

October 2021

Bureau of Waste Site Cleanup Southeast Regional Office Massachusetts Department of Environmental Protection C/o Angela Gallagher Site Remediation Section 20 Riverside Drive Lakeville, MA 02347

RE: Immediate Response Action Status and Remedial Monitoring Report #57 Barnstable County Fire Training Academy FTA Facility 155 South Flint Rock Road Hyannis, Massachusetts DEP Release Tracking No. 4-26179 Project Number #6206

Dear Ms. Gallagher:

BETA Group, Inc. (BETA) has prepared this Immediate Response Action (IRA) Status and Remedial Monitoring Report (RMR) for the Disposal Site (the Site) referenced as the Barnstable Country Fire Training Academy (the FTA Facility) located at 155 South Flint Rock Road in Hyannis, MA on the behalf of Barnstable County. This report was completed on behalf of Barnstable County and in accordance with Massachusetts Contingency Plan (MCP) - 310 CMR 40.0000.

This is the 57th monthly IRA RMR Status report. It documents the IRA/RMR activities being conducted to address a release of PFOS/PFOA to groundwater, soils, surface water, and sediments located at the Site. A potential Imminent Hazard (IH) condition and Condition of Substantial Release Migration were previously identified at the Site. This letter report specifically addresses the status of the Site groundwater pumping and treatment systems (GWPTS) during the August 2021 monthly reporting period.

The completed BWSC105 Immediate Response Action (IRA) Transmittal Form and attached BWSC105A and BWSC105B IRA Remedial Monitoring Report Forms are being submitted to the MassDEP electronically via the eDEP system. This letter is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) as an attachment to those forms. Copies of these forms prior to electronic signature are included as Attachment A.

REMEDIAL MONITORING REPORT – AUGUST 2021

During the August reporting period, the treatment systems (GWTS #1 and GWTS#2) were both in operation for all or portions of approximately 31 days. BETA collected performance samples from the treatment systems on August 25, 2021; the systems were in operation at the time of sample collection.

Health Advisories and Regulatory Standards Used for Comparison

During the initial two years of the GWPTS operation (July 2016 through June 2018), the USEPA revised Health Advisory (HA) of 0.070 µg/L for two PFAS chemicals, Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS), was used for comparison to the analytical results of GWPTS performance samples. The HA (revised downward to 0.070 µg/L in July 2016) applied to each compound individually or for the total concentration of the two (PFOS and PFOA). Subsequently, MassDEP adopted the USEPA HA. The USEPA considers its HA to still be in effect. However, for MCP purposes it has been superseded by MassDEP guidelines and regulatory actions.

On June 11, 2018, MassDEP's Office of Research and Standards (ORS) issued an updated ORS Guideline/HA that applied to the individual concentrations, or the total summed of five PFAS chemicals: PFOS, PFOA, Perfluorononanoic Acid (PFNA), Perfluorohexanesulfonic Acid (PFHxS), and Perfluoroheptanoic Acid (PFHpA). From June 11, 2018, until December 2019, individual concentrations of any of these five compounds or the total concentrations of all were compared to the MassDEP ORS HA of 0.070 µg/L.

On April 19, 2019, MassDEP released the Public Comment Draft of proposed revisions to the MCP, which included proposed Method 1 groundwater risk standards for the five PFAS compounds, plus an additional PFAS compound, Perfluorodecanoic Acid (PFDA). A Method 1 GW-1 risk standard of 0.020 µg/L was proposed for the individual concentrations of any of these six compounds or the total concentrations of all six. In December 2019, MassDEP published final MCP Method 1 risk standards for the PFAS6 compounds with an effective implementation date of December 27, 2019. From May 2019 through the current reporting period, tabulated treatment system analytical results have been compared to the six regulated PFAS compounds. The final MCP PFAS risk standards for groundwater include the 6 PFAS compounds of concern (PFAS6) listed above and the 0.020 µg/L¹ which is the GW-1 numerical risk standard for each compound or for the total of the PFAS6. These MCP risk standards are included in all relevant tables in the monthly and quarterly monitoring reports.

Except where noted (due to older data), total PFAS concentrations reported and discussed in this report are the sum of concentrations of the PFAS6 compounds included in the final MCP risk standards of December 27, 2019.

¹ Concentrations of PFAS are presented in the data tables of this report in nanograms per liter (ng/L), also referred to as parts per trillion (ppt) and are reported by the laboratory in those units. However the published MCP Method GW-1 numerical risk standards for PFAS compounds (PFOS, PFOA, PFNA, PFHpA, PFHpA, and PFDA) are in presented in or micrograms per liter (μ g/L), also referred to as parts per billion (ppb). In the relevant sections of this report, results are shown in both units.

