses?		X						
8.	Were all sample containers received intact? (not broken or leaking)		X						
9.	Is there sufficient sample for the requested analyses?		X						
10.	Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X						
11.	Are all aqueous samples preserved correctly, if required? (excluding volatiles)	x							
12.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X							
13.	Were the samples shipped on ice?			X					
14.	Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: #5		RAD ONLY					
Cooler #:		1	2	3	4	5	6	7	8
Temperature (°C):		AMB	AMB	AMB	AMB	AMB	AMB	AMB	AMB
# of custody seals on cooler:		1	1	1	1	1	2	1	1
External µR/hr reading:		11	10	9	10	10	11	10	10
Background µR/hr reading:		10							
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES									

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? na

All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? **YES / NO / NA** Contact: [Signature]

Date/Time: 12/13/21

Project Manager Signature / Date: [Signature]

2112143

ORIGIN ID:ONHA (SBS) 872-7464
A18 ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14823
UNITED STATES US

SHIP DATE: 08DEC21
ACTWGT: 30.20 LB
CAD: 0288737/CALFE3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (970) 480-1611

11-1
AMB

570C3/E334/GF4D

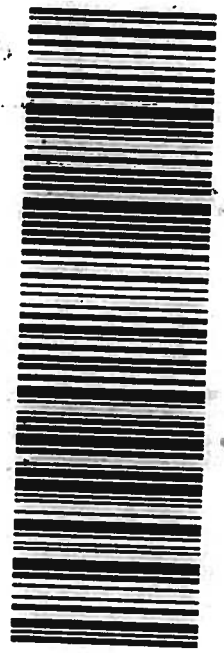



21 12 20 21 11 01 01

TRK# 1 of 8
0201 9889 5097 8493
MASTER

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA 80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

2112143

ORIGIN ID:ONHA (585) 7464
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 1380
ROCHESTER NY 14623
UNITED STATES US

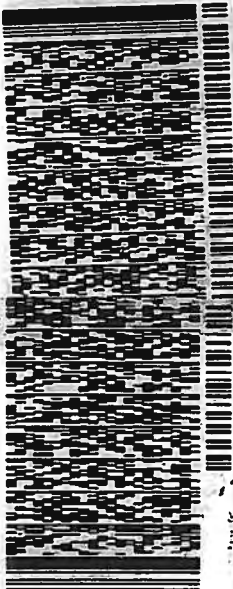
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ACTWT: 47.30 LB
CRD: 0288737/CAFES507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524

10-1
AMB

(970) 490-1511



2 of 8
MPS# 9889 5097 8518
Met# 9889 5097 8498

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTGA

80524
CO-US DEN

Part # 156148-434 MTW EXP 08/22



9889 5097 8508

2112143

ORIGIN ID: ONHA (585) 672-7464
SND
EHS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 380
ROCHESTER, NY 14623
UNITED STATES US

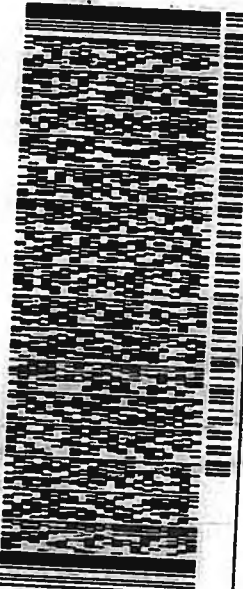
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ACTWGT: 51.90 LB
CAD: 0288737/CAF3307

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511
NET#

9-1
AMB



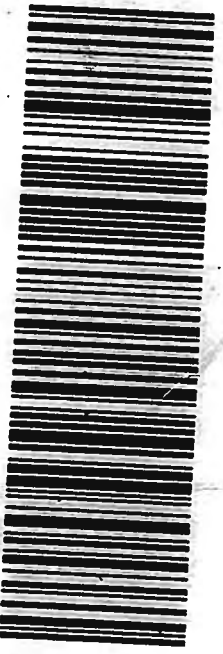
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Matr# 9889 5097 8493

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STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 09/22

2112143

ORIGIN ID: ONHA (585) 672-7464
SFO
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 09DEC21
ACTWT: 47.85 LB
CMT: 0288737/CNFE3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 480-1511
REF: 1
PRT: 1
DEPT: 1

10-1
AMB

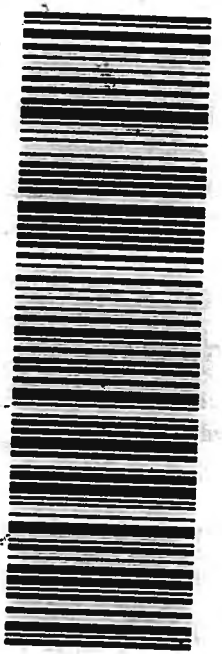


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Matr# 9889 5997 8438

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

UT FTCA

80524
CO-US DEN



Part # 158148-434 MTW EXP 08/22

570C3/E334/6F4D

2112143

ORIGIN ID:ONHA (585) 672-7464
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 08DEC21
ACTIVITY: 81:05:18
CND: 0288737/CAF:3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

10-1

FORT COLLINS CO 80524
(970) 480-1611
NFT1

AmB



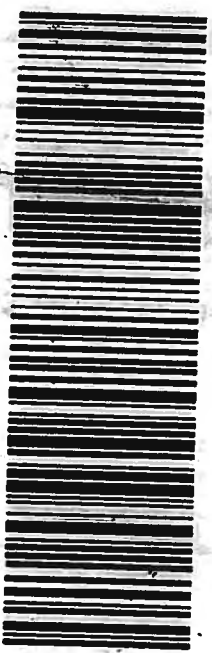
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STANDARD OVERNIGHT

U1 FTGA

80524
CO-US DEN



Part # 156148-434 MITW EXP 0822

2112143

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SND ENVIRONMENTAL
ALS JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

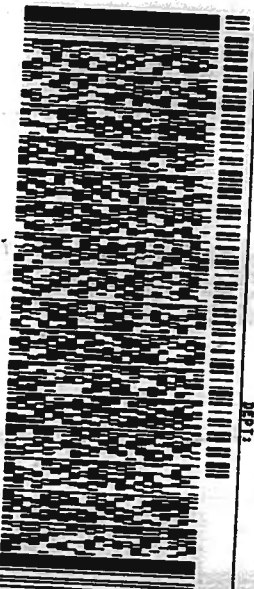
SHIP DATE: 08DEC21
ACTWT: 51.85 LB
CAD: 0288737/CAFE3507

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (870) 480-1611
NOI

11-2
AMB



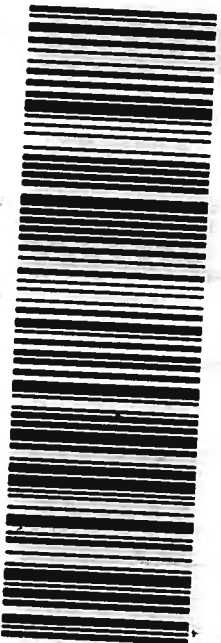
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Met# 9889 5097 8493
0263

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT
0201

U1 FTCA

80524
CO-US DEN



Part # 158148-434 MTW EXP 08/22

2112143

ORIGIN ID:ONHA (SBS) 672-7484
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 380
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 06DEC21
ACTWGT: 52.90 LB
CAD: 0288737/CHF E3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (870) 490-1611

10-1
AMB



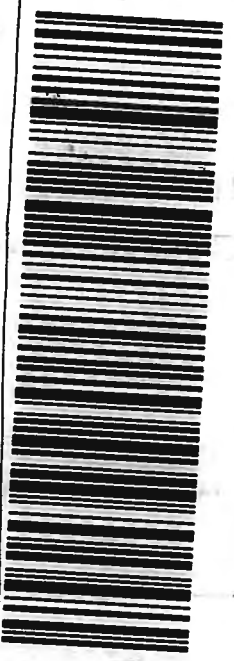
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MPS# 7 of 8
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Met# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

570C3/E934/6F40

2112143

ORIGIN ID:ONHA (585) 672-7484
SND ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER NY 14823
UNITED STATES US

SHIP DATE: 06DEC21
ACTWT: 52.90 LB
CMD: 0298737/CAFE3507

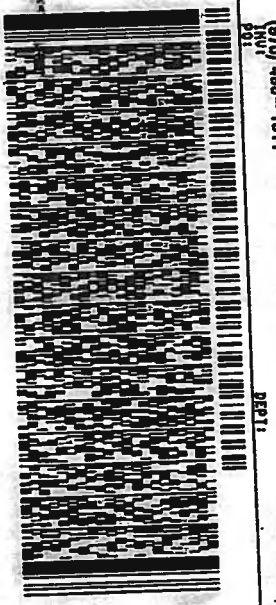
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (970) 480-1611
DEPT: 401

10-1
AM10

570C3/E334/6F4D



1211020121101w

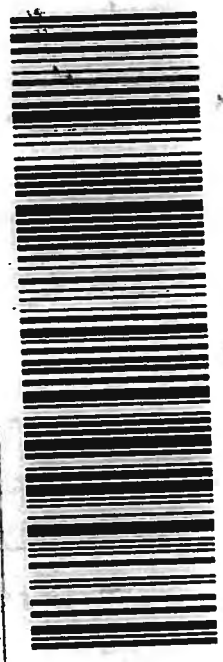
8 of 8
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0283
Mstr# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN

Part # 156148-434 MTW EXP 08/22



Section 2



SAMPLE RESULTS SUMMARY

Radium-226 by Radon Emanation - Method 903.1 Sample Results Summary

Client Name: ALS Environmental
 Client Project Name:
 Client Project Number: R2112516
 Laboratory Name: ALS -- Fort Collins
 PAI Work Order: 2112143

Page: 1 of 1
 Reported on: Tuesday, January 11, 2022
 10:36:45 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	DL	Units	Matrix	Prep Batch	Date Analyzed	Flags
2112143-1	LCSSD-1121	Sample	Ra-226	0.30 +/- 0.15	0.16	NA	pCi/g	SOIL	RE211229-1	1/6/2022	

Comments:

Data Package ID: *RE2112143-1*

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty
- MDC - Sample specific Minimum Detectable Concentration
- BDL - Below Detection Limit

Date Printed: Tuesday, January 11, 2022

ALS -- Fort Collins

LIMS Version: 7.025

Page 1 of 1

Section 3

QC RESULTS SUMMARY

3

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 15

Method Blank Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Lab ID: RE211229-1MB	Sample Matrix: SOIL	Prep Batch: RE211229-1	Final Aliquot: 2.00 g
	Prep SOP: PAI 783 Rev 15	QCBatchID: RE211229-1-1	Result Units: pCi/g
	Date Collected: 29-Dec-21	Run ID: RE211229-1A	File Name: Manual Entry
	Date Prepared: 29-Dec-21	Count Time: 15 minutes	
	Date Analyzed: 06-Jan-22		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	-0.017 +/- 0.089	0.202	1	NA	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Sample specific Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.
DL - Decision Level

Data Package ID: RE2112143-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 15

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Lab ID: RE211229-1LCS	Sample Matrix: SOIL	Prep Batch: RE211229-1	Final Aliquot: 2.00 g
	Prep SOP: PAI 783 Rev 15	QCBatchID: RE211229-1-1	Result Units: pCi/g
	Date Collected: 29-Dec-21	Run ID: RE211229-1A	File Name: Manual Entry
	Date Prepared: 29-Dec-21	Count Time: 15 minutes	
	Date Analyzed: 06-Jan-22		

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	19.2 +/- 3.5	0.2	23.21	82.7	57 - 126	P

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: RE2112143-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 15

Matrix Spike Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Field ID:	LCSSSED-1121
Lab ID:	2112143-1MS

Sample Matrix: SOIL
Prep SOP: PAI 783 Rev 15
Date Collected: 29-Nov-21
Date Prepared: 29-Dec-21
Date Analyzed: 06-Jan-22

Prep Batch: RE211229-1
QCBatchID: RE211229-1-1
Run ID: RE211229-1A
Count Time: 15 minutes
Report Basis: As Received

Final Aliquot: 2.00 g
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/g
File Name: Manual Entry

CASNO	Target Nuclide	Matrix Spike	Sample Results	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	22.2	0.30	0.1	23.2	94.3	57 - 126	P

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
N - Matrix Spike Recovery outside control limits
P - Matrix Spike Recovery within control limits
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

MDC - Sample specific Minimum Detectable Concentration

Data Package ID: RE2112143-1

Date Printed: Tuesday, January 11, 2022

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 7.025

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 15

Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins
 Work Order Number: 2112143
 Client Name: ALS Environmental
 ClientProject ID: R2112516

Field ID:	LCSSED-1121
Lab ID:	2112143-1DUP

Sample Matrix: SOIL
 Prep SOP: PAI 783 Rev 15
 Date Collected: 29-Nov-21
 Date Prepared: 29-Dec-21
 Date Analyzed: 06-Jan-22

Prep Batch: RE211229-1
 QCBatchID: RE211229-1-1
 Run ID: RE211229-1A
 Count Time: 15 minutes
 Report Basis: As Received

Final Aliquot: 2.00 g
 Prep Basis: As Received
 Moisture(%): NA
 Result Units: pCi/g
 File Name: Manual Entry

CASNO	Analyte	Sample				Duplicate				DER	DER Lim
		Result +/-	2 s TPU	MDC	Flags	Result +/-	2 s TPU	MDC	Flags		
13982-63-3	Ra-226	0.30 +/-	0.15	0.16		0.37 +/-	0.16	0.09		0.332	2.13

Comments:

Duplicate Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- D - DER is greater than Control Limit of 2.13
- LT - Result is less than Request MDC, greater than sample specific MDC
- M - Requested MDC not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits

Abbreviations:

- TPU - Total Propagated Uncertainty
- DER - Duplicate Error Ratio
- BDL - Below Detection Limit
- NR - Not Reported

Data Package ID: RE2112143-1

Section 4

INDIVIDUAL SAMPLE RESULTS



Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 15

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID: LCSSD-1121

Lab ID: 2112143-1

Sample Matrix: SOIL

Prep SOP: PAI 783 Rev 15

Date Collected: 29-Nov-21

Date Prepared: 29-Dec-21

Date Analyzed: 06-Jan-22

Prep Batch: RE211229-1

QC Batch ID: RE211229-1-1

Run ID: RE211229-1A

Count Time: 15 minutes

Report Basis: As Received

Final Aliquot: 2.00 g

Prep Basis: As Received

Moisture(%): NA

Result Units: pCi/g

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	0.30 +/- 0.15	0.16	1	NA	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Data Package ID: RE2112143-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 15

Sample Duplicate Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID:	LCSSD-1121
Lab ID:	2112143-1DUP

Sample Matrix: SOIL

Prep SOP: PAI 783 Rev 15

Date Collected: 29-Nov-21

Date Prepared: 29-Dec-21

Date Analyzed: 06-Jan-22

Prep Batch: RE211229-1

QCBatchID: RE211229-1-1

Run ID: RE211229-1A

Count Time: 15 minutes

Report Basis: As Received

Final Aliquot: 2.00 g

Prep Basis: As Received

Moisture(%): NA

Result Units: pCi/g

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	0.37 +/- 0.16	0.09	1	NA	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Data Package ID: RE2112143-1

Date Printed:

Tuesday, January 11, 2022

ALS -- Fort Collins

LIMS Version: 7.025

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Radium-228

Case Narrative

ALS Environmental

R2112516

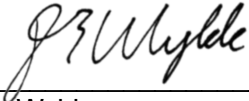
Work Order Number: 2112143

1. This report consists of the analytical results and supporting documentation for one soil sample received by ALS on 12/8/2022.
2. This sample was prepared according to the current revision of SOP 749.
3. The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724. The analysis was completed on 1/14/2022.
4. The analysis results for this sample are reported in units of pCi/L. The sample was not filtered prior to analysis.
5. The analysis results for this sample are reported on a 'Dry Weight' OR an 'As Received' basis in units of pCi/gram.
6. The ICP-AES measurement of barium concentrations prior to chemical separation for samples 2112143-1 and -1DUP showed concentrations less than the amount known to have been added to the sample in the form of barium carrier. To avoid and minimize the potential low bias in the final analytical results for these samples, the known concentration of the carrier was used in the chemical yield calculations in lieu of the pre-separation measurement. The low bias in the pre-separation ICP measurement for the samples may be attributable to matrix interference. The reported TPU values for the affected samples may not reflect the additional uncertainty imparted in the pre-separation ICP measurement due to matrix effects. This qualification can be found on the Radiochemistry ICP Worksheet, located in Section 5, "Raw Data" of this report.




7. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for sample 2112143-1 fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according to the ALS LQAP. This sample is identified with an "Y1" flag on the final reports.
8. No further anomalous situations were noted during the preparation and analysis of this sample. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Dakota Wylde
Radiochemistry Primary Data Reviewer

1/31/22
Date



Radiochemistry Final Data Reviewer

1/31/22
Date

Section 1

CHAIN OF CUSTODY

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2112143

Client Name: ALS Environmental

Client Project Name:

Client Project Number: R2112516

Client PO Number: 58R2112516

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LCSSD-1121	2112143-1		SOIL	29-Nov-21	11:30

ALS Environmental Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Janice Jaeger

Project Number: R2112516
 Project Manager: Janice Jaeger
 QAP: LAB QAP

2112143



Lab Code	Sample ID	# of Cont.	Matrix	Sample			Gamma Spec 901.1	Nat U 908.0	
				Date	Time	Lab ID			
R2112516-002	LCSSED-1121	1	2	Soil	11/29/21	1130	Fort Collins ALS	X	X

gamma - Rad 226, 228

<p>Special Instructions/Comments</p> <p style="font-size: 1.5em; font-family: cursive;">Standard eeld</p> <p>NPDES</p> <p>H - Test is On Hold P - Test is Authorized for Prep Only</p>	<p>Turnaround Requirements</p> <p><input type="checkbox"/> RUSH (Surcharges Apply)</p> <p>PLEASE CIRCLE WORK DAYS</p> <p style="text-align: center;">1 2 3 4 5</p> <p><input checked="" type="checkbox"/> STANDARD</p> <p>Requested FAX Date: _____</p> <p>Requested Report Date: <u>12/10/21</u></p>	<p>Report Requirements</p> <p><input type="checkbox"/> I. Results Only</p> <p><input checked="" type="checkbox"/> II. Results + QC Summaries</p> <p><input type="checkbox"/> III. Results + QC and Calibration Summaries</p> <p><input type="checkbox"/> IV. Data Validation Report with Raw Data</p> <p>PQL/MDL/J <u>N</u></p> <p>EDD <u>Y</u></p>	<p>Invoice Information</p> <hr/> <p>PO# 58R2112516</p> <hr/> <p>Bill to</p>
---	---	--	--

Relinquished By: *Seung Lee* 12/6/21 1630 Received By: *Chait Shennel* 12/17/21 1405 Airbill Number: _____

R2112516

2112143

X Ship To: Fort Collins ALS
ALS Laboratory Group
225 Commerce Drive
Fort Collins, CO 80524

Instructions:

Ice _____
Dry Ice _____
No Ice _____

Shipping:

Overnight _____
2nd Day _____
Ground _____

PC Date 11/30/21
SMO _____ Date _____

Bill to Client Account _____

Comments:



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS ROCHESTER

Workorder No: 2112143

Project Manager: JWS

Initials: CXT

Date: 12/8/2021

		N/A	YES	NO																																													
1.	Are airbills / shipping documents present and/or removable? Tracking number: 9889 5097 8493/9889 5097 8508/9889 5097 8519/9889 5097 8520/9889 5097 8530/9889 5097 8541/9889 5097 8552/9889 5097 8563		X																																														
2.	Are custody seals on shipping containers intact?		X																																														
3.	Are custody seals on sample containers intact?	X																																															
4.	Is there a COC (chain-of-custody) present?		X																																														
5.	Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X																																														
6.	Are short-hold samples present?			X																																													
7.	Are all samples within holding times for the requested analyses?		X																																														
8.	Were all sample containers received intact? (not broken or leaking)		X																																														
9.	Is there sufficient sample for the requested analyses?		X																																														
10.	Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X																																														
11.	Are all aqueous samples preserved correctly, if required? (excluding volatiles)	x																																															
12.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X																																															
13.	Were the samples shipped on ice?			X																																													
14.	Were cooler temperatures measured at 0.1-6.0°C?			X																																													
	IR gun used*: #5			X																																													
	<table border="1"> <tr> <td>Cooler #:</td> <td><u>1</u></td> <td><u>2</u></td> <td><u>3</u></td> <td><u>4</u></td> <td><u>5</u></td> <td><u>6</u></td> <td><u>7</u></td> <td><u>8</u></td> </tr> <tr> <td>Temperature (°C):</td> <td><u>AMB</u></td> <td><u>AMB</u></td> <td><u>AMB</u></td> <td><u>AMB</u></td> <td><u>AMB</u></td> <td><u>AMB</u></td> <td><u>AMB</u></td> <td><u>AMB</u></td> </tr> <tr> <td># of custody seals on cooler:</td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>2</u></td> <td><u>1</u></td> <td><u>1</u></td> </tr> <tr> <td>External µR/hr reading:</td> <td><u>11</u></td> <td><u>10</u></td> <td><u>9</u></td> <td><u>10</u></td> <td><u>10</u></td> <td><u>11</u></td> <td><u>10</u></td> <td><u>10</u></td> </tr> <tr> <td>Background µR/hr reading:</td> <td colspan="8"><u>10</u></td> </tr> </table>	Cooler #:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	Temperature (°C):	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	# of custody seals on cooler:	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	External µR/hr reading:	<u>11</u>	<u>10</u>	<u>9</u>	<u>10</u>	<u>10</u>	<u>11</u>	<u>10</u>	<u>10</u>	Background µR/hr reading:	<u>10</u>										
Cooler #:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>																																									
Temperature (°C):	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>	<u>AMB</u>																																									
# of custody seals on cooler:	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>																																									
External µR/hr reading:	<u>11</u>	<u>10</u>	<u>9</u>	<u>10</u>	<u>10</u>	<u>11</u>	<u>10</u>	<u>10</u>																																									
Background µR/hr reading:	<u>10</u>																																																
	Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES			X																																													

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? na

All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? **YES / NO / NA** Contact: [Signature]

Date/Time: 12/13/21

Project Manager Signature / Date: [Signature]

2112143

ORIGIN ID:ONHA (SBS) 872-7464
A18 ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14823
UNITED STATES US

SHIP DATE: 08DEC21
ACTWGT: 30.20 LB
CAD: 0288737/CALFE3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (970) 480-1611

11-1
AMB

570C3/E334/GF4D



TRK# 9889 5097 8493
MASTER

1 of 8
TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

2112143

ORIGIN ID:ONHA (585) 7464
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 1380
ROCHESTER NY 14623
UNITED STATES US

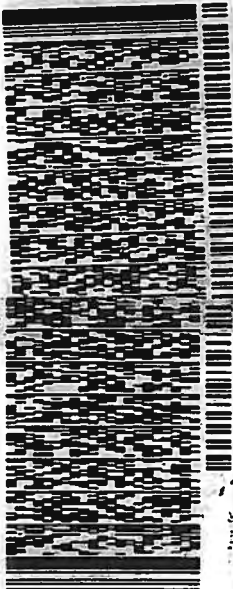
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CMT: 0288737/CAFES507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524

10-1
AMB

(970) 490-1511



2 of 8
MPS# 9889 5097 8518
[0263]
Met# 9889 5097 8498

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTGA

80524
CO-US DEN

Part # 156148-434 MTW EXP 08/22



9889 5097 8508

2112143

ORIGIN ID:ONHA (585) 672-7464
SND
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 380
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 08DEC01
ACTWT: 51.90 LB
CAD: 0288737/CAF3507

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

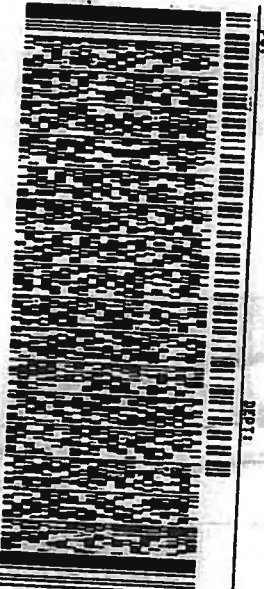
FORT COLLINS CO 80524

(970) 490-1611

NET*

9-1
AMB

570C3/E934/CF40



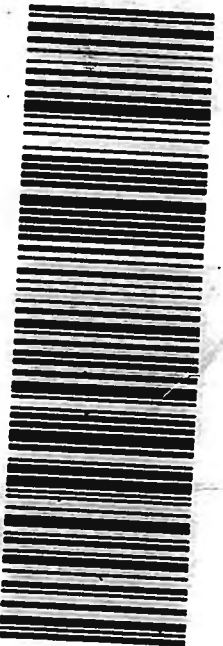
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Matr# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 09/22

2112143

ORIGIN ID: ONHA (585) 672-7464
SFO
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 08DEC21
ACTWT: 47.85 LB
CMD: 0288737/CNF/E3507

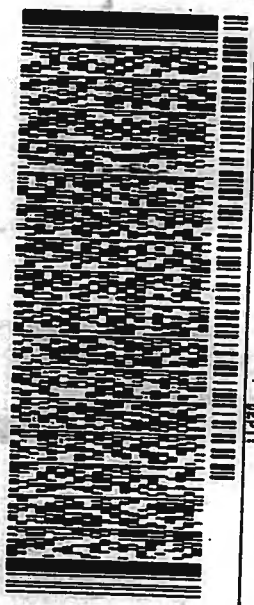
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 480-1511
REF: 1
PRT: 1
DEPT: 1

10-1
AMB

570C3/E334/6F4D



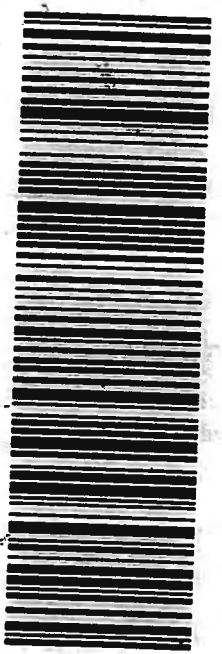
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Matr# 9889 5997 8438

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

UT FTCA

80524
CO-US DEN



Part # 158148-434 MTW EXP 08/22

2112143

ORIGIN ID:ONHA (585) 672-7464
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

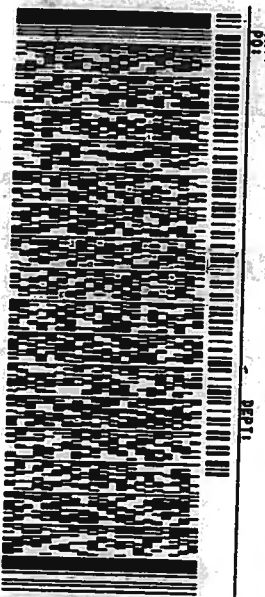
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BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

10-1

FORT COLLINS CO 80524
(970) 480-1611
P.O.
NFT1

AmB



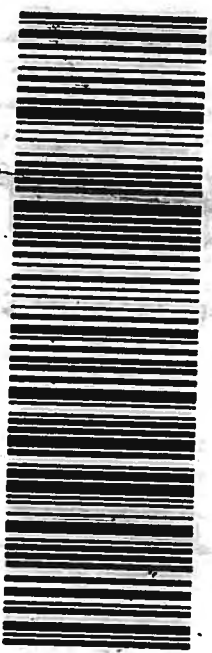
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Met#: 9889 5097 8493
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TUE - 07 DEC 4:30P
STANDARD OVERNIGHT
0201

U1 FTGA

80524
CO-US DEN



Part # 156148-434 MITW EXP 0822

2112143

ORIGIN ID:DNHA (SBS) 672-7484
SND ENVIRONMENTAL
ALS JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

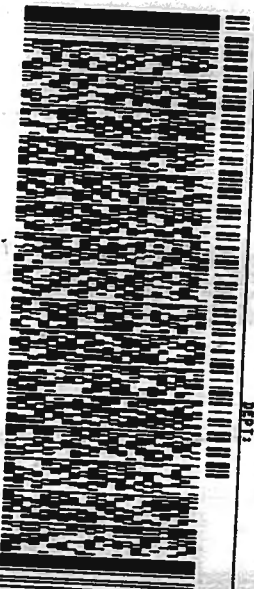
SHIP DATE: 08DEC21
ACTWGT: 51.85 LB
CAD: 0288737/CAFE3507

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (870) 480-1611
NOI

11-2
AMB



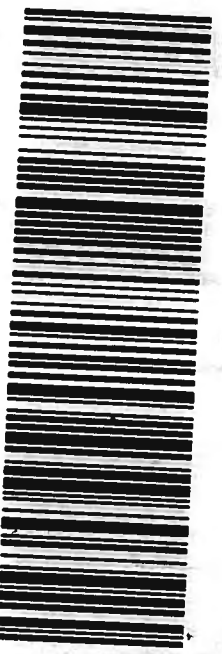
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Met# 9889 5097 8493
0263

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT
0201

U1 FTCA

80524
CO-US DEN



Part # 158148-434 MTW EXP 08/22

2112143

ORIGIN ID:ONHA (SBS) 672-7484
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 380
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 06DEC21
ACTWGT: 52.90 LB
CAD: 0288737/CHF E3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (870) 490-1611

10-1
AMB



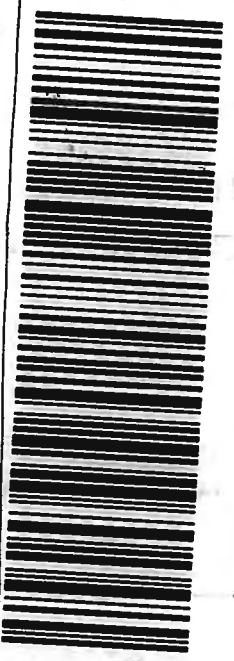
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Met# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

570C3/E934/6F40

2112143

ORIGIN ID:ONHA (585) 672-7484
SND ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER NY 14823
UNITED STATES US

SHIP DATE: 06DEC21
ACTWT: 52.90 LB
CMD: 0298737/CAF/E3507

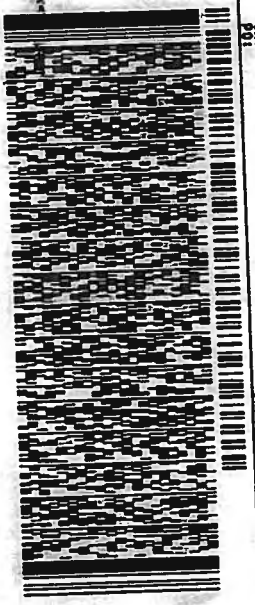
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524

10-1
AM10

(970) 480-1611
REF: DEP1



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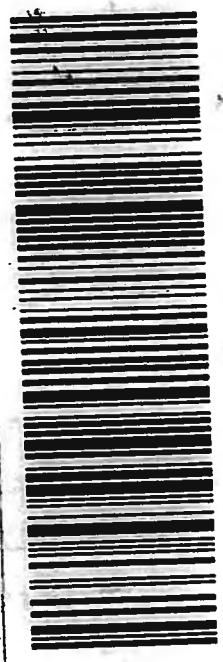
8 of 8
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0283
Mstr# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN

Part # 156148-434 MTW EXP 08/22



570C3/E334/6F4D

Section 2



SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: ALS Environmental
Client Project Name:
Client Project Number: R2112516
Laboratory Name: ALS -- Fort Collins
PAI Work Order: 2112143

Page: 1 of 1
Reported on: Monday, January 31, 2022
 2:30:14 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	DL	Units	Matrix	Prep Batch	Date Analyzed	Flags
2112143-1	LCSSD-1121	Sample	Ra-228	0.38 +/- 0.44	0.94	NA	pCi/g	SOIL	RA220110-1	1/14/2022	U

Comments:

Data Package ID: *ra2112143-1*

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty
- MDC - Sample specific Minimum Detectable Concentration
- BDL - Below Detection Limit

Date Printed: Monday, January 31, 2022

ALS -- Fort Collins
 LIMS Version: 7.026

Page 1 of 1

Section 3

QC RESULTS SUMMARY

3

Radium-228 Analysis by GFPC

PAI 724 Rev 14

Method Blank Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Lab ID: RA220110-1MB	Sample Matrix: SOIL	Prep Batch: RA220110-1	Final Aliquot: 0.997 g
	Prep SOP: SOP749 Rev 7	QCBatchID: RA220110-1-1	Result Units: pCi/g
	Date Collected: 10-Jan-22	Run ID: RA220110-1A	File Name: RAC0114A
	Date Prepared: 10-Jan-22	Count Time: 90 minutes	
	Date Analyzed: 14-Jan-22		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
15262-20-1	Ra-228	0.25 +/- 0.45	0.99	5	NA	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34900	37270	ug	107	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Sample specific Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.
DL - Decision Level

Data Package ID: RA2112143-1

Radium-228 Analysis by GFPC

PAI 724 Rev 14

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Lab ID: RA220110-1LCS	Sample Matrix: SOIL	Prep Batch: RA220110-1	Final Aliquot: 0.997 g
	Prep SOP: SOP749 Rev 7	QCBatchID: RA220110-1-1	Result Units: pCi/g
	Date Collected: 10-Jan-22	Run ID: RA220110-1A	File Name: RAA0114B
	Date Prepared: 10-Jan-22	Count Time: 30 minutes	
	Date Analyzed: 14-Jan-22		

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	20.9 +/- 5.3	1.9	22.56	92.8	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	35230	33020	ug	93.7	40 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS Recovery within control limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty
- MDC - Minimum Detectable Concentration

Data Package ID: RA2112143-1

Radium-228 Analysis by GFPC

PAI 724 Rev 14

Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID:	LCSSED-1121
Lab ID:	2112143-1DUP

Sample Matrix: SOIL
Prep SOP: SOP749 Rev 7
Date Collected: 29-Nov-21
Date Prepared: 10-Jan-22
Date Analyzed: 14-Jan-22

Prep Batch: RA220110-1
QCBatchID: RA220110-1-1
Run ID: RA220110-1A
Count Time: 90 minutes
Report Basis: As Received

Final Aliquot: 1.01 g
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/g
File Name: RAC0114A

CASNO	Analyte	Sample				Duplicate				DER	DER Lim
		Result +/-	2 s TPU	MDC	Flags	Result +/-	2 s TPU	MDC	Flags		
15262-20-1	Ra-228	0.38 +/-	0.44	0.94	U	0.72 +/-	0.50	0.98	U	0.517	2.13

Comments:

Duplicate Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- D - DER is greater than Control Limit of 2.13
- LT - Result is less than Request MDC, greater than sample specific MDC
- M - Requested MDC not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits

Abbreviations:

- TPU - Total Propagated Uncertainty
- DER - Duplicate Error Ratio
- BDL - Below Detection Limit
- NR - Not Reported

Data Package ID: RA2112143-1

Section 4

INDIVIDUAL SAMPLE RESULTS



Radium-228 Analysis by GFPC

PAI 724 Rev 14

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID: LCSSED-1121

Lab ID: 2112143-1

Sample Matrix: SOIL

Prep SOP: SOP749 Rev 7

Date Collected: 29-Nov-21

Date Prepared: 10-Jan-22

Date Analyzed: 14-Jan-22

Prep Batch: RA220110-1

QCBatchID: RA220110-1-1

Run ID: RA220110-1A

Count Time: 90 minutes

Report Basis: As Received

Final Aliquot: 1.01 g

Prep Basis: As Received

Moisture(%): NA

Result Units: pCi/g

File Name: RAC0114A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
15262-20-1	Ra-228	0.38 +/- 0.44	0.94	5	NA	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34770	33940	ug	97.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Data Package ID: RA2112143-1

Radium-228 Analysis by GFPC

PAI 724 Rev 14

Sample Duplicate Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Field ID:	LCSSD-1121
Lab ID:	2112143-1DUP

Sample Matrix: SOIL
Prep SOP: SOP749 Rev 7
Date Collected: 29-Nov-21
Date Prepared: 10-Jan-22
Date Analyzed: 14-Jan-22

Prep Batch: RA220110-1
QCBatchID: RA220110-1-1
Run ID: RA220110-1A
Count Time: 90 minutes
Report Basis: As Received

Final Aliquot: 1.01 g
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/g
File Name: RAC0114A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
15262-20-1	Ra-228	0.72 +/- 0.50	0.98	5	NA	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34770	32660	ug	93.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.
W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Sample specific Minimum Detectable Concentration
BDL - Below Detection Limit
DL - Decision Level

Data Package ID: RA2112143-1

Date Printed:

Monday, January 31, 2022

ALS -- Fort Collins

LIMS Version: 7.026

Page 1 of 1



Total Uranium Case Narrative

ALS Environmental

R2112516

Work Order Number: 2112143

1. This report consists of the analytical results and supporting documentation for one soil sample received by ALS on 12/8/2021.
2. This sample was prepared according to the current revisions of SOP 736, SOP 773, and SOP 778.
3. The sample was analyzed for the presence of isotopic and total uranium according to the current revision of SOP 714. The analyses were completed on 1/30/2022.
4. The total uranium results were determined by adding the isotopic results, and are displayed as the analyte 'URANIUM, TOTAL' for each sample.
5. Results for total uranium are included in Section 9 of this data package.
6. The isotopic analysis results for this sample are reported on an 'As Received' basis in units of pCi/gram.
7. This analytical method quantifies U-235 alpha activity in a specific region of interest corresponding to emission energies between those of U-234 and U-238. A potential limitation of this method is that measurable amounts of U-234 in the sample may cause a small amount of characteristic activity in the U-235 region of interest due to poorly resolved alpha activity at the boundary between the two regions. To minimize the potential for a high bias in the U-235 analytical results, the U-235 region of interest has been narrowed and limited to a lower energy region. An 85.1% abundance correction has been made to the final U-235 results.
8. No further anomalous situations were encountered during the preparation or analysis of this sample. All remaining quality control criteria were met.



The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Dakota Wylde
Radiochemistry Primary Data Reviewer

1/31/22
Date

Radiochemistry Final Data Reviewer

1/31/22
Date

Section 1

CHAIN OF CUSTODY

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2112143

Client Name: ALS Environmental

Client Project Name:

Client Project Number: R2112516

Client PO Number: 58R2112516

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LCSSD-1121	2112143-1		SOIL	29-Nov-21	11:30

ALS Contact: Janice Jaeger

Project Number: R2112516
 Project Manager: Janice Jaeger
 QAP: LAB QAP

2112143



Lab Code	Sample ID	# of Cont.	Matrix	Sample			Gamma Spec 901.1	Nat U 908.0	
				Date	Time	Lab ID			
R2112516-002	LCSSD-1121	1	2	Soil	11/29/21	1130	Fort Collins ALS	X	X

gamma - Rad 226, 228

Special Instructions/Comments Standard eeld NPDES H - Test is On Hold P - Test is Authorized for Prep Only	Turnaround Requirements RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 STANDARD	Report Requirements I. Results Only <input checked="" type="checkbox"/> II. Results + QC Summaries III. Results + QC and Calibration Summaries IV. Data Validation Report with Raw Data PQL/MDL/J N EDD Y	Invoice Information PO# 58R2112516 Bill to
	Requested FAX Date: _____		
	Requested Report Date: 12/10/21		

Relinquished By: Seung Lee 12/6/21 1630 Received By: Chait Shennel 12/7/21 1405 Airbill Number: _____

R2112516

2112143

X Ship To: Fort Collins ALS
ALS Laboratory Group
225 Commerce Drive
Fort Collins, CO 80524

Instructions:

Ice _____
Dry Ice _____
No Ice _____

Shipping:

Overnight _____
2nd Day _____
Ground _____

PC Date 11/30/21
SMO _____ Date _____

Bill to Client Account _____

Comments:



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS ROCHESTER

Workorder No: 2112143

Project Manager: JWS

Initials: CXT

Date: 12/8/2021

		N/A	YES	NO					
1.	Are airbills / shipping documents present and/or removable? Tracking number: 9889 5097 8493/9889 5097 8508/9889 5097 8519/9889 5097 8520/9889 5097 8530/9889 5097 8541/9889 5097 8552/9889 5097 8563		X						
2.	Are custody seals on shipping containers intact?		X						
3.	Are custody seals on sample containers intact?	X							
4.	Is there a COC (chain-of-custody) present?		X						
5.	Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X						
6.	Are short-hold samples present?			X					
7.	Are all samples within holding times for the requested analyses?		X						
8.	Were all sample containers received intact? (not broken or leaking)		X						
9.	Is there sufficient sample for the requested analyses?		X						
10.	Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X						
11.	Are all aqueous samples preserved correctly, if required? (excluding volatiles)	x							
12.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X							
13.	Were the samples shipped on ice?			X					
14.	Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: #5		RAD ONLY					
Cooler #:		1	2	3	4	5	6	7	8
Temperature (°C):		AMB	AMB	AMB	AMB	AMB	AMB	AMB	AMB
# of custody seals on cooler:		1	1	1	1	1	2	1	1
External µR/hr reading:		11	10	9	10	10	11	10	10
Background µR/hr reading:		10							
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES									

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? na

All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? **YES / NO / NA** Contact: [Signature]

Date/Time: 12/13/21

Project Manager Signature / Date: [Signature]

2112143

ORIGIN ID:ONHA (SBS) 872-7464
ALB ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14823
UNITED STATES US

SHIP DATE: 08DEC21
ACTWGT: 30.20 LB
CAD: 0288737/CALFE3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (970) 480-1611

11-1
AMB

570C3/E334/GF4D

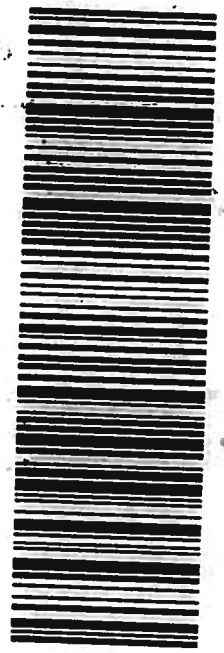



21 120121101 0v

TRK# 1 of 8
0201 9889 5097 8493
MASTER

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA 80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

2112143

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ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 1380
ROCHESTER NY 14623
UNITED STATES US

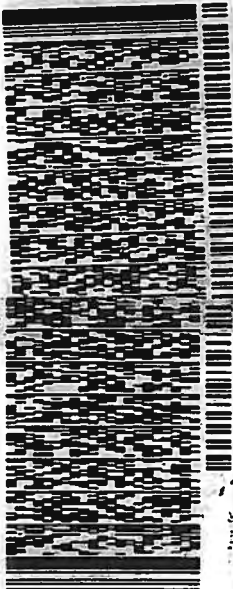
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CMT: 0288737/CAFES507
BILL THIRD PARTY

TO SAMPLE RECEIVING
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225 COMMERCE DRIVE

FORT COLLINS CO 80524

10-1
AMB

(970) 490-1511

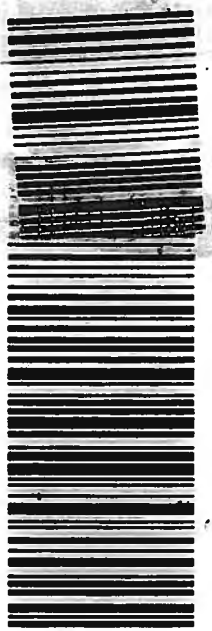


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Met# 9889 5097 8498

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTGA

80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

9889 5097 8508

2112143

ORIGIN ID:ONHA (585) 672-7464
SND
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 380
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 08DEC31
ACTWGT: 51.90 LB
CAD: 0288737/CAF3507
BILL THIRD PARTY

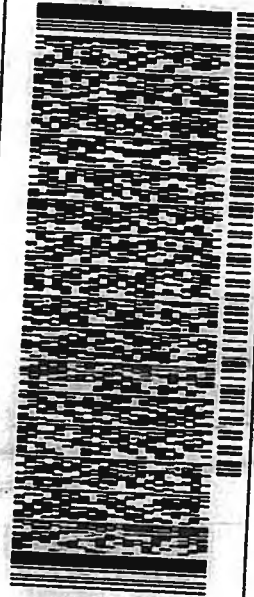
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ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524

9-1
AMB

(970) 490-1511

NET*



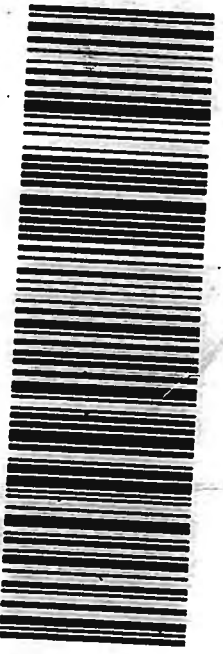
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Matr# 9889 5097 8493

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STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 09/22

2112143

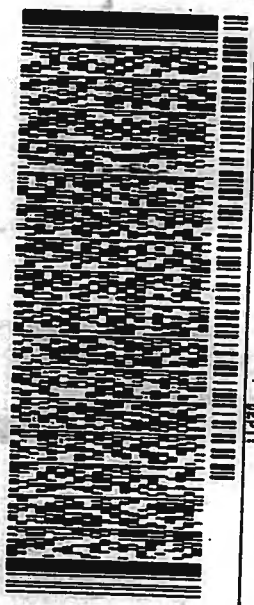
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SFO
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 09DEC21
ACTWT: 47.85 LB
CMT: 0288737/CNFE3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 480-1511
REF: 1
PRT: 1
DEPT: 1

10-1
AMB

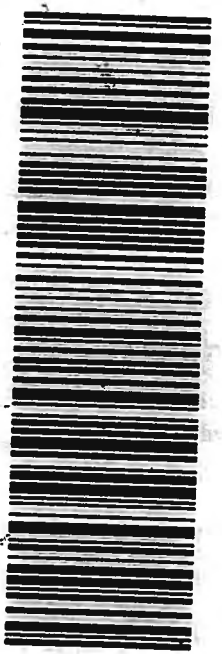


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STANDARD OVERNIGHT

UT FTCA

80524
CO-US DEN



Part # 158148-434 MTW EXP 08/22

2112143

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ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

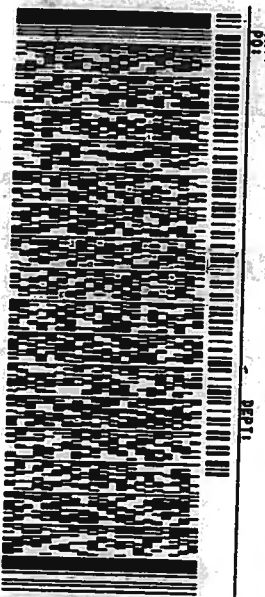
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TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

10-1

FORT COLLINS CO 80524
(970) 480-1611
NEPT
P01

AmB



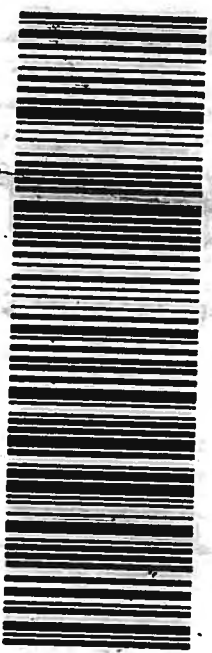
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Met#: 9889 5097 8493
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STANDARD OVERNIGHT
0201

U1 FTGA

80524
CO-US DEN



Part # 156148-434 MITW EXP 0822

2112143

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SND ENVIRONMENTAL
ALS JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER, NY 14623
UNITED STATES US

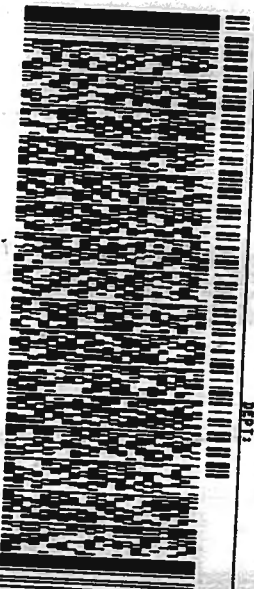
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BILL THIRD PARTY

TO SAMPLE RECEIVING
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225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (870) 480-1611
NOI

11-2
AMB



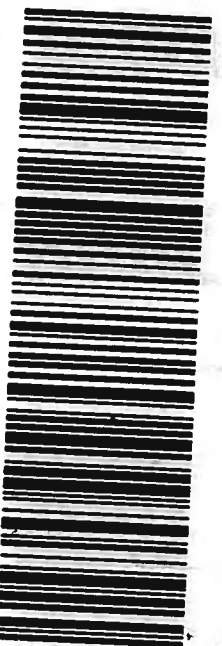
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Met# 9889 5097 8493
0263

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 158148-434 MTW EXP 08/22

2112143

ORIGIN ID:ONHA (SBS) 672-7484
ALS ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 380
ROCHESTER, NY 14623
UNITED STATES US

SHIP DATE: 06DEC21
ACTWGT: 52.90 LB
CAD: 02887377/CHF E3507
BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS LABS - FT. COLLINS
225 COMMERCE DRIVE

FORT COLLINS CO 80524
REF: (870) 490-1611

10-1
AMB



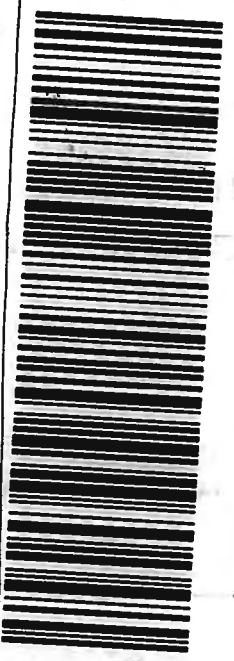
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Met# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN



Part # 156148-434 MTW EXP 08/22

570C3/E934/6F40

2112143

ORIGIN ID:ONHA (585) 672-7484
SND ENVIRONMENTAL
1585 JEFFERSON RD
BLDG 300 SUITE 360
ROCHESTER NY 14623
UNITED STATES US

SHIP DATE: 06DEC21
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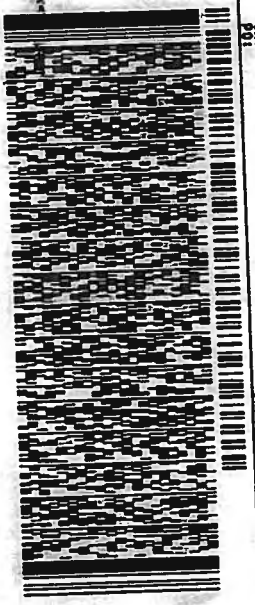
BILL THIRD PARTY

TO SAMPLE RECEIVING
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FORT COLLINS CO 80524

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REF: DEPT:



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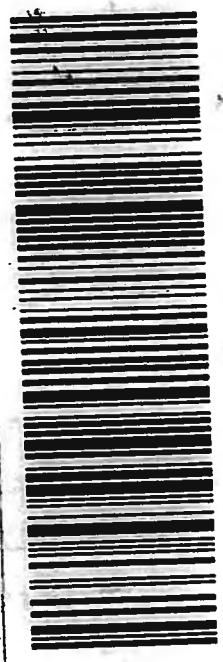
8 of 8
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0283
Mstr# 9889 5097 8493

TUE - 07 DEC 4:30P
STANDARD OVERNIGHT

U1 FTCA

80524
CO-US DEN

Part # 156148-434 MTW EXP 08/22



Section 2



SAMPLE RESULTS SUMMARY

Total Uranium by Alpha Spectroscopy Sample Results Summary

Client Name: ALS Environmental
Client Project Name:
Client Project Number: R2112516
Laboratory Name: ALS -- Fort Collins
PAI Work Order: 2112143

Page: 1 of 1
Reported on: Monday, January 31, 2022
 2:14:21 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	DL	Units	Matrix	Prep Batch	Date Analyzed	Flags
2112143-1	LCSSSED-1121	Sample	U-234	0.097 +/- 0.065	0.070	NA	pCi/g	SOIL	AS220126-1	1/30/2022	
2112143-1	LCSSSED-1121	Sample	U-235	0.030 +/- 0.042	0.027	NA	pCi/g	SOIL	AS220126-1	1/30/2022	
2112143-1	LCSSSED-1121	Sample	U-238	0.114 +/- 0.069	0.070	NA	pCi/g	SOIL	AS220126-1	1/30/2022	
2112143-1	LCSSSED-1121	Sample	URANIUM, TOTAL	0.24 +/- 0.10	0.09	NA	pCi/g	SOIL	AS220126-1	1/30/2022	

Comments:

Data Package ID: *UR2112143-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
 LT - Result is less than Requested MDC, greater than sample specific MDC.
 Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
 Y2 - Chemical Yield outside default limits.
 M - The requested MDC was not met.
 M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
 MDC - Sample specific Minimum Detectable Concentration
 BDL - Below Detection Limit

Date Printed: Monday, January 31, 2022

ALS -- Fort Collins

LIMS Version: 7.026

Page 1 of 1

Section 3

QC RESULTS SUMMARY

3

Total Uranium by Alpha Spectroscopy

PAI 714 Rev 15

Method Blank Results

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Lab ID: AS220126-1MB	Sample Matrix: SOIL	Prep Batch: AS220126-1	Final Aliquot: 2.00 g
	Prep SOP: PAI 778 Rev 16	QCBatchID: AS220126-1-1	Result Units: pCi/g
	Date Collected: 26-Jan-22	Run ID: AS220126-1UR	File Name: Spectrum #1
	Date Prepared: 26-Jan-22	Count Time: 720 minutes	
	Date Analyzed: 30-Jan-22		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13966-29-5	U-234	0.0033 +/- 0.0062	0.0096	0.1	NA	U
15117-96-1	U-235	0.0017 +/- 0.0073	0.0046	0.1	NA	U
7440-61-1	U-238	-0.0027 +/- 0.0062	0.0153	0.1	NA	U
7440-61-1	URANIUM, TOTAL	0.002 +/- 0.011	0.017	0.1	NA	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	2.450	1.64	pCi/g	67.1	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Sample specific Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.
DL - Decision Level

Data Package ID: UR2112143-1

Total Uranium by Alpha Spectroscopy

PAI 714 Rev 15

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins
Work Order Number: 2112143
Client Name: ALS Environmental
ClientProject ID: R2112516

Lab ID: AS220126-1LCS

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 16
Date Collected: 26-Jan-22
Date Prepared: 26-Jan-22
Date Analyzed: 30-Jan-22

Prep Batch: AS220126-1
QCBatchID: AS220126-1-1
Run ID: AS220126-1UR
Count Time: 720 minutes

Final Aliquot: 2.00 g
Result Units: pCi/g
File Name: Spectrum #1

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13966-29-5	U-234	2.13 +/- 0.35	0.02	2.175	97.7	82 - 122	P
15117-96-1	U-235	0.107 +/- 0.032	0.005	0.1041	103	NA	
7440-61-1	U-238	2.29 +/- 0.38	0	2.262	101	82 - 122	P
7440-61-1	URANIUM, TOTAL	4.53 +/- 0.52	0.02	4.541	99.7	82 - 122	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	2.450	1.53	pCi/g	62.3	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: UR2112143-1

Total Uranium by Alpha Spectroscopy

PAI 714 Rev 15

Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID:	LCSSED-1121
Lab ID:	2112143-1DUP

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 16
Date Collected: 29-Nov-21
Date Prepared: 26-Jan-22
Date Analyzed: 30-Jan-22

Prep Batch: AS220126-1
QCBatchID: AS220126-1-1
Run ID: AS220126-1UR
Count Time: 720 minutes
Report Basis: As Received

Final Aliquot: 0.279 g
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/g
File Name: Spectrum #1

CASNO	Analyte	Sample				Duplicate				DER	DER Lim
		Result +/-	2 s TPU	MDC	Flags	Result +/-	2 s TPU	MDC	Flags		
13966-29-5	U-234	0.097 +/-	0.065	0.070		0.185 +/-	0.089	0.071		0.801	2.13
15117-96-1	U-235	0.030 +/-	0.042	0.027		0.061 +/-	0.050	0.027		0.47	2.13
7440-61-1	U-238	0.114 +/-	0.069	0.070		0.086 +/-	0.056	0.023		0.314	2.13
7440-61-1	URANIUM, TOTAL	0.24 +/-	0.10	0.09		0.33 +/-	0.12	0.07		1.17	2.13

Comments:

Duplicate Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- D - DER is greater than Control Limit of 2.13
- LT - Result is less than Request MDC, greater than sample specific MDC
- M - Requested MDC not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits

Abbreviations:

- TPU - Total Propagated Uncertainty
- DER - Duplicate Error Ratio
- BDL - Below Detection Limit
- NR - Not Reported

Data Package ID: UR2112143-1

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Total Uranium by Alpha Spectroscopy

PAI 714 Rev 15

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID: LCSSD-1121

Lab ID: 2112143-1

Sample Matrix: SOIL

Prep SOP: PAI 778 Rev 16

Date Collected: 29-Nov-21

Date Prepared: 26-Jan-22

Date Analyzed: 30-Jan-22

Prep Batch: AS220126-1

QC Batch ID: AS220126-1-1

Run ID: AS220126-1UR

Count Time: 720 minutes

Report Basis: As Received

Final Aliquot: 0.298 g

Prep Basis: As Received

Moisture(%): NA

Result Units: pCi/g

File Name: Spectrum #1

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13966-29-5	U-234	0.097 +/- 0.065	0.070	0.1	NA	
15117-96-1	U-235	0.030 +/- 0.042	0.027	0.1	NA	
7440-61-1	U-238	0.114 +/- 0.069	0.070	0.1	NA	
7440-61-1	URANIUM, TOTAL	0.24 +/- 0.10	0.09	0.1	NA	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	16.42	12.2	pCi/g	74.4	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Data Package ID: UR2112143-1

Total Uranium by Alpha Spectroscopy

PAI 714 Rev 15

Sample Duplicate Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2112143

Client Name: ALS Environmental

ClientProject ID: R2112516

Field ID:	LCSSD-1121
Lab ID:	2112143-1DUP

Sample Matrix: SOIL

Prep SOP: PAI 778 Rev 16

Date Collected: 29-Nov-21

Date Prepared: 26-Jan-22

Date Analyzed: 30-Jan-22

Prep Batch: AS220126-1

QCBatchID: AS220126-1-1

Run ID: AS220126-1UR

Count Time: 720 minutes

Report Basis: As Received

Final Aliquot: 0.279 g

Prep Basis: As Received

Moisture(%): NA

Result Units: pCi/g

File Name: Spectrum #1

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13966-29-5	U-234	0.185 +/- 0.089	0.071	0.1	NA	
15117-96-1	U-235	0.061 +/- 0.050	0.027	0.1	NA	
7440-61-1	U-238	0.086 +/- 0.056	0.023	0.1	NA	
7440-61-1	URANIUM, TOTAL	0.33 +/- 0.12	0.07	0.1	NA	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	17.53	13.5	pCi/g	76.7	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Data Package ID: UR2112143-1

Date Printed:

Monday, January 31, 2022

ALS -- Fort Collins

LIMS Version: 7.026

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Appendix C

Historic Groundwater Monitoring Statistics

**Alkalinity (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					193	122		530	194									
21-Feb-17	335	233	364	374			291				223							
04-Apr-17										229					148	141	190	208
05-Apr-17													120	115				
24-May-17	332		370	264	217		312	551			226							
25-May-17		234				122			212									
01-Aug-17										224					162	144	422	235
02-Aug-17	343		372		214	125	314	557	190		229							
03-Aug-17		237		214														
08-Aug-17														142				
14-Nov-17										222				148	160	144	420	237
15-Nov-17							318				234							
16-Nov-17	336	245	376		224	128		537	164									
12-Feb-18	343		340		222	133	318	530	192		225							
13-Feb-18		225		236														
14-Feb-18										219					160	139	432	250
21-Feb-18														148				
08-May-18	348	232	310		269	137	313	535	194		225							
09-May-18				278														
22-Aug-18	318	233	292		270		335	508	177		220							
23-Aug-18				363		136												
07-Nov-18	330	226			276		306	494	179		212							
08-Nov-18			314	430		132												
11-Feb-19							303		166		210							
13-Feb-19	309	224	301		266			500										
14-Feb-19				338		126												
30-Apr-19						120			186									
01-May-19	342	235	310	335	300		317	530			218							
12-Aug-19		224	299		297			488	171									
13-Aug-19						111	308											
14-Aug-19	318			276							208							
09-Sep-19										216				160	172	148		220
10-Sep-19																	460	
18-Nov-19	322					114			182									
19-Nov-19		232	314	274	297		319	492			211							

**Alkalinity (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										198				152	162	130	412	224
14-Jan-20										176				155	166	136	433	232
23-Jan-20	311					114												
27-Jan-20			304				316											
28-Jan-20									167									
11-Feb-20	288		300	392							216							
12-Feb-20		228			264	114	316	369	187			13.2						
11-May-20	305	243	283	328	302			380										
12-May-20							319		182		211							
14-May-20						106						24.8						
05-Aug-20	340		312			107	324		179		208							
06-Aug-20		230		232	297			428				29.2						
09-Nov-20	346		326			111	328		180		214							
10-Nov-20		246		209	326			430				14.8						
15-Dec-20													30	150	136		408	190
16-Dec-20									202							137		
08-Feb-21	339					118	342		79.3	230	20						474	
09-Feb-21		268			333			474	187									222
10-Feb-21			360															
11-Feb-21				365									63.2	167	144			
12-Feb-21																151		
05-May-21		265			351			401	78.2			13						
06-May-21	343		342			115	346		197		228						417	
11-May-21				473									15.1	162	142	147		242
24-Aug-21					335			459		123				159	156	145		247
25-Aug-21				490					188				30.3					435
26-Aug-21	339		360				343				227							
27-Aug-21		258				112						39.4						
10-Nov-21									168								447	
11-Nov-21	353	270	370	419	339	118	355	469		159	233	40.8	106	166	175	150		253

Statistics

Mean	330.4762	239.4	329.4762	331.0526	279.6	120.0476	321.0952	483.1	182.9524	177.125	220.4	24.4	60.76667	152	156.9167	142.6667	412.5	230
Standard Deviation	16.77086	14.81251	30.78737	85.5651	46.62437	9.281574	15.59457	56.43058	11.89318	55.46214	8.647482	11.2382	43.63671	13.974	12.11654	6.271629	72.75676	18.3996
Median	336	233.5	314	335	286.5	118	318	493	182	200	221.5	22.4	46.75	153.5	160	144	427	233.5
10th Percentile	309	224.9	299	228.4	216.7	111	306	398.9	167	83.67	209.8	13.14	22.55	142.6	142.2	136.1	408.4	209.2
90th Percentile	346	265.3	370	438.6	335.4	133	343	538.4	194	223.8	230.3	39.82	113	165.6	171.4	149.8	458.7	249.7

Note: one-half detection limit utilized in statistical calculations for non-detect results.

Aluminum (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.526			0.0475 J									
21-Feb-17	0.127	0.335	0.0638 J	5.1	7.95		0.59	2.75			0.0432 J							
04-Apr-17										0.719					0.232	3.88	2.68	0.141
05-Apr-17													0.2	0.405				
08-Aug-17														0.164				
08-May-18	0.1 U		0.152			0.177	4.11		0.1 U		0.1 U							
09-May-18		0.269		0.821	0.395			0.281										
12-Aug-19		0.042 J	0.115		0.227			0.176	0.0347 J									
13-Aug-19						0.0273 J	0.638											
14-Aug-19	0.0498 J			0.132							0.334							
09-Sep-19										0.792				0.1 U	0.0493 J	0.0234 J		0.0611 J
10-Sep-19																		0.0976 J
10-Dec-19														0.1 U	0.1 U	0.107	0.1 U	0.61
11-Dec-19										0.294								
14-Jan-20										0.748				0.1 U	0.0261 J	0.0784 J	0.0964 J	0.0373 J
23-Jan-20	0.0564 J					0.0368 J												
27-Jan-20			0.184				1.26											
28-Jan-20									0.0531 J									
12-Feb-20												0.143						
11-May-20	0.141		0.442	0.191														
12-May-20		0.209			0.144		0.614	0.447	0.0509 J		0.449							
14-May-20						0.0491 J						0.0505 J						
06-May-21	0.1 U	0.454	0.0265 J		0.109	0.1 U	1.84	0.182	0.1 U	0.0671 J	0.1 U	0.0567 J					0.1 U	
11-May-21				0.256									1.74	0.1 U	0.0442 J	0.0527 J		0.1 U

Statistics

Mean	0.079033	0.2618	0.163883	1.3	1.765	0.144367	1.508667	0.7672	0.0477	0.52402	0.18524	0.0834	0.97	0.128167	0.08032	0.8283	0.5948	0.17988
Standard Deviation	0.04288	0.152849	0.147767	2.142048	3.459283	0.194918	1.36682	1.113821	0.006618	0.324685	0.192649	0.051708	1.088944	0.143081	0.085342	1.706232	1.165899	0.24383469
Median	0.0532	0.269	0.1335	0.256	0.227	0.04955	0.949	0.281	0.05	0.719	0.05	0.0567	0.97	0.05	0.0493	0.0784	0.0964	0.0611
10th Percentile	0.0499	0.1088	0.04515	0.1556	0.123	0.03205	0.602	0.1784	0.0411	0.15786	0.04592	0.05174	0.354	0.05	0.03334	0.03512	0.05	0.04238
90th Percentile	0.134	0.4064	0.313	3.3884	4.928	0.3515	2.975	1.8288	0.052	0.7744	0.403	0.12574	1.586	0.2845	0.1592	2.3708	1.64704	0.4224

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Ammonia Nitrogen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					0.05 U	0.05 U		0.167	0.05 U									
21-Feb-17	0.05 U	0.05 U	0.05 U	0.05 U			0.05 U				0.05 U							
04-Apr-17										0.05 U					0.05 U	0.05 U	0.17	0.05 U
05-Apr-17													0.05 U	0.05 U				
24-May-17	0.05 U	0.05 U	0.05 U	0.05 U	0.116		0.05 U	0.226			0.05 U							
25-May-17						0.05 U		0.05 U										
01-Aug-17										0.05 U					0.05 U	0.05 U	0.203	0.05 U
02-Aug-17	0.05 U	0.05 U	0.05 U		0.061	0.05 U	0.05 U	0.12	0.05 U		0.05 U							
03-Aug-17				0.05 U														
08-Aug-17														0.05 U				
14-Nov-17										0.041 J				0.05 U	0.05 U	0.05 U	0.153	0.034 J
15-Nov-17							0.05 U				0.05 U							
16-Nov-17	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.148	0.05 U									
12-Feb-18	0.05 U	0.05 U	0.05 U		0.05 U	0.05 U	0.05 U	0.16	0.05 U		0.05 U							
13-Feb-18				0.05 U														
14-Feb-18										0.05 U					0.05 U	0.05 U	0.05 U	0.05 U
21-Feb-18														0.05 U				
08-May-18	0.075	0.05 U	0.05 U		0.05 U	0.05 U	0.05 U	0.144	0.05 UJ		0.05 U							
09-May-18				0.05 U														
22-Aug-18	0.05 U	0.041 J	0.05 U		0.103		0.05 U	0.172	0.05 U		0.05 U							
23-Aug-18				0.05 U		0.05 U												
07-Nov-18	0.05 U	0.05 U			0.05 U		0.05 U	0.321	0.05 U		0.05 U							
08-Nov-18			0.05 U	0.05 U		0.05 U												
11-Feb-19							0.05 U		0.05 U		0.05 U							
13-Feb-19	0.05 U	0.036 J	0.05 U		0.05 U			0.388										
14-Feb-19				0.05 U		0.05 U												
30-Apr-19						0.05 U			0.05 U									
01-May-19	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		0.05 U	0.268			0.05 U							
12-Aug-19		0.05 U	0.05 U		0.05 U			0.436	0.05 U									
13-Aug-19						0.05 U	0.05 U											
14-Aug-19	0.05 UJ			0.05 U							0.05 U							
09-Sep-19										0.025 J				0.021 J	0.05 U	0.01 J		0.034 J
10-Sep-19																	0.082	
18-Nov-19	0.05 U					0.05 U			0.05 U									
19-Nov-19		0.016 J	0.05 U	0.05 U	0.05 U		0.006 J	0.247			0.018 J							

**Ammonia Nitrogen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										0.013 J				0.014 J	0.05 UJ	0.013 J	0.05 UJ	0.027 J
14-Jan-20										0.06				0.015 J	0.05 U	0.016 J	0.05 U	0.033 J
23-Jan-20	0.05 U					0.05 UJ												
27-Jan-20			0.05 U				0.05 U											
28-Jan-20									0.05 U									
11-Feb-20	0.05 U		0.05 U	0.05 U							0.009 J							
12-Feb-20		0.03 J			0.05 U	0.05 U	0.05 U	0.202	0.05 U			0.05 U						
11-May-20	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U			0.242										
12-May-20							0.05 U		0.05 U		0.05 U							
14-May-20						0.05 U						0.05 U						
05-Aug-20	0.05 U		0.026 J			0.05 U	0.05 U		0.05 U			0.028 J						
06-Aug-20		0.05 U		0.05 U	0.05 U			0.23				0.05						
09-Nov-20	0.05 U		0.05 U			0.05 U	0.05 U		0.05 U		0.05 U							
10-Nov-20		0.05 U		0.05 U	0.05 U			0.32				0.05 U						
15-Dec-20													0.05 U	0.05 U	0.05 U		0.05 U	0.034 J
16-Dec-20										0.032 J						0.05 U		
08-Feb-21	0.05 U					0.05 U	0.05 U			0.05 U	0.05 U	0.05 U					0.05 U	
09-Feb-21		0.05 U			0.05 U			0.206	0.05 U									0.027 J
10-Feb-21			0.05 U															
11-Feb-21				0.05 U									0.05 U	0.05 U	0.05 U			
12-Feb-21																0.05 U		
05-May-21		0.05 U			0.05 U			0.13		0.043 J		0.05 U						
06-May-21	0.05 U		0.05 UJ			0.05 U	0.05 U		0.05 U		0.05 U						0.05 UJ	
11-May-21				0.05 U									0.05 U	0.05 U	0.05 U	0.041 J		0.046 J
24-Aug-21					0.05 U			0.174		0.05 U				0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
25-Aug-21				0.05 U					0.05 U				0.05 U					0.05 U
26-Aug-21	0.05 U		0.05 U				0.05 U				0.05 U							
27-Aug-21		0.05 U				0.05 U						0.05 U						
10-Nov-21									0.05 U									0.05 U
11-Nov-21	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.032 J	0.132		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		0.034 J

Statistics

Mean	0.027381	0.02615	0.025048	0.025	0.03525	0.025	0.024429	0.22165	0.025	0.030333	0.024	0.028125	0.025	0.022917	0.025	0.023333	0.067333	0.03075
Standard Deviation	0.010911	0.004902	0.000218	3.56E-18	0.026715	3.56E-18	0.00449	0.087909	3.56E-18	0.012272	0.003934	0.008839	3.8E-18	0.0041	3.62E-18	0.00782	0.067982	0.006326
Median	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.204	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
10th Percentile	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.1318	0.025	0.025	0.0243	0.025	0.025	0.0156	0.025	0.0133	0.025	0.025
90th Percentile	0.025	0.0306	0.025	0.025	0.0652	0.025	0.025	0.3277	0.025	0.0428	0.025	0.0325	0.025	0.025	0.025	0.025	0.1683	0.034

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Antimony (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.06 U			0.06 U									
21-Feb-17	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U			0.06 U							
04-Apr-17										0.06 U					0.06 U	0.06 U	0.06 U	0.06 U
05-Apr-17													0.06 U	0.06 U				
08-Aug-17														0.06 U				
08-May-18	0.06 U		0.06 U			0.06 U	0.06 U		0.06 U		0.06 U							
09-May-18		0.06 U		0.06 U	0.06 U			0.06 U										
12-Aug-19		0.06 U	0.06 U		0.06 U			0.06 U	0.06 U									
13-Aug-19						0.06 U	0.06 U											
14-Aug-19	0.06 U			0.06 U							0.06 U							
09-Sep-19										0.06 U				0.06 U	0.06 U	0.06 U		0.06 U
10-Sep-19																	0.06 U	
10-Dec-19														0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
11-Dec-19										0.06 U								
14-Jan-20										0.06 U				0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
23-Jan-20	0.06 U					0.06 U												
27-Jan-20			0.06 U				0.06 U											
28-Jan-20									0.06 U									
12-Feb-20												0.06 U						
11-May-20	0.06 U		0.06 U	0.06 U														
12-May-20		0.06 U			0.06 U		0.06 U	0.06 U	0.06 U		0.06 U							
14-May-20						0.06 U						0.06 U						
06-May-21	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U					0.06 U	
11-May-21				0.06 U									0.06 U	0.0048 J	0.06 U	0.06 U		0.06 U

Statistics

Mean	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0258	0.03	0.03	0.03	0.03
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0.010288	0	0	0	0
Median	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
10th Percentile	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0174	0.03	0.03	0.03	0.03
90th Percentile	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Barium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.0213 E			0.0677 E									
21-Feb-17	0.0491	0.105 E	0.0892	0.225	0.115 E		0.0844	0.163 E			0.0316							
04-Apr-17										0.0387					0.0699	0.143	0.0221	0.0262
05-Apr-17													0.0218	0.0698				
01-Aug-17																0.125		
08-Aug-17														0.0686				
08-May-18	0.0544		0.0818			0.0227	0.105		0.0586		0.0327							
09-May-18		0.0923		0.132	0.0805			0.136										
12-Aug-19		0.087	0.0831		0.113			0.127	0.0539									
13-Aug-19						0.0159 J	0.0773											
14-Aug-19	0.0624			0.138							0.0446							
09-Sep-19									0.0425					0.0911	0.081	0.129		0.0355
10-Sep-19																		0.0355
10-Dec-19														0.0931	0.0785	0.113	0.0295	0.0483
11-Dec-19									0.0458									
14-Jan-20									0.0467					0.0909	0.0763	0.122	0.0331	0.0522
23-Jan-20	0.0583					0.0158 J												
27-Jan-20			0.0892				0.0874											
28-Jan-20								0.0666										
12-Feb-20												0.0575						
11-May-20	0.0609		0.0849	0.153														
12-May-20		0.0868			0.123		0.0811	0.0909	0.0635		0.0439							
14-May-20						0.0141 J						0.0246						
06-May-21	0.0592	0.102	0.085		0.124	0.0139 J	0.0905	0.133	0.0598	0.0152 J	0.0309	0.0718					0.0076 J	
11-May-21				0.179									0.0221	0.0858	0.106	0.133		0.0424

Statistics

Mean	0.057383	0.09462	0.085533	0.1654	0.1111	0.017283	0.087617	0.12998	0.061683	0.03778	0.03674	0.0513	0.02195	0.083217	0.08234	0.1275	0.02556	0.04092
Standard Deviation	0.004882	0.008468	0.00308	0.037938	0.017771	0.003773	0.009693	0.025845	0.00524	0.013008	0.00689	0.024203	0.000212	0.011128	0.013853	0.010193	0.011244	0.010368
Median	0.05875	0.0923	0.08495	0.153	0.115	0.01585	0.0859	0.133	0.06165	0.0425	0.0327	0.0575	0.02195	0.08835	0.0785	0.127	0.0295	0.0424
10th Percentile	0.05175	0.08688	0.08245	0.1344	0.0935	0.014	0.0792	0.10534	0.05625	0.0246	0.03118	0.03118	0.02183	0.0692	0.07246	0.1175	0.0134	0.02992
90th Percentile	0.06165	0.1038	0.0892	0.2066	0.1236	0.022	0.09775	0.1522	0.06715	0.04634	0.04432	0.06894	0.02207	0.0921	0.096	0.138	0.03454	0.05064

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Biological Oxygen Demand (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						2 U			2 U									
21-Feb-17	2 U	2 U	2 U	2 U	2 U		2 U	2 U			2 U							
04-Apr-17										2 U					2 U	2 U		2 U
05-Apr-17													2 U	2 U			8.4	
24-May-17	2 U		2 U	2 U			2 U				2 U							
25-May-17		2 U			6.4	2 U		2 U	2 U									
01-Aug-17										2 U					6 U	2 U	6 U	2 U
02-Aug-17	2 U		2 U		5.2 X	2 U	2 U	2.2 X	2 U		2 U							
03-Aug-17		2 U		2 U														
08-Aug-17														2 U				
14-Nov-17										2 U				2 U	2 U	2 U	2 U	2 U
15-Nov-17							2 U				2 U							
16-Nov-17	2 U		2 U	2 U	3	2 U		4.2	2 U									
12-Feb-18	2 U		2 U			2 U	2 U		2 U		2 U							
13-Feb-18		2 U		2 U	2 U			2 U										
14-Feb-18										2 U					2 U	2 U	2 U	2 U
21-Feb-18														2 U				
08-May-18	2 U		2 U			2 U	2 U		2 U		2 U							
09-May-18		5		2 U	2 U			2 U										
22-Aug-18	2 U	3.4	2 U		2 U		2 U	3	2 U		2 U							
23-Aug-18				2 U		2 U												
07-Nov-18	2 U						2 U		2 U		2 U							
08-Nov-18		2 U	2 U	2 U	2 U	2 U		5.2										
11-Feb-19							2 U		2 U		2 U							
13-Feb-19	2 U	2 U	2 U		2 U			3.1										
14-Feb-19				2 U		2 U												
30-Apr-19						2 U			2 U									
01-May-19	2 U	2 U	2 U	2 U	2 U		2 U	2.5			2 U							
12-Aug-19			2 U						2 U									
13-Aug-19		2 U			2 U	2 U	2 U	2.2										
14-Aug-19	2 U			2 U							2 U							
09-Sep-19										2 U				2 U	2 U	2.7		2 U
10-Sep-19																	2 U	
18-Nov-19	2 U					2 U			2 U									
19-Nov-19		2 U	2 U	2 U	2 U		2 U	3.5			2 U							

**Biological Oxygen Demand (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										2 U				2 U	2 U	2 U	2 U	2 U
11-Dec-19										2 U								
14-Jan-20										2.8				2 U	2 U	2 U	2 U	2 U
23-Jan-20	2 U					2 U												
27-Jan-20			2 U				2 U											
28-Jan-20									2 U									
11-Feb-20	2 U		2 U	2 U							2 U							
12-Feb-20		2 U			11.6	2 U	2 U	2.4	2 U			2 U						
11-May-20	2 U		2 U	2 U	4			2 U										
12-May-20		2 U					2 U		2 U									
14-May-20						2 U						2 U						
05-Aug-20	2 U		2 U			2 U	2 U		2 U			2 U						
06-Aug-20		2 U		2 U	2 U			2 U				2 U						
09-Nov-20	2 U		2 U			2 U	2 U		2 U			2 U						
10-Nov-20		2 U		2 U	2 U			2.3				2 U						
15-Dec-20													2 U	2 U	2 U		2 U	2 U
16-Dec-20										2.2						2 U		
08-Feb-21	2 U					2 U	2 U				2 U						2 U	
09-Feb-21		2 U			2 U			2 U	2 U	2 U		2 U						2 U
10-Feb-21			2 U															
11-Feb-21				2 U									2 U	2 U	2 U			
12-Feb-21																2 U		
06-May-21	2 U	2 U	2 U		2 U	2 U	2 U	3.2	2 U	2 U	2 U	2 U					2 U	
11-May-21				2 U									2 U	2 U	2 U	2 U		2 U
24-Aug-21					2 U			2 U		2 U				2 U				2 U
25-Aug-21				2 U					2 U				2 U					2 U
26-Aug-21	2 U		2 U				2 U				2 U							
27-Aug-21		2 U				2 U						2 U						
10-Nov-21									2 U								2 U	
11-Nov-21	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U

Statistics

Mean	1	1.336842	1	1	2.26	1	1	2.14	1	1.230769	1	1	1	1	1.181818	1.154545	1.783333	1
Standard Deviation	0	1.04361	0	0	2.718436	0	0	1.260075	0	0.576461	0	0	0	0	0.603023	0.512569	2.161579	0
Median	1	1	1	1	1	1	1	2.2	1	1	1	1	1	1	1	1	1	1
10th Percentile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90th Percentile	1	1.48	1	1	5.32	1	1	3.57	1	1.96	1	1	1	1	1	1	2.8	1

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Boron (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.0175 J			0.03 J									
21-Feb-17	0.0334 J	0.0188 J	0.0215 J	0.0247 J	0.0209 J		0.0527 J	0.0677 J			0.0773 J							
04-Apr-17										0.088 J					0.043 J	0.0372 J	0.129 J	0.0679 J
05-Apr-17													0.0155 J	0.0373 J				
08-Aug-17														0.2 U				
08-May-18	0.0313 J		0.0211 J			0.0175 J	0.0521 J		0.0282 J		0.0808 J							
09-May-18		0.0184 J		0.0168 J	0.2 U			0.0573 J										
12-Aug-19		0.0175 J	0.0219 J		0.0158 J			0.0582 J	0.0278 J									
13-Aug-19						0.0192 J	0.0429 J											
14-Aug-19	0.0289 J			0.0198 J							0.0796 J							
09-Sep-19										0.0891 J				0.047 J	0.0546 J	0.0374 J		0.0654 J
10-Sep-19																	0.128 J	
10-Dec-19														0.0467 J	0.0521 J	0.0347 J	0.125 J	0.0674 J
11-Dec-19										0.0758 J								
14-Jan-20										0.0669 J				0.0422 J	0.047 J	0.0285 J	0.125 J	0.0606 J
23-Jan-20	0.0317 J					0.0158 J												
27-Jan-20			0.0232 J				0.0428 J											
28-Jan-20										0.0242 J								
12-Feb-20												0.2 U						
11-May-20	0.0322 J		0.0256 J	0.0223 J														
12-May-20		0.0203 J			0.019 J		0.04 J	0.0488 J	0.0305 J		0.0834 J							
14-May-20						0.0148 J						0.0127 J						
06-May-21	0.0147 J	0.2 U	0.2 U		0.2 U	0.2 U	0.035 J	0.0354 J	0.0146 J	0.0176 J	0.0671 J	0.2 U					0.0992 J	
11-May-21				0.0261 J									0.019 J	0.0452 J	0.0326 J	0.0312 J		0.0737 J

Statistics

Mean	0.0287	0.035	0.03555	0.02194	0.05114	0.0308	0.04425	0.05348	0.025883	0.06748	0.07764	0.0709	0.01725	0.053067	0.04586	0.0338	0.12124	0.067
Standard Deviation	0.007016	0.03635	0.031616	0.003743	0.04464	0.033935	0.006936	0.012123	0.005957	0.029352	0.006289	0.050403	0.002475	0.023275	0.008669	0.003879	0.012449	0.004727
Median	0.0315	0.0188	0.02255	0.0223	0.0209	0.0175	0.04285	0.0573	0.028	0.0758	0.0796	0.1	0.01725	0.04595	0.047	0.0347	0.125	0.0674
10th Percentile	0.0218	0.01786	0.0213	0.018	0.01708	0.0153	0.0375	0.04076	0.0194	0.03732	0.07118	0.03016	0.01585	0.03975	0.03676	0.02958	0.10952	0.06252
90th Percentile	0.0328	0.06812	0.0628	0.02554	0.1	0.0596	0.0524	0.0639	0.03025	0.08866	0.08236	0.1	0.01865	0.0735	0.0536	0.03732	0.1286	0.07138

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Calcium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						75.3			46									
21-Feb-17	94.3	72.1	110	123	58.4		117	152			64.6							
04-Apr-17										64.9					41.9	38	141	64.2
05-Apr-17													40.5	46.1				
24-May-17	93.8	73.2	112	94.8			117				66.5							
25-May-17					66	81.9		155	47									
01-Aug-17										67.3					47.9	39.2	127	62.9
02-Aug-17	96.8	76.9	120			76.2	124		48		70.4							
03-Aug-17				84.5	75.8			167										
08-Aug-17														43.7				
14-Nov-17										64				45.6	46.7	38.3	113	72.1
15-Nov-17							127				68.8							
16-Nov-17	96	75.7	114	85.3	67.3	77.8		155	23.1									
12-Feb-18	98.9		112			92.2	117		44.5		66.9							
13-Feb-18		74.6		82.9	76.2			155										
14-Feb-18										60.9					46.3	35.5	104	82.5
21-Feb-18														44				
08-May-18	101		109			89.1	118		46.6		67							
09-May-18		72.3		95.8	82.8			157										
22-Aug-18	100		105				110		44		65.7							
23-Aug-18		72.6		133	85.7	68.5		156										
07-Nov-18	105						105		47.9		68.5							
08-Nov-18		78.3	110	170	97.4	70.8		160										
11-Feb-19							116		38.4		66							
13-Feb-19	99.9	79.7	109		102			163										
14-Feb-19				143		72.2												
30-Apr-19						58.3			46									
01-May-19	102	77.1	102	131	104		108	155			66							
12-Aug-19		68	97		96.9			151	41.1									
13-Aug-19						53.4	105											
14-Aug-19	96.9			103							62.1							
09-Sep-19										63.3 E				48 J	50.9 E	37.8 E		71.4 E
10-Sep-19																	98.8 E	
18-Nov-19	92.8					56.2			44.2									
19-Nov-19		71.7	99.1	104	96.3		101	141			62.3							

**Calcium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19														48	49	34.4	103	76.6
11-Dec-19									59.2									
14-Jan-20									50.8					48	48.5	36.6	112	79
23-Jan-20	94.8					64.1												
27-Jan-20			109				109											
28-Jan-20									35.2									
11-Feb-20	85		103	140							62.8							
12-Feb-20		71.9			97.8	56	97.3	110	43.9			35.3						
11-May-20	94.3		98.5	119														
12-May-20		76.2			102		98.4	120	44.8		64.8							
14-May-20						52.3						15.1						
05-Aug-20	101		106			53.5	98.1		46.1		64.4							
06-Aug-20		75.3		88.6	104			126				27.3						
09-Nov-20	104		111			61.9	108		45.2		63.1							
10-Nov-20		79.1		82.2	110			124				32.2						
15-Dec-20													15.3	49.4	42.3		87.4	64.3
16-Dec-20									52.1							41.5		
08-Feb-21	92.7					68.8	113				65.2						78.9	
09-Feb-21		80.4			107			126	39.5	17		42.2						68.1
10-Feb-21			119															
11-Feb-21				114									28.2	50.2	40.9			
12-Feb-21																42		
06-May-21	94.3	78.5	110		106	53.7	103	124	43.6	12.4	62.7	44					22.4	
11-May-21				147									8.35	47.6	39.4	39		76.4
24-Aug-21					108			128		23.1				47.5	45.1	39.5		89.7
25-Aug-21				149					43.5				13					83.1
26-Aug-21	95.2		114				100				64.9							
27-Aug-21		77.6				48.8						13.7						
10-Nov-21									33.1								77.9	
11-Nov-21	98.3	83.8	107	133	108	53.3	95.4	125		28.7	65.3	12.9	39.6	48.1	49.5	39.2		73.2

Statistics

Mean	97	75.75	108.4095	116.155	92.58	65.91905	108.9143	142.5	42.4619	46.975	65.4	27.8375	24.15833	47.18333	45.7	38.41667	95.70833	73.36667
Standard Deviation	4.550165	3.759549	6.143851	26.38735	16.05096	12.7768	9.099082	17.49737	5.939569	20.61099	2.237715	12.69285	13.96218	1.978904	3.759836	2.207357	30.04265	8.03745
Median	96.8	75.95	109	116.5	97.6	64.1	108	151.5	44.2	55.65	65.25	29.75	21.75	47.8	46.5	38.65	100.9	72.65
10th Percentile	92.8	71.88	99.1	84.34	67.17	53.3	98.1	123.6	35.2	17.61	62.66	13.46	10.675	44.16	41	35.61	78	64.21
90th Percentile	102	79.77	114	147.2	108	81.9	118	160.3	47	64.81	68.53	42.74	40.05	49.27	49.45	41.3	125.6	82.15