GWTS # 1 System Monitoring Results - August 2021 Reporting Period

As previously stated, system samples were collected on August 25, 2021, from the Influent (PRW-4), Midpoint and Effluent ports and were submitted to Bureau Veritas Laboratories (formerly Maxxam Analytics) of Mississauga, Ontario (Bureau Veritas) for the laboratory analysis of Total PFAs via USEPA Method 537 M.

For the analysis of the treatment system performance samples, Bureau Veritas uses a low-level detection variant of the US EPA 537M to achieve the lowest method detection limits (MDLs) and reportable detection limits (RDLs) to allow for comparison to the MCP Method 1 GW-1 risk standards². This method provides RDLs in the range of 2 to 4 ng/L and MDLs below 1 ng/L for the list of PFAS analytes reported by the laboratory. Bureau Veritas reports the results for 21 PFAS compounds, including two (2) PFAS precursor fluorotelomers. Details are presented in the laboratory report attached in Appendix B.

The total sum of the six Massachusetts regulated PFAS concentrations (PFAS6) in the Influent (PRW-4) sample was 704 ng/L (0.704 μ g/L), well above the GW-1 risk standards. The PFAS6 concentrations individually and as a total have been significantly lower since March 2021. Five of the six individually regulated PFAS compounds were detected at concentrations exceeding the new MCP GW-1 risk standard (0.020 μ g/I); PFDA was detected at a concentration (9.3 ng/L), below the applicable standard. Refer to the attached Table 1A, for a summary of the GWTS #1 PFAS analytical data. Recovery well PRW-4 is the source of the Influent groundwater. Based on the splitting of flow from PRW-4 to both groundwater treatment systems, the Influent analytical results apply to the Influent source of both GWTS#1 and GWTS #2.

None of the PFAS6 (six MA regulated PFAS compounds) were detected above laboratory detection limits in the Midpoint Sample or in the Effluent Sample. The additional 21 laboratory reported and unregulated PFAS compounds were below the laboratory detection limits.

For the purposes of achieving the lowest MDLs and RDLs³ (for comparison to the MCP Method 1 Groundwater standards), Bureau Veritas reports the results for 21 PFAS compounds, including two (2) PFAS precursors; this allows the laboratory to achieve RDLs as low as 2.0 ng/L. The laboratory report provides details of MDLs and RDLs for each PFAS compound included in the analyte list.

Refer to the attached Table 1A, for a summary of the GWTS #1 PFAS analytical data in the Influent, Midpoint and Effluent samples from April 2015 to this August 2021 reporting period. The complete laboratory report is attached in Appendix B.

² The RDL is the smallest (quantity) or concentration value that can be reliably reported (quantitated) by the laboratory and the MDL is the lowest concentration that can be detected using the specific method or instrumentation. The MDL is lower than the RDL. The RDL is a statistical calculation (typically the standard deviation of the results around the true concentration value) below the point of calibration.

³ Method Detection Limits and Reportable Detection Limits.

GWTS #1 Operational Details-August 2021 Reporting Period

The attached Table 2A presents the GWTS #1 performance data (from April 2018 through the August 2021 reporting periods).

The estimated, instantaneous influent flow rate for GWTS#1 observed during this August 2021 reporting period varied from approximately 11.9 gpm to 15.5 gpm.

For the August 2021 reporting period, the overall (average) system flow rate and gallons of groundwater treated are based on the effluent flow meter/totalizer readings reported for the system by the O&M contractor. On this basis, approximately 0.41 million gallons of groundwater were treated, at an average effluent flow rate of 9.1 gpm.

Variability in the flow through GWTS#1 continued to be observed although instantaneous Effluent Flow Rates (the pumping rate through the system) remained fairly steady (with some increases) during the August 2021 reporting period. At the beginning of the reporting period, the treatment rate/transfer pump speed was intentionally reduced by the system operator to try and reduce iron fouling in the (primary) vessel No. 1 LGAC. This action was suspected as contributing to unexpected detection of PFAS compounds in the Midpoint sample in the July 23, 2021 performance samples (see Table 1A.) Through the remainder of the reporting period, GWTT periodically increased the flow rate of the transfer pump in an attempt to increase the effluent flow rate and total gallons treated. However, as shown on Table 2A, the average Effluent Flow Rate (and, therefore, total gallons treated) decreased significantly in the second half of the month. It is assumed that lower total influent volumes into the system are negatively impacting the total effluent/flow through the system. Based on historic trends, the decreased influent flow volume is likely attributed to a lower water table as precipitation was significantly low prior to and during the reporting period.

Based on the approximate 0.41 million gallons treated and total influent concentration of 0.704 μ g/L (August 25, 2021 sample results), approximately 0.0011 kilograms of PFAS were estimated to have been removed from the groundwater during this reporting period.