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Chloride (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					3	91.5		2.3	1.8 J									
21-Feb-17	17	9.7	14.9	17.5			194				11.5							
04-Apr-17										1.8 J					1.4 J	1.4 J	5.3	2
05-Apr-17													3.1	1.2 J				
24-May-17	16.6	10.3	14.6	34.5	2.9		182	2.3			11							
25-May-17							122		1.7 J									
01-Aug-17										2 J					1.3 J	1.3 J	2.5	1.6 J
02-Aug-17	17.3	10.2	13		2.8	92.8	172	2	1.5 J		10.9							
03-Aug-17				36.9														
08-Aug-17														0.9 J				
14-Nov-17										1.9 J				1.2 J	1.4 J	1.3 J	2.4	1.5 J
15-Nov-17							174				10.2							
16-Nov-17	18.3		11.6	37.5	3.4	124		7.6	1.8 J									
12-Feb-18	16.1	10.2	10.6		3.1	133	169	4.2	1.8 J		8.7							
13-Feb-18				31.1														
14-Feb-18										1.1 J					1.3 J	1.5 J	2 J	1.6 J
21-Feb-18														1.2 J				
08-May-18	16.5	10.3	10.8		3.2	116	166	4.2	1.7 J		8.7							
09-May-18				34.4														
22-Aug-18	16.9		11.3				173		1.8 J		9.4							
23-Aug-18		11		38.8	3.7	69.1		4.2										
07-Nov-18	15.4	10.1			3.4		158	3.3	1.5 J		7.7							
08-Nov-18			8	38.9		52												
11-Feb-19							162		1.8 J		8.7							
13-Feb-19	16.3	10.7	8.2		3.9			3.4										
14-Feb-19				36.6		38												
30-Apr-19						23.3			1.4 J									
01-May-19	16.7	10.2	7.9	17.7	3.9		161	2.8			8.2							
12-Aug-19		10.9	7.8		4.3			2.7	1.5 J									
13-Aug-19						10.1	153											
14-Aug-19	17.6			29.9							10							
09-Sep-19										1.9 J				0.9 J	1.3 J	1.1 J		1.2 J
10-Sep-19																	1.9 J	
18-Nov-19	17					14			1.8 J									
19-Nov-19		11.7	10.1	32.8	5.6		166	3.2			9.3							

**Chloride (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										1.9 J				0.7 J	1.2 J	1.1 J	1.8 J	1.1 J
14-Jan-20										2.3				0.8 J	1.3 J	1 J	1.8 J	1.1 J
23-Jan-20	16.1					14.4												
27-Jan-20			7.8				161											
28-Jan-20									1.8 J									
11-Feb-20	16		7.8	23.7							8.4							
12-Feb-20		11.5			5.8	13.5	159	3.7	1.7 J			219						
11-May-20	16.7	12.2	7.3	26.2	6.5			3.6										
12-May-20							151		1.7 J		9.2							
14-May-20						7.4						103						
05-Aug-20	17.3		9.2			5.9	161		1.8 J		9							
06-Aug-20		12.2		34.9	8.5			3.3				115						
09-Nov-20	16.8		10.3			9.9	150		1.8 J		8.3							
10-Nov-20		11.1		36.9	4.6			3.1				115						
15-Dec-20													3.1	0.9 J	1.4 J		1.6 J	1.2 J
16-Dec-20										1.7 J						1 J		
08-Feb-21	15.4				63.1	149				2.8	8.1	195					1.7 J	
09-Feb-21		11.5			7.4			3.2	1.7 J									1.2 J
10-Feb-21			7.9															
11-Feb-21				25.5									3.1	1.2 J	1.2 J			
12-Feb-21																1.1 J		
05-May-21		12.6			7.7			3.3		3.1		256						
06-May-21	16.5		9.2			32.7	155		1.1 J		8						0.8 J	
11-May-21				16.7									2 U	2 U	0.6 J	1.8 J		2 U
24-Aug-21					8.1			2.8		1.9 J				0.7 J	1.2 J	1 J		1 J
25-Aug-21				14.4					1.8 J				2.1				1.6 J	
26-Aug-21	15.7		7.4				149				7.3							
27-Aug-21		12				18							93					
10-Nov-21									1.7 J								1.5 J	
11-Nov-21	13.6	11.7	7.7	18.5	8.3	15.4	137	2.2		1.5 J	7	73.4	1.8 J	0.6 J	1.1 J	0.9 J		0.8 J

Statistics

Mean	16.46667	11.05789	9.685714	29.17	5.005	50.76667	162	3.37	1.67619	1.991667	8.98	146.175	2.366667	0.941667	1.225	1.208333	2.075	1.275
Standard Deviation	0.965056	0.861727	2.330726	8.413654	2.039472	44.84401	12.75931	1.189914	0.181397	0.536755	1.22972	67.27398	0.880152	0.219331	0.217945	0.260971	1.104639	0.336087
Median	16.6	11	9.2	31.95	4.1	32.7	161	3.25	1.7	1.9	8.7	115	2.6	0.9	1.3	1.1	1.8	1.2
10th Percentile	15.4	10.18	7.7	17.42	2.99	9.9	149	2.29	1.5	1.52	7.66	87.12	1.4	0.7	1.11	1	1.51	1
90th Percentile	17.3	12.2	13	37.63	8.12	122	174	4.2	1.8	2.75	10.91	230.1	3.1	1.2	1.4	1.49	2.49	1.6

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Chromium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.0009 J			0.0003 J									
21-Feb-17	0.01 U	0.0018 J	0.01 U	0.0056 J	0.0118		0.0024 J	0.002 J			0.01 U							
04-Apr-17										0.0006 J					0.01 U	0.0051 J	0.0054 J	0.01 U
05-Apr-17													0.0003 J	0.0015 J				
08-Aug-17														0.01 U				
08-May-18	0.01 U		0.01 U			0.01 U	0.0052 J		0.01 U		0.01 U							
09-May-18		0.01 U		0.01 U	0.01 U			0.01 U										
12-Aug-19		0.01 U	0.01 U		0.01 U			0.01 U	0.01 U									
13-Aug-19						0.01 U	0.001 J											
14-Aug-19	0.01 U			0.01 U							0.01 U							
09-Sep-19										0.01 U				0.01 U	0.01 U	0.01 U		0.01 U
10-Sep-19																		0.0009 J
10-Dec-19														0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
11-Dec-19										0.01 U								
14-Jan-20										0.0007 J				0.01 U	0.01 U	0.01 U	0.0007 J	0.01 U
23-Jan-20	0.01 U					0.01 U												
27-Jan-20			0.01 U				0.0019 J											
28-Jan-20										0.0008 J								
12-Feb-20												0.01 U						
11-May-20	0.01 U		0.0012 J	0.0017 J														
12-May-20		0.0009 J			0.01 U		0.0027 J	0.01 U	0.0006 J		0.01 U							
14-May-20						0.01 U						0.01 U						
06-May-21	0.01 U	0.0008 J	0.0006 J		0.01 U	0.01 U	0.0023 J	0.01 U	0.01 U	0.0011 J	0.01 U	0.01 U					0.0014 J	
11-May-21				0.0019 J									0.0031 J	0.01 U	0.01 U	0.01 U		0.01 U

Statistics

Mean	0.005	0.0027	0.003633	0.00384	0.00636	0.004317	0.002583	0.0044	0.002783	0.00248	0.005	0.005	0.0017	0.004417	0.005	0.00502	0.00268	0.005
Standard Deviation	0	0.002135	0.002126	0.00188	0.003041	0.001674	0.001411	0.001342	0.002433	0.002308	0	0	0.00198	0.001429	0	4.47E-05	0.002319	0
Median	0.005	0.0018	0.005	0.005	0.005	0.005	0.00235	0.005	0.0029	0.0011	0.005	0.005	0.0017	0.005	0.005	0.005	0.0014	0.005
10th Percentile	0.005	0.00084	0.0009	0.00178	0.005	0.00295	0.00145	0.0032	0.00045	0.00064	0.005	0.005	0.00058	0.00325	0.005	0.005	0.00078	0.005
90th Percentile	0.005	0.005	0.005	0.00536	0.00908	0.005	0.00395	0.005	0.005	0.005	0.005	0.005	0.00282	0.005	0.005	0.00506	0.00524	0.005

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Cobalt (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.05 U			0.05 U									
21-Feb-17	0.05 U	0.05 U	0.05 U	0.0019 J	0.0041 J		0.05 U	0.0031 J			0.05 U							
04-Apr-17										0.05 U					0.05 U	0.0015 J	0.0079 J	0.05 U
05-Apr-17													0.05 U	0.05 U				
08-Aug-17														0.05 U				
08-May-18	0.05 U		0.05 U			0.05 U	0.05 U		0.05 U		0.05 U							
09-May-18		0.05 U		0.05 U	0.05 U			0.05 U										
12-Aug-19		0.05 U	0.05 U		0.05 U			0.0023 J	0.05 U									
13-Aug-19						0.05 U	0.05 U											
14-Aug-19	0.05 U			0.05 U							0.05 U							
09-Sep-19										0.05 U				0.05 U	0.05 U	0.05 U		0.05 U
10-Sep-19																	0.05 U	
10-Dec-19														0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
11-Dec-19										0.05 U								
14-Jan-20										0.05 U				0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
23-Jan-20	0.05 U					0.05 U												
27-Jan-20			0.05 U				0.05 U											
28-Jan-20										0.0011 J								
12-Feb-20												0.0068 J						
11-May-20	0.05 U		0.05 U	0.05 U														
12-May-20		0.05 U			0.001 J		0.0016 J	0.0056 J	0.05 U		0.001 J							
14-May-20						0.05 U						0.0022 J						
06-May-21	0.05 U	0.05 U	0.05 U		0.05 U	0.05 U	0.05 U	0.0024 J	0.05 U	0.05 U	0.05 U	0.0034 J					0.05 U	
11-May-21				0.05 U									0.0015 J	0.05 U	0.05 U	0.05 U		0.05 U

Statistics

Mean	0.025	0.025	0.025	0.02038	0.01602	0.025	0.0211	0.00768	0.021017	0.025	0.0202	0.004133	0.01325	0.025	0.025	0.0203	0.02158	0.025
Standard Deviation	3.8006E-18	0	3.8E-18	0.010331	0.012345	3.8E-18	0.009553	0.009774	0.009757	0	0.010733	0.002386	0.016617	3.8E-18	0	0.01051	0.007647	0
Median	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.0031	0.025	0.025	0.025	0.0034	0.01325	0.025	0.025	0.025	0.025	0.025
10th Percentile	0.025	0.025	0.025	0.01114	0.00224	0.025	0.0133	0.00234	0.01305	0.025	0.0106	0.00244	0.00385	0.025	0.025	0.0109	0.01474	0.025
90th Percentile	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.01724	0.025	0.025	0.025	0.00612	0.02265	0.025	0.025	0.025	0.025	0.025

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**COD (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					5 U	5 U		6.9	5 U									
21-Feb-17	5 U	5 U	3.9 J	5.9			6.5				5 U							
04-Apr-17										5.8					5 U	6.1	44.8	6.1 J
05-Apr-17													4.1 J	5.4 J				
24-May-17	5 U	5 U	5.4	6.8	9.1		5 U	7.1			5 U							
25-May-17							3.7 J		5 U									
01-Aug-17										5 U					5 U	5 U	12.4	5 U
02-Aug-17	5 U	5 U	9.8		12.4	5 U	7.8	14	4.1 J		4.7 J							
03-Aug-17				8.1														
08-Aug-17														5 U				
14-Nov-17										23.6				5.8	8.1	5.4	23	10.5
15-Nov-17							5 U				5 U							
16-Nov-17	5 U	27.8	5 U	10.8	7.8	9.8		19.7	14.7									
12-Feb-18	5.4	10.1	11.4		5 U	5 U	7.8	18.1	5 U		3.4 J							
13-Feb-18				5 U														
14-Feb-18										5 U					6.1	10.1	9.5	4.1 J
21-Feb-18														5 U				
08-May-18	5 U	5 U	5 U		5 U	5 U	5 U	8.5	5 U		5 U							
09-May-18				5 U														
22-Aug-18	5 U	5 U	5 U		5 U		5.8	5.8	5 U		5 U							
23-Aug-18				5.8		5 U												
07-Nov-18	5 U	5 U			5 U		5 U	9.1	5 U		5 U							
08-Nov-18			4.1 J	6.8		5 U												
11-Feb-19							8.8		3.4 J		5 U							
13-Feb-19	5 U	7.5	4.8 J		5 U			16.9										
14-Feb-19				12.4			8.5											
30-Apr-19						5 U			5 U									
01-May-19	5 U	5 U	7.5	9.1	5 U		4.8 J	5.8			5 U							
12-Aug-19		5 U	6		5 U			11	5 U									
13-Aug-19						5 U	5 U											
14-Aug-19	5 U			5 U							5 U							
09-Sep-19										5 U				5 UJ	5 U	5 U		5 U
10-Sep-19																	6.6	
18-Nov-19	4.2 J					5 U			5 U									
19-Nov-19		5 U	5 U	7.4	5 U		5.3	11.9			5 U							

**COD (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										5 U				5 U	5 U	5 U	7.4	5 U
14-Jan-20										7.7				5 UJ	5.7	5.1	8	5.4
23-Jan-20	8.4					6.7 J												
27-Jan-20			5.4				5.7											
28-Jan-20									5 U									
11-Feb-20	5 U		7	8.7							5 U							
12-Feb-20		5 U			14.1	5 U	5 U	7.7	5 U			7.4						
11-May-20	5.7	7.4	7.4 J	10.3	13.8			11.6										
12-May-20							4.7 J	5 U			5 U							
14-May-20						5 U						5 U						
05-Aug-20	5 U		5.3			5 U	4 J	5 U			5 U							
06-Aug-20		5 U		6.6	5.3			4 J				9.1						
09-Nov-20	5 U		4 J			5 U	5 U	5 U			5 U							
10-Nov-20		5 U		5 U	5 U			4 J				7.5						
15-Dec-20													5 U	5 U	5 U		5 U	5 U
16-Dec-20										5 U						5 U		
08-Feb-21	5 U					4 J	6.3			5 U	5 U	5 U					5.6	
09-Feb-21		5 U			5 U			8.1	4.3 J									5 U
10-Feb-21			9.1															
11-Feb-21				7.2									5 U	5 U	5 U			
12-Feb-21																5 U		
05-May-21		5 U			5 U			5 U		5 U		5.9						
06-May-21	5 U		5.3			5 U	5 U	5 U			5 U						36.5	
11-May-21				5 U									5 U	5 U	5 U	5 U		5 UJ
24-Aug-21					5 J			10.5		5 J				5 U	5 U	4.6 J		4 J
25-Aug-21				9.2					5 U				5 U				5 U	
26-Aug-21	4.6 J		7.2				5 U				5 U							
27-Aug-21		5 U				5 U						5.9						
10-Nov-21									5 U								5 U	
11-Nov-21	5 U	5 U	5 U	4.6 J	5 U	5 U	5 U	5.3		5 U	5 U	4.3 J	5 U	5 U	5 U	5 U		5 U

Statistics

Mean	3.252381	4.64	5.528571	6.61	5	3.461905	4.404762	9.425	3.285714	5.175	2.655	5.6375	2.766667	3.016667	3.533333	4.066667	13.44167	3.966667
Standard Deviation	1.563208	5.872631	2.565179	3.034	4.110321	2.135293	2.138569	4.81072	2.669136	6.056721	0.521612	2.395792	0.653197	1.209683	1.948115	2.351917	14.00191	2.418991
Median	2.5	2.5	5.3	6.8	2.5	2.5	4	8.3	2.5	2.5	2.5	5.9	2.5	2.5	2.5	2.5	7.7	2.5
10th Percentile	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
90th Percentile	5.4	7.76	9.1	10.35	12.54	6.7	7.8	17.02	4.1	7.51	2.59	7.98	3.3	5.11	6.06	6.03	35.15	6.03

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Color (True) (C.U.) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		10 B			35	10 B		25	1 B									
21-Feb-17	5 B		5 B	10 B			25				1 B							
04-Apr-17										10 B					5 B	11	30	7 B
05-Apr-17													5 B	5 B				
08-Aug-17														4				
08-May-18	10		7			6	14		4		5							
09-May-18		12		12	9			22										
12-Aug-19			14						10									
13-Aug-19		17			19	19	25	35										
14-Aug-19	6			9							16							
09-Sep-19										12				12	15	10		12
10-Sep-19																		25
10-Dec-19										20				18	18	20	25	20
14-Jan-20										25				17	17	20	32	17
23-Jan-20	20					15												
27-Jan-20			15				25											
28-Jan-20									15									
12-Feb-20												20						
11-May-20	8		14	3														
12-May-20		1			1		1	5	1		2							
14-May-20						3						3						
06-May-21	11	10	7		9	10	10	10	9	10	6	11					11	
11-May-21				11									7	6	8	7		10

Statistics

Mean	10	10	10.33333	9	14.6	10.5	16.66667	19.4	6.66667	15.4	6	11.33333	6	10.33333	12.6	13.6	24.6	13.2
Standard Deviation	5.403702	5.787918	4.457204	3.535534	13.06905	5.822371	10.05319	12.01249	5.609516	6.76757	5.958188	8.504901	1.414214	6.218253	5.770615	6.024948	8.203658	5.263079
Median	9	10	10.5	10	9	10	19.5	22	6.5	12	5	11	6	9	15	11	25	12
10th Percentile	5.5	4.6	6	5.4	4.2	4.5	5.5	7	1	10	1.4	4.6	5.2	4.5	6.2	8.2	16.6	8.2
90th Percentile	15.5	15	14.5	11.6	28.6	17	25	31	12.5	23	12	18.2	6.8	17.5	17.6	20	31.2	18.8

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Specific Conductivity (us/cm) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		446.2			355.4	747		871	368.6									
21-Feb-17	651		748	787			1104				504							
04-Apr-17									496						298.6	266.9	1162	519
05-Apr-17													239.4	303.3				
24-May-17	640	460	725	650	412.7		1109	913			500.1							
25-May-17						780			359.7									
01-Aug-17										494.6					322.9	270.1	1129	553
02-Aug-17	650	474.7	737		434.7	734	1126	959	367.4		509.5							
03-Aug-17				590														
08-Aug-17														319.6				
14-Nov-17										468				320.4	313.9	266.5	1078	571.6
15-Nov-17							1119				488.4							
16-Nov-17	625.4	474	721	648.7	413.7	782		884	330.5									
12-Feb-18	634.9	446.9	687.1		409.4	839	1114	860	351.9		484.6							
13-Feb-18				638.6														
14-Feb-18										459.5					326.2	258.4	1059	589.4
21-Feb-18														308.5				
08-May-18	643	445.5	663		475	808	1092	883	351.4		485							
09-May-18				725														
22-Aug-18	662	496	710		521.7		1128	959	374.2		500.6							
23-Aug-18				886		703												
07-Nov-18	691	473.2			555.2		1110	915	355.6		495							
08-Nov-18			685.6	1005		667.5												
11-Feb-19							1091		334.7		485.8							
13-Feb-19	607.7	453.9	637.2		519			877										
14-Feb-19				811		627												
30-Apr-19						563.1			364.8									
01-May-19	671	491.9	659	794	565		1113	906			495.9							
12-Aug-19		491.5	682		596.9			932	352.6									
13-Aug-19						543.6	1111											
14-Aug-19	664			721							499.4							
09-Sep-19										453.3				341.4	340.7	269.3		543
10-Sep-19																	1060	
18-Nov-19	542.8					563.1			363.8									
19-Nov-19		487.1	679.8	680.6	570		1074	864			483.4							

**Specific Conductivity (us/cm) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										407.9				334.4	330	250.3	1055	562.6
11-Dec-19										375.4								
14-Jan-20										339				336	322.6	260	1108	558.6
23-Jan-20	620.7					591.7												
27-Jan-20			660				1079											
28-Jan-20									327									
11-Feb-20	584.1		654.9	855							486.4							
12-Feb-20		513.1			576.2	559.6	1085	689	364.1			712.5						
11-May-20	618.2	498.3	614.6	761	584.7			690.4										
12-May-20							1068		358.6		480.8							
14-May-20						492.6						374.5						
05-Aug-20	705		718			526.9	1130		367.6		513.6							
06-Aug-20		500.3		629	610			801				563.8						
09-Nov-20	686		706			578.3	1099		356.9		486.9							
10-Nov-20		499.8		580.7	632			775				632						
15-Dec-20													201.3	340	292.3		1086	508.9
16-Dec-20										422.9						281.4		
08-Feb-21	595.1					661.9	1058			236.2	466.9	699.5					1057	
09-Feb-21		489			524.4			744	330.2									510.2
10-Feb-21			715.5															
11-Feb-21				707									186	8.1	273.1			
12-Feb-21																269.7		
05-May-21		497			603.8			689		256.1		847						
06-May-21	612.3		691			549.7	1074		364.1		472.1						1051	
11-May-21				919									84.4	334.6	274.7	270		551.6
24-Aug-21					637			809		267.3				346.2	319.6	283		563.7
25-Aug-21				942					367.4				146.7				1043	
26-Aug-21	644		727				1092				494.2							
27-Aug-21		508.4				515.6						408.3						
10-Nov-21									284.7								895	
11-Nov-21	535.8	249.7	726	729	594.1	472.9	1098	757		181.5	499.5	180.7	241.7	353.4	343.4	272.3		478.3

Statistics

Mean	632.5714	469.825	692.7476	752.98	529.545	633.6429	1098.762	838.87	352.181	373.6692	491.605	552.2875	183.25	303.825	313.1667	268.1583	1065.25	542.4917
Standard Deviation	43.81434	55.99755	35.24736	120.7625	84.45152	112.2928	20.48391	88.83919	20.752	107.2223	11.76809	217.4855	60.01636	94.33498	23.5172	9.0887	64.50388	31.90687
Median	640	488.05	691	727	560.1	591.7	1099	867.5	358.6	407.9	491.3	597.9	193.65	334.5	321.1	269.5	1059.5	552.3
10th Percentile	584.1	446.13	654.9	625.1	412.37	515.6	1074	690.26	330.2	240.18	479.93	316.36	115.55	303.82	276.46	258.56	1043.8	509.03
90th Percentile	686	501.11	727	921.3	612.2	782	1126	934.7	367.6	489.28	504.55	752.85	240.55	345.72	339.63	280.49	1126.9	570.81

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Copper (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.02 U			0.02 U									
21-Feb-17	0.02 U	0.0023 J	0.02 U	0.006 J	0.0048 J		0.02 U	0.0059 J			0.02 U							
04-Apr-17										0.0011 J					0.0014 J	0.0025 J	0.0037 J	0.02 U
05-Apr-17													0.02 U	0.02 U				
08-Aug-17														0.02 U				
08-May-18	0.02 U		0.02 U			0.02 U	0.02 U		0.02 U		0.02 U							
09-May-18		0.02 U		0.02 U	0.02 U			0.02 U										
12-Aug-19		0.02 U	0.02 U		0.02 U			0.02 U	0.02 U									
13-Aug-19						0.02 U	0.02 U											
14-Aug-19	0.02 U			0.02 U							0.02 U							
09-Sep-19										0.02 U				0.02 U	0.02 U	0.02 U		0.02 U
10-Sep-19																	0.02 U	
10-Dec-19														0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
11-Dec-19										0.02 U								
14-Jan-20										0.02 U				0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
23-Jan-20	0.02 U					0.02 U												
27-Jan-20			0.02 U				0.02 U											
28-Jan-20										0.02 U								
12-Feb-20												0.02 U						
11-May-20	0.02 U		0.02 U	0.02 U														
12-May-20		0.02 U			0.02 U		0.0064 J	0.02 U	0.02 U		0.02 U							
14-May-20						0.02 U						0.02 U						
06-May-21	0.02 U	0.02 U	0.02 U		0.02 U	0.0058 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					0.02 U	
11-May-21				0.02 U									0.02 U	0.02 U	0.02 U	0.02 U		0.02 U

Statistics

Mean	0.01	0.00846	0.01	0.0092	0.00896	0.0093	0.0094	0.00918	0.01	0.00822	0.01	0.01	0.01	0.01	0.00828	0.0085	0.00874	0.01
Standard Deviation	0	0.003444	0	0.001789	0.002326	0.001715	0.00147	0.001834	0	0.00398	0	0	0	0	0.003846	0.003354	0.002817	0
Median	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
10th Percentile	0.01	0.00538	0.01	0.0076	0.00688	0.0079	0.0082	0.00754	0.01	0.00466	0.01	0.01	0.01	0.01	0.00484	0.0055	0.00622	0.01
90th Percentile	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Dissolved Oxygen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-E	MW-F	MW-H	MW-J	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17				3.16		3.63									
21-Feb-17	7.65	1.56	1.01		2.07			0.4							
04-Apr-17							3.53					1.39	0.5		0.56
05-Apr-17										4.52	0.15				
24-May-17	2.01	0.9	1.17		1.6			0.8							
25-May-17				1.09		3.24									
01-Aug-17							1.34					0.42	0.41	0.28	0.49
02-Aug-17	2.25	2.22		0.93	1.16	1.96		0.69							
03-Aug-17			4.16												
08-Aug-17											0.26				
14-Nov-17							1.63				0.82	0.94	1.16	2.06	1.41
15-Nov-17					3.88			1.49							
16-Nov-17	1.77	1.82	3.37	2.08		2.83									
12-Feb-18	2.3	2.13		2.59	2.68	4.11		0.59							
13-Feb-18			3.44												
14-Feb-18							1.27					0.65	0.29	2.8	1.55
21-Feb-18											0.46				
08-May-18	2.01	1.24		0.79	1.59	2.21		0.61							
09-May-18			2.03												
22-Aug-18	1.68	1.12			0.73	0.71		0.29							
23-Aug-18			1.19	1.63											
07-Nov-18	1.98				1.65	0.52		0.97							
08-Nov-18		3.9	2.03	4.16											
11-Feb-19					3.52	5.25		1.79							
13-Feb-19	3.15	1.45													
14-Feb-19			3.19	5.19											
30-Apr-19				2.4		5.26									
01-May-19	2.38	1.01	0.58		2.14			0.38							
12-Aug-19		0.55				1.85									
13-Aug-19				2.72	2.16										
14-Aug-19	1.26		2.51					0.38							
09-Sep-19							0.38			0.8	0.25	0.23			0.39
10-Sep-19													0.64		
18-Nov-19	1.44			3.15		1.01									
19-Nov-19		3.44	3.52		1.84			0.41							

**Dissolved Oxygen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-E	MW-F	MW-H	MW-J	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19							0.53				0.29	0.43	0.53	1.55	0.74
14-Jan-20							0.89				1.01	5.18	2.82	2.47	0.53
23-Jan-20	5.34			4.65											
27-Jan-20		3.03				2.67									
28-Jan-20							4.8								
11-Feb-20	10.04	3.52	1.96					1.49							
12-Feb-20				3.49	4.08	5.84			3.52						
11-May-20	3.53	1.3	0.87												
12-May-20					2.06	3.38		0.51							
14-May-20				3.18					3.56						
05-Aug-20	2.83	1.36		2.4	1.63	0.91		0.56							
06-Aug-20			1.15												
09-Nov-20	2.45	1.91		4.19	1.18	0.68		0.37							
10-Nov-20			4.38												
15-Dec-20										2.19	0.19	0.75		1.5	1.16
16-Dec-20													0.4		
08-Feb-21	5.43			2.95	2.18			0.69						1.8	
09-Feb-21						4.06									1.38
10-Feb-21		2.08													
11-Feb-21										5.67	6.7	0.25			
12-Feb-21													0.61		
06-May-21	4.85	2.33		2.54	1.84	2.99		0.65						2.49	
11-May-21			1.67							5.93	0.2	0.19	0.43		1.37
24-Aug-21											0.34	0.29	0.14		0.4
25-Aug-21			0.7			2.03				1.33				0.93	
26-Aug-21	2.08	0.9			4.23			0.43							
27-Aug-21				5.12											
10-Nov-21						4.07								0.65	
11-Nov-21	3.58	1.66	2.98	3.12	1.61			1.98		0.82	1.53	0.57	0.36		0.51

Statistics

Mean	3.33381	1.877619	2.205789	2.93	2.214286	2.920952	1.367143	0.774	3.54	3.41	1.0625	0.9425	0.656667	1.560909	0.874167
Standard Deviation	2.220571	0.930789	1.214863	1.25952	0.973625	1.651472	1.053577	0.505521	0.028284	2.245573	1.823932	1.378564	0.72774	0.851569	0.457453
Median	2.38	1.66	2.03	2.95	2.06	2.99	1.27	0.6	3.54	3.355	0.4	0.5	0.42	1.55	0.65
10th Percentile	1.68	0.9	0.836	1.09	1.18	0.71	0.47	0.379	3.524	1.075	0.191	0.25	0.236	0.64	0.409
90th Percentile	5.43	3.44	3.648	4.65	3.88	5.25	2.39	1.52	3.556	5.8	1.478	1.345	1.105	2.49	1.407

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Hardness (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		247			197	327		540	181									
21-Feb-17	354		414	449			435				240							
04-Apr-17										243					148	136		248
05-Apr-17													127	158			594	
24-May-17	355	249	424	351			428				245							
25-May-17					212	348		544	181									
01-Aug-17										250					167	138	552	250
02-Aug-17	366	262	446			326	449		185		258							
03-Aug-17				312	245			579										
08-Aug-17														158				
14-Nov-17										240				165	164	136	512	285
15-Nov-17							456				252							
16-Nov-17	360	257	417	306	216	341		536	116									
12-Feb-18	373		411			391	427		174		246							
13-Feb-18		253		294	245			537										
14-Feb-18										229					162	126	477	325
21-Feb-18														158				
08-May-18	377		396			375	434		179		245							
09-May-18		246		351	265			542										
22-Aug-18	378		396				401		173		245							
23-Aug-18		250		483	278	298		544										
07-Nov-18	394						371		184		253							
08-Nov-18		268	410	596	314	304		559										
11-Feb-19							423		156		244							
13-Feb-19	375	274	404		327			566										
14-Feb-19				511		307												
30-Apr-19						254			178									
01-May-19	385	267	381	463	335		388	541			244							
12-Aug-19			368						161									
13-Aug-19		235			313	232	383	527										
14-Aug-19	364			377							230							
09-Sep-19										235				174	178	134		279
10-Sep-19																	477	
18-Nov-19	351					244			171									
19-Nov-19		248	376	377	313		355	487			231							

**Hardness (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										220				173	171	121	480	295
14-Jan-20										192				173	168	129	507	299
23-Jan-20	354						270											
27-Jan-20			390					387										
28-Jan-20										145								
11-Feb-20	317		371	498							230							
12-Feb-20		247			318	243	342	375	170			143						
11-May-20	353		354	427														
12-May-20		263			330		356	408	171		237							
14-May-20							225					60.5						
05-Aug-20	380		380			229	353		175		236							
06-Aug-20		258		323	336			434				115						
09-Nov-20	388		400			265	400		171		231							
10-Nov-20		268		296	354			429				141						
15-Dec-20													54.3	176	148		432	243
16-Dec-20									196							145		
08-Feb-21	346					294	420				239						408	
09-Feb-21		274			345			435	157	77.8		180						260
10-Feb-21			425															
11-Feb-21				411									91.3	179	143			
12-Feb-21																146		
06-May-21	353	269	396		343	230	375	428	167	42.9	229	179					261	
11-May-21				519									33.2	170	139	136		289
24-Aug-21					349			438		96.5				170	157	138		322
25-Aug-21				517					165				45.9				411	
26-Aug-21	357		407				365				238							
27-Aug-21		267				209						54.1						
10-Nov-21									137								383	
11-Nov-21	365	290	395	470	348	225	337	423		114	238	51.9	125	171	170	136		276

Statistics

Mean	364.0476	259.6	398.1429	416.55	299.15	282.7143	394.5238	493.6	166.5238	178.0167	240.55	115.5625	79.45	168.75	159.5833	135.0833	457.8333	280.9167
Standard Deviation	17.37088	12.96717	21.80203	89.48477	51.12243	53.78117	36.41925	64.23919	16.90745	74.11128	8.24286	54.03589	40.92289	7.325237	12.44229	7.115391	87.21638	27.27122
Median	364	260	396	419	316	270	388	531.5	171	208	239.5	128	72.8	170.5	163	136	477	282
10th Percentile	351	246.9	371	305	215.6	225	353	421.5	145	79.67	230	53.44	39.55	158	143.5	126.3	385.5	248.2
90th Percentile	385	274	424	517.2	348.1	348	435	559.7	181	242.7	252.1	179.3	126	175.8	170.9	144.3	548	319.7

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Iron (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.645			0.0384 J									
21-Feb-17	0.152	0.425	0.332	6.38	9.49		0.892	4.58			0.125							
04-Apr-17										0.926					0.226	3.53	7.68	0.384
05-Apr-17													0.163	0.3				
24-May-17	0.04 J	0.11	0.7	3.34			3.51				1.03							
25-May-17					0.43	0.61		2.58	0.04 J									
01-Aug-17										0.79					0.15	0.09 J	1.16	0.56
02-Aug-17	0.1 U	0.31	0.27			0.1 U	1.78		0.1 U		0.33							
03-Aug-17				1.2	1.01			0.94										
08-Aug-17														0.156				
14-Nov-17										0.46				0.1 U	0.55	0.1 U	2.12	0.71
15-Nov-17							0.62				0.18							
16-Nov-17	0.1 U	0.1 U	0.23	0.1 J	0.48	0.1 U		2.02	0.1 U									
12-Feb-18	0.1 U		0.59			0.15	0.35		0.1 U		0.1 U							
13-Feb-18		0.12		0.15	0.14			1.56										
14-Feb-18										0.38					0.1 U	0.1 U	0.73	2.35
21-Feb-18														0.1 U				
08-May-18	0.0522 J		0.152			0.174	3.5		0.1 U		0.0813 J							
09-May-18		0.276		0.678	0.401			0.688										
22-Aug-18	0.25		0.1 J				0.93		0.1 U		0.09 J							
23-Aug-18		0.1 U		0.37	0.46	0.1 U		0.64										
07-Nov-18	0.3						0.57		0.1 U		0.18							
08-Nov-18		0.1 U	0.09 J	0.12	0.2	0.06 J		3.29										
11-Feb-19							0.64		0.1 U		0.37							
13-Feb-19	0.1 U	0.37	0.12		0.1 U			4.8										
14-Feb-19				0.09 J		0.1 U												
30-Apr-19						0.1 U				0.02 J								
01-May-19	0.03 J	0.2	0.24	0.06 J	0.2		2.4	1.13			0.1							
12-Aug-19		0.0451 J	0.128		0.256			2.44	0.049 J									
13-Aug-19						0.1 U	0.775											
14-Aug-19	0.0489 J			0.151							0.725							
09-Sep-19										0.927				0.0552 J	0.0675 J	0.0221 J		0.245
10-Sep-19																	3.46	
18-Nov-19	0.17 B					0.07 BJ			0.22 B									
19-Nov-19		0.38	0.28	0.43	0.24		0.81	2.4			0.17 B							

**Iron (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19														0.0886 J	0.0873 J	0.207	0.0867 J	0.961
11-Dec-19										0.339								
14-Jan-20										0.62				0.043 J	0.0464 J	0.075 J	0.317	0.367
23-Jan-20	0.0751 J					0.0436 J												
27-Jan-20			0.22				1.28											
28-Jan-20									0.0728 J									
11-Feb-20	0.14		0.23	0.94							0.91							
12-Feb-20		0.2			0.11	0.17	1.54	1.51	0.09 J			0.278						
11-May-20	0.154		0.413	0.226														
12-May-20		0.24			0.155		0.61	0.579	0.1 U		0.671							
14-May-20						0.1 U						0.155						
05-Aug-20	0.47		0.14			0.1 U	2.14		0.1 U		0.34							
06-Aug-20		0.09 J		0.18	0.1 U			4.74				5.78						
09-Nov-20	0.95		0.21			0.1 U	0.35		0.1 U		0.32							
10-Nov-20		0.09 J		0.22	0.1 U			3.84				0.14						
15-Dec-20													2.17	0.12	0.31		0.09 J	0.48
16-Dec-20										0.33						0.1 U		
08-Feb-21	0.1					0.11	2.64				0.13						0.16	
09-Feb-21		0.58			0.1 U			4.01	0.1 U	0.15		0.09 J						0.45
10-Feb-21			0.15															
11-Feb-21				0.08 J									2.37	0.1 U	0.16			
12-Feb-21																0.1 U		
06-May-21	0.1 U	0.505	0.1 U		0.129	0.1 U	1.55	0.671	0.1 U	0.1 U	0.1 U	0.0635 J					0.1 U	
11-May-21				0.324									1.44	0.1 U	0.0677 J	0.1 U		0.26
24-Aug-21					0.1 U			0.79		0.09 J				0.1 U	0.1 U	0.1 U		0.59
25-Aug-21				0.3					0.1 U				1.13				0.1 U	
26-Aug-21	0.1 U		0.26				0.46				0.37							
27-Aug-21		0.1 U				0.1 U						0.1 U						
10-Nov-21									0.1 U								0.1 U	
11-Nov-21	0.1 U	1.58	0.54	0.78	0.1 U	0.1 J	0.25	1.11		0.08 J	0.79	0.75	1.82	0.1 U	0.21	0.1 U		0.22

Statistics

Mean	0.1563	0.28606	0.25929	0.806	0.70005	0.12774	1.31414	2.2159	0.05858	0.4285	0.35062	0.91331	1.5155	0.0885667	0.164575	0.356175	1.32948	0.6314167
Standard Deviation	0.21201	0.34624	0.17177	1.504	2.08197	0.17134	1.00303	1.5005	0.03912	0.3221066	0.30668	1.97966	0.8043417	0.0752893	0.1479467	1.0005969	2.26166	0.5814283
Median	0.0522	0.2	0.23	0.263	0.1775	0.05	0.892	1.79	0.05	0.3595	0.25	0.1475	1.63	0.05	0.11865	0.05	0.2385	0.465
10th Percentile	0.0489	0.05	0.1	0.089	0.05	0.05	0.35	0.6679	0.04	0.081	0.07817	0.05945	0.6465	0.05	0.05	0.05	0.05	0.2465
90th Percentile	0.3	0.5125	0.54	1.414	0.533	0.174	2.64	4.596	0.0728	0.9124	0.802	2.259	2.27	0.1524	0.3016	0.1953	3.326	0.9359

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Magnesium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						33.7			16									
21-Feb-17	28.8	16.3	33.9	34.3	12.4		34.7	38.8			19							
04-Apr-17										19.7					10.5	10.1	59	21.4
05-Apr-17													6.3	10.3				
24-May-17	29.3	16.1	34.7	27.8			33				19.1							
25-May-17					11.6	34.9		37.9	15.6									
01-Aug-17										19.9					11.4	9.7	57.1	22.6
02-Aug-17	30.1	17	35.2			33.1	33.9		15.7		19.9							
03-Aug-17				24.5	13.4			39.4										
08-Aug-17														11.8				
14-Nov-17										19.4				12.5	11.5	9.7	55.5	25.5
15-Nov-17							33.7				19.5							
16-Nov-17	29.1	16.5	32.3	22.6	11.6	35.7		36.1	14.1									
12-Feb-18	30.6		32.2			39	32.5		15.3		19.3							
13-Feb-18		16.2		21.1	13.3			36.6										
14-Feb-18										18.8					11.4	9.1	52.6	28.9
21-Feb-18														11.7				
08-May-18	30.4		30.1			37	33.8		15.2		19							
09-May-18		16		27.1	14.2			36.6										
22-Aug-18	31.2		32.6				30.5		15.3		19.6							
23-Aug-18		16.8		36.5	15.5	30.8		37.6										
07-Nov-18	32.1						26.3		15.6		19.9							
08-Nov-18		17.6	33.2	41.8	17.2	30.9		38.8										
11-Feb-19							32.5		14.5		19.2							
13-Feb-19	30.5	18.1	31.9		17.7			38.9										
14-Feb-19				37.5		30.7												
30-Apr-19						26.3			15.2									
01-May-19	31.5	18.2	30.6	33	18.3		28.8	37.2			19.2							
12-Aug-19		15.7	30.5		17.3			36.5	14.1									
13-Aug-19						24	29.2											
14-Aug-19	29.7			28.9							18.2							
09-Sep-19										18.7				13.1	12.3	9.52		24.3
10-Sep-19																	55.9	
18-Nov-19	28.9					25.3			14.7									
19-Nov-19		16.7	31.2	28.7	17.5		24.9	33			18.4							

**Magnesium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19														13	11.9	8.65	54.4	25.1
11-Dec-19									17.5									
14-Jan-20									16					12.9	11.5	9.03	55.5	24.8
23-Jan-20	28.4					26.7												
27-Jan-20			28.5				28.1											
28-Jan-20									13.8									
11-Feb-20	25.5		27.6	35.7							17.9							
12-Feb-20		16.4			17.9	25	24.1	24.4	14.7			13.4						
11-May-20	28.4		26.3	31.5														
12-May-20		17.7			18.1		26.9	26.2	14.3		18.4							
14-May-20						22.9						5.55						
05-Aug-20	30.8		28.3			23.1	26.3		14.6		18.2							
06-Aug-20		17		24.6	18.7			28.9				11.4						
09-Nov-20	31.3		29.5			26.7	31.9		14.1		17.9							
10-Nov-20		17.2		22	19.1			28.7				14.7						
15-Dec-20													3.9	12.7	10.2		51.9	20
16-Dec-20									15.9							10		
08-Feb-21	27.9					29.7	33.4			18.4							51.3	
09-Feb-21		17.8			18.9			29.1	14.1	8.6		18						21.8
10-Feb-21			31															
11-Feb-21				30.8									5.1	13.1	10			
12-Feb-21																9.9		
06-May-21	28.5	17.7	29.1		18.8	23.4	28.8	29	14.1	2.91	17.7	16.9					49.8	
11-May-21				36.7									3.01	12.6	9.74	9.46		23.8
24-Aug-21					19.1			28.5		9.4				12.4	10.8	9.5		23.8
25-Aug-21				35.4					13.7				3.3					49.4
26-Aug-21	29		29.6				27.8				18.5							
27-Aug-21		17.8				21.2						4.9						
10-Nov-21									13.2									45.8
11-Nov-21	29.1	19.6	30.7	33.9	19.1	22.3	24.1	27.2		10.3	18.3	4.8	6.3	12.4	11.3	9.2		22.7

Statistics

Mean	29.57619	17.12	30.90476	30.72	16.485	28.68571	29.77143	33.47	14.6619	14.75917	18.78	11.20625	4.651667	12.375	11.045	9.488333	53.18333	23.725
Standard Deviation	1.505292	0.950125	2.315702	5.862602	2.699566	5.349887	3.506015	5.077411	0.760576	5.572107	0.67481	5.456741	1.464383	0.796726	0.792195	0.431042	3.748656	2.308532
Median	29.3	17	30.7	31.15	17.6	26.7	29.2	36.3	14.6	16.75	18.75	12.4	4.5	12.55	11.35	9.51	53.5	23.8
10th Percentile	28.4	16.09	28.3	22.54	12.32	22.9	24.9	27.1	13.8	8.68	17.9	4.87	3.155	11.71	10.02	9.037	49.44	21.44
90th Percentile	31.3	18.11	33.9	36.78	19.1	35.7	33.8	38.81	15.6	19.67	19.63	17.23	6.3	13.09	11.86	9.99	56.98	25.46

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Manganese (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.161			0.0101									
21-Feb-17	0.0643	0.0154	0.345	0.108	0.11		0.2	3.85			0.974							
04-Apr-17										0.984					0.202	0.594	1.81	0.449
05-Apr-17													0.0145	0.278				
24-May-17	0.019	0.004 J	0.615	0.142			0.329				1.93							
25-May-17					0.023	0.107		3.6	0.008 J									
01-Aug-17										0.858					0.316	0.43	1.29	0.506
02-Aug-17	0.025	0.007 J	0.499			0.012	0.149		0.024		1.49							
03-Aug-17				0.089	0.034			4.11										
08-Aug-17														0.412				
14-Nov-17										0.802				0.477	0.344	0.39	1.22	0.783
15-Nov-17							0.051				1.06							
16-Nov-17	0.045 B	0.01 U	0.232	0.054	0.016 B	0.01 U		3.86	0.045									
12-Feb-18	0.02		0.799			0.06	0.089		0.015		0.836							
13-Feb-18		0.01 U		0.071	0.008 J			3.55										
14-Feb-18										0.75					0.432	0.406	0.983	0.976
21-Feb-18														0.436				
08-May-18	0.0278		0.216			0.0439	0.199		0.0133		1.04							
09-May-18		0.0054 J		0.045	0.0171			3.68										
22-Aug-18	0.139		0.163				0.144		0.035		1.27							
23-Aug-18		0.01 U		0.052	0.011	0.01 U		3.81										
07-Nov-18	0.132						0.323		0.084		1.19							
08-Nov-18		0.01 U	0.314	0.061	0.01 U	0.073		4.92										
11-Feb-19							0.191		0.026		2.22							
13-Feb-19	0.015	0.028	0.584		0.01 U			5.29										
14-Feb-19				0.061		0.009 J												
30-Apr-19						0.01 U			0.027									
01-May-19	0.013	0.005 J	0.864	0.008 J	0.01 J		0.421	4.38			1.29							
12-Aug-19		0.01 U	0.532		0.0057 J			4.71	0.0714									
13-Aug-19						0.01 U	0.0683											
14-Aug-19	0.0248			0.0461							3.42							
09-Sep-19										0.783				0.592	0.438	0.373		0.802
10-Sep-19																	1.34	
18-Nov-19	0.053					0.009 J			0.03									
19-Nov-19		0.006 J	0.298	0.059	0.005 J		0.316	4.35			0.98							

**Manganese (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19														0.597	0.307	0.247	0.73	0.876
11-Dec-19										0.487								
14-Jan-20										1.1				0.596	0.329	0.288	0.751	0.795
23-Jan-20	0.0415					0.01 U												
27-Jan-20			0.745				0.163											
28-Jan-20									0.0167									
11-Feb-20	0.077		0.481	0.042							1.9							
12-Feb-20		0.01 U			0.007 J	0.027	0.126	2.99	0.01 J			0.285						
11-May-20	0.0361		0.808	0.0701														
12-May-20		0.0047 J			0.0047 J		0.143	3.09	0.0139		3.24							
14-May-20						0.01 U						0.0853						
05-Aug-20	0.023		0.108			0.017	0.226		0.004 J		2.2							
06-Aug-20		0.01 U		0.136	0.01 U			3.74				1.47						
09-Nov-20	0.025		0.076			0.008 J	0.143		0.035		1.53							
10-Nov-20		0.01 U		0.069	0.01 U			3.23				1.62						
15-Dec-20													0.088	0.548	0.663		0.921	0.677
16-Dec-20										0.195						0.366		
08-Feb-21	0.019					0.014	0.11				0.984						0.564	
09-Feb-21		0.014			0.01 U			3.34	0.007 J	0.008 J		0.621						0.73
10-Feb-21			0.495															
11-Feb-21				0.007 J									0.132	0.498	0.298			
12-Feb-21																0.405		
06-May-21	0.0176	0.0128	0.0495		0.0043 J	0.01 U	0.0543	2.72	0.0064 J	0.0072 J	0.834	0.132					0.0485	
11-May-21				0.0327									0.0461	0.587	0.539	0.949		0.838
24-Aug-21					0.01 U			2.9		0.01 U				0.589	0.512	0.404		0.916
25-Aug-21				0.051					0.041				0.05				0.308	
26-Aug-21	0.016		0.32				0.085				3.15							
27-Aug-21		0.01 U				0.008 J						0.032						
10-Nov-21									0.063								0.245	
11-Nov-21	0.01 J	0.05	0.37	0.075	0.01 U	0.072	0.132	2.75		0.007 J	1.72	0.076	0.09	0.607	0.461	0.745		0.792

Statistics

Mean	0.040148	0.009865	0.424452	0.063945	0.01454	0.031233	0.17441	3.7435	0.027895	0.49885	1.6629	0.540163	0.0701	0.518083	0.403417	0.466417	0.850875	0.761667
Standard Deviation	0.036172	0.01109	0.24797	0.034828	0.023745	0.041682	0.099799	0.720966	0.022433	0.428781	0.814492	0.649116	0.04152	0.101831	0.128124	0.200917	0.515497	0.154939
Median	0.025	0.005	0.37	0.06	0.00535	0.009	0.144	3.71	0.024	0.6185	1.39	0.2085	0.069	0.5675	0.388	0.4045	0.836	0.7935
10th Percentile	0.015	0.00497	0.108	0.03023	0.00497	0.005	0.0683	2.885	0.007	0.00702	0.9602	0.0628	0.0303	0.4144	0.2989	0.2958	0.2513	0.5231
90th Percentile	0.077	0.01666	0.799	0.1108	0.0241	0.073	0.323	4.731	0.063	0.9714	3.159	1.515	0.111	0.5969	0.5363	0.7299	1.335	0.912

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Nickel (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.04 U			0.04 U									
21-Feb-17	0.04 U	0.004 J	0.04 U	0.04 U	0.0077 J		0.04 U	0.0037 J			0.04 U							
04-Apr-17										0.04 U					0.04 U	0.04 U	0.0057 J	0.04 U
05-Apr-17													0.04 U	0.04 U				
08-Aug-17														0.04 U				
08-May-18	0.04 U		0.04 U			0.04 U	0.04 U		0.04 U		0.04 U							
09-May-18		0.04 U		0.04 U	0.04 U			0.04 U										
12-Aug-19		0.04 U	0.04 U		0.04 U			0.04 U	0.04 U									
13-Aug-19						0.04 U	0.04 U											
14-Aug-19	0.04 U			0.04 U							0.04 U							
09-Sep-19										0.04 U				0.04 U	0.04 U	0.04 U		0.04 U
10-Sep-19																	0.04 U	
10-Dec-19														0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
11-Dec-19										0.04 U								
14-Jan-20										0.04 U				0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
23-Jan-20	0.04 U					0.04 U												
27-Jan-20			0.04 U				0.04 U											
28-Jan-20									0.04 U									
12-Feb-20												0.0041 J						
11-May-20	0.04 U		0.04 U	0.04 U														
12-May-20		0.04 U			0.04 U		0.04 U	0.04 U	0.04 U		0.04 U							
14-May-20						0.04 U						0.003 J						
06-May-21	0.04 U	0.04 U	0.04 U		0.04 U	0.04 U	0.0031 J	0.0033 J	0.0026 J	0.0032 J	0.04 U	0.0069 J					0.0029 J	
11-May-21				0.04 U									0.04 U	0.04 U	0.04 U	0.04 U		0.04 U

Statistics

Mean	0.02	0.0168	0.02	0.02	0.01754	0.02	0.017183	0.0134	0.0171	0.01664	0.02	0.004667	0.02	0.02	0.02	0.02	0.01372	0.02
Standard Deviation	0	0.007155	0	0	0.005501	0	0.006899	0.009039	0.007104	0.007513	0	0.002011	0	0	0	0	0.008656	0
Median	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0041	0.02	0.02	0.02	0.02	0.02	0.02
10th Percentile	0.02	0.0104	0.02	0.02	0.01262	0.02	0.01155	0.00346	0.0113	0.00992	0.02	0.00322	0.02	0.02	0.02	0.02	0.00402	0.02
90th Percentile	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00634	0.02	0.02	0.02	0.02	0.02	0.02

Note: one-half detection limit utilized in statistical calculations for non-detect results.

Nitrate Nitrogen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					1 U	0.6 J, *		1 U	1 U									
21-Feb-17	0.5 J	0.5 J	0.5 J	1 U			1 U				1 U							
04-Apr-17										1 U					0.7 J	1 U	1 U	1 U
05-Apr-17													0.7 J	1 U				
24-May-17	0.6 J	0.7 J	0.6 J	1 U	1 U		1 U	1 U			1 U							
25-May-17						0.6 J		1 U										
01-Aug-17										1 U					1 U	1 U	1 U	1 U
02-Aug-17	0.5 J	0.6 J	0.5 J		1 U	0.7 J	1 U	1 U	1 U		1 U							
03-Aug-17				1 U														
08-Aug-17														1 U				
14-Nov-17										1 U				1 U	1 U	1 U	1 U	1 U
15-Nov-17							1 U				1 U							
16-Nov-17	0.6 J		0.6 J	0.5 J	1 U	0.8 J		0.6 J	0.6 J									
12-Feb-18	0.5 J	0.6 J	0.6 J		1 U	0.7 J	1 U	1 U	1 U		1 U							
13-Feb-18				1 U														
14-Feb-18										1 U					1 U	1 U	0.5 J	1 U
21-Feb-18														1 U				
08-May-18	0.3 J	0.4 J	0.3 J		0.4 J	0.5 J	1 U	1 U	1 U		1 U							
09-May-18				1 U														
22-Aug-18	0.4 J		0.4 J				1 U	1 U			1 U							
23-Aug-18		0.6 J		1 U	0.4 J	0.6 J		1 U										
07-Nov-18	1 U	0.6 J			0.5 J		1 U	0.3 J	1 U		1 U							
08-Nov-18			1 U	1 U		0.5 J												
11-Feb-19							1 U	1 U			1 U							
13-Feb-19	1 U	0.6 J	1 U		1 U			1 U										
14-Feb-19				0.4 J		0.4 J												
30-Apr-19						0.4 J			1 U									
01-May-19	0.3 J	0.5 J	0.4 J	0.4 J	0.3 J		1 U	1 U			1 U							
12-Aug-19		0.5 J	1 U		0.3 J			1 U	1 U									
13-Aug-19						0.5 J	1 U											
14-Aug-19	1 U			1 U							1 U							
09-Sep-19										1 U				1 U	1 U	1 U		1 U
10-Sep-19																	1 U	
18-Nov-19	0.4 J					0.7 J		1 U										
19-Nov-19		0.6 J	0.8 J	1 U	0.5 J		1 U	0.4 J			1 U							

**Nitrate Nitrogen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										1 U				1 U	1 U	1 U	1 U	1 U
14-Jan-20										0.5 J				1 U	1 U	1 U	1 U	1 U
23-Jan-20	1 U					0.6 J												
27-Jan-20			0.8 J				1 U											
28-Jan-20									1 U									
11-Feb-20	0.4 J		0.9 J	0.4 J							1 U							
12-Feb-20		1.3			0.4 J	0.6 J	1 U	0.4 J	1 U			0.4 J						
11-May-20	1 U	0.5 J	0.9 J	0.6 J	0.2 J			1 U										
12-May-20							1 U		1 U		1 U							
14-May-20						0.5 J						1 U						
05-Aug-20	0.2 J		0.3 J			0.3 J	1 U		1 U		1 U							
06-Aug-20		0.4 J		1 U	0.3 J			0.3 J				1 U						
09-Nov-20	0.5 J		0.6 J			0.6 J	1 U		1 U		1 U							
10-Nov-20		0.6 J		1 U	1 U			1 U					3.5	1 U	1 U		1 U	1 U
15-Dec-20																		
16-Dec-20										0.2 J						1 U		
08-Feb-21	0.2 J					0.6 J	1 U			0.6 J	1 U	0.3 J					1 U	
09-Feb-21		0.5 J			0.3 J			1 U	1 U									1 U
10-Feb-21			1.5															
11-Feb-21				0.3 J									3	1 U	1 U			
12-Feb-21																1 U		
05-May-21		0.5 UJ			0.5 J			0.3 J		0.7 J		0.3 UJ						
06-May-21	0.3 J		1.1			0.8 J	1 U		1 U		1 U						1 U	
11-May-21				1.8									1 U	1 U	1 U	3.1		1 U
24-Aug-21					0.5 J			1 U		0.4 J				1 U	1 U	1 U		1 U
25-Aug-21				0.4 J					1 U									1 U
26-Aug-21	0.3 J		0.6 J				1 U				1 U							
27-Aug-21		0.5 J				0.6 J							0.2 J					
10-Nov-21									1 U								1 U	
11-Nov-21	1 U	0.4 J	1 U	1 U	0.4 J	0.4 J	1 U	1 U		1 U	1 U	1 U	1.9	1 U	1 U	1 U		1 U

Statistics

Mean	0.428571	0.573684	0.638095	0.54	0.425	0.571429	0.5	0.465	0.504762	0.491667	0.5	0.4125	2	0.5	0.516667	0.716667	0.5	0.5
Standard Deviation	0.118924	0.193913	0.283683	0.303315	0.096655	0.130931	0	0.081273	0.021822	0.11645	0	0.112599	1.21326	0	0.057735	0.750555	0	0
Median	0.5	0.5	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	2.15	0.5	0.5	0.5	0.5	0.5
10th Percentile	0.3	0.4	0.4	0.4	0.3	0.4	0.5	0.3	0.5	0.41	0.5	0.27	0.6	0.5	0.5	0.5	0.5	0.5
90th Percentile	0.5	0.62	0.9	0.51	0.5	0.7	0.5	0.5	0.5	0.59	0.5	0.5	3.25	0.5	0.5	0.5	0.5	0.5

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**ORP (mV) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		146.4			122.4	101.8		37.7	134.6									
21-Feb-17	189.1		78	139.1			99.9				14.5							
04-Apr-17										-96.7					111.1	-33.1	-1.8	-160.6
05-Apr-17													103.9	16.1				
24-May-17	36.4	87.1	19.1	53.4	87.7		107.7	-61.6			76.9							
25-May-17							128.1		104.9									
01-Aug-17										24.1					-46.1	-77	-79.6	-154
02-Aug-17	123.6	42.1	138.8		22.3	67.5	158.5	11.3	19.3		2.8							
03-Aug-17				206.9														
08-Aug-17														-89.8				
14-Nov-17										217.8				-6.1	-26.4	-17.4	-53.9	-133.4
15-Nov-17							138				59.3							
16-Nov-17	100.2	85.1	114.3	153.3	126.4	179.3		11.6	110.4									
12-Feb-18	93.3	159.1	104.9		133.5	173	135.4	38.1	154.7		47							
13-Feb-18				146.4														
14-Feb-18										47.6					36	42.7	-8	-120.9
21-Feb-18														21.4				
08-May-18	79.3	165	93.1		188.9	170.9	144.4	60.5	163.6		15.7							
09-May-18				99.1														
22-Aug-18	22.1	208.7	40.1		196.3		-24.9	13.8	178.2		-42.5							
23-Aug-18				191.7		182.7												
07-Nov-18	64.9	214.2			201.4		99.6	-31.6	184.5		28.4							
08-Nov-18			28.1	46.7		36.8												
11-Feb-19							114.7		77.6		85.1							
13-Feb-19	107.1	164.4	146.6		183.4			-35.4										
14-Feb-19				172.2		140.9												
30-Apr-19						158			112.2									
01-May-19	90.7	142.1	99.8	99.9	151.6		112.4	70			63.1							
12-Aug-19		191.9	155.8		203.4			-43.1	201.9									
13-Aug-19						193.8	169.3											
14-Aug-19	185.9			208.8							116.8							
09-Sep-19										18.3				-32.1	-8.9	-175.4		-98.4
10-Sep-19																		-116.4
18-Nov-19	153					183.3			161									
19-Nov-19		25.9	90.9	111.6	221.1		91.7	31			27.4							

**ORP (mV) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										114.4				-33.7	25.8	38.7	239.1	-81.8
11-Dec-19										189.1								
14-Jan-20										139.2				-5.2	27.9	-6.3	109.2	-50.6
23-Jan-20	70					89.2												
27-Jan-20			45.8				79.4											
28-Jan-20									88.8									
11-Feb-20	186.2		172.2	172.4							144.3							
12-Feb-20		180.1			196.1	120.7	157.9	80.2	129.5			179.8						
11-May-20	190	209.6	212.4	227.1	237.6			224.9										
12-May-20							244.4		197.9		203.7							
14-May-20						210						173.3						
05-Aug-20	111.3		102.8			149.1	104.8		112.5		111.9							
06-Aug-20		111.8		185.7	104			-22.9				86.6						
09-Nov-20	132.4		155.6			226.7	145.4		201.8		30.8							
10-Nov-20		293.3		299.9	200.1			-37.4				277						
15-Dec-20													211.8	-49	172.1		192.1	-96.6
16-Dec-20										132.4						126.2		
08-Feb-21	154.6					129.5	169.4		129.7	83.7	212						155.2	
09-Feb-21		35.1			85.1			-60.3	80.4									-73.2
10-Feb-21			160.5															
11-Feb-21				150.7									151.9	36.8	137.3			
12-Feb-21																100.8		
05-May-21		206.3			207.4			19.5	74.1		251.7							
06-May-21	127		150.3			172.2	168.5		197.6		45.8						200.7	
11-May-21				196									264.2	-7.5	211.4	202.9		-109.1
24-Aug-21					95.3			11.6	52.4					-54.4	69.8	-10.2		-76.1
25-Aug-21				106.1					27.9				105.8				101.3	
26-Aug-21	98.4		88				78.9				58.8							
27-Aug-21		124.6				-192.6						115.2						
10-Nov-21									113.8								117.2	
11-Nov-21	92.4	116.9	195.7	159.8	118.8	115.4	134	-27.9		95.5	184.3	72.5	131.3	-8	164.9	152.8		-77.8

Statistics

Mean	114.6619	145.485	113.9429	156.34	154.14	130.3	125.2095	14.5	131.1	87.53077	67.89	171.0125	161.4833	-17.625	72.90833	28.725	71.25833	-102.708
Standard Deviation	48.73564	68.54971	53.95824	60.33842	57.42629	87.71118	51.70479	65.05474	54.30309	81.80231	60.89929	75.07279	64.0341	35.82625	84.97104	105.4251	119.1964	33.98332
Median	107.1	152.75	104.9	156.55	167.5	149.1	134	11.6	129.5	95.5	59.05	176.55	141.6	-7.75	52.9	16.2	105.25	-97.5
10th Percentile	64.9	41.4	40.1	94.53	87.44	67.5	79.4	-44.82	77.6	19.46	13.33	82.37	104.85	-53.86	-24.65	-72.61	-77.03	-151.94
90th Percentile	186.2	210.06	172.2	210.63	208.77	193.8	169.3	71.02	197.9	179.12	148.3	259.29	238	20.87	171.38	150.14	199.84	-73.49

Note: one-half detection limit utilized in statistical calculations for non-detect results.

pH (std. units) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		7.38			7.47	6.7		6.6	7.25									
21-Feb-17	7.41		6.89	6.53			7.21				7.51							
04-Apr-17										7.32					7.81	7.92	6.67	7.75
05-Apr-17													7.2	9.21				
24-May-17	6.87	7.31	6.42	5.99	7.3		6.85	6.48			7.24							
25-May-17						6.53			7.77									
01-Aug-17										7.22					7.85	7.96	7.03	7.64
02-Aug-17	7.08	7.33	6.72		7.2	6.42	7.08	6.62	7.62		7.41							
03-Aug-17				6.13														
08-Aug-17														8.1				
14-Nov-17										7.27				7.22	7.52	7.68	7.33	7.79
15-Nov-17							6.87				7.17							
16-Nov-17	6.8	7.35	6.57	6.03	6.98	6.53		6.64	8.44									
12-Feb-18	7.08	7.48	6.65		7.4	6.65	7.04	6.77	7.62		7.19							
13-Feb-18				6.26														
14-Feb-18										7.44					7.56	7.96	7.54	7.68
21-Feb-18														7.59				
08-May-18	7.16	7.61	6.81		6.9	6.43	7.2	6.48	7.8		7.44							
09-May-18				6.14														
22-Aug-18	7.05	6.88	6.62		7		7.02	6.45	7.43		7.38							
23-Aug-18				6.1		6.41												
07-Nov-18	7.05	7.08			7.01		6.93	6.63	7.41		7.41							
08-Nov-18			6.74	6.3		6.62												
11-Feb-19							7.26		7.9		7.41							
13-Feb-19	7.24	7.25	6.73		7.03			6.74										
14-Feb-19				6.34		6.63												
30-Apr-19						6.57			7.82									
01-May-19	7.07	7.14	6.67	6.4	5.98		7	6.8			7.39							
12-Aug-19		7.38	6.34		6.85			6.7	7.36									
13-Aug-19						6.36	6.96											
14-Aug-19	6.86			5.97							7.12							
09-Sep-19										7.24				7.61	7.61	7.68		7.46
10-Sep-19																	7.28	
18-Nov-19	6.67					6.56			7.45									
19-Nov-19		7.09	6.81	6.34	6.58		7.03	6.37			7.55							

**pH (std. units) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										7.3				7.8	7.66	7.94	7.09	7.6
11-Dec-19										7								
14-Jan-20										7.37				7.49	7.72	7.92	7.5	7.71
23-Jan-20	7.29					6.82												
27-Jan-20			6.83				7.2											
28-Jan-20									8.16									
11-Feb-20	7.37		6.89	6.45							7.5							
12-Feb-20		7.39			6.92	6.83	7.09	6.91	8			5.66						
11-May-20	7.29	7.49	6.9	6.34	6.88			6.95										
12-May-20							7.21		8.17		7.48							
14-May-20						6.72						5.81						
05-Aug-20	6.22		6.07			6.54	6.23		7.76		6.53							
06-Aug-20		7.31		6.13	6.75			6.65				5.85						
09-Nov-20	7.01		6.76			6.64	7.13		7.76		7.42							
10-Nov-20		7.31		6.21	6.96			6.96				5.62						
15-Dec-20													6.62	7.77	7.7		7.78	7.72
16-Dec-20										7.47						7.69		
08-Feb-21	7.22					6.67	7.19			8.44	7.49	5.61					7.85	
09-Feb-21		7.2			6.92			6.85	8.04									7.57
10-Feb-21			6.82															
11-Feb-21				6.4									6.7	7.58	7.73			
12-Feb-21																7.64		
05-May-21		7.01			6.88			7.13		11.06		5.49						
06-May-21	7.07		6.72			6.5	7.06		7.99		7.34						8.38	
11-May-21				6.3								5.64	7.64	7.6	7.66			7.58
24-Aug-21					6.87			6.89		8.56			7.69	7.63	7.64			7.41
25-Aug-21				6.24					7.69			5.94					7.44	
26-Aug-21	6.96		6.65				6.95				7.19							
27-Aug-21		6.99				6.46						5.9						
10-Nov-21									8.03								7.54	
11-Nov-21	7.08	7.41	6.54	6.28	6.92	6.72	6.75	7.02		8.38	7.24	6.97	6.94	7.52	7.59	7.66		7.59

Statistics

Mean	7.040476	7.2695	6.67381	6.244	6.94	6.58619	7.012381	6.732	7.784286	7.851538	7.3205	5.86375	6.506667	7.768333	7.665	7.779167	7.4525	7.625
Standard Deviation	0.264565	0.18777	0.202472	0.15432	0.30938	0.1317	0.224764	0.206693	0.304673	1.095117	0.225563	0.468003	0.598487	0.499469	0.099955	0.143239	0.437994	0.113898
Median	7.07	7.31	6.72	6.27	6.92	6.57	7.04	6.72	7.77	7.37	7.4	5.735	6.66	7.625	7.645	7.685	7.47	7.62
10th Percentile	6.8	7.008	6.42	6.026	6.733	6.42	6.85	6.477	7.41	7.224	7.165	5.574	5.79	7.493	7.563	7.642	7.036	7.471
90th Percentile	7.29	7.481	6.89	6.405	7.31	6.72	7.21	6.966	8.16	8.536	7.501	6.221	7.07	8.07	7.802	7.958	7.843	7.747

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Potassium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						1.28 J			4.84									
21-Feb-17	4.68	2.31	1.18 J	4.5	3.51		4.74	8.96			2.08							
04-Apr-17										2.64					2.52	3.53	18.3	6.64
05-Apr-17													1.79 J	2.65				
24-May-17	5.7	2.6	1.1 J	3.2			5.4				2.2							
25-May-17					1.2 J	1.2 J		7.9	5.4									
01-Aug-17										3.7					2.1	2	36.3	18.8
02-Aug-17	6.1	2.4	1.3 J			0.9 J	5.2		4.2		2.1							
03-Aug-17				2.4	1.5 J			8.2										
08-Aug-17														1.95 J				
14-Nov-17										3				1.9 J	2.2	1.9 J	41.1	14
15-Nov-17							4.8				2.2							
16-Nov-17	4.4	2.1	1.3 J	2.3	1.2 J	0.9 J		8.2	18.7									
12-Feb-18	4		1.3 J			1.1 J	4.7		5.3		2.1							
13-Feb-18		2.2		2 J	1.2 J			8.1										
14-Feb-18										2.7					1.8 J	1.8 J	48.4	8.8
21-Feb-18														1.7 J				
08-May-18	4.08		1.26 J			1.17 J	5.84		4.41		2.12							
09-May-18		2.06		2.33	1.36 J			7.69										
22-Aug-18	3.6		1.1 J				4.3		4.3		2 J							
23-Aug-18		1.9 J		3.3	1.3 J	0.8 J		7.2										
07-Nov-18	3.8						3.6		2.8		2.1							
08-Nov-18		2	1.2 J	3.6	1.9 J	0.9 J		7.7										
11-Feb-19							4.6		4.7		2.1							
13-Feb-19	3.5	2.1	1 J		1.4 J			7.2										
14-Feb-19				3		0.9 J												
30-Apr-19						0.7 J			3.9									
01-May-19	3.3	1.9 J	1 J	2.3	1.4 J		4.3	6.8			2 J							
12-Aug-19		1.74 J	0.959 J		1.21 J			6.32	3.96									
13-Aug-19						0.699 J	3.86											
14-Aug-19	3.21			1.84 J							1.97 J							
09-Sep-19										2.38				1.74 J	1.66 J	1.74 J		4.8
10-Sep-19																	47.3	
18-Nov-19	3.1					0.8 J			2.8									
19-Nov-19		2 J	1.3 J	2.3	1.2 J		3.3	6.8			2 J							

**Potassium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19														1.77 J	1.65 J	2.05	46	5.36
11-Dec-19										2.33								
14-Jan-20										2.97				1.74 J	1.57 J	1.55 J	44.6	3.68
23-Jan-20	3.11					0.851 J												
27-Jan-20			1.13 J				4.15											
28-Jan-20									6.41									
11-Feb-20	2.5		1.1 J	2.7							2							
12-Feb-20		7.3			2.2	0.9 J	3.8	5.8	3.6			2.38						
11-May-20	3.1		1.16 J	2.18														
12-May-20		1.92 J			1.29 J		3.62	5.67	4.05		2.09							
14-May-20						0.608 J						1.32 J						
05-Aug-20	3		1.1 J			0.6 J	3.9		3.3		1.8 J							
06-Aug-20		1.8 J		1.7 J	1.2 J				5.5			5.2						
09-Nov-20	3.2		1.3 J			0.8 J	4.1		2.4		1.9 J							
10-Nov-20		1.9 J		1.7 J	1.1 J			6.6				4						
15-Dec-20													2.1	1.7 J	1.6 J		49.5	4.3
16-Dec-20									4.6							1.6 J		
08-Feb-21	2.7					0.8 J	4.8			2							73.8	
09-Feb-21		2 J			1.2 J			5.7	4.6	5.6		2.5						3.3
10-Feb-21			1.2 J															
11-Feb-21				2.2									2.5	1.8 J	1.5 J			
12-Feb-21																1.6 J		
06-May-21	2.69	1.95 J	1.05 J		1.09 J	0.604 J	4.09	5.85	3.51	3.34	1.82 J	2.14					113	
11-May-21				2.61									1.28 J	1.56 J	1.33 J	1.37 J		2.69
24-Aug-21				1.2 J				6.4		4.6				1.7 J	1.5 J	1.5 J		2.3
25-Aug-21				2.9					2.5				1.5 J					43.9
26-Aug-21	3.3		1.2 J				3.6				2 J							
27-Aug-21		1.8 J				0.7 J						1.5 J						
10-Nov-21									4.7									45.9
11-Nov-21	2.8	2.4	1.4 J	3.2	1.2 J	0.8 J	3	6.1		4	2.1	1.4 J	2.4	1.6 J	1.6 J	1.5 J		2.3

Statistics

Mean	3.612857	2.319	1.173286	2.613	1.443	0.857714	4.271429	6.9345	4.78	3.488333	2.034	2.555	1.928333	1.8175	1.7525	1.845	50.675	6.414167
Standard Deviation	0.948252	1.193865	0.119602	0.701638	0.556352	0.193059	0.712764	1.02715	3.34447	1.030347	0.10738	1.376445	0.490241	0.283969	0.346046	0.57145	23.18119	5.132599
Median	3.3	2	1.18	2.365	1.205	0.8	4.15	6.8	4.2	3.17	2.04	2.26	1.945	1.74	1.625	1.67	45.95	4.55
10th Percentile	2.7	1.8	1	1.826	1.19	0.608	3.6	5.697	2.8	2.406	1.892	1.376	1.39	1.61	1.5	1.5	36.78	2.339
90th Percentile	4.68	2.42	1.3	3.33	1.93	1.17	5.2	8.2	5.4	4.6	2.128	4.36	2.45	1.945	2.19	2.045	71.37	13.48

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Sodium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						41.2			17.3									
21-Feb-17	16.9	10.3	18.8	21.9	8.22		78	19.8			23.4							
04-Apr-17										22					11.3	10.4	64.2	24.6
05-Apr-17													4.02	11.3				
24-May-17	17.9	9.7	17.7	19.4			89.8				22.8							
25-May-17					8.1	41.1		18.5	17									
01-Aug-17										23.9					11.5	10.3	71.4	28.3
02-Aug-17	18.8	10	18.4			39.4	92		16.6		23.9							
03-Aug-17				17.6	8.6			19.2										
08-Aug-17														10.8				
14-Nov-17										22.1				11.4	11.5	10.3	71	28
15-Nov-17							82.6				24.4							
16-Nov-17	16.8	10.1	18.3	16.4	7.8	40.6		21	27.3									
12-Feb-18	16.1		15.9			43.7	95		18		23.8							
13-Feb-18		10		14.6	8.7			20.2										
14-Feb-18										21.9					11.8	10.3	72.9	30
21-Feb-18														10.7				
08-May-18	17.2		16.3			43.8	89		18		24.8							
09-May-18		10.2		18.5	9.62			20.8										
22-Aug-18	15.2		17.3					111	17.1		23.1							
23-Aug-18		9.6		22	8.9	38.3		19.4										
07-Nov-18	15.6							125	16.4		23.9							
08-Nov-18		10.6	16.3	23.6	9.8	39.1		21.8										
11-Feb-19								94.3	17.7		22.9							
13-Feb-19	14.9	10.8	15.2		9.4			20.4										
14-Feb-19				20.9		35.3												
30-Apr-19						31.6			17.1									
01-May-19	15.3	11.5	16.6	17.2	9.9		104	20.2			23							
12-Aug-19		10.9	14.3		9			20	16.8									
13-Aug-19						30.8	91.2											
14-Aug-19	14.5			17							22.3							
09-Sep-19										21.4				11.5	12.1	10.5		25.9
10-Sep-19																	72.9	
18-Nov-19	14.5					32.5			15.8									
19-Nov-19		12	22.2	18	9.2		114	19.6			23.2							

**Sodium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19														11.4	11.7	10.4	80.8	27.7
11-Dec-19										20.1								
14-Jan-20										20.3				11.6	11.6	10.1	84.7	25.5
23-Jan-20	14.3					32.8												
27-Jan-20			13.5				105											
28-Jan-20									20.8									
11-Feb-20	13.8		14.9	20.3									23.1					
12-Feb-20		11.9			9.4	30.3	124	15.4	16.2			76.8						
11-May-20	14.3		13.8	18.6														
12-May-20		12			9.45		104	15.7	17.3				22.8					
14-May-20						28								52.1				
05-Aug-20	15		13.2			29.8	111		17.1				23.2					
06-Aug-20		12.1		16.3	9.7			16.8						63.9				
09-Nov-20	14.6		13.7			31	90.3		16.5				22.6					
10-Nov-20		12.1		15.6	9.8			17.5						68				
15-Dec-20													4	11.9	10.8		78.2	26.3
16-Dec-20										21.7						10.9		
08-Feb-21	14.1					35.6	88.8						23.1				79	
09-Feb-21		11.5			9.7			16.2	19.5	20			80.9					24.1
10-Feb-21			14.7															
11-Feb-21				19.1									4	11.7	10.2			
12-Feb-21																10.6		
06-May-21	14.4	11	13.6		9.7	32.8	101	16.1	17.6	14.7	22.5	103					92.8	
11-May-21				19									3.13	10.8	9.51	9.66		24.6
24-Aug-21					9.7			16.5		21.4				11	10.8	10.1		23.7
25-Aug-21				18.7					17.4				3.7					77.1
26-Aug-21	15.2		15.5				105					23.2						
27-Aug-21		10.7				32.1							58.3					
10-Nov-21									20.5									82.8
11-Nov-21	14.5	12.2	16.6	20.3	10.3	33.8	123	33.3		20.4	23.6	51.8	3.7	11.3	11.7	10.4		23.6

Statistics

Mean	15.42381	10.96	16.0381	18.75	9.2495	35.40952	100.8571	19.42	18	20.825	23.28	69.35	3.758333	11.28333	11.20917	10.33	77.31667	26.025
Standard Deviation	1.36048	0.889352	2.229905	2.295877	0.671224	4.86435	13.53852	3.816667	2.491385	2.220207	0.630455	17.23957	0.342603	0.383366	0.75046	0.30133	7.544273	2.06931
Median	15	10.85	15.9	18.65	9.425	33.8	101	19.5	17.3	21.4	23.15	65.95	3.85	11.35	11.5	10.35	77.65	25.7
10th Percentile	14.3	9.97	13.6	16.23	8.208	30.3	88.8	16.06	16.4	20.01	22.59	52.01	3.415	10.8	10.26	10.1	71.04	23.74
90th Percentile	17.2	12.1	18.4	21.91	9.81	41.2	123	21.08	20.5	22.09	23.95	87.53	4.01	11.69	11.79	10.59	84.51	28.27

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Sulfate (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					24.3	142		36.4	23.6									
21-Feb-17	24.4	20.7	56.8	74.4			50.5				46.5							
04-Apr-17										68.6					27	12.7	530	94.7
05-Apr-17													13.5	44.9				
24-May-17	25.5	20.2	55.7	71.6	23.2		57.2	33.8			51							
25-May-17						142			22.1									
01-Aug-17										63.1					25.6	11.2	102	99.9
02-Aug-17	27.5	18.9	61.4		24	127	57.9	37.4	20.9		54.3							
03-Aug-17				62.3														
08-Aug-17														45.1				
14-Nov-17										59.8				39.3	23.8	10.9	235	98.6
15-Nov-17							52.9				48.3							
16-Nov-17	25.5		65.6	48.4	28.2	118		39.4	17.6									
12-Feb-18	23.4	18.4	64.1		23.3	126	59.5	35	19.6		48.4							
13-Feb-18				44.5														
14-Feb-18										49.4					24.8	11.8	217	117
21-Feb-18														36.7				
08-May-18	25.4	17.5	65		24.8	120	57.9	35.6	20.2		47.3							
09-May-18				54.7 J														
22-Aug-18	27.4		67.2				57.8		20		51.8							
23-Aug-18		19.5		78.8	24.9	137		38.2										
07-Nov-18	24.5	17.8			29.9		49.3	33.6	17.8		48.8							
08-Nov-18			62.9	80.6		142												
11-Feb-19							56.2		20.5		53.9							
13-Feb-19	27.5	20.3	69.1		26.2			30.2										
14-Feb-19				96.1		165												
30-Apr-19						126			20.6									
01-May-19	27.3	20.3	67.5	97.8	26		53.1	27.6			49.5							
12-Aug-19		20	62.4		25.9			26.8	18.2									
13-Aug-19						148	51.1											
14-Aug-19	28.1			81.6							50.9							
09-Sep-19										49.6				37.1	24.3	11.6		93.3
10-Sep-19																	228	
18-Nov-19	27.5					176			20.5									
19-Nov-19		21.8	67.9	78.3	25.7		50.7	29.7			52.7							

**Sulfate (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										46.1				38.6	26.1	12.8	217	110
14-Jan-20										20.5				38.7	26.2	12.4	236	112
23-Jan-20	26.7					171												
27-Jan-20			74.7				54.2											
28-Jan-20									19.1									
11-Feb-20	28.9		75.4	86.3							51.4							
12-Feb-20		22			24.9	172	59.5	26.3	20.5			14.4						
11-May-20	31.8	20.9	69	78.6	31.2			26.8										
12-May-20							55.5		24.9		52.4							
14-May-20						164						18.5						
05-Aug-20	30.1		66.8			165	53.7		21.3		48.8							
06-Aug-20		20.6		62.1	26.4			25.2				78.7						
09-Nov-20	31		72			235	59.8		18.5		52.1							
10-Nov-20		21		59.1	26.2			24.8										
15-Dec-20													14	38.7	22.2		206	98.6
16-Dec-20										32.8						15.1		
08-Feb-21	28.2					165	55.6			18.8	48.7	55.5					204	
09-Feb-21		19.5			25.4			24.8	19									93.2
10-Feb-21			86.3															
11-Feb-21				71.6									16.6	39.2	21.6			
12-Feb-21																15.5		
05-May-21		18.9			28			28.4		17.8		49.9						
06-May-21	29.7		81.4			137	61		20.8		47.6						185	
11-May-21				74.6									16	38.8	21.7	9.8		92.4
24-Aug-21					26.4			28.5		19.1				38.8	24.4	15.4		90.7
25-Aug-21				69.7					20.7				9.7				197	
26-Aug-21	30.4		74.8				62.7				51.9							
27-Aug-21		18.4				145						18.4						
10-Nov-21									18.9								179	
11-Nov-21	27.1	17.9	64.9	70.9	25.7	148	55.5	28.4		16.9	49.6	17.6	11.9	37.3	25.4	14.7		87.5

Statistics

Mean	27.51905	19.71579	68.1381	72.1	26.03	151	55.79048	30.845	20.25238	38.54167	50.295	45.75	13.61667	39.43333	24.425	12.825	228	98.99167
Standard Deviation	2.260889	1.33594	7.408541	14.02385	2.024872	26.30969	3.703364	4.84143	1.790145	19.72679	2.245106	35.82972	2.570149	2.732077	1.804603	1.92407	101.6706	9.266014
Median	27.5	20	67.2	73	25.8	145	55.6	29.1	20.5	39.45	50.25	34.2	13.75	38.75	24.6	12.55	211.5	96.65
10th Percentile	24.5	17.88	61.4	54.07	23.93	126	50.7	25.16	18.2	17.9	47.57	16.64	10.8	37.12	21.75	10.93	179.6	90.87
90th Percentile	30.4	21.16	75.4	87.28	28.37	172	59.8	37.48	22.1	62.77	52.82	88.99	16.3	44.34	26.19	15.37	235.9	111.8

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Total Dissolved Solids (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
19-Nov-19		303	453	454	375		662	579			318							
10-Dec-19										287				230	213	160	779	398
14-Jan-20										142				237	224	175	815	425
23-Jan-20	414					427												
27-Jan-20			461				676											
28-Jan-20									216									
11-Feb-20	382		456	587							325							
12-Feb-20		302			374	404	657	460	230			381						
11-May-20	404	315	447	504	402			467										
12-May-20							662		253		318							
14-May-20						387						228						
05-Aug-20	457		460			390	683		249		335							
06-Aug-20		293		412	383			498				331						
09-Nov-20	419		447			385	643		205		297							
10-Nov-20		309		369	386			506				397						
15-Dec-20													89	217	189		725	350
16-Dec-20										272						175		
08-Feb-21	384					452	666			114	306	409					752	
09-Feb-21		303			362			489	205									345
10-Feb-21			492															
11-Feb-21				476									112	223	173			
12-Feb-21																180		
05-May-21		310			395			440		125		492						
06-May-21	192		473			373	668		221		300						689	
11-May-21				619									167	226	176	75		381
24-Aug-21					391			504		163				217	202	175		374
25-Aug-21				613					227				80				732	
26-Aug-21	404		476				663				312							
27-Aug-21		298				372						232						
10-Nov-21									195								709	
11-Nov-21	391	300	466	526	378	373	655	498		175	314	194	142	214	209	165		361

Statistics

Mean	393.9048	293.35	459.4286	490.8	339	428.9048	669.2857	548.5	220	235.3333	315.15	333	123.8333	218.5833	202.4167	160.1667	766.9167	380.8333
Standard Deviation	49.17205	14.68001	18.24163	89.46955	57.20048	42.2941	16.71569	58.00499	17.70311	83.0863	9.382374	105.5651	35.5495	14.45657	16.22265	28.2387	62.43172	30.41182
Median	402	293	460	495	358	427	666	579.5	220	279.5	314.5	356	127	218	205	168	755	375
10th Percentile	382	273.9	440	368.9	255.3	373	652	466.3	205	126.7	305.4	217.8	84.5	211.3	177.3	148.3	710.6	350.3
90th Percentile	419	310.5	477	613.6	395.3	473	684	612.1	231	313.5	325.5	433.9	160	233.6	218	175	812.9	422.3

Note: one-half detection limit utilized in statistical calculations for non-detect results.

Temperature (deg. C) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		9.9			11.4	10.5		11.9	6.1									
21-Feb-17	4.34		7.46	10.65			9.2				10.08							
04-Apr-17										13.1					10.2	10.4	11.6	11.3
05-Apr-17													7.2	8.2				
24-May-17	21.7	14	20	19.4	14		14.5	13.1			18.3							
25-May-17						11.5			10.8									
01-Aug-17										17.2					15.1	14.6	20.1	20
02-Aug-17	20.8	15.5	20.9		14.6	22	16.2	14.3	18.1		19.1							
03-Aug-17				19.8														
08-Aug-17														11.9				
14-Nov-17										8.5				7.7	7.8	8.4	7.4	8
15-Nov-17							10.6				10.3							
16-Nov-17	11.8	11.9	10.2	8.3	12.5	9.2		12.4	7.3									
12-Feb-18	2.5	9.3	6.8		11	5.5	0.1	10.6	7.6		6.9							
13-Feb-18				4.6														
14-Feb-18										9.4					6.1	6.6	7.8	8
21-Feb-18														8.3				
08-May-18	18	12.2	18.8		13.1	14.4	14.2	12.3	14.3		17.4							
09-May-18				17.5														
22-Aug-18	23.4	13.4	19.1		13.9		17.6	12.5	15.4		19.9							
23-Aug-18				16.7		17.4												
07-Nov-18	13	13.1			13.1		9.6	13.2	12		14.2							
08-Nov-18			9.3	9.4		9.4												
11-Feb-19							2.8		7.4		5							
13-Feb-19	7.7	11	7.7		11.6			10										
14-Feb-19				6.9		4												
30-Apr-19						7.8			9.1									
01-May-19	12	10.9	16.3	14.6	12.1		9	10.5			10.6							
12-Aug-19		12.7	21.4		13.7			13.6	15.8									
13-Aug-19						17.6	20.7											
14-Aug-19	17.3			17.3							20.9							
09-Sep-19										13.4				10.2	11.2	13.7		14.1
10-Sep-19																	14	
18-Nov-19	8.7					8.2			7.6									
19-Nov-19		11.3	6.9	8.1	12.5		6.2	11.8			8.1							

**Temperature (deg. C) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										5.9				7.4	8.1	9	9.5	8.8
11-Dec-19										9.4								
14-Jan-20										3.1				6.3	5.8	6.8	6.8	7.7
23-Jan-20	9.8					7.2												
27-Jan-20			8.2				7.8											
28-Jan-20									9.1									
11-Feb-20	4.3		6.5	8.1							6.6							
12-Feb-20		11.5			12.5	5	5.8	10.8	5.5			3.1						
11-May-20	10	10.3	8.2	11.8	11.7			9.9										
12-May-20							9.5		8.6			11.6						
14-May-20						7.9						11.9						
05-Aug-20	16.8		19.4			16.9	15.6		16.8			16.9						
06-Aug-20		12		17.8	13.7			12.3				14.8						
09-Nov-20	18.5		18.3			15.4	13.4		19.8			19.1						
10-Nov-20		13.3		16.1	13.5			14.7				13.7						
15-Dec-20													9.1	7.4	7.7		7.8	9.8
16-Dec-20										10.6						9.2		
08-Feb-21	5.9					6.3	7.1			5.2	7.7	5.2					6	
09-Feb-21		10.5			10.9			11	9.3									8.8
10-Feb-21			6.9															
11-Feb-21				10.8									9.5	8.1	4.3			
12-Feb-21																5.6		
05-May-21		11.3			12.2			10.6		11.5		12.8						
06-May-21	12		12.4			9.2	9.3		11.2		11.4						14.6	
11-May-21				9.7									8.8	7.3	7.8	8.7		9.8
24-Aug-21					14.9			14.5		14				16.6	17.8	17.8		15.1
25-Aug-21				22.2					23.9				17.2					18.7
26-Aug-21	19		17.2				20.4					19.3						
27-Aug-21		13.3				18.1						21						
10-Nov-21									12.9									12.2
11-Nov-21	12.6	12.6	12.6	12.8	13.1	10.9	11.7	13.3		11.7	11.4	13.3	8.7	10.6	12.1	9.5		11.5

Statistics

Mean	12.86381	12	13.07429	13.1275	12.8	11.1619	11.01429	12.165	11.8381	10.23077	13.239	11.975	10.08333	9.166667	9.5	10.025	11.375	11.075
Standard Deviation	6.120646	1.521426	5.622747	4.988024	1.153028	5.050394	5.38064	1.501675	4.954945	3.918415	5.181008	5.599936	3.572907	2.840721	3.97332	3.607347	4.695283	3.682175
Median	12	11.95	12.4	12.3	12.8	9.4	9.6	12.3	10.8	10.6	11.5	13.05	8.95	8.15	7.95	9.1	10.55	9.8
10th Percentile	4.34	10.26	6.9	7.98	11.36	5.5	5.8	10.45	7.3	5.34	6.87	4.57	7.95	7.31	5.83	6.62	6.86	8
90th Percentile	20.8	13.46	20	19.44	14.06	17.6	17.6	14.32	18.1	13.88	19.36	16.66	13.35	11.77	14.8	14.51	18.29	15

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Total Kjeldahl Nitrogen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17					0.34 B	0.12 J		1.05	0.13 J									
21-Feb-17	0.21	0.19 J	0.32	0.43			0.25				0.12 J							
04-Apr-17										0.29 B					0.17 J	0.2 U	1.28	0.2 U
05-Apr-17													0.2 U	0.26 B				
24-May-17	0.2 B	0.21 B	0.24 B	0.33 B	0.93 B		0.39 B	0.76 B			0.26 B							
25-May-17							0.27 B		0.28 B									
01-Aug-17										0.17 BJ					0.15 BJ	0.17 BJ	0.53 B	0.25 B
02-Aug-17	4.69	0.16 J	0.23		0.83	0.12 J	0.3	0.82	0.2		0.16 J							
03-Aug-17				0.37														
08-Aug-17														0.15 J				
14-Nov-17										0.2 U				0.2 U	0.2 U	0.2 U	0.47	0.2 U
15-Nov-17							0.2 U				0.2 U							
16-Nov-17	0.2 U	0.1 J	0.09 J	0.2 U	0.44	0.15 J		0.94	0.1 J									
12-Feb-18	0.1 J	0.2 U	0.13 J		0.11 J	0.2 U	0.17 J	0.79	0.2 U		0.2 U							
13-Feb-18				0.09 J														
14-Feb-18										0.15 J					0.11 J	0.2 U	0.21	0.17 J
21-Feb-18														0.2 U				
08-May-18	0.63	0.34	0.23		0.19 J	0.49	0.24	0.94	0.17 J		0.13 J							
09-May-18				0.35 B														
22-Aug-18	0.1 J	0.36	0.16 J		0.2 U		0.15 J	0.74	0.12 J		0.2 U							
23-Aug-18				0.15 J		0.14 J												
07-Nov-18	0.16 BJ	0.21 B			0.15 BJ		0.2 BJ	1.06	0.1 BJ		0.12 BJ							
08-Nov-18			0.26 B	0.24 B		0.15 BJ												
11-Feb-19							0.14 J		0.2 U		0.14 J							
13-Feb-19	0.14 J	0.35	0.18 J		0.15 J			0.97										
14-Feb-19				0.23		0.2 U												
30-Apr-19						0.2 U			0.23									
01-May-19	0.14 J	0.2 U	0.23 B	0.25 B	0.15 BJ		0.18 J	0.85 B			0.11 J							
12-Aug-19		0.1 J	0.2 U		0.2 U			1.02	0.2 U									
13-Aug-19						0.22	0.2 U											
14-Aug-19	0.1 J			0.18 J							0.2 U							
09-Sep-19										0.2 U				0.2 UJ	0.2 U	0.2 U		0.2 U
10-Sep-19																	0.18 J	
18-Nov-19	0.11 J					0.2 U			0.2 U									
19-Nov-19		0.2 U	0.2 J	0.15 J	0.2 U		0.2 U	0.96			0.2 U							

**Total Kjeldahl Nitrogen (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										0.2 U				0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U
14-Jan-20										0.29				0.2 U	0.2 U	0.2 U	0.15 J	0.14 J
23-Jan-20	0.2 U					0.2 U												
27-Jan-20			0.2 U				0.2 U											
28-Jan-20									0.2 U									
11-Feb-20	0.2 U		0.15 J	0.21							0.2 U							
12-Feb-20		0.2 U			0.69	0.2 U	0.13 J	0.57	0.2 U			0.2 U						
11-May-20	0.2 U	0.22	0.2 U	0.2 U	0.31			0.47										
12-May-20							0.49		0.2 U		0.2 U							
14-May-20						0.2 U						0.2 U						
05-Aug-20	0.2 U		0.2 U			0.2 U	0.2 U		0.2 U		0.2 U							
06-Aug-20		0.17 J		0.22	0.2 U			0.59				0.26						
09-Nov-20	0.19 J		0.2 U			0.2 U	0.16 J		0.2 U		0.2 U							
10-Nov-20		0.2 U		0.2 U	0.2 U			0.62				0.46						
15-Dec-20													0.29	0.2 U	0.2 U		0.2 U	0.2 U
16-Dec-20										0.53						0.2 U		
08-Feb-21	0.2					0.24	0.26			0.3	0.21	0.36					0.21	
09-Feb-21		0.28			0.18 J			0.68	0.26									0.27
10-Feb-21			0.2 U															
11-Feb-21				0.2 U									0.2 U	0.2 U	0.2 U			
12-Feb-21																0.2 U		
05-May-21		0.16 J			0.2 U			1.25		0.23		0.16 J						
06-May-21	0.2 U		0.2 U			0.2 U	0.17 J		0.2 U		0.2 U						0.2 U	
11-May-21				0.24									0.31	0.2 U	0.2	0.2 U		0.17 J
24-Aug-21					0.19 J			0.63		0.2 U				0.2 U	0.2 U	0.2 U		0.15 J
25-Aug-21				0.2					0.2 U				0.3					0.15 J
26-Aug-21	0.18 J		0.29				0.2 U				0.2 U							
27-Aug-21		0.2 U				0.2 U						0.18 J						
10-Nov-21									0.2 U								0.2 U	
11-Nov-21	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.54		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U

Statistics

Mean	0.37381	0.1775	0.167143	0.207	0.268	0.147619	0.187143	0.8125	0.132857	0.205	0.1225	0.215	0.2	0.1175	0.119167	0.105833	0.298333	0.145833
Standard Deviation	0.995693	0.091414	0.073901	0.10126	0.256794	0.093483	0.104697	0.208879	0.058493	0.131114	0.042658	0.134695	0.109727	0.047122	0.034499	0.020207	0.340823	0.060371
Median	0.11	0.16	0.15	0.205	0.15	0.1	0.16	0.805	0.1	0.16	0.1	0.17	0.195	0.1	0.1	0.1	0.165	0.12
10th Percentile	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.567	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
90th Percentile	0.21	0.341	0.26	0.352	0.704	0.24	0.3	1.051	0.23	0.299	0.165	0.39	0.305	0.145	0.168	0.1	0.524	0.242

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Total Organic Compounds (TOC) (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		2.1			1 J	2.9		6.7	2									
21-Feb-17	2.6		4.8	5.1			1.8				0.6 J							
04-Apr-17										0.53 J					0.36 J	0.34 J	16	0.63 J
05-Apr-17													0.67 J	0.46 J				
24-May-17	1.2	0.07 J	2.3	2.5	3.4		1.4	2.8			0.2 J							
25-May-17						0.5 J			0.2 J									
01-Aug-17										0.5 J					0.2 J	0.3 J	5.3	1.2
02-Aug-17	1.2	0.3 J	2.3		3.8	0.6 J	1.6	3.4	0.3 J		0.3 J							
03-Aug-17				2.2														
08-Aug-17														0.4 J				
14-Nov-17										0.4 J				0.09 J	1 U	1 U	4.6	0.5 J
15-Nov-17							1.2				0.2 J							
16-Nov-17	1.1		2.7	2.3	1.7	0.5 J		5.8	0.4 J									
12-Feb-18	1.5	0.4 BJ	2.8		0.6 J	0.6 BJ	1.8	4	0.6 J		0.5 J							
13-Feb-18				2.3														
14-Feb-18										0.4 J					0.3 J	0.5 J	3.1	0.5 J
21-Feb-18														0.3 J				
08-May-18	1.5	1.6	2.1		0.6 J	0.7 J	1.6	4.3	0.4 J		0.4 J							
09-May-18				2.9														
22-Aug-18	1.5 B	1.6 B	2.6		0.8 BJ		1.9 B	4	0.8 BJ		0.6 BJ							
23-Aug-18				3.8		0.8 BJ												
07-Nov-18	1.2	1.5			0.8 J		2.2	4.9	0.4 J		0.5 J							
08-Nov-18			3	4.7		0.7 J												
11-Feb-19							1.4 B		0.6 BJ		0.5 BJ							
13-Feb-19	1.4 B	1.6 B	2.5 B		0.9 BJ			3.8 B										
14-Feb-19				4.2		0.8 BJ												
30-Apr-19						0.5 J			1 U									
01-May-19	1.4	0.8 J	2.4	4.4	1.1		1.6	4.5			1 U							
12-Aug-19		1 U	2		0.6 J			3.5	1 U									
13-Aug-19						0.5 J	1.3											
14-Aug-19	1.3			3.2							1 U							
09-Sep-19										1 U				0.5 J	1 U	1 U		1 U
10-Sep-19																	2.4	
18-Nov-19	1.1					0.6 J			1 U									
19-Nov-19		0.6 J	2	3.5	0.7 J		1.6	4.7			1 U							

**Total Organic Compounds (TOC) (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										1 U				1 U	1 U	0.9 J	1.7	1 U
14-Jan-20										1.8				1 U	1 U	1 U	1.9	1 U
23-Jan-20	1.3					0.6 J												
27-Jan-20			2.5				1.4											
28-Jan-20									1 U									
11-Feb-20	1.1		2.6	3.7							1 U							
12-Feb-20		0.7 J			4.5	0.6 J	1.6	3	0.6 J			1						
11-May-20	1.4	0.5 J	2.4	3.3	2.5			2										
12-May-20							1.7		1 U		1 U							
14-May-20						1 U						1.2						
05-Aug-20	1.6		2.4			0.6 J	1.7		1 U		1 U							
06-Aug-20		0.7 J		2.7	1.3			3				2.2						
09-Nov-20	1.3		1.8			0.5 J	1.3		1 U		0.5 J							
10-Nov-20		1 U		1.8	0.7 J			2.1					1.5	1 U	0.6 J		1.7	0.7 J
15-Dec-20																		
16-Dec-20										2.1						1 U		
08-Feb-21	1.7					0.7 J	1.5			0.7 J	0.6 J	1.9					1.8	
09-Feb-21		0.6 J			1.1			3.6	0.6 J									0.5 J
10-Feb-21			2.9															
11-Feb-21				2.6									0.8 J	1 U	1 U			
12-Feb-21																1 U		
05-May-21		0.6 J			1			7.8		1.2		2.2						
06-May-21	1.6		2.7			0.8 J	1.6		0.7 J		0.5 J						1.5	
11-May-21				3.8									1.5	0.6 J	0.6 J	0.5 J		1 J
24-Aug-21					0.8 J			3.2		0.8 J				1 U	0.5 J	1 U		0.5 J
25-Aug-21				3.6					0.5 J				1.9				1.6	
26-Aug-21	1.4		2.9				1.9				0.6 J							
27-Aug-21		0.7 J				0.7 J						2.6						
10-Nov-21									1 U								1.1	
11-Nov-21	1 J	1 U	2	3.2	1 J	0.6 J	1.5	2.2		0.8 J	1 U	1.7	1.2	1 U	1 U	1 U		1 U

Statistics

Mean	1.4	0.835263	2.557143	3.29	1.445	0.728571	1.6	3.965	0.57619	0.8525	0.475	1.975	1.261667	0.445833	0.463333	0.503333	3.558333	0.6275
Standard Deviation	0.333167	0.55424	0.612022	0.892601	1.159163	0.508078	0.236643	1.492534	0.350578	0.563256	0.116416	0.673477	0.466494	0.13297	0.118117	0.143168	4.126733	0.233905
Median	1.4	0.6	2.5	3.25	1	0.6	1.6	3.7	0.5	0.615	0.5	2.05	1.35	0.5	0.5	0.5	1.85	0.5
10th Percentile	1.1	0.38	2	2.29	0.6	0.5	1.3	2.19	0.4	0.41	0.29	1.14	0.735	0.31	0.306	0.356	1.51	0.5
90th Percentile	1.6	1.6	2.9	4.43	3.44	0.8	1.9	5.89	0.7	1.74	0.6	2.72	1.7	0.5	0.59	0.5	5.23	0.97

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Turbidity (NTU) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17		10			186	13.4		72	3.54									
21-Feb-17	7.06		4.08	74.3			12.9				1.68							
04-Apr-17										23					5.09	79.2	147	4.46
05-Apr-17													10.8	8.46				
24-May-17	1.98	1.81	18.9	20.4			47.9	42.7			22.8							
25-May-17					16.1	13.4			3.97									
01-Aug-17										14.3					3.12	2.41	4.65	3.96
02-Aug-17	2.12	10.2	3.48		46.6	1.47	48.7	49.6	2.08		2.13							
03-Aug-17				37.5														
08-Aug-17														5.53				
14-Nov-17										10.9				0.6	10.9	1.2	3.1	0.84
15-Nov-17							11.5				2.66							
16-Nov-17	3.95	4.08	5.51	3.41	17.1	0.87		23.2	2.51									
12-Feb-18	2.19		5.79			3.63	39.1		3.05		3.19							
13-Feb-18		4.43		11.5	9.04			15.3										
14-Feb-18										14.8					2.52	6.64	6.02	39.7
21-Feb-18														2.83				
08-May-18	6.04	26.6	8.31		65	5.58	47.6	33.8	1.52		4.42							
09-May-18				13.2														
22-Aug-18	4.22		4.11				15.2		1.68		2.77							
23-Aug-18		4.21		10.7	12.1	0.58		16.6										
07-Nov-18	2.33	6.18			22.5		15.8	9.65	1.91		9.83							
08-Nov-18		2.24	5.72	5.96	5.26	3.12		10.5										
11-Feb-19							10.1		1.27		7.02							
13-Feb-19	1.83	6.03	4.48		1.37			9.01										
14-Feb-19				2.42		1.01												
30-Apr-19						0.71			2.54									
01-May-19	2.08	10	4.76	4.69	6.82		47.8	12.5			3.27							
12-Aug-19			3.7						2.36									
13-Aug-19		6.24			8.22	0.97	13.6	13.5										
14-Aug-19	3.47			3.09							12							
09-Sep-19										8.22				0.5	2.3	0.99		4.75
10-Sep-19																	13.6	
18-Nov-19	5.52					1.32			4.14									
19-Nov-19		4.77	3.81	11	4.71		7.62	19.7			2.8							

**Turbidity (NTU) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
10-Dec-19										6.69				0.46	2.03	3	3.27	13.6
11-Dec-19										200								
14-Jan-20										12.1				0.45	1.43	5.59	5.55	13.3
23-Jan-20	3.34					1.71												
27-Jan-20			9.24				19.7											
28-Jan-20									3.22									
11-Feb-20	3.54		6.6	16.1							11.5							
12-Feb-20		3.98			5.2	2.8	23.4	19	3.51			2.17						
11-May-20	3.83		9.78	4.28														
12-May-20		5.03			4.63		10.1	16.1	1.36		17.6							
14-May-20						1.21						1.12						
05-Aug-20	3.94		4.45			1.62	27.9		0.5		11							
06-Aug-20		2.32		3.83	1.63			9.57				36.7						
09-Nov-20	12.6		7.5			1.16	15.3		0.53		8.5							
10-Nov-20		2.31		7.04	2.98			21.6				3.7						
15-Dec-20													35	3.41	7.44		4.51	5.71
16-Dec-20										9.55						1.5		
08-Feb-21	2.47					1.83	37.4				2.71						3.25	
09-Feb-21		6.61			2.72			7.36	0.66	5.8		2.2						3.07
10-Feb-21			7.08															
11-Feb-21				2.94									31.8	0.39	2.35			
12-Feb-21																3.13		
06-May-21	3.92	4.91	3.84		6.17	0.92	38	15.5	0.57	5.41	3.51	1.07					3.8	
11-May-21				7.42									25.6	0.48	1.71	4.1		2.03
24-Aug-21					3.88			13.3		7.49				0.71	1.41	3.99		8.2
25-Aug-21				9.76					0.49				15.6				4.05	
26-Aug-21	3.38		8.08				15.3				5.01							
27-Aug-21		2.59				2.13						1.02						
10-Nov-21									0.86								4.71	
11-Nov-21	2.22	23.6	12.1	18.1	11.1	3.24	7.37	7.27		11.3	18.6	7.66	28.1	0.77	1.81	1.12		3.86

Statistics

Mean	3.90619	7.054286	6.729524	13.382	20.91095	2.984762	24.39476	20.84571	2.012857	25.35077	7.65	6.955	24.48333	2.049167	3.509167	9.405833	16.95917	8.623333
Standard Deviation	2.435133	6.513214	3.644464	16.56915	40.93012	3.667237	15.08976	16.19571	1.214533	52.68885	6.222357	12.21982	9.429829	2.592017	2.916288	22.05283	41.0493	10.58613
Median	3.47	4.91	5.72	8.59	6.82	1.62	15.8	15.5	1.91	10.9	4.715	2.185	26.85	0.655	2.325	3.065	4.58	4.605
10th Percentile	2.08	2.31	3.81	3.075	2.72	0.87	10.1	9.01	0.53	5.978	2.607	1.055	13.2	0.451	1.458	1.128	3.252	2.134
90th Percentile	6.04	10.2	9.78	22.11	46.6	5.58	47.8	42.7	3.54	21.36	17.7	16.372	33.4	5.318	7.205	6.535	12.842	13.57

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Vanadium (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.05 U			0.05 U									
21-Feb-17	0.05 U	0.05 U	0.05 U	0.008 J	0.0131 J		0.05 U	0.005 J			0.05 U							
04-Apr-17										0.0014 J					0.001 J	0.0065 J	0.0045 J	0.05 U
05-Apr-17													0.05 U	0.003 J				
08-Aug-17														0.05 U				
08-May-18	0.05 U		0.05 U			0.05 U	0.007 J		0.05 U		0.05 U							
09-May-18		0.05 U		0.05 U	0.05 U			0.05 U										
12-Aug-19		0.05 U	0.05 U		0.05 U			0.05 U	0.05 U									
13-Aug-19						0.05 U	0.05 U											
14-Aug-19	0.05 U			0.05 U							0.05 U							
09-Sep-19										0.05 U				0.05 U	0.05 U	0.05 U		0.05 U
10-Sep-19																	0.05 U	
10-Dec-19														0.0007 J	0.05 U	0.05 U	0.05 U	0.0008 J
11-Dec-19										0.05 U								
14-Jan-20										0.0014 J				0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
23-Jan-20	0.05 U					0.05 U												
27-Jan-20			0.05 U				0.0018 J											
28-Jan-20									0.05 U									
12-Feb-20												0.05 U						
11-May-20	0.0008 J		0.0008 J	0.0007 J														
12-May-20		0.05 U			0.05 U		0.0013 J	0.0011 J	0.05 U		0.0008 J							
14-May-20						0.05 U						0.05 U						
06-May-21	0.05 U	0.05 U	0.05 U		0.05 U	0.05 U	0.0028 J	0.001 J	0.05 U	0.0028 J	0.05 U	0.05 U					0.05 U	
11-May-21				0.05 U									0.0025 J	0.05 U	0.05 U	0.05 U		0.05 U

Statistics

Mean	0.020967	0.025	0.020967	0.01674	0.02262	0.025	0.010483	0.01142	0.025	0.01112	0.02016	0.025	0.01375	0.017283	0.0202	0.0213	0.0209	0.02016
Standard Deviation	0.00988	0	0.00988	0.011601	0.005322	3.80059E-18	0.011423	0.012501	3.80059E-18	0.012684	0.010823	4.24919E-18	0.01591	0.011977	0.010733	0.008273	0.009168	0.010823
Median	0.025	0.025	0.025	0.025	0.025	0.025	0.0049	0.005	0.025	0.0028	0.025	0.025	0.01375	0.025	0.025	0.025	0.025	0.025
10th Percentile	0.0129	0.025	0.0129	0.00362	0.01786	0.025	0.00155	0.00104	0.025	0.0014	0.01048	0.025	0.00475	0.00185	0.0106	0.0139	0.0127	0.01048
90th Percentile	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.02275	0.025	0.025	0.025	0.025	0.025

Note: one-half detection limit utilized in statistical calculations for non-detect results.

**Zinc (mg/L) Operational Groundwater Monitoring Wells
Hakes C&D Landfill, Campbell, New York**

Date_Sampled	MW-CR	MW-D	MW-E	MW-F	MW-GR	MW-H	MW-J	MW-N	MW-O	MW-O(BR)	MW-P	MW-QR	MW-R(BR)	MW-S(BR)	MW-T(BR)	MW-U(BR)	MW-V	MW-V(BR)
20-Feb-17						0.0153 J			0.0214									
21-Feb-17	0.0037 J	0.0142 J	0.0045 J	0.017 J	0.0222		0.023	0.011 J			0.0061 J							
04-Apr-17										0.0069 J					0.0027 J	0.0094 J	0.013 J	0.0019 J
05-Apr-17													0.0056 J	0.02 U				
08-Aug-17														0.02 U				
08-May-18	0.02 U		0.02 U			0.02 U	0.0107 J		0.02 U		0.02 U							
09-May-18		0.02 U		0.02 U	0.02 U			0.02 U										
12-Aug-19		0.02 U	0.02 U		0.02 U			0.02 U	0.02 U									
13-Aug-19						0.02 U	0.02 U											
14-Aug-19	0.02 U			0.02 U						0.02 U								
09-Sep-19										0.02 U				0.02 U	0.02 U	0.02 U		0.02 U
10-Sep-19																	0.02 U	
10-Dec-19														0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
11-Dec-19										0.02 U								
14-Jan-20										0.02 U				0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
23-Jan-20	0.02 U					0.02 U												
27-Jan-20			0.02 U				0.02 U											
28-Jan-20									0.02 U									
12-Feb-20												0.138						
11-May-20	0.02 U		0.02 U	0.02 U														
12-May-20		0.02 U			0.02 U		0.02 U	0.02 U	0.02 U		0.02 U							
14-May-20						0.02 U						0.0839						
06-May-21	0.02 U	0.02 U	0.02 U		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0214					0.02 U	
11-May-21				0.02 U									0.02 U	0.02 U	0.02 U	0.02 U		0.02 U

Statistics

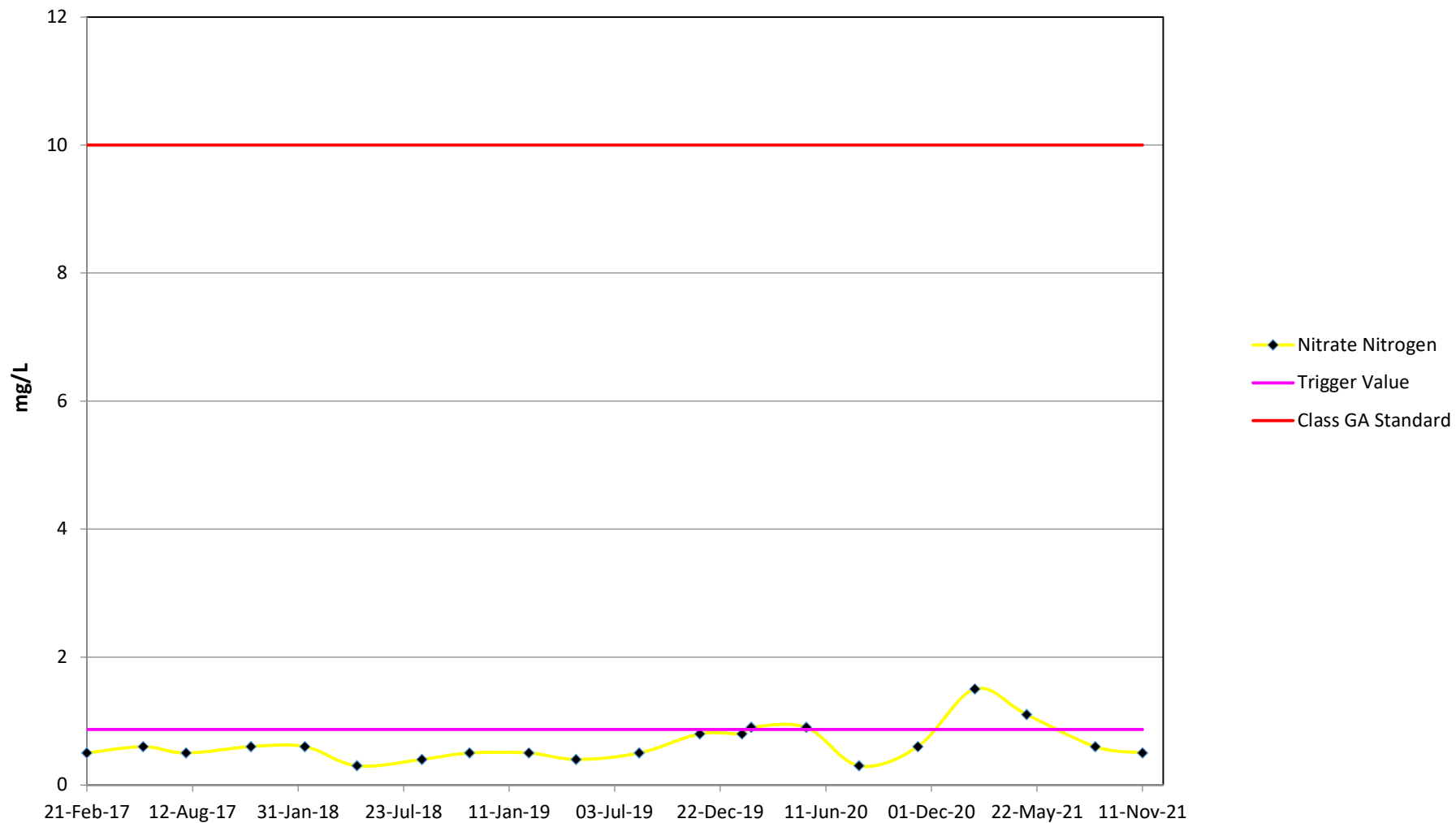
Mean	0.00895	0.01084	0.009083	0.0114	0.01244	0.010883	0.012283	0.0102	0.0119	0.00938	0.00922	0.0811	0.0078	0.01	0.00854	0.00988	0.0106	0.00838
Standard Deviation	0.002572	0.001878	0.002245	0.00313	0.005456	0.002164	0.005258	0.000447	0.004654	0.001386	0.001744	0.05835	0.003111	0	0.003265	0.000268	0.001342	0.003622
Median	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0839	0.0078	0.01	0.01	0.01	0.01	0.01
10th Percentile	0.00685	0.01	0.00725	0.01	0.01	0.01	0.01	0.01	0.01	0.00814	0.00766	0.0339	0.00604	0.01	0.00562	0.00964	0.01	0.00514
90th Percentile	0.01	0.01252	0.01	0.0142	0.01732	0.01265	0.01685	0.0106	0.0157	0.01	0.01	0.12718	0.00956	0.01	0.01	0.01	0.0118	0.01

Note: one-half detection limit utilized in statistical calculations for non-detect results.

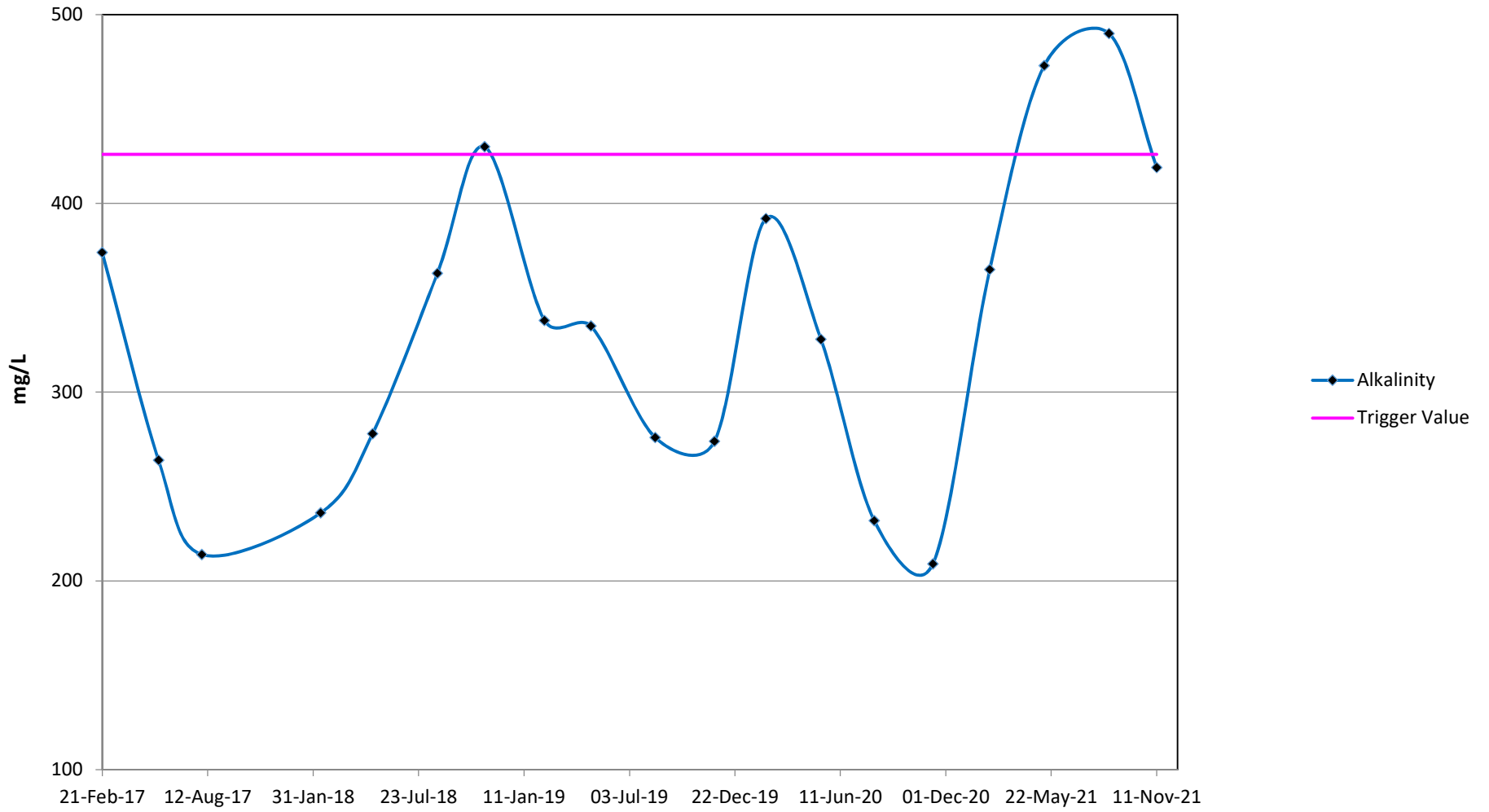
Appendix D

Groundwater Time Trend Graphs

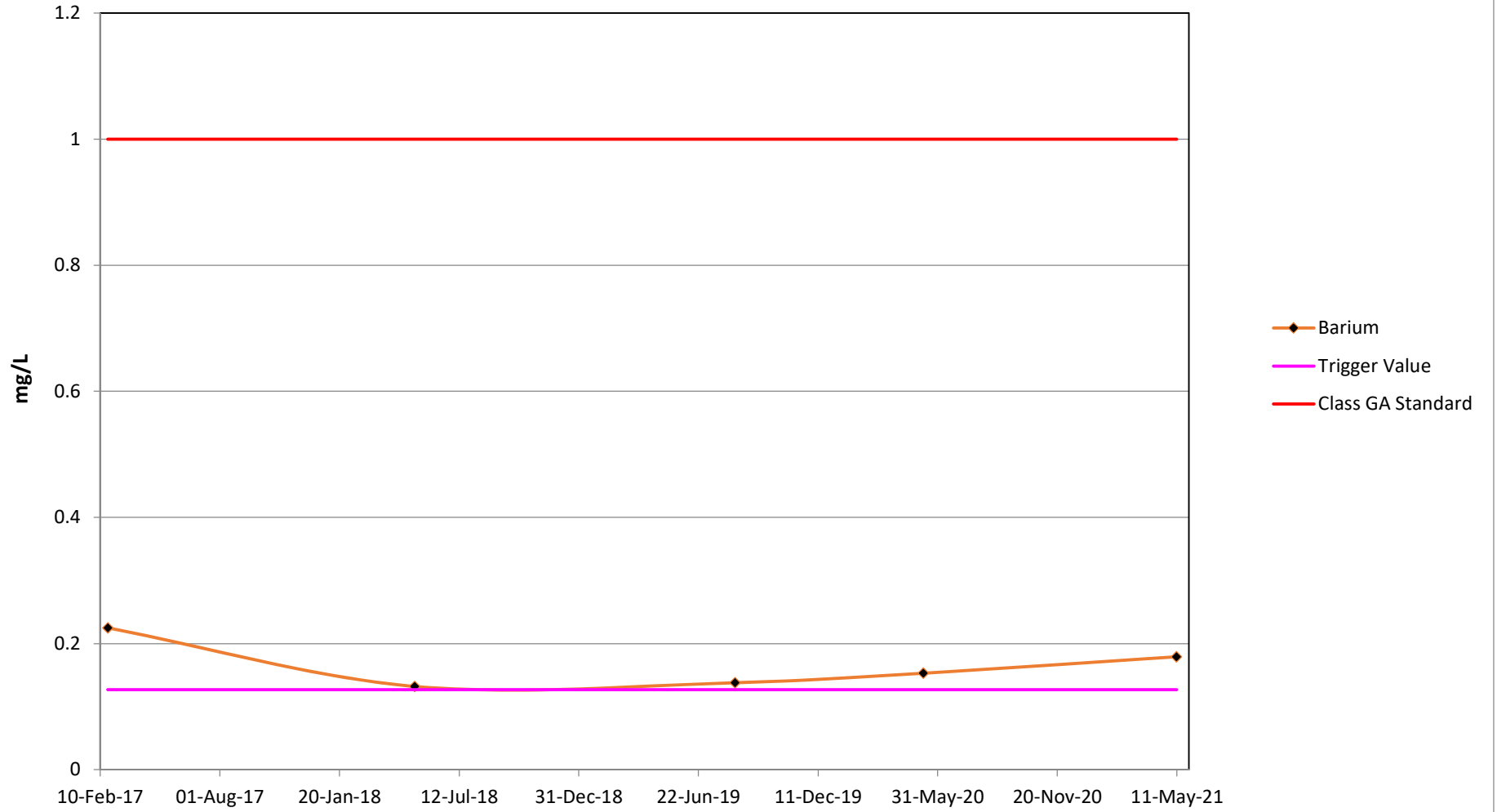
MW-E NITRATE NITROGEN



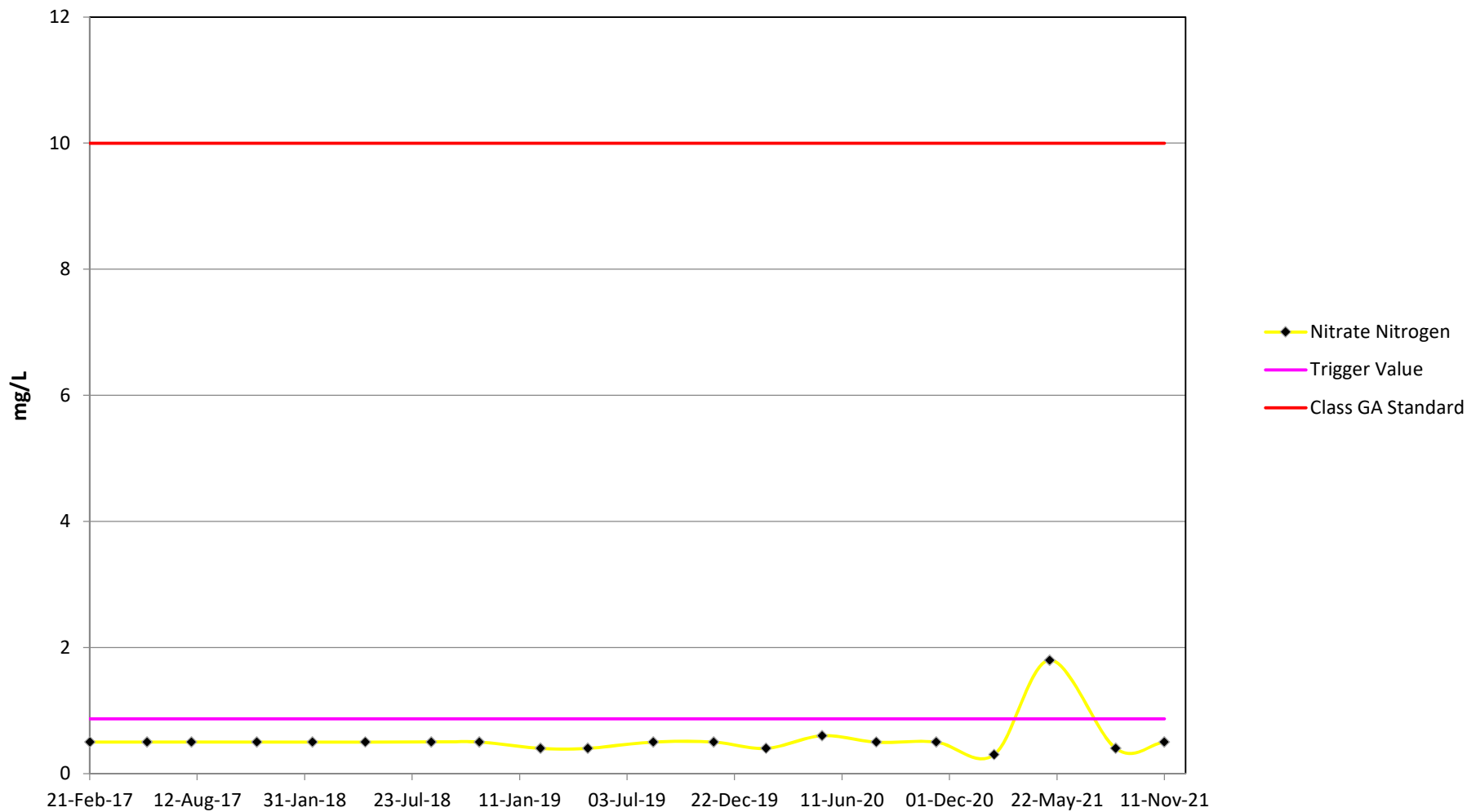
MW-F ALKALINITY



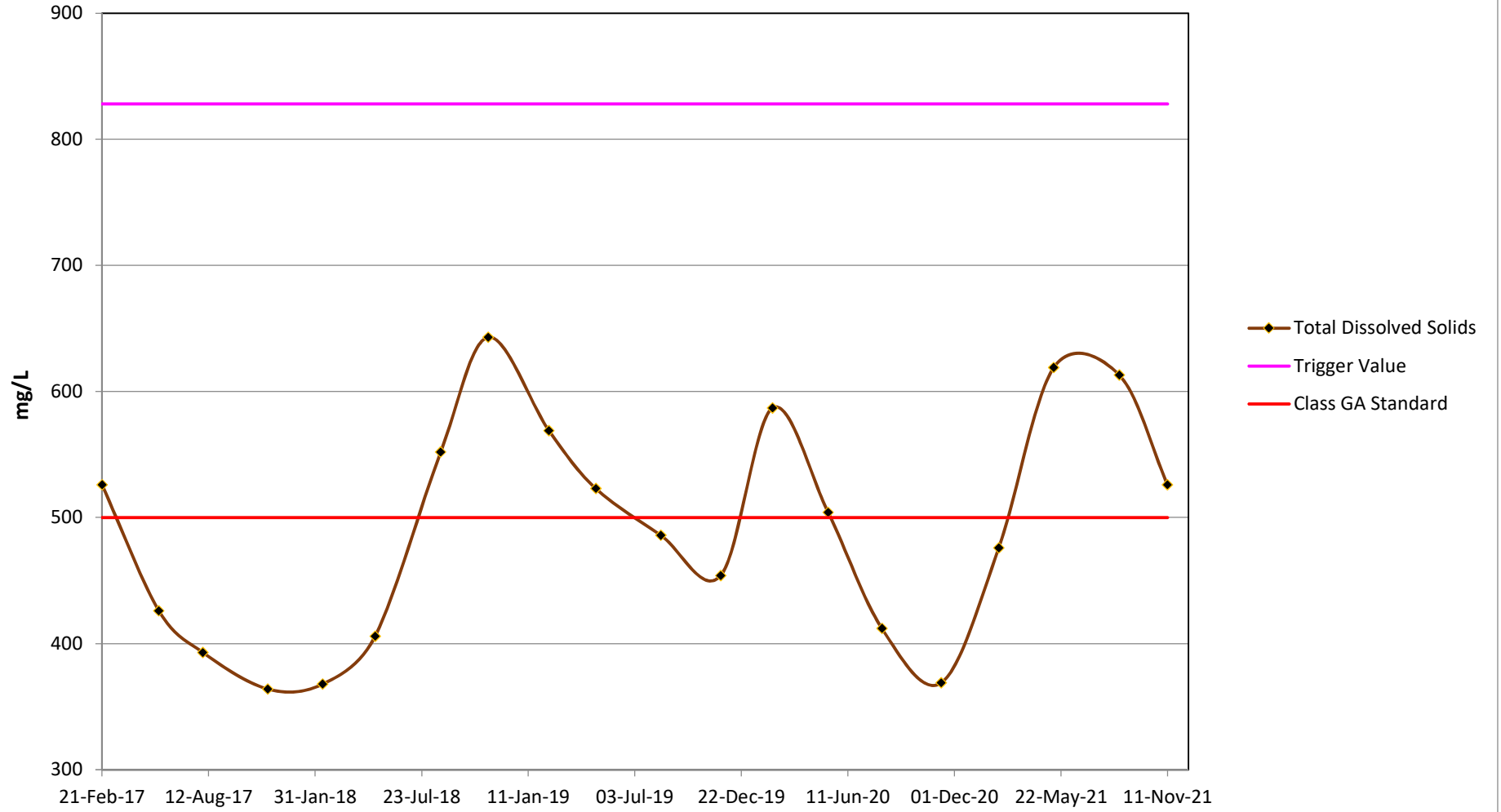
MW-F BARIUM



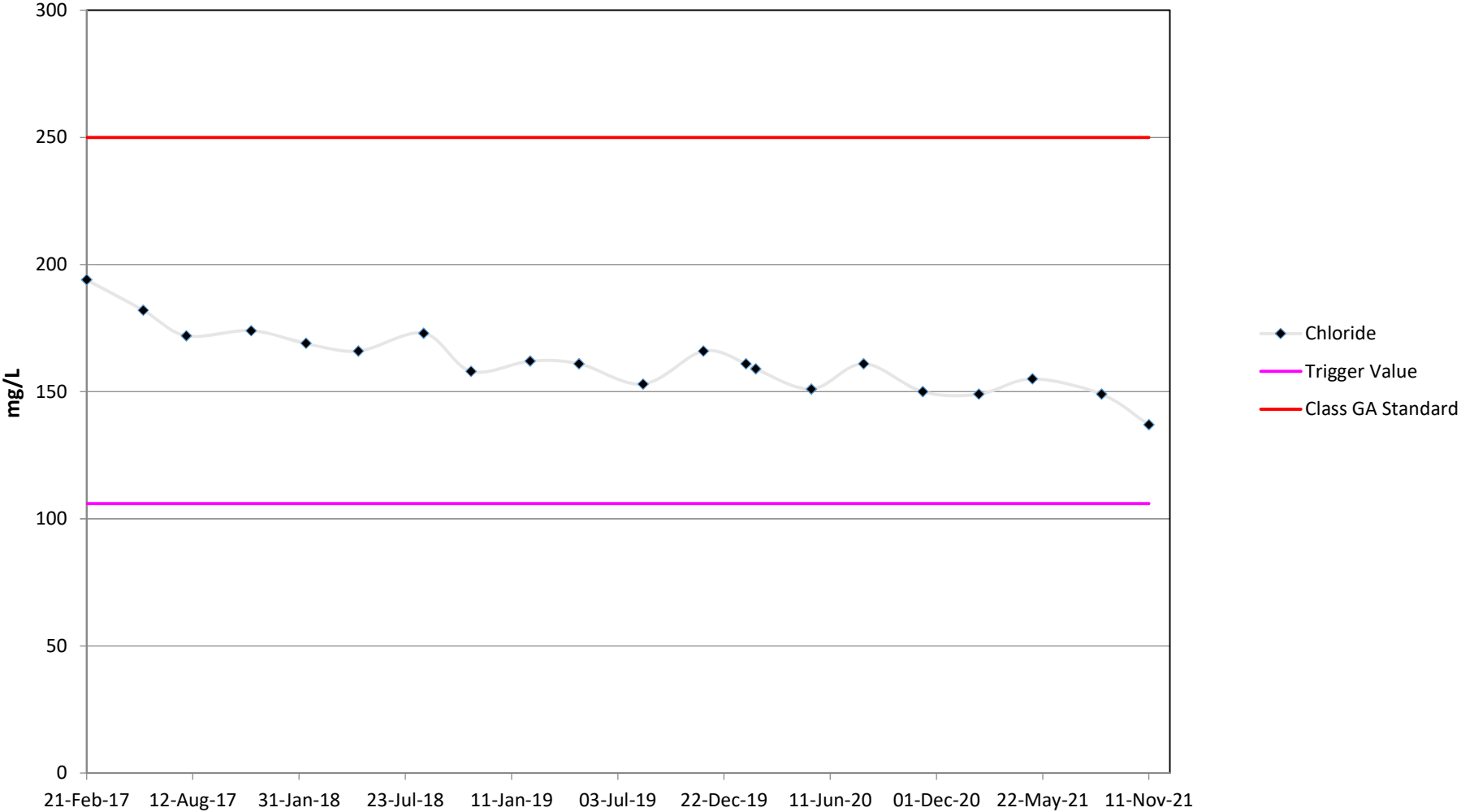
MW-F NITRATE NITROGEN



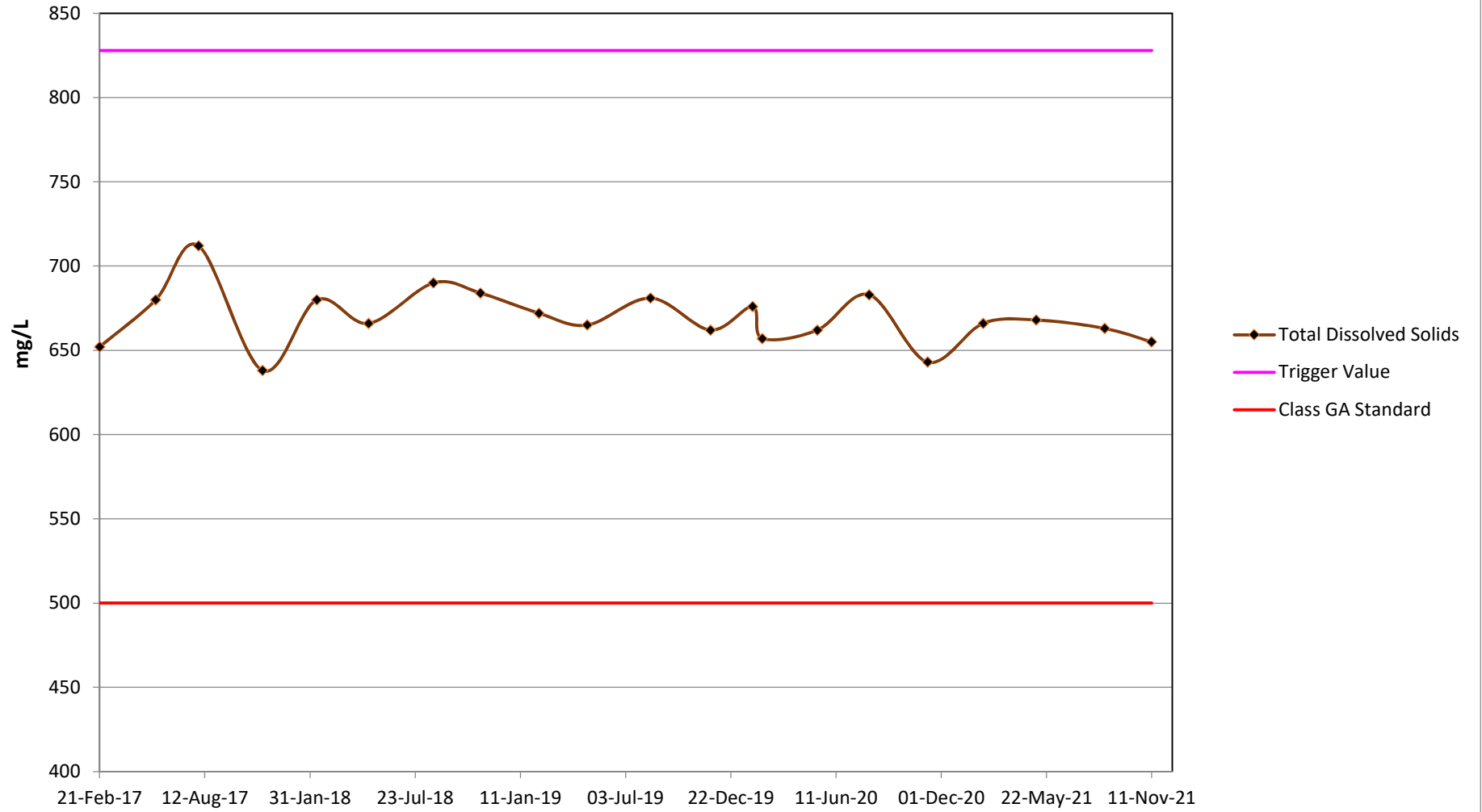
MW-F TDS



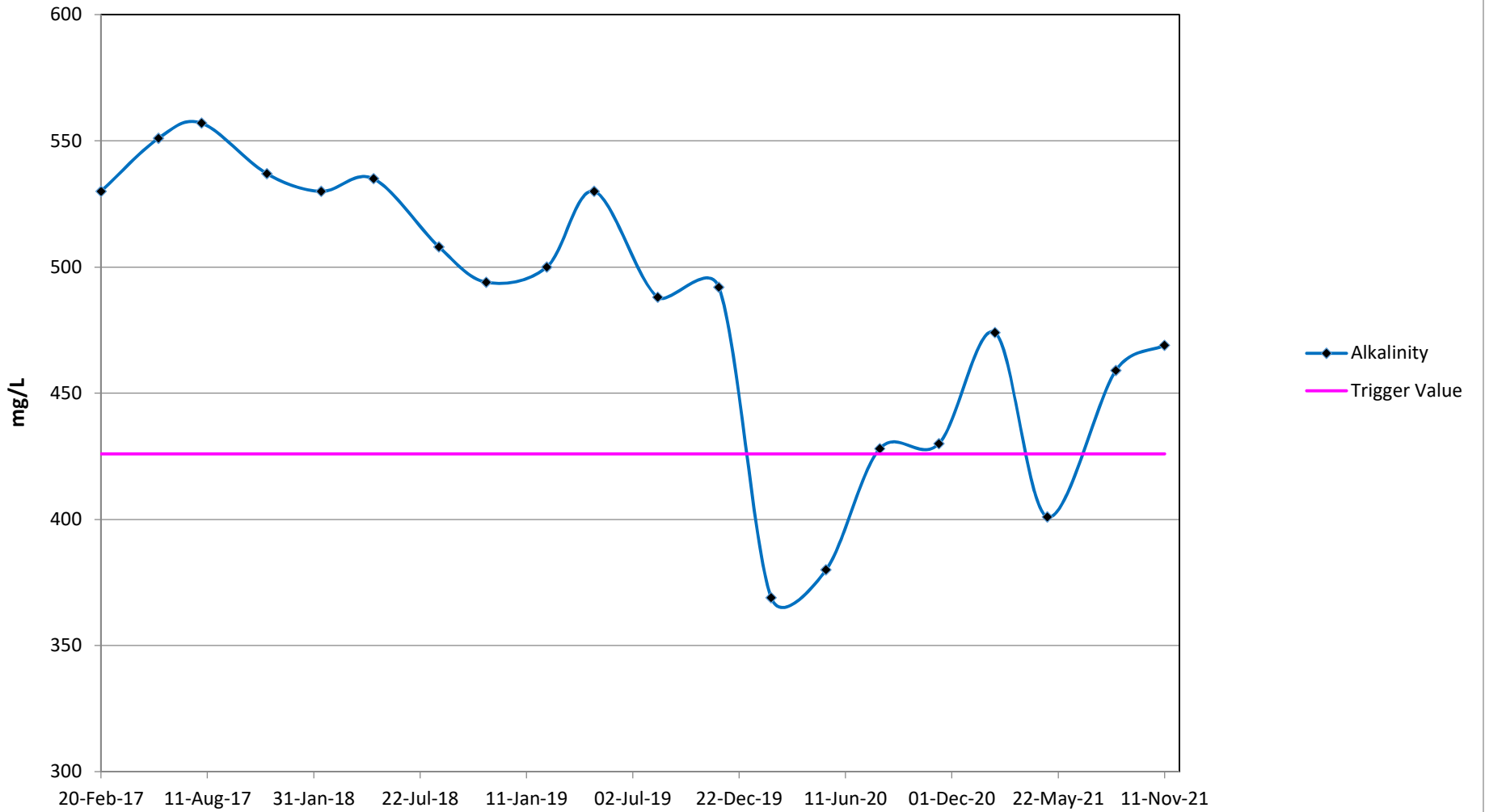
MW-J CHLORIDE



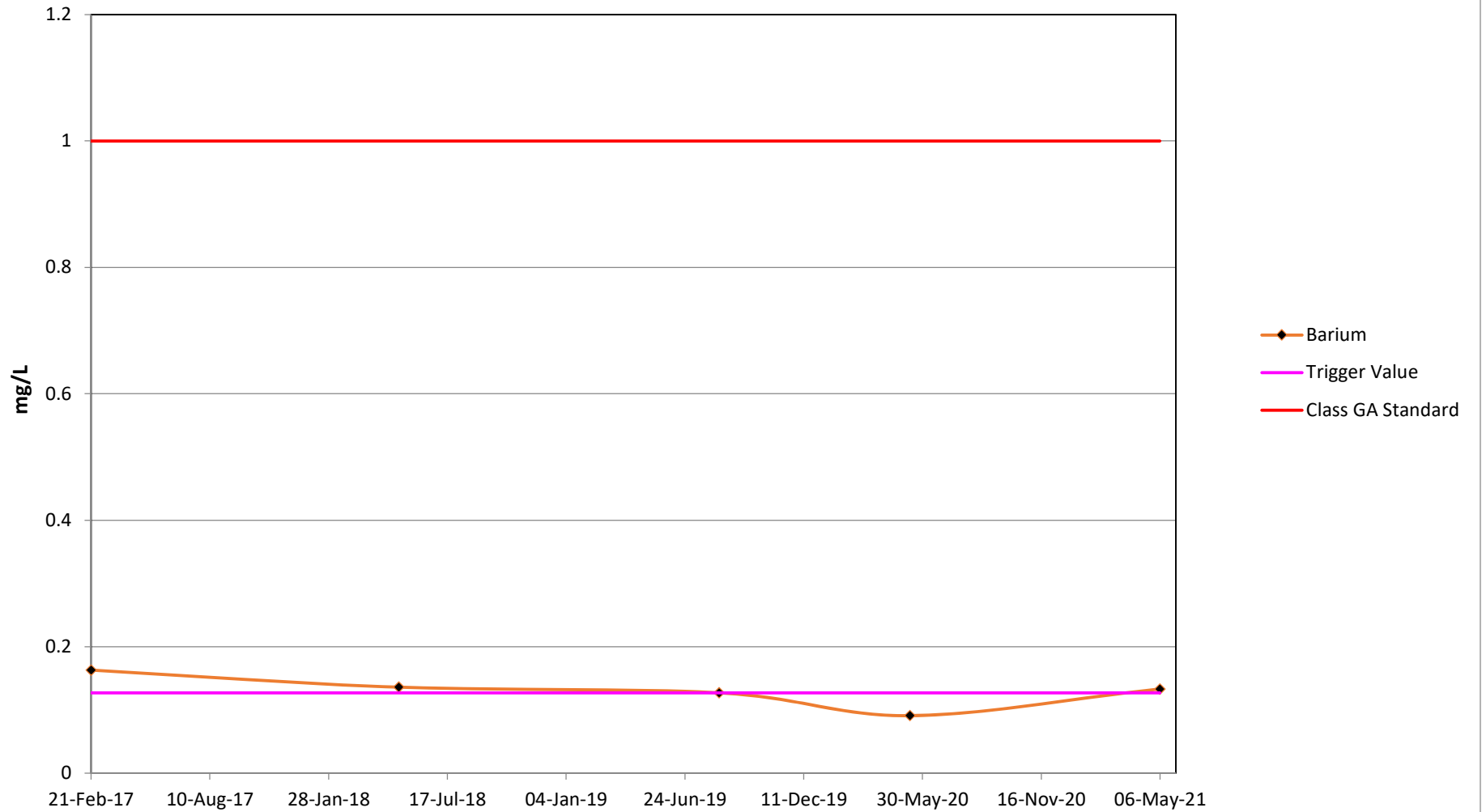
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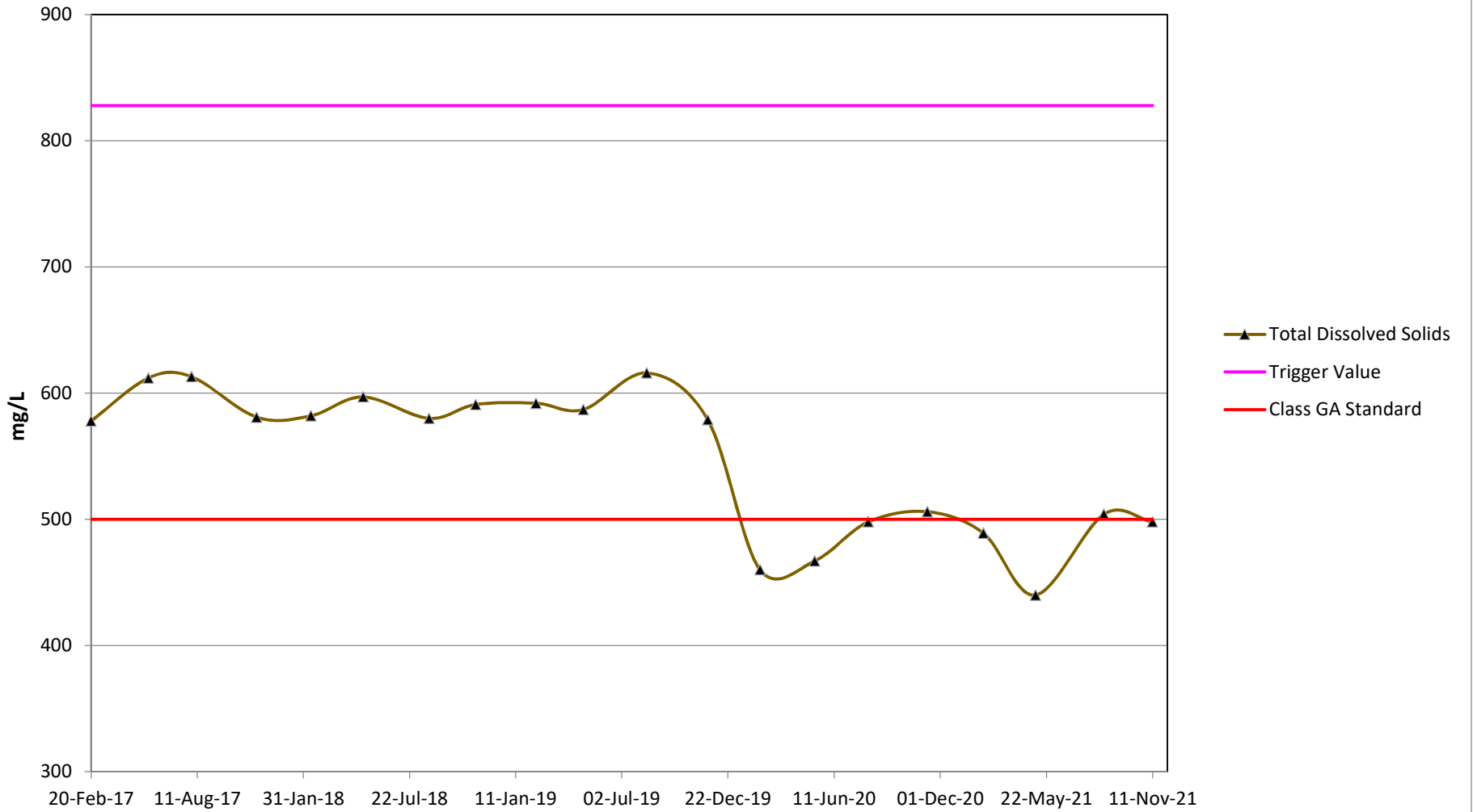
MW-N ALKALINITY



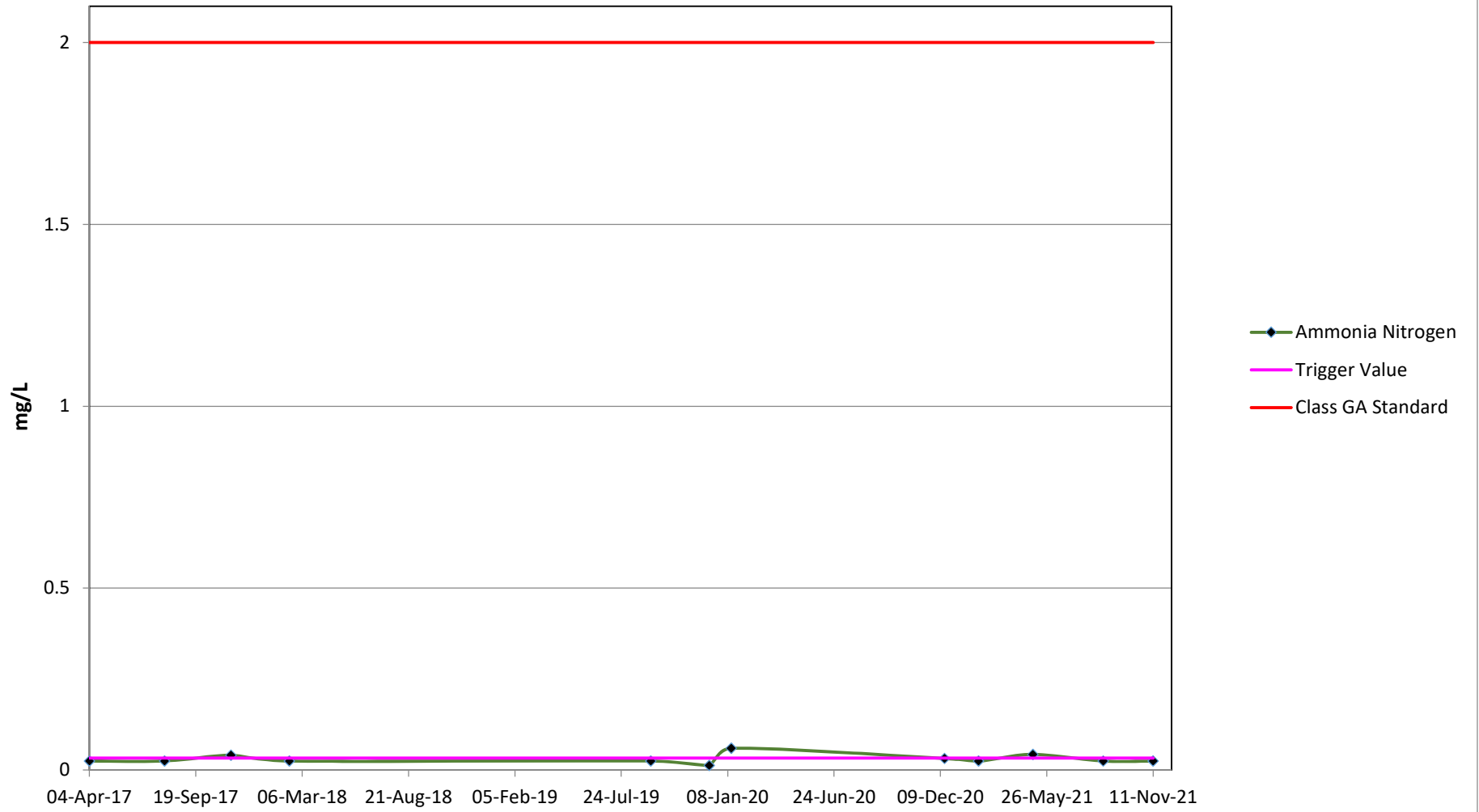
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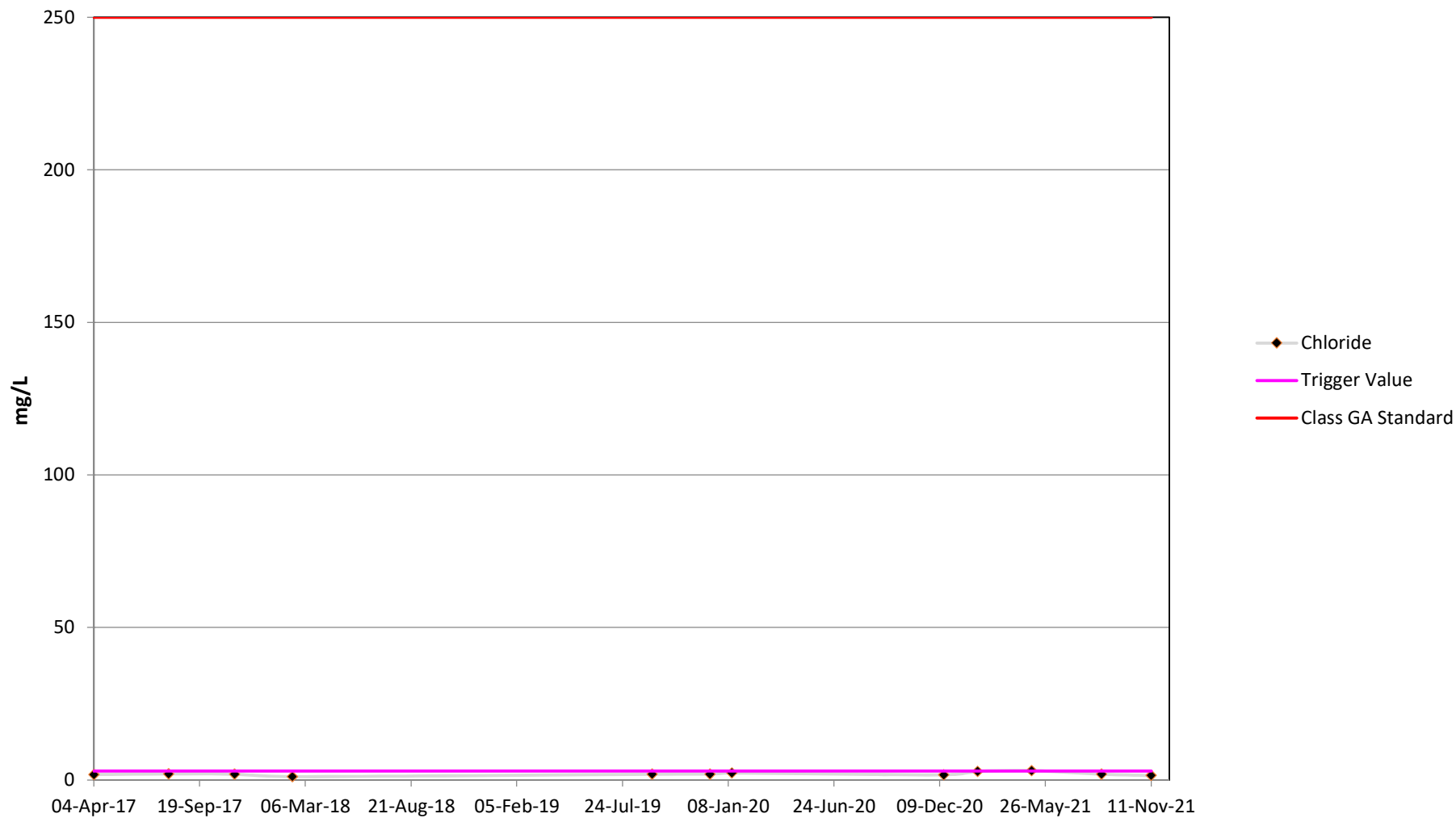
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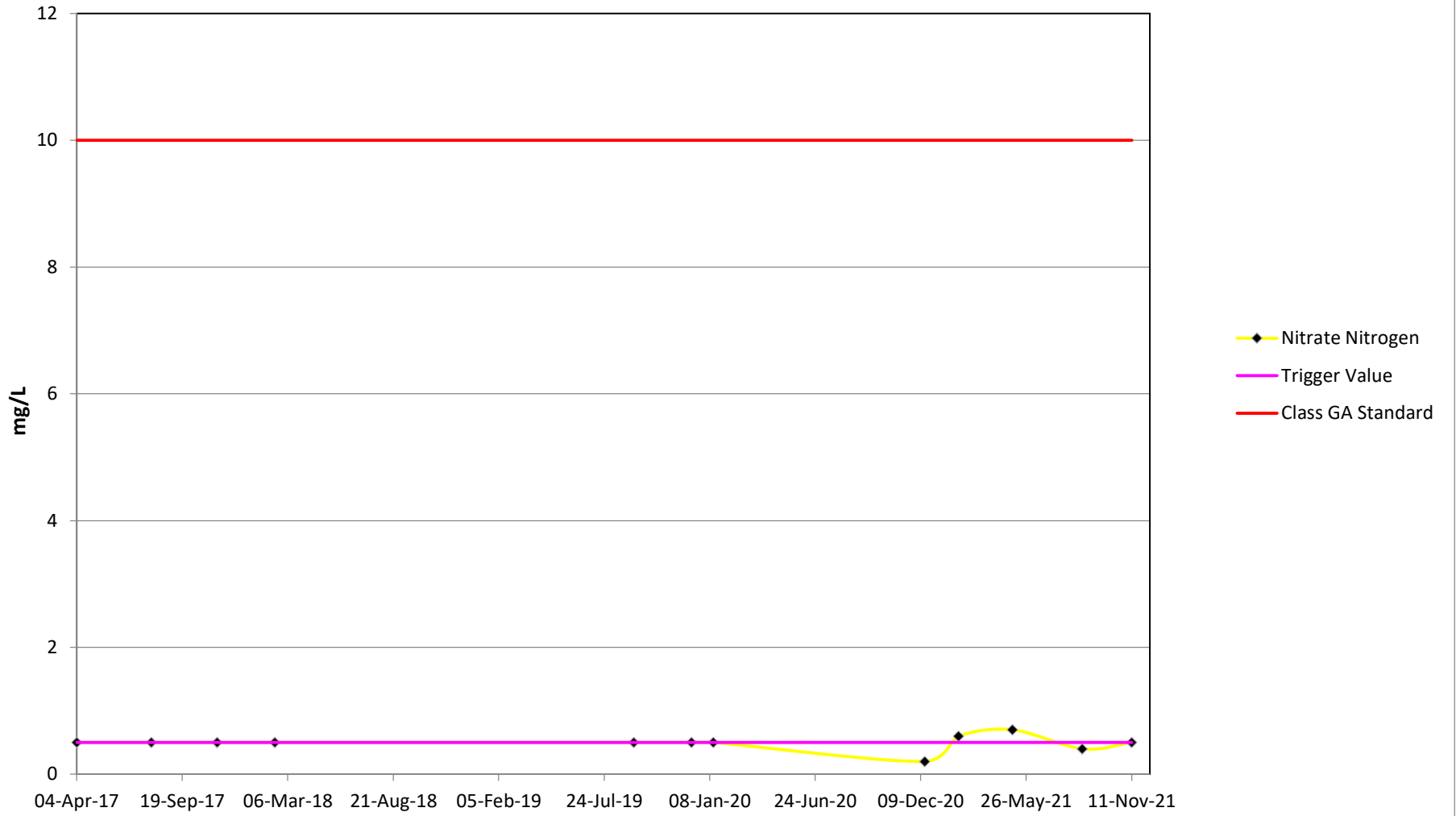
MW-O(BR) AMMONIA NITROGEN



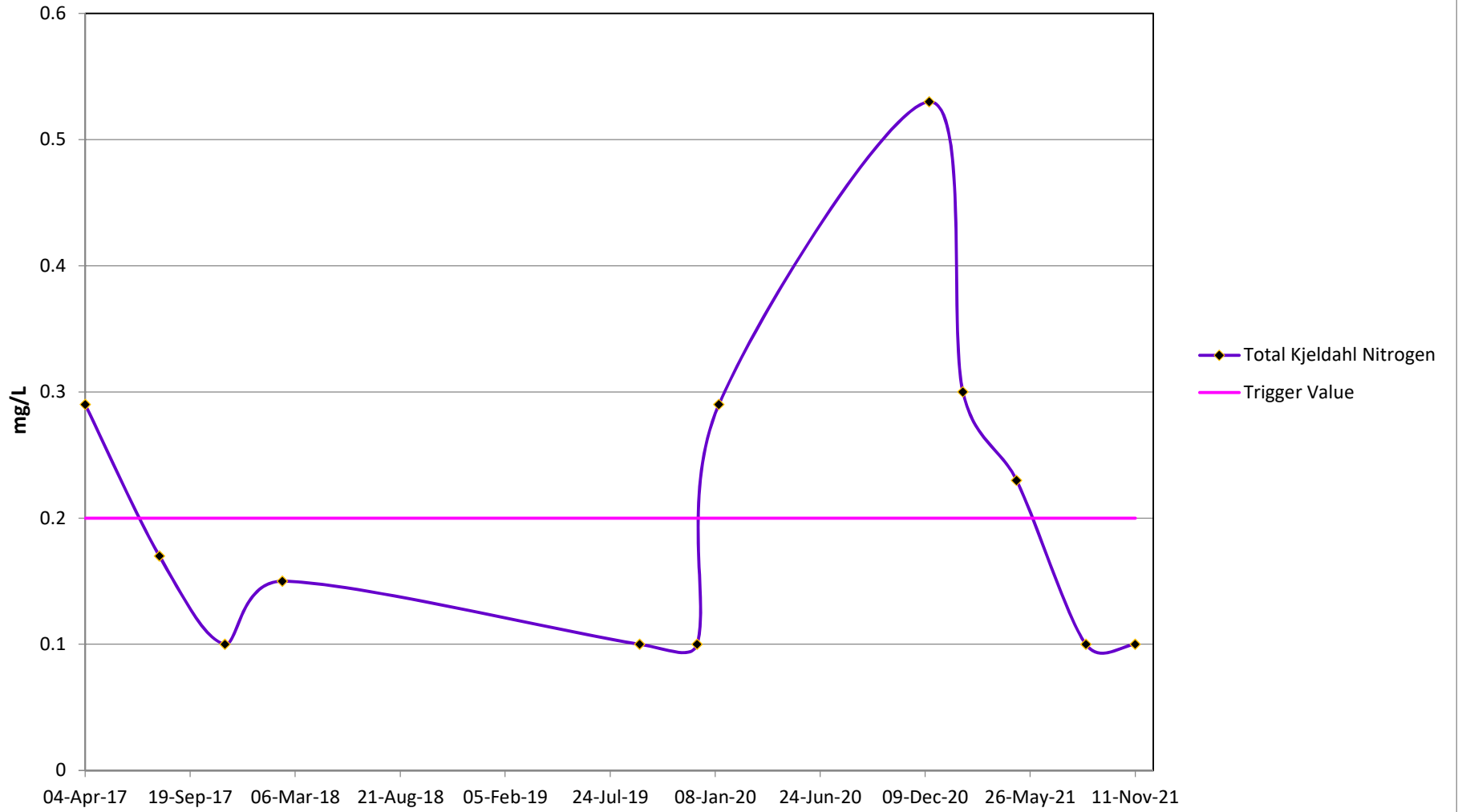
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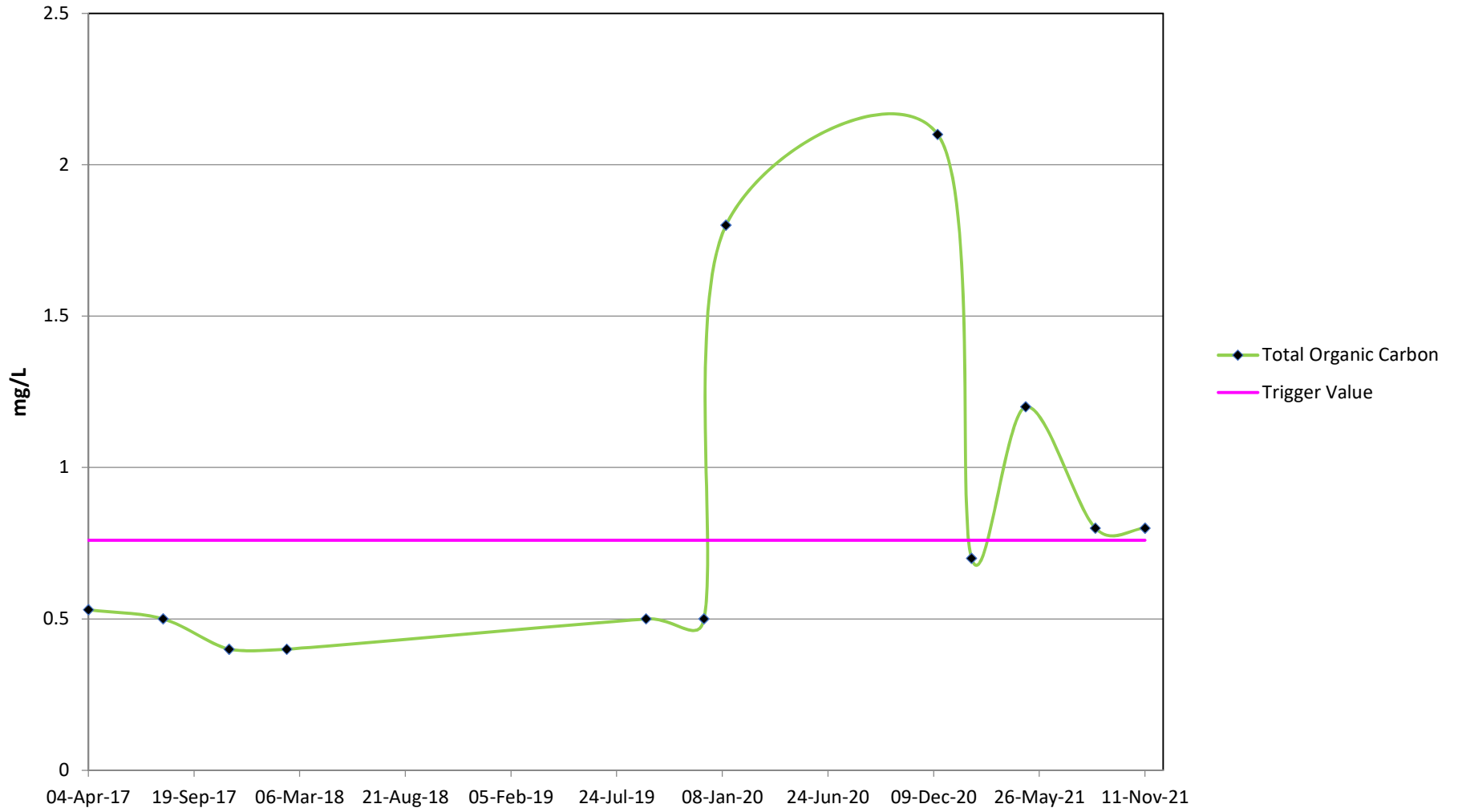
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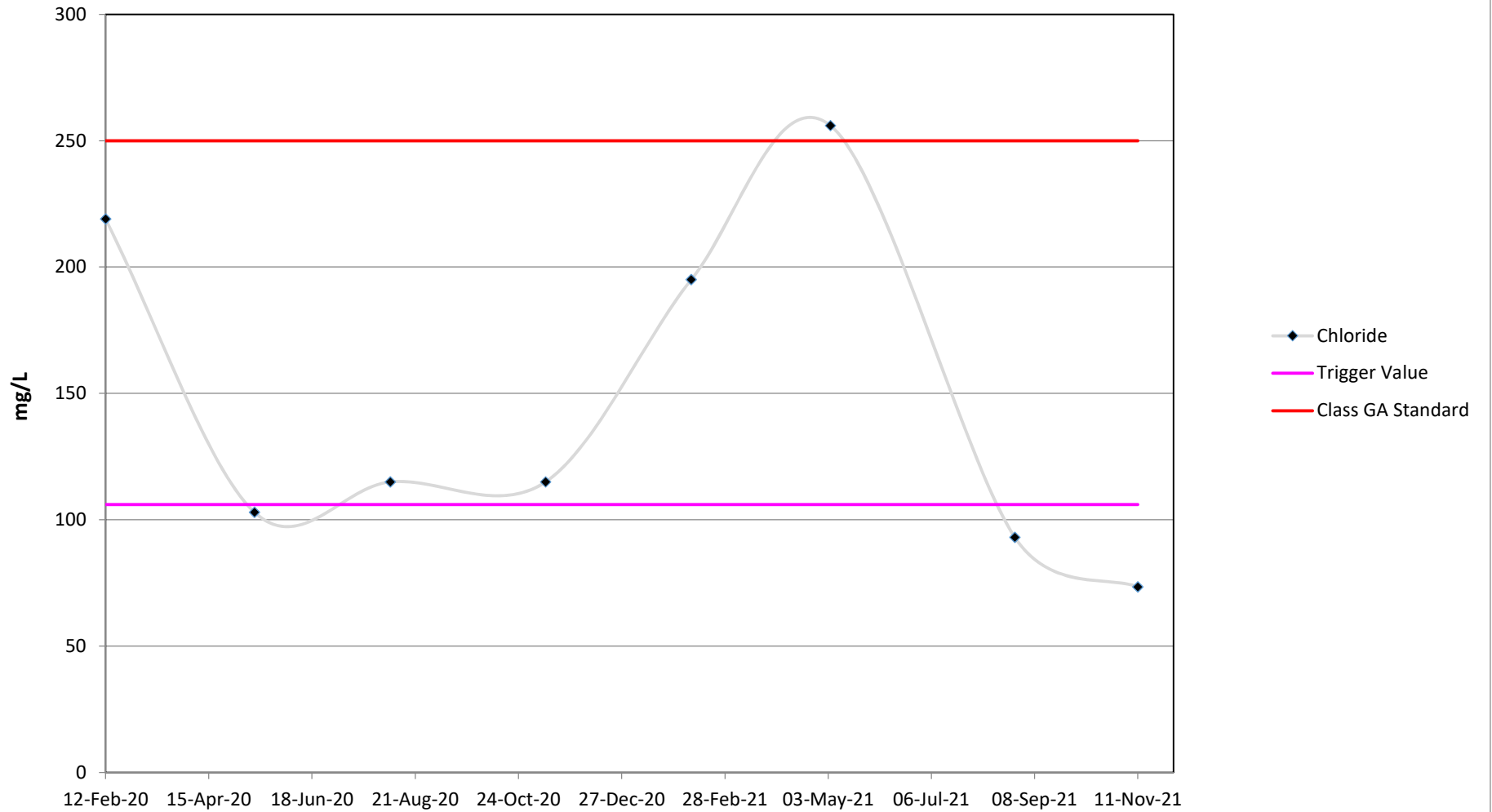
MW-O(BR) TKN



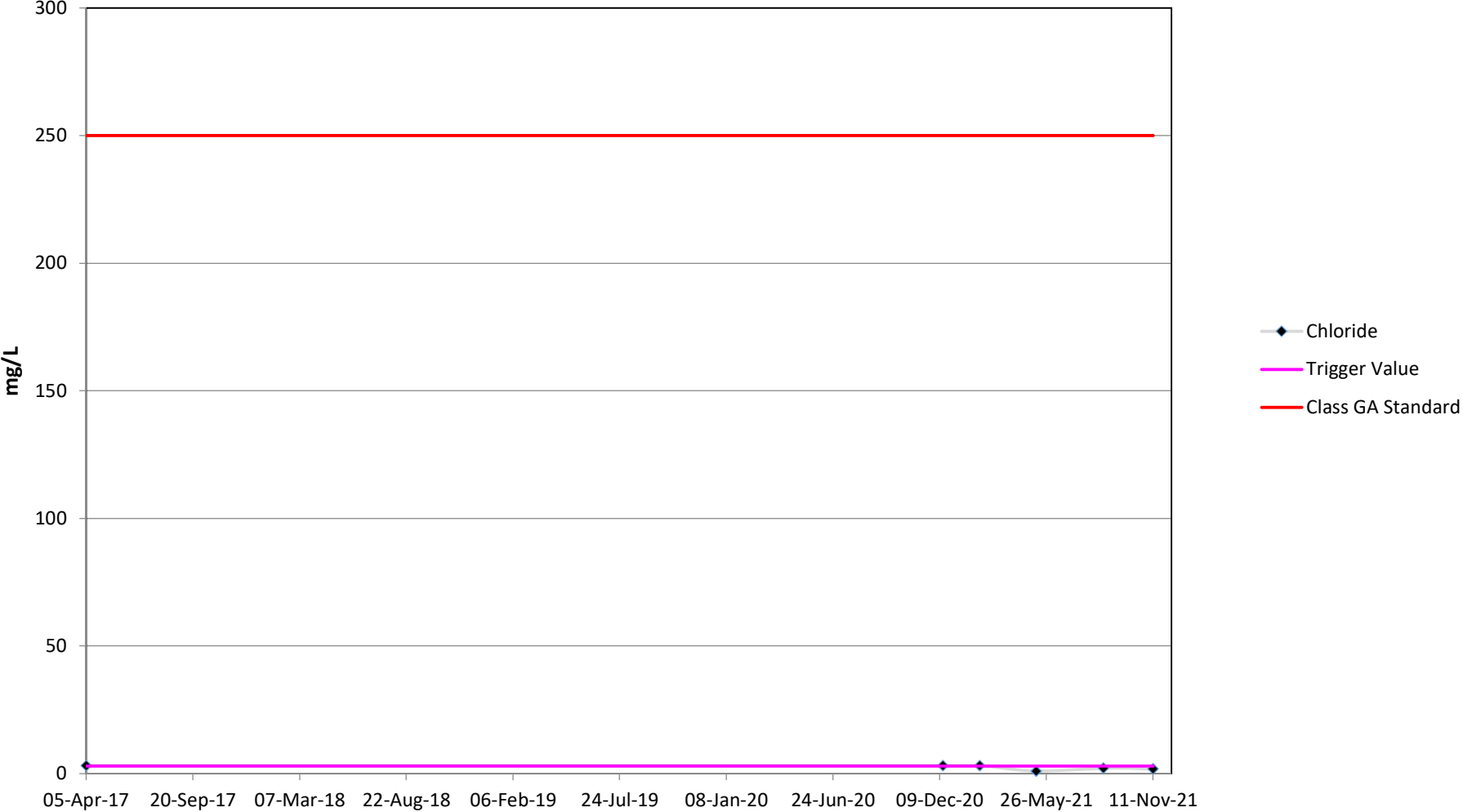
MW-O(BR) TOC



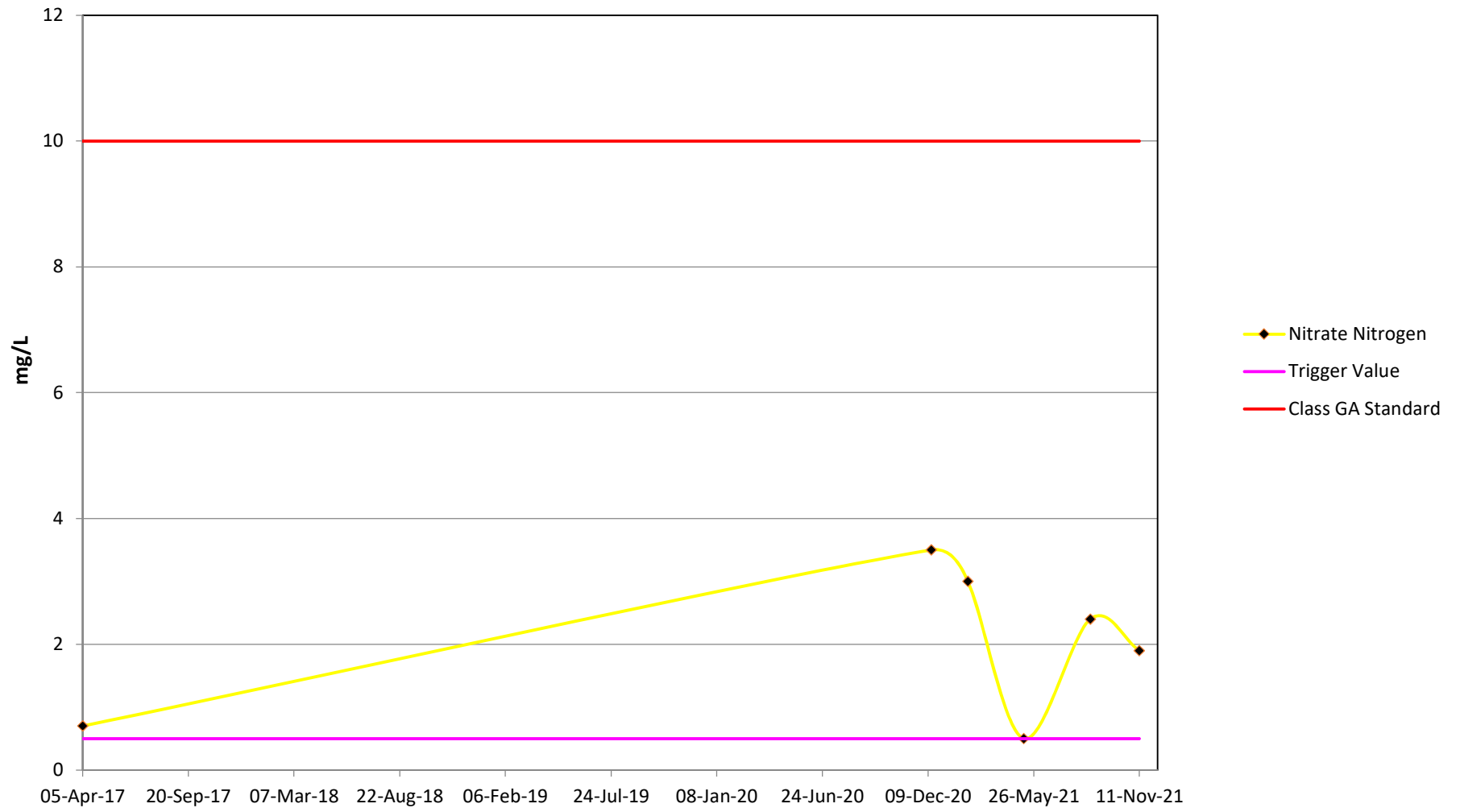
MW-QR CHLORIDE



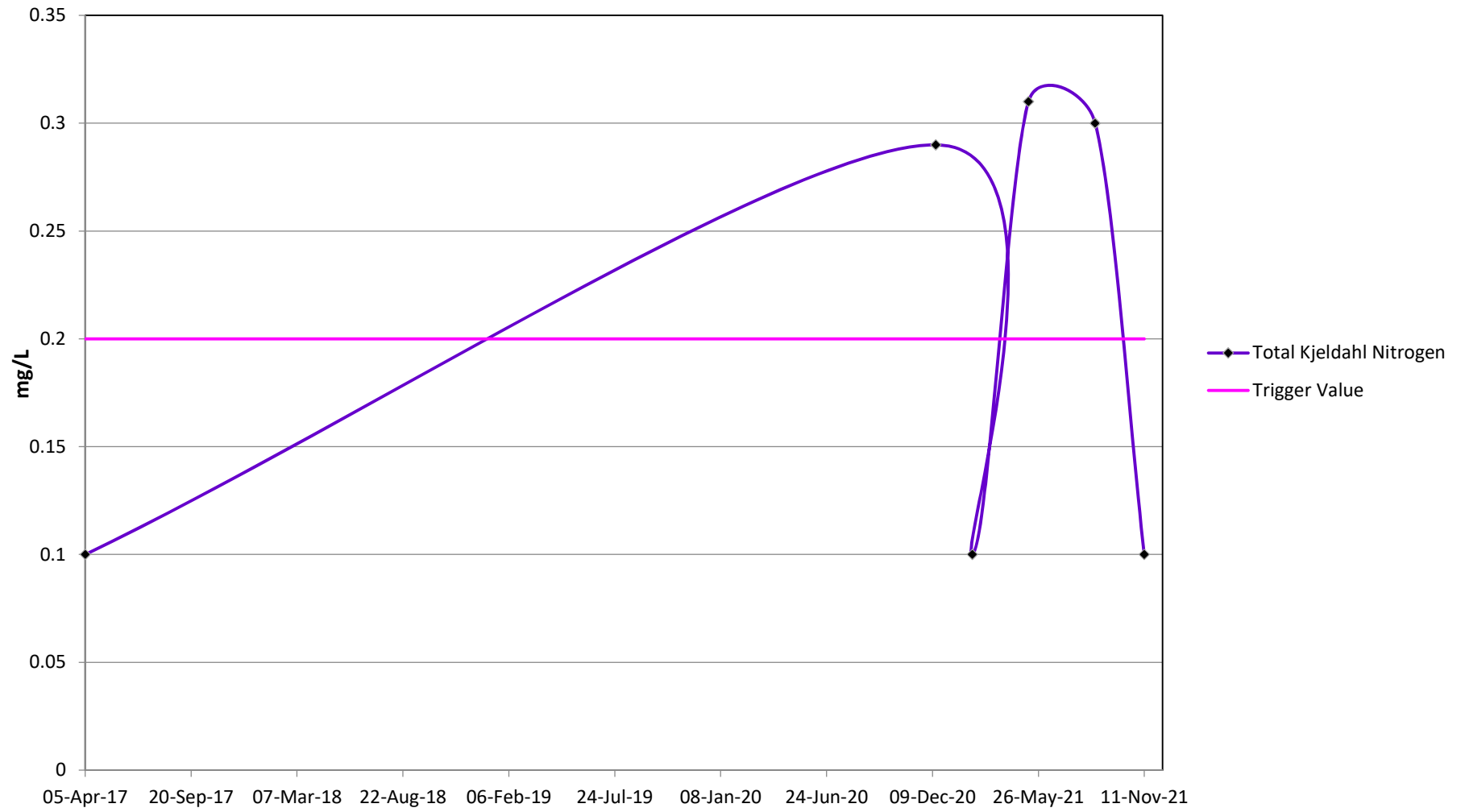
MW-R(BR) CHLORIDE



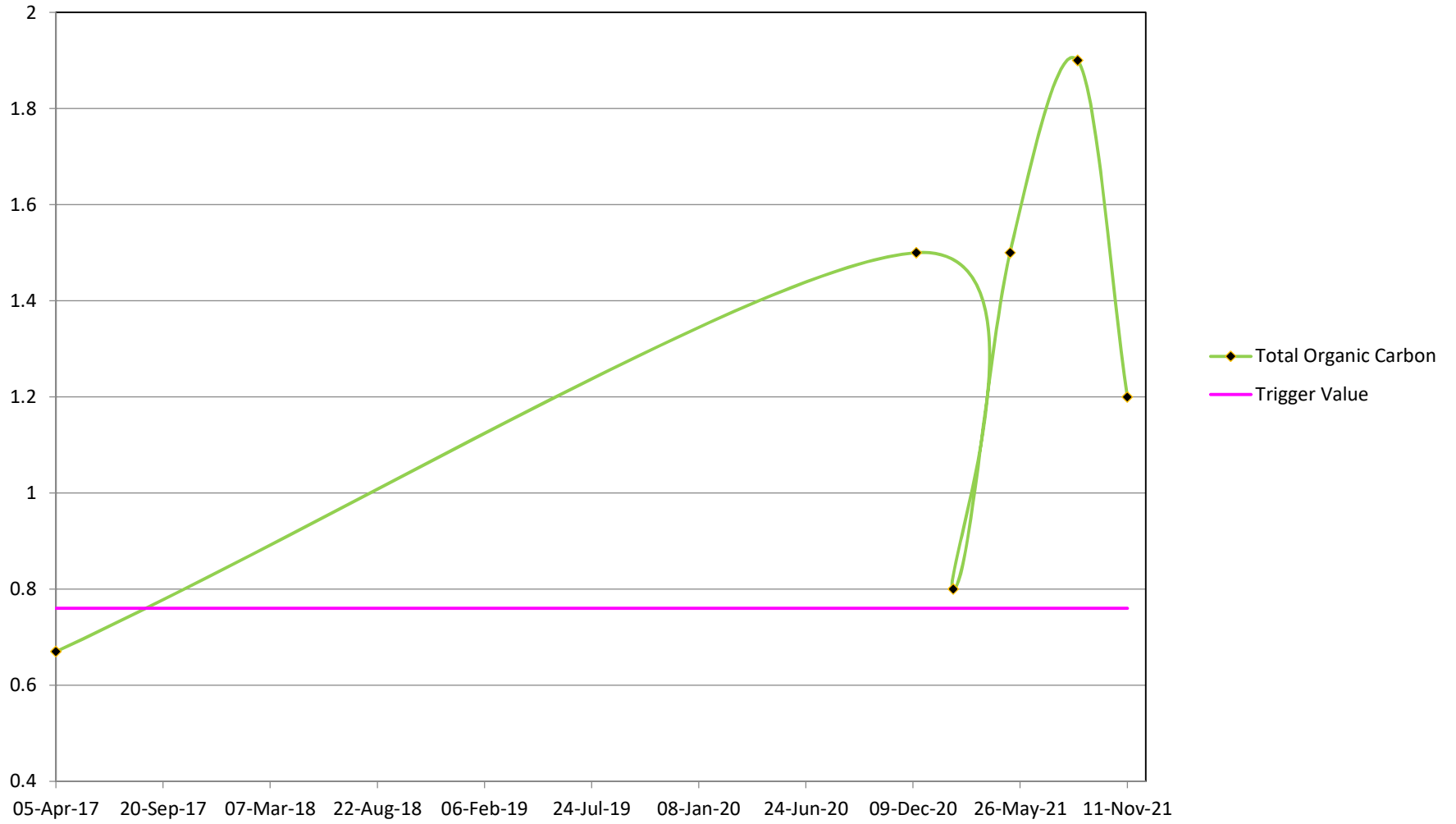
MW-R(BR) NITRATE NITROGEN



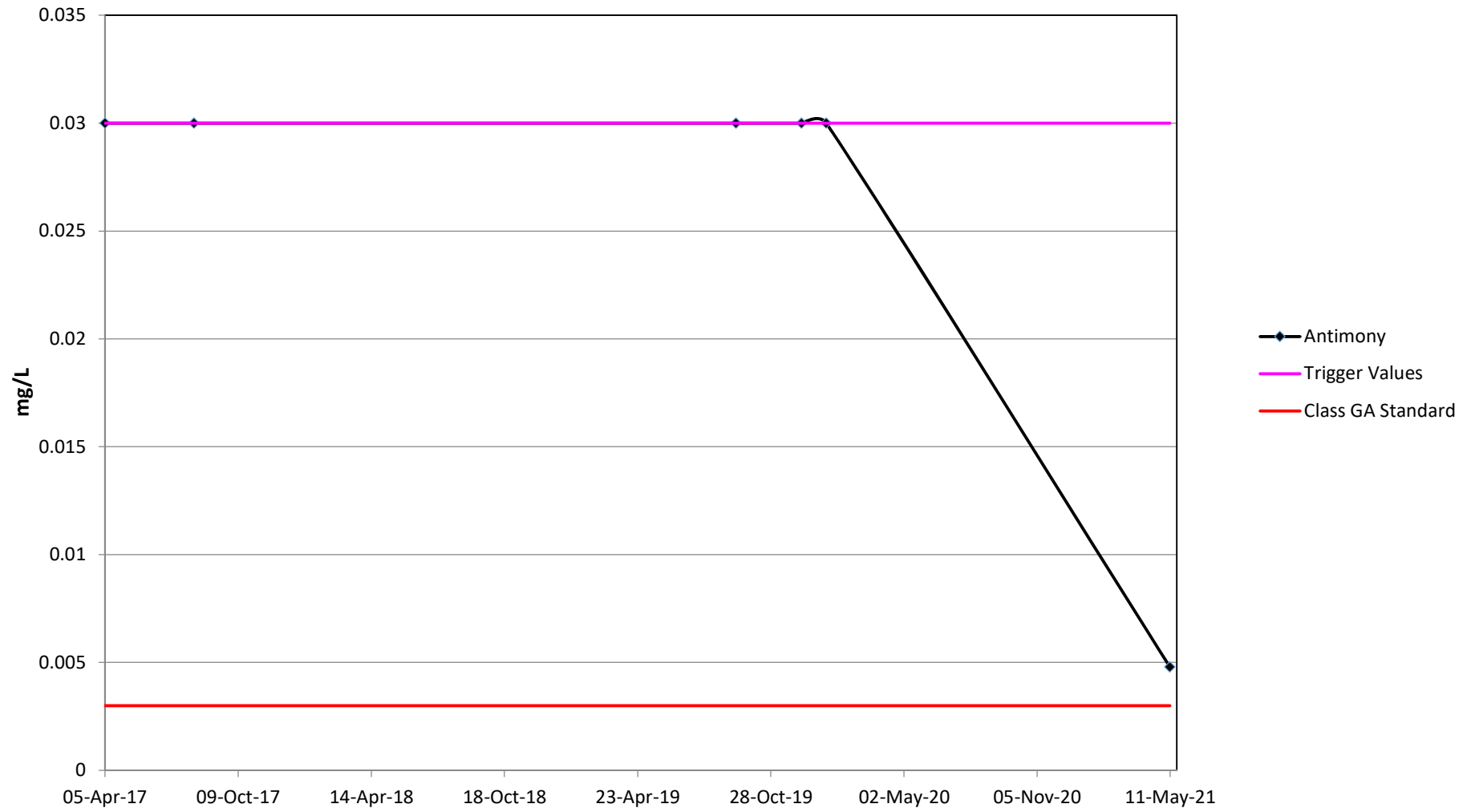
MW-R(BR) TKN



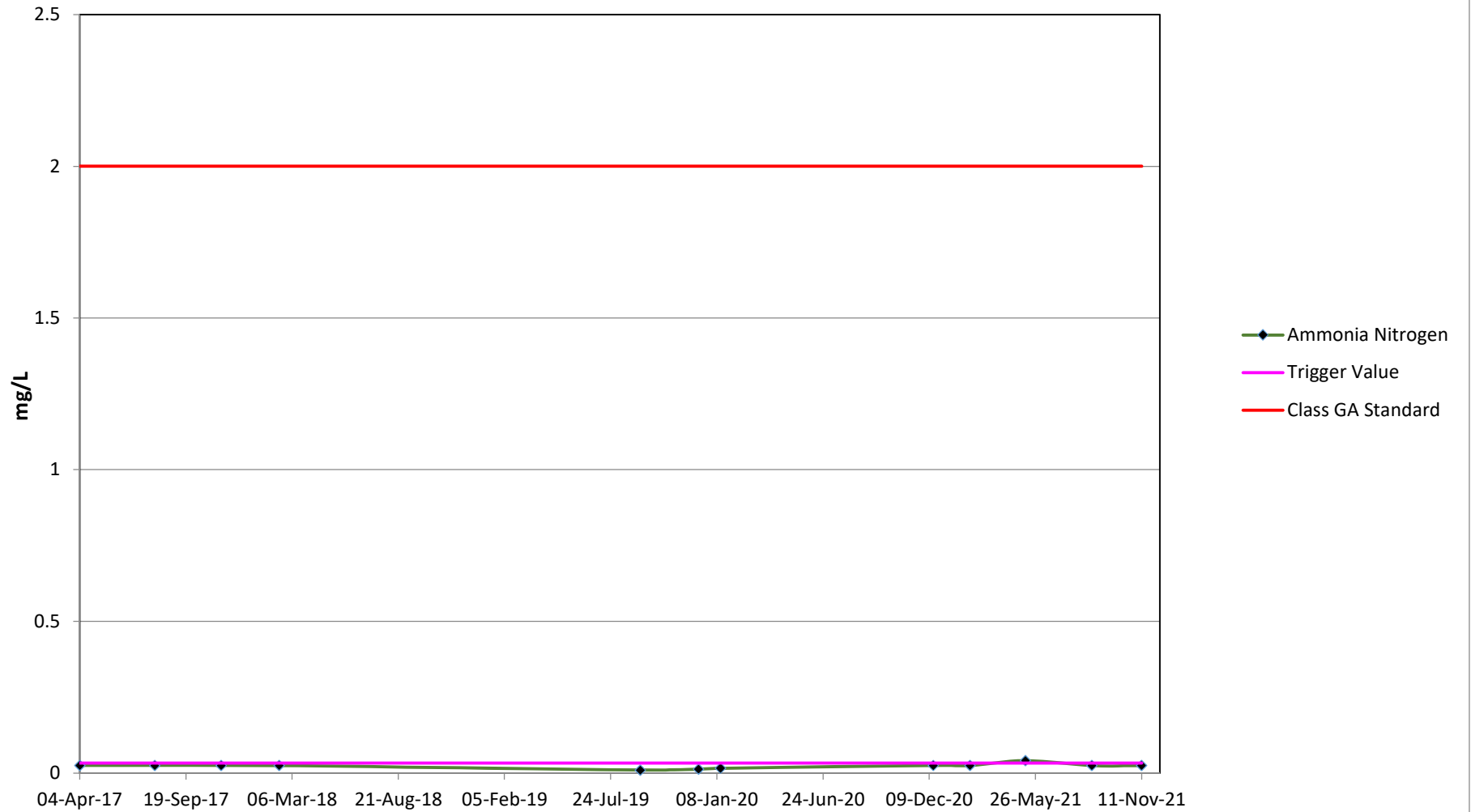
MW-R(BR) TOC



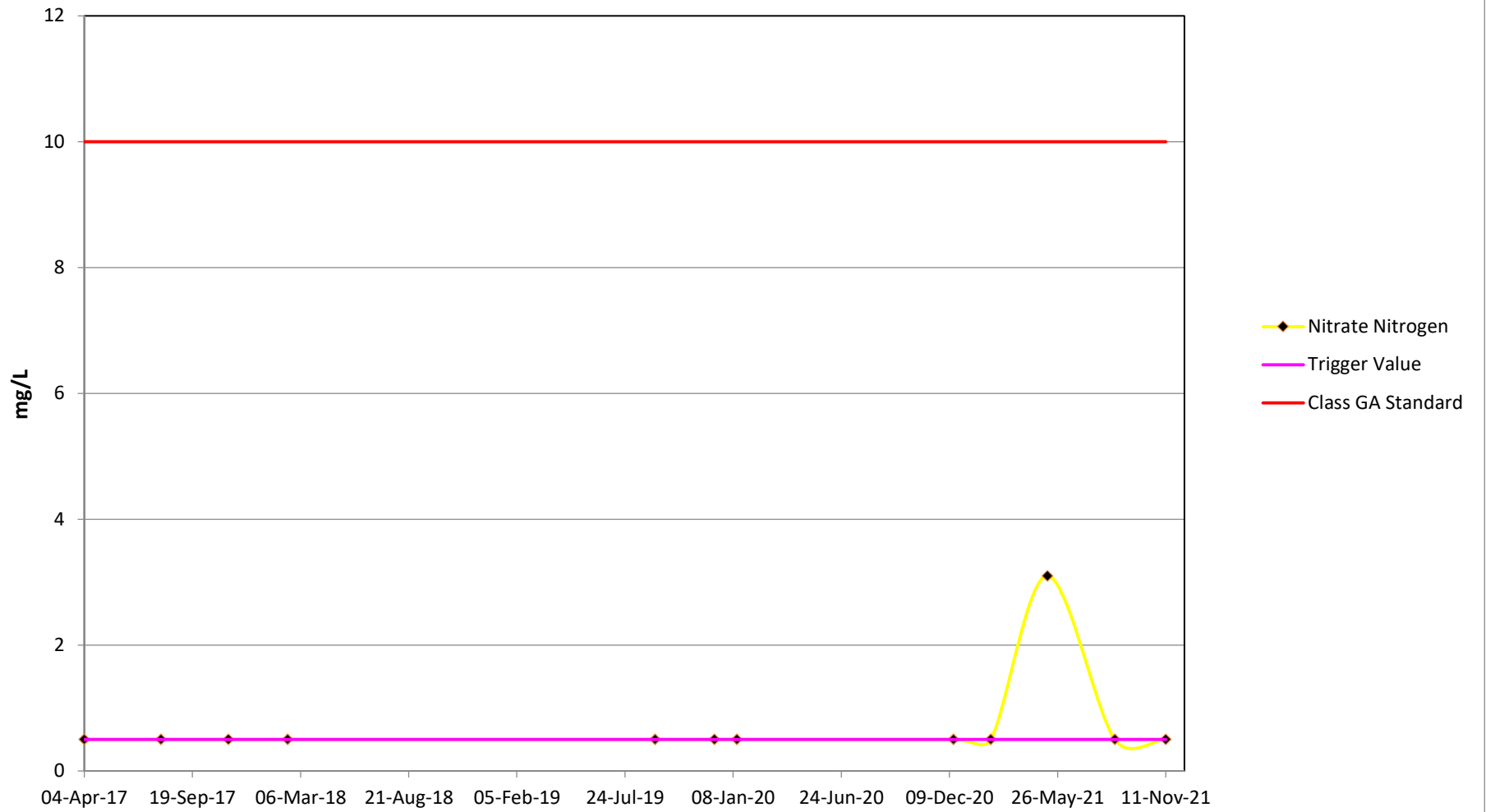
MW-S ANTIMONY



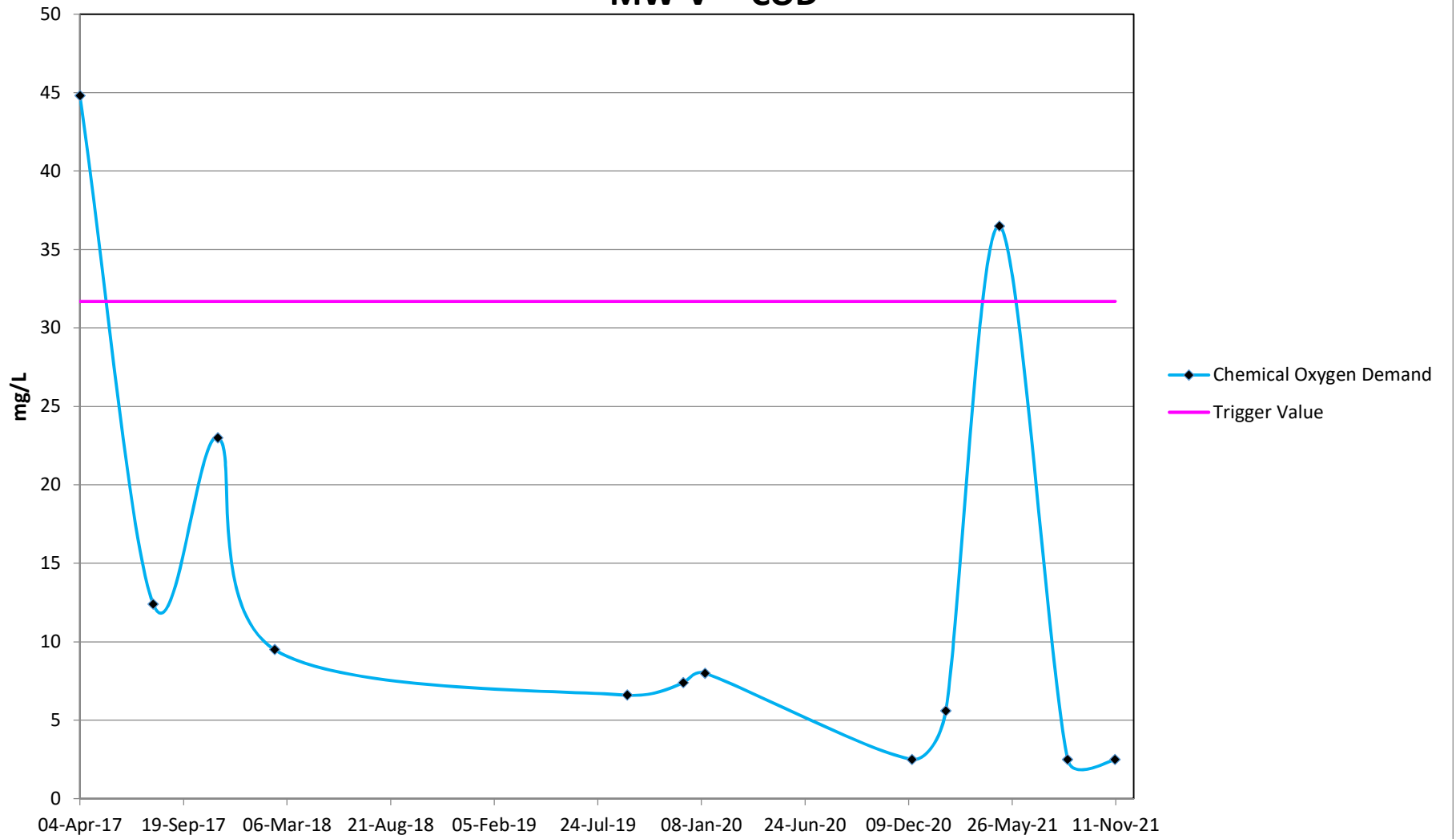
MW-U(BR) AMMONIA NITROGEN



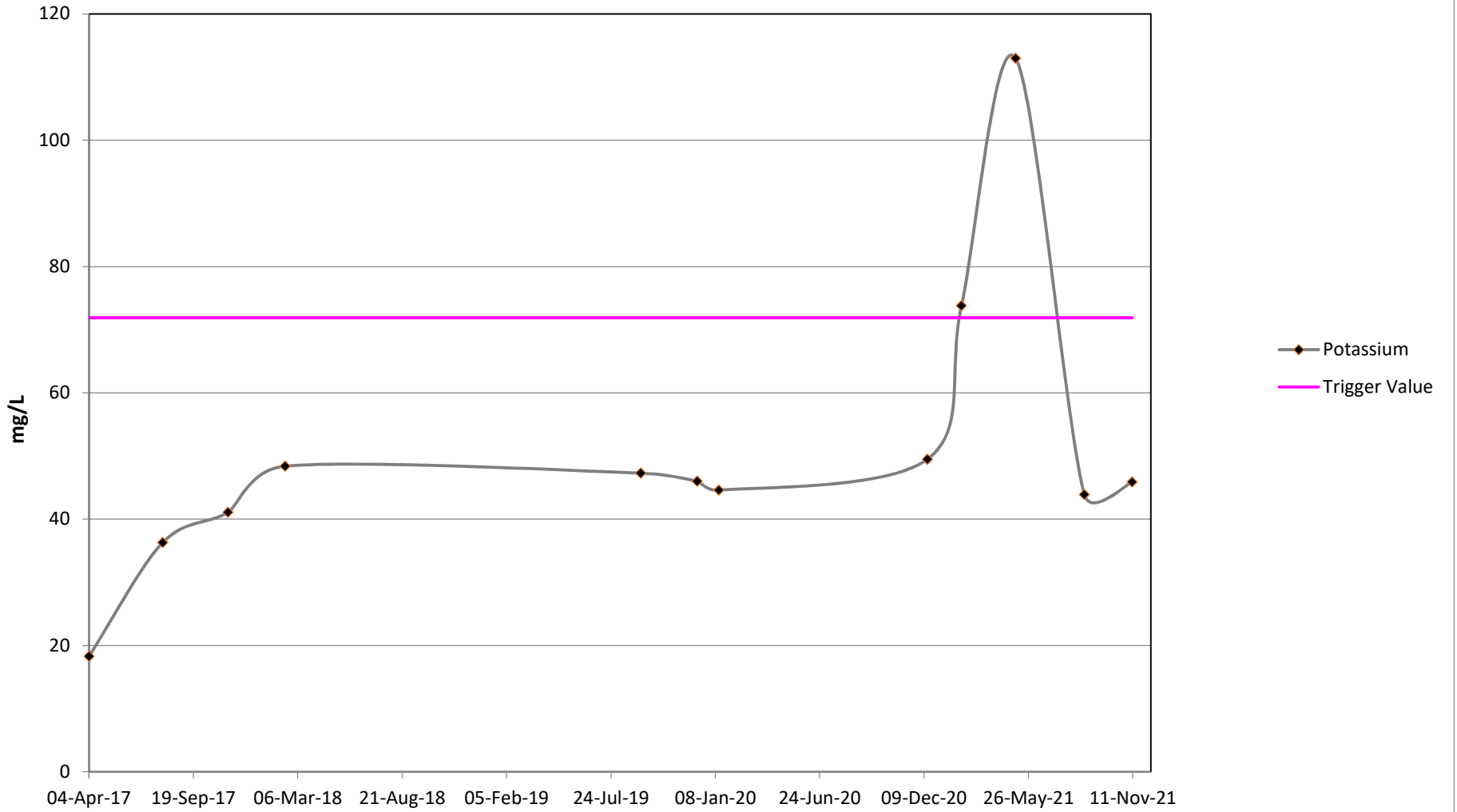
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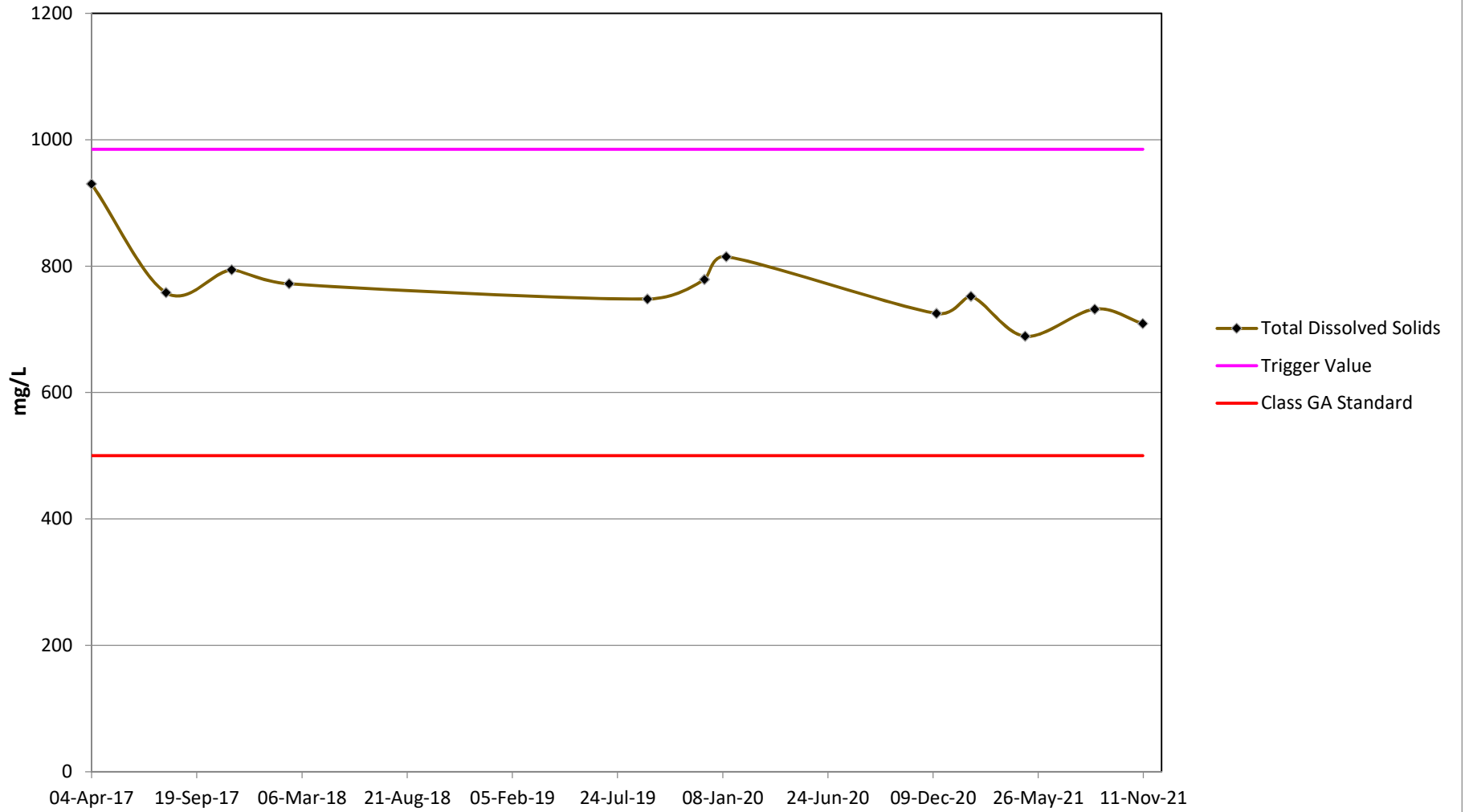
MW-V COD



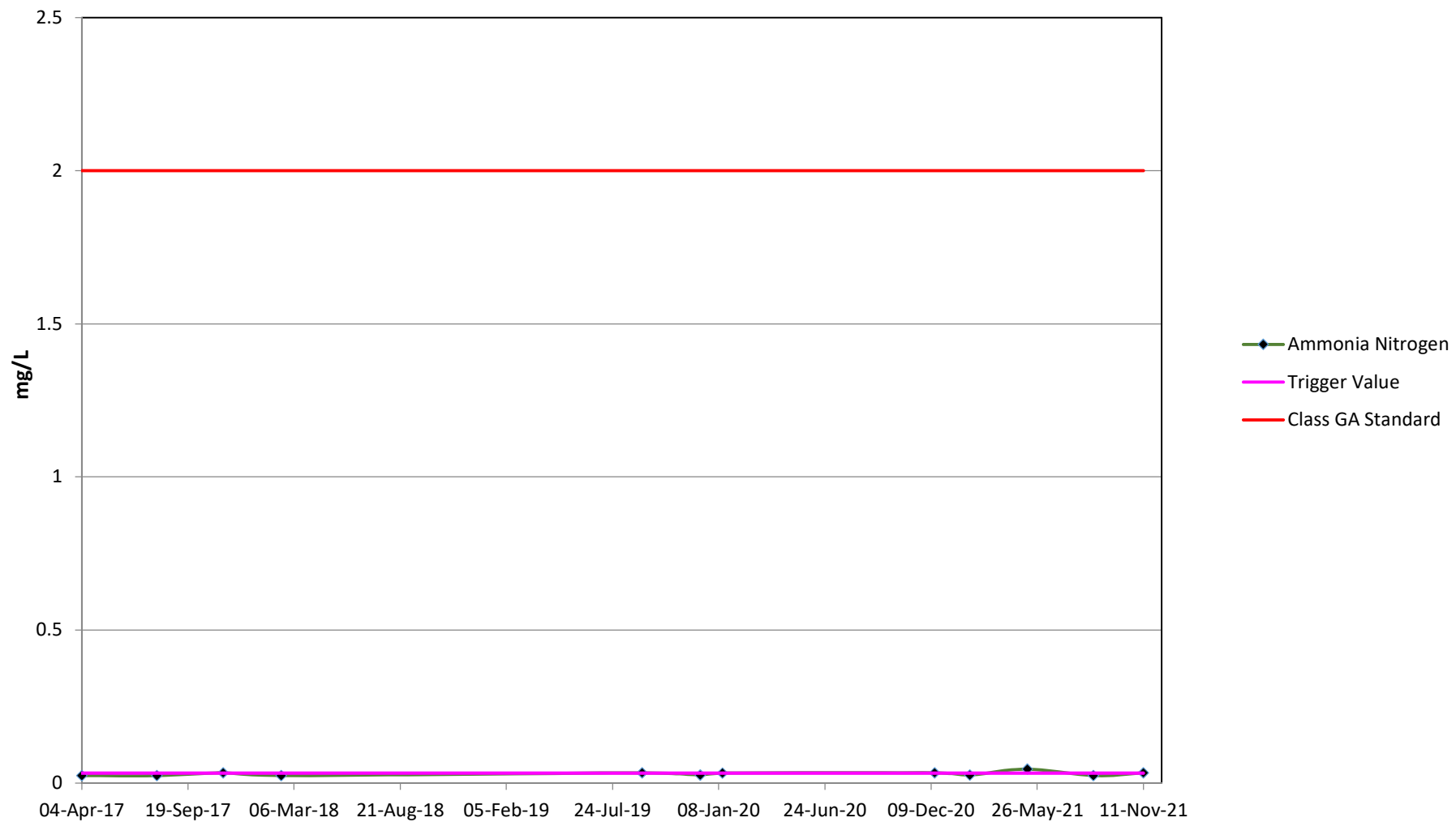
MW-V POTASSIUM



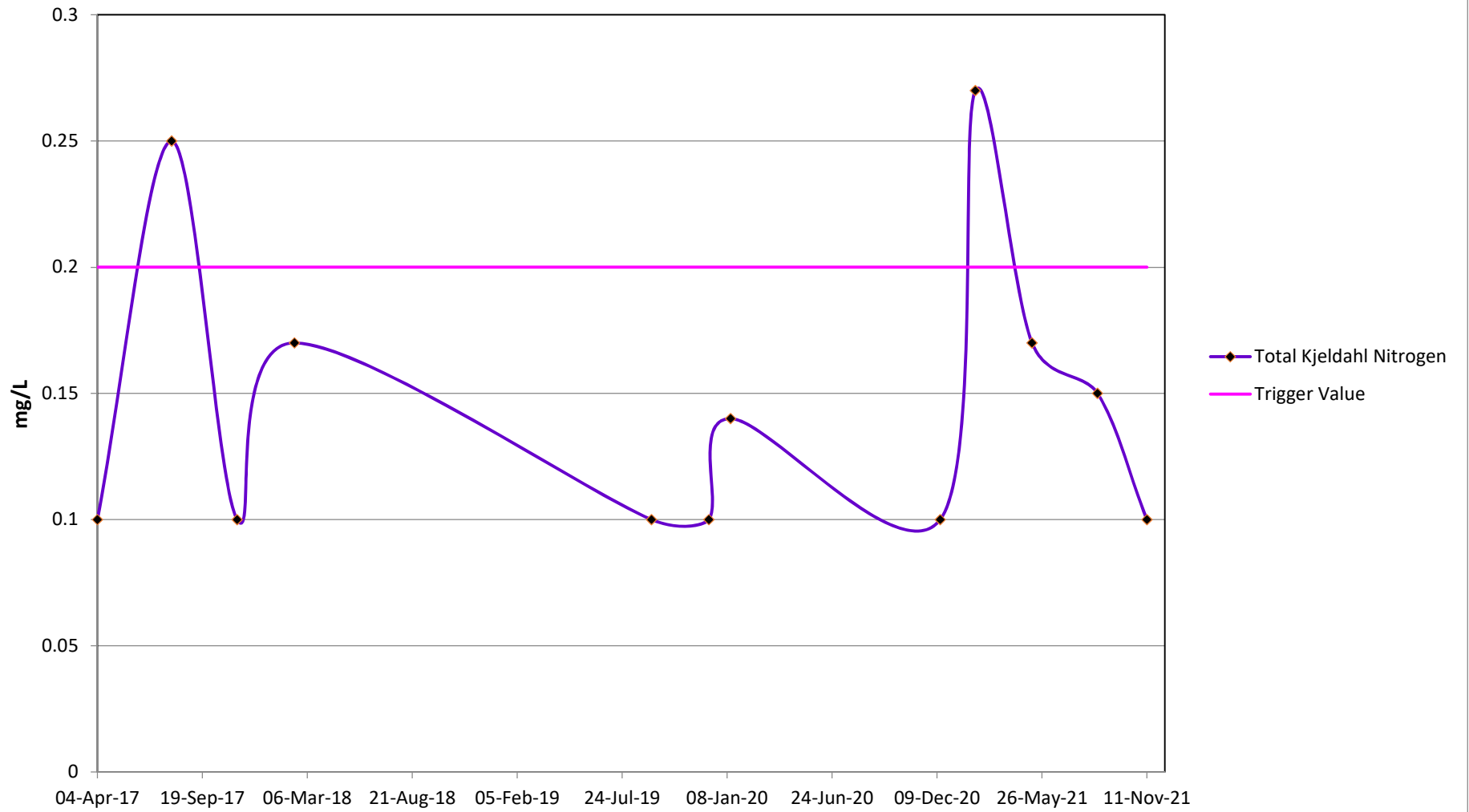
MW-V TDS



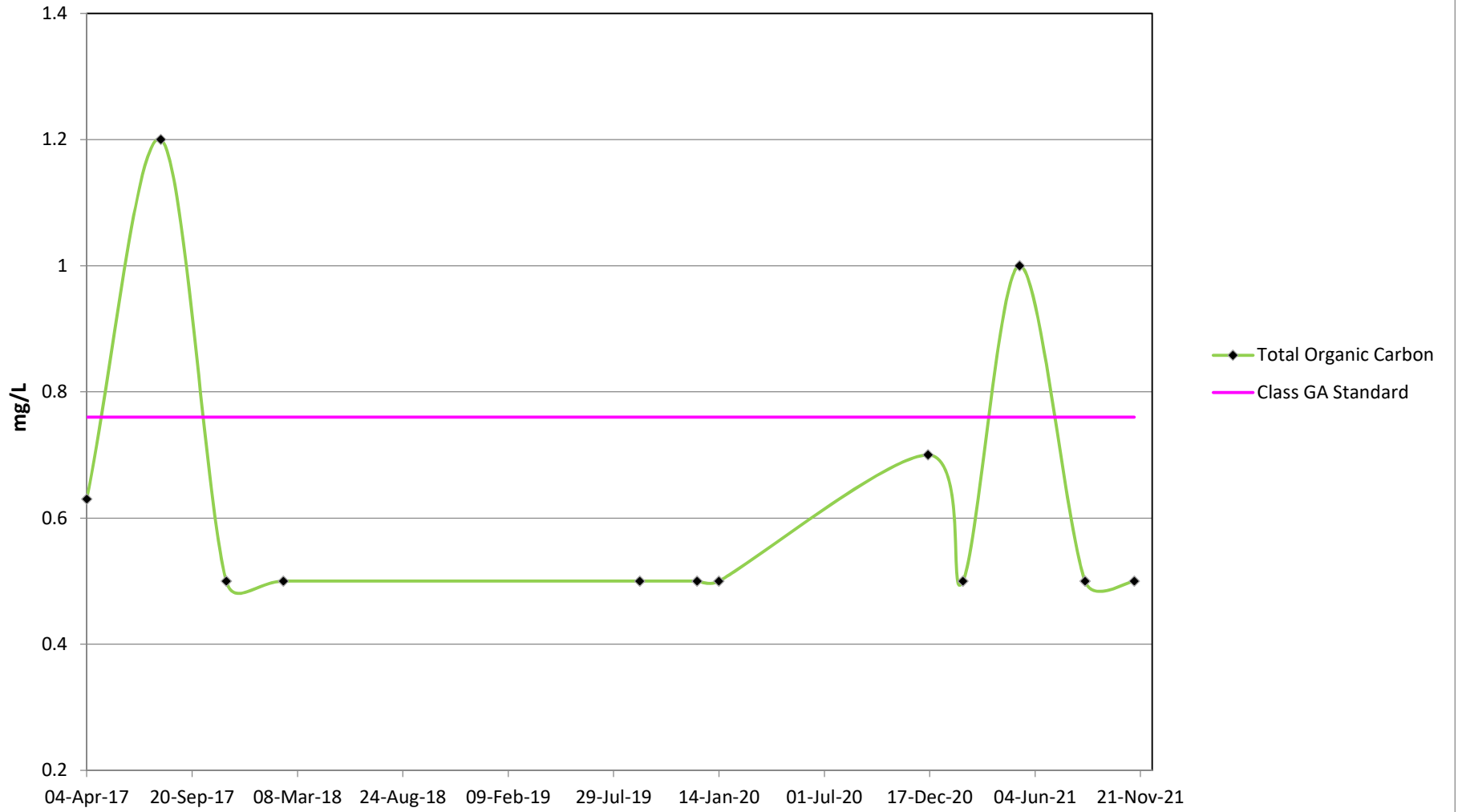
MW-V(BR) AMMONIA NITROGEN



MW-V(BR) TKN



MW-V(BR) TOC



ATTACHMENT 3 – WASTE ORIGIN

RpOrgWs.rpt

Origin: All

HAKES C & D LANDFILL
Origin/Material Report

Transactions from 01/01/2021 through 12/31/2021
 Inbound Tickets Only
 Third Party and Intercompany Customers
 Recycle and Disposal Material
 Material Summary

	Bill Units	Cubic Yards	Tons	Est Tons
ALLEGANY - ALLEGANY, NY				
CD - CONSTRUCTION DEBRIS <i>5 tickets and 5 transactions</i>	30.70 T	0.00	30.70	0.00
ALLEGANY - ALLEGANY, NY <i>5 tickets and 5 transactions</i>		0.00	30.70	0.00
BERK - BERKSHIRE, MASS				
CD - CONSTRUCTION DEBRIS <i>1 ticket and 1 transaction</i>	12.68 T	0.00	12.68	0.00
BERK - BERKSHIRE, MASS <i>1 ticket and 1 transaction</i>		0.00	12.68	0.00
BR - BRONX, NY				
CD - CONSTRUCTION DEBRIS <i>1 ticket and 1 transaction</i>	38.02 T	0.00	38.02	0.00
DO - DIGOUT <i>26 tickets and 26 transactions</i>	26.00 U	0.00	0.00	0.00
PRCD - PROC. CONSTRUCTION DEBRIS <i>373 tickets and 373 transactions</i>	13,550.85 T	0.00	13,550.85	0.00
TPCD - TIPPER C&D <i>188 tickets and 188 transactions</i>	7,478.82 T	0.00	7,478.82	0.00
TPDO - TIPPER DIGOUT <i>8 tickets and 8 transactions</i>	8.00 U	0.00	0.00	0.00
BR - BRONX, NY <i>562 tickets and 596 transactions</i>		0.00	21,067.69	0.00
BRA - BRADFORD,PA				
CD - CONSTRUCTION DEBRIS <i>15 tickets and 15 transactions</i>	84.72 T	0.00	84.72	0.00
DO - DIGOUT <i>1 ticket and 1 transaction</i>	1.00 U	0.00	0.00	0.00
BRA - BRADFORD,PA <i>15 tickets and 16 transactions</i>		0.00	84.72	0.00
BROOME - BROOME, NY				
CD - CONSTRUCTION DEBRIS <i>4 tickets and 4 transactions</i>	78.35 T	0.00	78.35	0.00
BROOME - BROOME, NY <i>4 tickets and 4 transactions</i>		0.00	78.35	0.00

CAYUGA - CAYUGA, NY

CD - CONSTRUCTION DEBRIS	3.66 T	0.00	3.66	0.00
<i>1 ticket and 1 transaction</i>				

CAYUGA - CAYUGA, NY*1 ticket and 1 transaction*

0.00	3.66	0.00
------	------	------

CHEMUNG - CHEMUNG, NY

CD - CONSTRUCTION DEBRIS	4,842.38 T	0.00	4,842.38	0.00
<i>733 tickets and 733 transactions</i>				

DO - DIGOUT	3.00 U	0.00	0.00	0.00
<i>3 tickets and 3 transactions</i>				

ICCD - INTERCOMPANY CONSTRUCTION DEBRIS	9.31 T	0.00	9.31	0.00
<i>1 ticket and 1 transaction</i>				

TPCD - TIPPER C&D	384.73 T	0.00	384.73	0.00
<i>14 tickets and 14 transactions</i>				

CHEMUNG - CHEMUNG, NY*748 tickets and 751 transactions*

0.00	5,236.42	0.00
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CHENANGO - CHENANGO, NY

CD - CONSTRUCTION DEBRIS	17.61 T	0.00	17.61	0.00
<i>4 tickets and 4 transactions</i>				

CHENANGO - CHENANGO, NY*4 tickets and 4 transactions*

0.00	17.61	0.00
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CORT - CORTLAND, NY

CD - CONSTRUCTION DEBRIS	29.91 T	0.00	29.91	0.00
<i>10 tickets and 10 transactions</i>				

CORT - CORTLAND, NY*10 tickets and 10 transactions*

0.00	29.91	0.00
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DEL - DELAWARE, PA

CD - CONSTRUCTION DEBRIS	29.75 T	0.00	29.75	0.00
<i>1 ticket and 1 transaction</i>				

DEL - DELAWARE, PA*1 ticket and 1 transaction*

0.00	29.75	0.00
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DELAWARE - DELAWARE, NY

CD - CONSTRUCTION DEBRIS	969.48 T	0.00	969.48	0.00
<i>39 tickets and 39 transactions</i>				

DELAWARE - DELAWARE, NY*39 tickets and 39 transactions*

0.00	969.48	0.00
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FAIRFIELD - FAIRFIELD, CT

CD - CONSTRUCTION DEBRIS	109.31 T	0.00	109.31	0.00
<i>12 tickets and 12 transactions</i>				

DO - DIGOUT	1.00 U	0.00	0.00	0.00
<i>1 ticket and 1 transaction</i>				

TPCD - TIPPER C&D	178.68 T	0.00	178.68	0.00
<i>5 tickets and 5 transactions</i>				

FAIRFIELD - FAIRFIELD, CT*17 tickets and 18 transactions*

0.00	287.99	0.00
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GREEN - GREEN, NY

PRCD - PROC. CONSTRUCTION DEBRIS	465.84 T	0.00	465.84	0.00
<i>18 tickets and 18 transactions</i>				

GREEN - GREEN, NY*18 tickets and 18 transactions*

0.00	465.84	0.00
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HAM - HAMPDEN, MA**CD - CONSTRUCTION DEBRIS***23 tickets and 23 transactions*

524.71 T 0.00 524.71 0.00

HAM - HAMPDEN, MA*23 tickets and 23 transactions*

0.00 524.71 0.00

HAMP - HAMPTON, MA**CD - CONSTRUCTION DEBRIS***2 tickets and 2 transactions*

51.81 T 0.00 51.81 0.00

HAMP - HAMPTON, MA*2 tickets and 2 transactions*

0.00 51.81 0.00

HART - HARTFORD, CT**CD - CONSTRUCTION DEBRIS***4 tickets and 4 transactions*

64.07 T 0.00 64.07 0.00

HART - HARTFORD, CT*4 tickets and 4 transactions*

0.00 64.07 0.00

HSHIRE - HAMPSHIRE, MA**CD - CONSTRUCTION DEBRIS***33 tickets and 33 transactions*

1,009.39 T 0.00 1,009.39 0.00

HSHIRE - HAMPSHIRE, MA*33 tickets and 33 transactions*

0.00 1,009.39 0.00

HUNT - HUNTERDON, NJ**TPCD - TIPPER C&D***1 ticket and 1 transaction*

9.45 T 0.00 9.45 0.00

HUNT - HUNTERDON, NJ*1 ticket and 1 transaction*

0.00 9.45 0.00

KINGS - KINGS, NY**CD - CONSTRUCTION DEBRIS***14 tickets and 14 transactions*

475.69 T 0.00 475.69 0.00

DO - DIGOUT*20 tickets and 20 transactions*

20.00 U 0.00 0.00 0.00

PRCD - PROC. CONSTRUCTION DEBRIS*1,370 tickets and 1,370 transactions*

48,426.71 T 0.00 48,426.71 0.00

KINGS - KINGS, NY**TPCD - TIPPER C&D***13 tickets and 13 transactions*

448.50 T 0.00 448.50 0.00

TPDO - TIPPER DIGOUT*3 tickets and 3 transactions*

3.00 U 0.00 0.00 0.00

KINGS - KINGS, NY*1,397 tickets and 1,420 transactions*

0.00 49,350.90 0.00

LITCHFIELD - LITCHFIELD, CT**CD - CONSTRUCTION DEBRIS***1 ticket and 1 transaction*

8.71 T 0.00 8.71 0.00

LITCHFIELD - LITCHFIELD, CT*1 ticket and 1 transaction*

0.00 8.71 0.00

MONROE - MONROE, NY**CD - CONSTRUCTION DEBRIS***1 ticket and 1 transaction*

9.22 T 0.00 9.22 0.00

MONROE - MONROE, NY*1 ticket and 1 transaction*

0.00 9.22 0.00

MORRIS - MORRIS, NJ

CD - CONSTRUCTION DEBRIS	10.26 T	0.00	10.26	0.00
<i>1 ticket and 1 transaction</i>				

HAFE - HANDLING FEE	1.00 U	0.00	0.00	0.00
<i>1 ticket and 1 transaction</i>				

MORRIS - MORRIS, NJ*1 ticket and 2 transactions*

		<u>0.00</u>	<u>10.26</u>	<u>0.00</u>
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NA - NOT APPLICABLE

CD - CONSTRUCTION DEBRIS	862.28 T	0.00	862.28	0.00
<i>32 tickets and 32 transactions</i>				

HAFE - HANDLING FEE	2.00 U	0.00	0.00	0.00
<i>2 tickets and 2 transactions</i>				

NA - NOT APPLICABLE

TPCD - TIPPER C&D	174.43 T	0.00	174.43	0.00
<i>5 tickets and 5 transactions</i>				

NA - NOT APPLICABLE*37 tickets and 39 transactions*

		<u>0.00</u>	<u>1,036.71</u>	<u>0.00</u>
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NEW HAVEN - NEW HAVEN, CT

CD - CONSTRUCTION DEBRIS	116.20 T	0.00	116.20	0.00
<i>14 tickets and 14 transactions</i>				

DO - DIGOUT	1.00 U	0.00	0.00	0.00
<i>1 ticket and 1 transaction</i>				

NEW HAVEN - NEW HAVEN, CT*14 tickets and 15 transactions*

		<u>0.00</u>	<u>116.20</u>	<u>0.00</u>
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NEW L - NEW LONDON, CT

CD - CONSTRUCTION DEBRIS	36.54 T	0.00	36.54	0.00
<i>4 tickets and 4 transactions</i>				

NEW L - NEW LONDON, CT*4 tickets and 4 transactions*

		<u>0.00</u>	<u>36.54</u>	<u>0.00</u>
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NEW - NEWPORT, RI

CD - CONSTRUCTION DEBRIS	5.72 T	0.00	5.72	0.00
<i>1 ticket and 1 transaction</i>				

NEW - NEWPORT, RI*1 ticket and 1 transaction*

		<u>0.00</u>	<u>5.72</u>	<u>0.00</u>
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NORFOLK - NORFOLK, MA

CD - CONSTRUCTION DEBRIS	11.03 T	0.00	11.03	0.00
<i>1 ticket and 1 transaction</i>				

DO - DIGOUT	1.00 U	0.00	0.00	0.00
<i>1 ticket and 1 transaction</i>				

NORFOLK - NORFOLK, MA*1 ticket and 2 transactions*

		<u>0.00</u>	<u>11.03</u>	<u>0.00</u>
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ONTARIO - ONTARIO,NY

CD - CONSTRUCTION DEBRIS	55.13 T	0.00	55.13	0.00
<i>6 tickets and 6 transactions</i>				

ONTARIO - ONTARIO,NY*6 tickets and 6 transactions*

		<u>0.00</u>	<u>55.13</u>	<u>0.00</u>
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ORANGE - ORANGE,NY

CD - CONSTRUCTION DEBRIS	636.85 T	0.00	636.85	0.00
<i>17 tickets and 17 transactions</i>				

TPCD - TIPPER C&D <i>5 tickets and 5 transactions</i>	200.36 T	0.00	200.36	0.00
ORANGE - ORANGE,NY <i>22 tickets and 22 transactions</i>		0.00	837.21	0.00
OTSEGO - OTSEGO,NY				
CD - CONSTRUCTION DEBRIS <i>5 tickets and 5 transactions</i>	94.00 T	0.00	94.00	0.00
OTSEGO - OTSEGO,NY <i>5 tickets and 5 transactions</i>		0.00	94.00	0.00
PALM - PALMER, MA				
CD - CONSTRUCTION DEBRIS <i>8 tickets and 8 transactions</i>	177.36 T	0.00	177.36	0.00
PALM - PALMER, MA <i>8 tickets and 8 transactions</i>		0.00	177.36	0.00
PLY - PLYMOUTH,MA				
CD - CONSTRUCTION DEBRIS <i>160 tickets and 160 transactions</i>	3,737.90 T	0.00	3,737.90	0.00
PLY - PLYMOUTH,MA <i>160 tickets and 160 transactions</i>		0.00	3,737.90	0.00
QU - QUEENS, NY				
QU - QUEENS, NY				
CD - CONSTRUCTION DEBRIS <i>11 tickets and 11 transactions</i>	249.88 T	0.00	249.88	0.00
DO - DIGOUT <i>48 tickets and 48 transactions</i>	48.00 U	0.00	0.00	0.00
PRCD - PROC. CONSTRUCTION DEBRIS <i>1,355 tickets and 1,355 transactions</i>	48,456.19 T	0.00	48,456.19	0.00
TPDO - TIPPER DIGOUT <i>13 tickets and 13 transactions</i>	13.00 U	0.00	0.00	0.00
QU - QUEENS, NY <i>1,367 tickets and 1,427 transactions</i>		0.00	48,706.07	0.00
ROCK - ROCKLAND, NY				
CD - CONSTRUCTION DEBRIS <i>4 tickets and 4 transactions</i>	122.93 T	0.00	122.93	0.00
PRCD - PROC. CONSTRUCTION DEBRIS <i>1 ticket and 1 transaction</i>	31.27 T	0.00	31.27	0.00
ROCK - ROCKLAND, NY <i>5 tickets and 5 transactions</i>		0.00	154.20	0.00
SCHUYLAR - SCHUYLER,NY				
CD - CONSTRUCTION DEBRIS <i>262 tickets and 262 transactions</i>	2,521.87 T	0.00	2,521.87	0.00
DO - DIGOUT <i>3 tickets and 3 transactions</i>	3.00 U	0.00	0.00	0.00
TPCD - TIPPER C&D <i>12 tickets and 12 transactions</i>	269.40 T	0.00	269.40	0.00
TPDO - TIPPER DIGOUT <i>2 tickets and 2 transactions</i>	2.00 U	0.00	0.00	0.00
SCHUYLAR - SCHUYLER,NY <i>274 tickets and 279 transactions</i>		0.00	2,791.27	0.00
SENECA - SENECA,NY				

CD - CONSTRUCTION DEBRIS	72.00 T	0.00	72.00	0.00
<i>12 tickets and 12 transactions</i>				
SENECA - SENECA,NY		0.00	72.00	0.00
<i>12 tickets and 12 transactions</i>				
STA - STAMFORD, CT				
CD - CONSTRUCTION DEBRIS	13.80 T	0.00	13.80	0.00
<i>2 tickets and 2 transactions</i>				
STA - STAMFORD, CT		0.00	13.80	0.00
<i>2 tickets and 2 transactions</i>				
STEUBEN - STEUBEN,NY				
CD - CONSTRUCTION DEBRIS	1,733.45 T	0.00	1,733.45	0.00
<i>337 tickets and 337 transactions</i>				
DO - DIGOUT	3.00 U	0.00	0.00	0.00
<i>3 tickets and 3 transactions</i>				
ICCD - INTERCOMPANY CONSTRUCTION DEBRIS	61.80 T	0.00	61.80	0.00
<i>5 tickets and 5 transactions</i>				
STEUBEN - STEUBEN,NY		0.00	1,795.25	0.00
<i>342 tickets and 345 transactions</i>				
SUFF-MA - SUFFOLK, MA				
CD - CONSTRUCTION DEBRIS	17.41 T	0.00	17.41	0.00
<i>2 tickets and 2 transactions</i>				
HAFE - HANDLING FEE	2.00 U	0.00	0.00	0.00
<i>2 tickets and 2 transactions</i>				
SUFF-MA - SUFFOLK, MA		0.00	17.41	0.00
<i>2 tickets and 4 transactions</i>				
SUL - SULLIVAN,NY				
CD - CONSTRUCTION DEBRIS	135.92 T	0.00	135.92	0.00
<i>10 tickets and 10 transactions</i>				
TPCD - TIPPER C&D	448.05 T	0.00	448.05	0.00
<i>12 tickets and 12 transactions</i>				
SUL - SULLIVAN,NY		0.00	583.97	0.00
<i>22 tickets and 22 transactions</i>				
TIOGA, NY - TIOGA, NY				
CD - CONSTRUCTION DEBRIS	143.77 T	0.00	143.77	0.00
<i>12 tickets and 12 transactions</i>				
TIOGA, NY - TIOGA, NY		0.00	143.77	0.00
<i>12 tickets and 12 transactions</i>				
TIOGA - TIOGA, PA				
CD - CONSTRUCTION DEBRIS	90.33 T	0.00	90.33	0.00
<i>11 tickets and 11 transactions</i>				
DO - DIGOUT	1.00 U	0.00	0.00	0.00
<i>1 ticket and 1 transaction</i>				
TIOGA - TIOGA, PA		0.00	90.33	0.00
<i>11 tickets and 12 transactions</i>				
TOLL - TOLLAND, CT				
CD - CONSTRUCTION DEBRIS	101.50 T	0.00	101.50	0.00
<i>7 tickets and 7 transactions</i>				
TOLL - TOLLAND, CT		0.00	101.50	0.00
<i>7 tickets and 7 transactions</i>				

TOMPKINS - TOMPKINS,NY

CD - CONSTRUCTION DEBRIS 1,272.40 T 0.00 1,272.40 0.00
224 tickets and 224 transactions

ICCD - INTERCOMPANY CONSTRUCTION DEBRIS 5,919.18 T 0.00 5,919.18 0.00
180 tickets and 180 transactions

ICDO - INTERCOMPANY DIGOUT 3.00 U 0.00 0.00 0.00
3 tickets and 3 transactions

TOMPKINS - TOMPKINS,NY

404 tickets and 407 transactions

0.00 7,191.58 0.00

ULSTER - ULSTER,NY

CD - CONSTRUCTION DEBRIS 76.00 T 0.00 76.00 0.00
4 tickets and 4 transactions

ULSTER - ULSTER,NY

TPCD - TIPPER C&D 35.44 T 0.00 35.44 0.00
1 ticket and 1 transaction

ULSTER - ULSTER,NY

5 tickets and 5 transactions

0.00 111.44 0.00

WESTCHES - WESTCHESTER,NY

CD - CONSTRUCTION DEBRIS 1,168.68 T 0.00 1,168.68 0.00
41 tickets and 41 transactions

DO - DIGOUT 13.00 U 0.00 0.00 0.00
13 tickets and 13 transactions

PRCD - PROC. CONSTRUCTION DEBRIS 99,405.88 T 0.00 99,405.88 0.00
2,606 tickets and 2,606 transactions

TPCD - TIPPER C&D 1,069.27 T 0.00 1,069.27 0.00
32 tickets and 32 transactions

TPDO - TIPPER DIGOUT 8.00 U 0.00 0.00 0.00
8 tickets and 8 transactions

WESTCHES - WESTCHESTER,NY

2,681 tickets and 2,700 transactions

0.00 101,643.83 0.00

WOR - WORSTER,MA

CD - CONSTRUCTION DEBRIS 62.25 T 0.00 62.25 0.00
2 tickets and 2 transactions

WOR - WORSTER,MA

2 tickets and 2 transactions

0.00 62.25 0.00

WORCESTER - WORCESTER,MA

AS - NON-FRIABLE ASBESTOS C&D 64.51 T 0.00 64.51 0.00
2 tickets and 2 transactions

WORCESTER - WORCESTER,MA

2 tickets and 2 transactions

0.00 64.51 0.00

YATES - YATES, NY

YATES - YATES, NY

CD - CONSTRUCTION DEBRIS 224.30 T 0.00 224.30 0.00
52 tickets and 52 transactions

YATES - YATES, NY

52 tickets and 52 transactions

0.00 224.30 0.00

Report Grand Totals

0.00 249,228.60 0.00

8,348 tickets and 8,508 transactions

End of Report

**ATTACHMENT 4 – COST ESTIMATES AND
FINANCIAL ASSURANCE INFORMATION**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Materials Management, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
P: (585) 226-5411 | F: (585) 226-2909
www.dec.ny.gov

July 17, 2020

Larry G. Shilling
Casella Waste Systems, Inc.
6653 Herdman Road
Angelica, NY 14709
Via email to: larry.shilling@casella.com

Re: Hakes C&D Landfill
Cell 9A Noise Monitoring Letters (May 20, 2020 & July 11, 2020)
Financial Assurance Evaluation, Cell 9A Construction, (April 16, 2020)
Permit ID No. 8-4360-00010/00001

Dear Mr. Schilling:

This Division has completed review of the above-referenced documents. Based on the information presented to the Department and a phone conversation held on July 16, the documents are hereby approved.

Casella may now proceed with the installation of noise monitors as proposed. The Facility Manual is to be updated to accurately reflect the approved operational noise monitoring and calibration procedures. The update needs to stipulate how construction noise will be assessed and subtracted from operational noise, if necessary, during subsequent cell construction. Potential scenarios were discussed during our July 16 phone conversation.

Regarding the financial assurance evaluation, please proceed to update the surety bond based on the cost estimates presented to the Department.

Should you have any questions regarding this letter, please contact me or Yasmin Guevara.

Sincerely,



Gregory B. MacLean, P.E.
Regional Materials Management Engineer
(585) 226-5408
greg.maclean@dec.ny.gov

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M. Leonard - mslpe@verizon.net



Department of
Environmental
Conservation



McMahon & Mann Consulting Engineering and Geology, P.C.

Donald R. McMahon, P.E., F. ASCE
Michael J. Mann, P.E.
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Shawn W. Logan, P.E.
Andrew J. Nichols, P.E.
Todd Swackhamer, P.E.
James J. Janora, P.G.
Susanne J.M. George, P.E.
Andrew J. Klettke, P.E.
Kaitlyn M. Murray, P.E.

April 16, 2020
File: 98-047
Sent Via Email

Ms. Yasmin Guevara
Environmental Engineer, Region 8
NYS Department of Environmental Conservation

RE: Financial Assurance Evaluation,
Hakes C&D Landfill, Cell 9A Construction
Painted Post, New York

Dear Ms. Guevara:

Attached is an updated financial assurance evaluation for the Hakes C&D Landfill, provided for your review and approval. The information is provided to satisfy Special Permit Condition 9, requiring that the permittee amend its financial assurance documents prior to commencing operation of Cell 9.

The financial assurance estimate reflects conditions following the 2020 construction season (Cells 1 through Cell 9A constructed and operational). Hakes will update its surety bond to reflect the new amount not less than 60-days prior to the expected start of operation of cell 9A.

Sincerely yours,

McMAHON & MANN CONSULTING ENGINEERING AND GEOLOGY, P.C.

A handwritten signature in blue ink that reads 'Shawn Logan'.

Shawn W. Logan, P.E.

A handwritten signature in blue ink that reads 'Michael J. Mann'.

Michael J. Mann, P.E.

Enclosure – Financial Assurance Evaluation

CC:
Greg MacLean, P.E. (NYSDEC)
Larry Shilling (Casella)
Russ Anderson (Casella)

FINANCIAL ASSURANCE EVALUATION

**HAKES C&D LANDFILL EXPANSION
TOWN OF CAMPBELL, NEW YORK**

FINANCIAL ASSURANCE EVALUATION

HAKES C&D LANDFILL EXPANSION TOWN OF CAMPBELL, NEW YORK

Financial assurance information was prepared and submitted with the 6 NYCRR Part 360 Solid Waste Management Permit Modification Application (Part 1 Introduction and Administrative Information) dated May 2019. It included cost estimates for closure, post-closure care and custodial care for the existing landfill (Cells 1-8) and the proposed Northern Expansion (Cell 9A through 9C).

According to 360.22(b)(3)(ii), annual cost estimate adjustments that account for inflation and changes in facility conditions must be submitted annually to the DEC for review and approval. In addition, Special Condition 9 requires that prior to commencing operation of Cell 9, the permittee must amend its financial assurance provided to DEC, or establish new financial assurance, in accordance with all the requirements of 6 NYCRR Part 360.22.

The financial assurance estimate provided in the Part 360 application is updated to reflect conditions following the 2020 construction season (Cells 1 through Cell 9A constructed and operational). The following are the updated closure, post-closure, custodial care, and corrective measures cost estimates.

CLOSURE COST ESTIMATE

Requirement:

The closure cost estimate must equal the cost to close the greatest number of landfill cells which, at any given point during the lifetime of the facility, have received waste but have not undergone final closure. According to Section 360.22(b)(2)(i):

- The closure cost estimates must include or reflect the design, materials, equipment, labor, administration, and quality assurance for closure in accordance with the facility specific closure plan.
- The closure cost estimate for a landfill's preliminary closure plan must include the costs of developing final closure, post closure care and custodial care plans as well as the costs to prepare engineering drawings and specifications, bidding documents, and other construction-related documents.
- The closure cost estimate must not incorporate any salvage value that may be realized with the sale of materials, facility structures or equipment, land, or other assets associated with the facility at the time of closure.

Closure Cost Estimate:

The closure cost is estimated based on current site conditions and assuming Cell 9A is constructed to its proposed limits. The permitted landfill (Cells 1 through 8) covers approximately 57.9 acres. Cell 9A will encompass an additional 7.3 acres making the total footprint of the landfill approximately 65.2 acres (this two-dimensional area equates to 68.2 acres when slopes are considered). Twenty-one (21) acres has received final cover leaving approximately 47.2 acres requiring final cover.

Figure 1 shows the conceptual final cover plan for Cells 1 through 9A. The estimate assumes that the gas collection and transfer system will be installed while the facility is accepting waste.

The landfill closure will consist of the following components in ascending order:

- A geocomposite/geotextile gas venting layer,
- A geosynthetic clay liner (not required on slopes equal to or greater than 25 percent),
- A geomembrane liner,
- A geocomposite drainage layer,
- A barrier protection layer, and
- A 6-inch topsoil layer.

Attachment 1 includes the closure cost estimate including quantities and costs for each component of the final cover system. The unit costs are based on construction costs from final cover and cell construction at this facility. The estimate also includes costs to prepare final closure, post closure care, and custodial care plans including preparation of engineering drawings and specifications, bidding documents, and other construction related documents. In addition, as required by Section 360.22(b)(2)(v), the total cost estimate has been increased by a contingency factor of 5 percent.

The closure cost is estimated to be approximately \$6,575,000 (present value).

POST-CLOSURE CARE COST ESTIMATE

Hakes will operate under the post-closure care period requirements until it can be demonstrated to the NYSDEC that the threat to public health and the environment has been reduced to a level where environmental monitoring and maintenance can be reduced. During the post-closure care period the operational requirements of Section 363-9.6(a)(1) will be followed.

Requirement:

The post-closure care cost estimate should include an estimate of the anticipated length of the post-closure care period considering the types of wastes disposed and the criteria provided in Section 363-9.6(a). In addition, post-closure operational, monitoring, and

maintenance costs should consider costs to replace system components, if necessary, based on their predicted service life.

The landfill only accepts construction and demolition debris as defined by Section 360.2(b)(61). In addition, the environmental monitoring at the facility since 1998 (year Casella purchased) has not indicated any issues with the landfill liner system. Considering these factors, it is expected that the post-closure care period will be 30 years or less.

Cost Estimate:

Attachment 2 includes the post-closure cost estimate for a 30-year period following closure of the landfill, although it is expected that this time frame may be less due to the nature of the waste. The cost estimate is based on meeting the post-closure care requirements in Section 363-9.6(a), specifically 363-9.6(a)(1)(i) through 363-9.6(a)(1)(x).

The post-closure cost is estimated to be approximately \$1,745,300 (present value)

CUSTODIAL CARE COST ESTIMATE

Requirement:

The custodial care cost estimate (Section 360.22(b)(2)(iii)) must account for conducting custodial care after the landfill concludes post-closure care activities. This includes annual and periodic costs, as well as replacement costs of landfill components that reach their predicted service life as described in the custodial care plan.

Cost Estimate:

Attachment 3 includes the custodial care cost estimate. The custodial care period is assumed to begin 30-years after closure and extend another 20-years. The cost estimate is based on meeting the custodial care cost operating requirements in Section 363-9.6(b), specifically 363-9.6(b)(1)(i) through 363-9.6(b)(1)(vii).

The custodial care cost is estimated to be approximately \$85,850 (present value).

CORRECTIVE MEASURES COST ESTIMATE

Requirement:

The corrective measures cost estimate, per Section 360.22(b)(2)(iv) must account for the total costs of corrective measures as described in the corrective measures work plan for the entire corrective measures period as described in Subpart 363-10.

Cost Estimate:

This pertains to measures necessary to address situations where a trigger value is exceeded as defined by the regulations. Currently there are no corrective measures

required and none are expected. Therefore, no costs are considered for corrective measures at this time.

FIGURE



OPERATIONAL AREA
 (65.2 AC. - 2D)
 68.2 AC. - 3D)

SLOPES BETWEEN 4%-25%
 (8.8 AC. - 2D)

MANNING RIDGE ROAD

MAINTENANCE BUILDING

CELL 9A

CELLS 1-8

CAPPED AREA
 (21.0 AC.)

SLOPES GREATER THAN 25%
 (56.4 AC. - 2D)

MARCH 2020



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 Buffalo, NY 14214 www.mmc.net

**HAKES C&D LANDFILL
 FINANCIAL ASSURANCE**

STEBUEN COUNTY NEW YORK

SITE PLAN

DWG. NO. 98047-1170

FIGURE 1

ATTACHMENT 1

Closure Cost Estimate

**HAKES C&D LANDFILL
CLOSURE COST ESTIMATE
CELLS 1THROUGH 9A**

Estimate Date: March 2020

Final Cover System Component	Layer Thickness (feet)	Estimated Quantity	Unit	Unit Price ⁽¹⁾ (\$)	Cost
Final Cover Area (Requiring Final Cover)²					
Final Cover Area (slope between 4% - 25%)		8.8	acres		
Final Cover Area (slope > 25%)		38.4	acres		
Earthwork Components					
Mobilization (capping completed in 10 acre increments)		5	LS	30,000.00	\$150,000
Erosion Control		47.2	acres	2,000.00	\$94,400
Subgrade Preparation		47.2	acres	1,000.00	\$47,200
Barrier Protection Layer (Processing & Placement)					
Lower 6-inches (2-inch minus material)	0.5	38,075	cy	15.00	\$571,120
Upper 12-inches (6-inch minus material)	1.0	76,149	cy	13.00	\$989,941
Permanent Topsoil and Seeding		47.2	acres	6,350.00	\$299,720
Final Cover Drainage System		47.2	acres	2,500.00	\$118,000
Geosynthetics					
Gas Venting Layer (Alternating Layers)					
Geocomposite		1,028,016	ft ²	0.53	\$544,848
Geotextile		1,028,016	ft ²	0.38	\$390,646
40 mil Textured LDPE		2,056,032	ft ²	0.50	\$1,028,016
Drainage Geocomposite		2,056,032	ft ²	0.53	\$1,089,697
Geosynthetic Clay Liner		383,328	ft ²	0.67	\$256,830
Plan Preparation					
Closure Plan		1	each	50,000.00	\$50,000
Post-Closure Plan		1	each	50,000.00	\$50,000
Custodial Care Plan		1	each	50,000.00	\$50,000
Design/Specifications/CQA/Surveying (Assume 10 percent of construction cost)					\$558,042
Contingency (5 percent Cost Estimate)					\$286,521
Total =					\$6,574,981

Notes:

1. Unit prices are based on costs for construction of Capping Event #2 and Cell 8 Construction at the Hakes Facility. Cost is for supply and install.
2. The estimated area represents the three dimensional area of the final cover of Cells 1 through 9A minus the area of Capping Event #1 and #2.

ATTACHMENT 2

Post-Closure Cost Estimate

**HAKES C&D LANDFILL
POST CLOSURE COST ESTIMATE
CELLS 1 THROUGH 9A**

Estimate Date: March 2020

1. Maintenance (Section 363-9.6(a)(1)(i) through (iii)):

Maintenance of all slopes, vegetation, drainage structures, etc	\$	5,000.00
Maintenance of the integrity and effectiveness of the final cover	\$	2,500.00
Annual Mowing	\$	5,500.00

Total Annual: \$ 13,000.00

2. Environmental Monitoring (Section 363-9.6(a)(1)(iv)(a) through (c)):

Explosive gas monitoring - Not required at this site	\$	-
Environmental Monitoring (Annual Baseline and Quarterly Routine)	\$	65,000.00
Environmental Monitoring Location Maintenance (wells, etc)	\$	1,000.00
Record keeping and reporting	\$	1,500.00

Total Annual: \$ 67,500.00

3. Leachate System Maintenance (Section 363-9.6(a)(1)(v)):

Leachate Controls and Pump Maintenance	\$	2,000.00
Leachate Line and Tank Cleaning	\$	17,000.00
Evaluation of liner performance	\$	500.00
Leachate Sampling and Analysis (included with Environmental Monitoring)	\$	-

Total Annual: \$ 19,500.00

3. Gas Collection System (Section 363-9.6(a)(1)(vi)):

Gas Collection System Maintenance and Operation	\$	5,000.00
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Total Annual: \$ 5,000.00

4. Inspections (Section 363-9.6(a)(1)(vii)):

Quarterly Inspections	\$	4,000.00
Inspection after seismic event or major rainfall	\$	500.00

Total Annual: \$ 4,500.00

5. Annual Report (Section 363-9.6(a)(1)(ix) through (x)):

Annual Report - results of maintenance, monitoring, and inspections	\$	1,250.00
Annual Report - environmental and facility monitoring	\$	4,500.00

Total Annual: \$ 5,750.00

6. Leachate Collection and Treatment (Section 363-9.6(a)(1)(v)):

Year 1 - Projected Leachate Production:					
100 gallons/acre/day x	65.20	acres x	365	days/yr	2,379,800.00 gal/yr
Year 2 - Projected Leachate Production:					
70 gallons/acre/day x	65.20	acres x	365	days/yr	1,665,860.00 gal/yr
Year 3 - Projected Leachate Production:					
50 gallons/acre/day x	65.20	acres x	365	days/yr	1,189,900.00 gal/yr
Year 4 - Projected Leachate Production:					
30 gallons/acre/day x	65.20	acres x	365	days/yr	713,940.00 gal/yr
Year 5 - Projected Leachate Production:					
20 gallons/acre/day x	65.20	acres x	365	days/yr	475,960.00 gal/yr
Year 6 through 10 - Projected Leachate Production:					
10 gallons/acre/day x	65.20	acres x	1825	days/ 5yr	1,189,900.00 gal
Year 11 through 30 - Projected Leachate Production:					
5 gallons/acre/day x	65.20	acres x	7300	days/ 20 yr	2,379,800.00 gal

Leachate Transportation and Treatment (years 1-5)			
6,425,460.00	gallons x	\$ 0.080 /gallon	\$ 514,036.80
Leachate Transportation and Treatment (years 6-10)			
1,189,900.00	gallons x	\$ 0.080 /gallon	\$ 95,192.00
Leachate Transportation and Treatment (years 11-30)			
2,379,800.00	gallons x	\$ 0.080 /gallon	\$ 190,384.00

Total Annual Costs for Post - Closure Care on Cells 1 through 9:

Years 1 - 5:			
Maintenance ¹		\$	13,000.00
Environmental Monitoring ²		\$	67,500.00
Gas Collection System		\$	5,000.00
Inspections		\$	4,500.00
Annual Report		\$	5,750.00
Leachate Transportation and Treatment (average)	\$514,036.80 / 5 years	\$	102,807.36
		Total Annual:	\$ 198,557.36
Years 6 - 10:			
Maintenance ¹		\$	6,500.00
Environmental Monitoring ²		\$	33,750.00
Gas Collection System		\$	3,750.00
Inspections		\$	4,500.00
Annual Report		\$	5,750.00
Leachate Transportation and Treatment (average)	\$ 95,192.00 / 5 years	\$	19,038.40
		Total Annual:	\$ 73,288.40
Years 11 - 30:			
Maintenance ¹		\$	3,250.00
Environmental Monitoring ²		\$	16,875.00
Gas Collection System		\$	2,812.50
Inspections		\$	4,500.00
Annual Report		\$	5,750.00
Leachate Transportation and Treatment (average)	\$190,384.00 / 20 years	\$	9,519.20
		Total Annual:	\$ 42,706.70

Note:

1. Maintenance costs are projected to remain steady for the first five years following closure and then reduce an additional 50% for years 6 - 10 and then reduce an additional 50% for years 11 - 30.
2. Environmental Monitoring costs are projected to remain steady for the first five years following closure and then reduce an additional 50% for years 6 - 10 and then reduce an additional 50% for years 11 - 30.

7. Present Worth of Post Closure Costs:

Assume Interest (i) = 4.5 %
Assume Inflation (a) = 2.0 %

Given annual contributions to determine present worth assuming 4.5% interest on money earned and 2.0% inflation rate.

$(P/A, 2.5\%, 5YR) \times \text{ANNUAL COST YEARS 1-5} + (P/A, 2.5\%, 5YR) \times \text{ANNUAL COST YEARS 6-10} \times (P/F, 2.5\%, 5YR) + (P/A, 2.5\%, 20YR) \times \text{ANNUAL COST YEARS 11-30} \times (P/F, 2.5\%, 10YR)$

$(P/A, 2.5\%, 5YR) = 4.6466$
 $(P/A, 2.5\%, 20YR) = 15.6144$
 $(P/F, 2.5\%, 5YR) = 0.8842$
 $(P/F, 2.5\%, 10YR) = 0.7822$

Present Worth = \$ 1,745,308.59

ATTACHMENT 3

Custodial Care Cost Estimate

**HAKES C&D LANDFILL
CUSTODIAL COST ESTIMATE
CELLS 1 THROUGH 9A**

Estimate Date: March 2020

1. Maintenance (Section 363-9.6(b)(1)(i) through (iii)):

Maintenance of all slopes, vegetation, drainage structures, etc	\$	1,500.00
Maintenance of the integrity and effectiveness of the final cover	\$	1,000.00
Mowing (Assumed every 5 years)	\$	1,000.00
Total Annual:		\$ 3,500.00

2. Environmental Monitoring (Section 363-9.6(b)(1)(iv)(a) through (b)):

Baseline Monitoring every 5 years	\$	1,000.00
Record keeping and reporting every 5 years	\$	1,000.00
Total Annual:		\$ 2,000.00

3. Gas Collection System (Section 363-9.6(b)(1)(v)):

Gas Collection System Maintenance and Operation - Assumed not necessary for C&D Waste	\$	-
Total Annual:		\$ -

4. Inspections (Section 363-9.6(b)(1)(vi)):

Annual Inspections	\$	1,000.00
Inspection after seismic event or major rainfall	\$	500.00
Total Annual:		\$ 1,500.00

5. Annual Report (Section 363-9.6(b)(1)(vii)):

Annual Report - results of maintenance, monitoring, and inspections	\$	1,500.00
Total Annual:		\$ 1,500.00

6. Leachate Collection and Treatment:

Year 31 through 51 - Projected Leachate Production:			
1 gallons/acre/day x	65.20	acres x 7300	days/20 yr
			475,960.00 gal
Leachate Transportation and Treatment (years 31-50)			
475,960.00	gallons x	\$ 0.080 / gallon	\$ 38,076.80

Total Annual Costs for Custodial Care on Cells 1 through 9:

Years 31 through 50		
Maintenance	\$	3,500.00
Environmental Monitoring	\$	2,000.00
Gas Collection System	\$	1,000.00
Inspections	\$	1,500.00
Annual Report	\$	1,500.00
Leachate Transportation and Treatment (average)	\$ 38,076.80 / 20 years	\$ 1,903.84
Total Annual:		\$ 11,403.84

7. Present Worth of Custodial Care Costs:

Assume Interest (i) = 4.5 %
Assume Inflation (a) = 2.0 %

Given annual contributions to determine present worth assuming 4.5% interest on money earned and 2.0% inflation rate.

$(P/F, 2.5\%, 30\text{YR}) \times \text{ANNUAL COST YEARS 31-50} \times (P/A, 2.5\%, 20\text{YR})$

$(P/A, 2.5\%, 20\text{YR}) = 15.6144$
 $(P/F, 2.5\%, 30\text{YR}) = 0.4821$

Present Worth = \$ 85,835.81

ATTACHMENT 5 – ADDITIONAL PERMIT REPORTING REQUIREMENTS

SPECIAL CONDITION 53: Annual reports shall be submitted to both the Region 8 Regional Materials Management Engineer, 6274 East Avon-Lima Road, Avon, NY 14414 and the Central Office no later than March 1 of each year for the previous calendar year of operation. The reports shall be in accordance with the requirements of 6 NYCRR Part 360.19(k)(3) and include the following information:

- (a) Complaints received and how the facility responded in accordance with the Odor Control Plan;**
- (b) An evaluation of all water and leachate quality data collected throughout the year. The Department may request at any time that this information be provided in a computer-compatible format to be specified by the Department;**
- (c) Evaluations of the landfill gas collection and control system, monitoring system, and monitoring data collected throughout the year. A description of proposed and/or actual changes to the landfill gas collection and control system, monitoring system, and monitoring plan shall be included;**
- (d) A completed copy of the Radiation Monitor Alarm Record form for each instance in which the radiation detector alarms due to an incoming load of waste.**

Responses:

- (a) There were no complaints received in 2021.
- (b) Refer to Attachment 2 (Annual Environmental Monitoring Report). Computer-compatible formats are available upon request.
- (c) Quarterly hydrogen sulfide (H₂S) surface emissions monitoring was conducted on March 25, May 19, September 21, and November 22, 2021. The scans were conducted along the perimeter of the landfill, along a grid pattern on the landfill, and where visual observations indicated elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. H₂S concentrations greater than 10 ppmv were not detected during any of the quarterly events. Reports were submitted on April 28, June 3, September 29, and December 1, 2021.

Two vertical gas extraction wells (designated GW-22 and GW-23) were installed in April 2021. Lateral collection pipes were installed to connect the two extraction wells to the existing gas collection system. In addition, two horizontal collectors were installed and the 8-inch diameter header was extended along the east side of Cell 9A. The sulfur treatment system commenced operation in November 2019 and has been operating to remove H₂S from the landfill gas prior to combustion in the existing utility flare.

The gas collection and control system is functioning properly as of December 31, 2021. Hakes is currently evaluating proposed expansion project to the system for 2022.

- (d) The radiation detectors did not go off in 2021.