<u>GWTS # 2 Monitoring Results- August 2021 Reporting Period</u>

As previously stated, system samples were collected on August 25, 2021, from the Influent (PRW-4), Midpoint and Effluent ports and were submitted to Bureau Veritas Laboratories (formerly Maxxam Analytics) of Mississauga, Ontario (Bureau Veritas) for the laboratory analysis of Total PFAs via USEPA Method 537 M.

For the analysis of the treatment system performance samples, Bureau Veritas uses a low-level detection variant of the US EPA 537M to achieve the lowest method detection limits (MDLs) and reportable detection limits (RDLs) to allow for comparison to the MCP Method 1 GW-1 risk standards⁴.

⁴ The RDL is the smallest (quantity) or concentration value that can be reliably reported (quantitated) by the laboratory and the MDL is the lowest concentration that can be detected using the specific method or instrumentation. The MDL is lower than the RDL. The RDL is a statistical calculation (typically the standard deviation of the results around the true concentration value) below the point of calibration.

This method provides RDLs in the range of 2 to 4 ng/L and MDLs below 1 ng/L for the list of PFAS analytes reported by the laboratory. Bureau Veritas reports the results for 21 PFAS compounds, including two (2) PFAS precursor fluorotelomers. Details are presented in the laboratory report attached in Appendix B.

The total sum of the six Massachusetts regulated PFAS concentrations (PFAS6) in the Influent (PRW-4) sample was 704 ng/L (0.704 μ g/L), well above the GW-1 risk standards. The PFAS6 concentrations individually and as a total have been significantly lower since March 2021. Five of the six individually regulated PFAS compounds were detected at concentrations exceeding the new MCP GW-1 risk standard (0.020 μ g/I); PFDA was not detected above laboratory reporting limits. Refer to the attached Table 1B, for a summary of the GWTS #2 PFAS analytical data. Recovery well PRW-4 is the source of the Influent groundwater. Based on the splitting of flow from PRW-4 to both groundwater treatment systems, the Influent analytical results apply to the Influent source of both GWTS#1 and GWTS #2.

The PFAS6 (six MA regulated PFAS compounds) were detected above laboratory detection limits in the Midpoint Sample except for PFDA. The PFOS, PFHxS, and PFHpA compounds were detected at concentrations above the applicable MCP GW-1 risk standard. The sum of these detected PFAS6 compounds was above the applicable Method 1 GW-1 groundwater standard (661 ng/L).

The PFOS compound was detected above laboratory detection limit and the MCP GW-1 risk standard in the Effluent Sample. The remaining five PFAS6 compounds (PFOA, PFHxS, PFNA, PFDA) and 15 unregulated reported PFAS compounds were not detected above the laboratory detection limits. Although breakthrough was detected, complete changeout of the GAC in both systems occurred on July 6, 2021. It is unclear as to why detections in the effluent sample were observed. Since the August 2021 sample collection, the system operator has backwashed the LGAC vessels in both systems. BETA is in communication with Calgon to resolve this breakthrough issue.

For the purposes of achieving the lowest MDLs and RDLs ⁵ (for comparison to the MCP Method 1 Groundwater standards), Bureau Veritas reports the results for 21 PFAS compounds, including two (2) PFAS precursors; this allows the laboratory to achieve RDLs as low as 2.0 ng/L. The laboratory report provides details of MDLs and RDLs for each PFAS compound included in the analyte list.

Refer to the attached Table 1B, for a summary of the GWTS #2 PFAS analytical data in the Influent, Midpoint and Effluent samples from April 2015 to this August 2021 reporting period. The complete laboratory report is attached in Appendix B. The laboratory report provides details of MDLs and RDLs for each PFAS compound included in the analyte list.

GWTS #2 Operational Details – August 2021 Reporting Period

The attached Table 2B presents the GWTS #2 performance data (from April 2018 through the August 2021 reporting periods).

The estimated, instantaneous influent flow rate for GWTS#1 observed during this August 2021 reporting period varied from approximately 11.9 gpm to 15.5 gpm.

⁵ Method Detection Limits and Reportable Detection Limits.

For the August 2021 reporting period, the overall (average) system flow rate and gallons of groundwater treated are based on the effluent flow meter/totalizer readings reported for the system by the O&M contractor. On this basis, approximately 0.48 million gallons of groundwater were treated, at an average effluent flow rate of 10.9 gpm.

Variability in the flow through GWTS#2 continued to be observed; although flows remained steadywith some increases), during the August 2021 reporting period at the beginning and end of the reporting period, the treatment rate/transfer pump speed was intentionally reduced by the system operator to try and reduce iron fouling of the bag filter units and the primary LGAC vessel. This action was suspected as contributing to unexpected detection of PFAS compounds in the July 2021 Midpoint and Effluent samples (see Table 1A.) Through the remainder of the reporting period, GWTT periodically increased the flow rate of the transfer pump in an attempt to increase the effluent flow rate and total gallons treated. Additionally, backwash water from GWTS#1 was pumped through GWTS#2, increasing the total gallons treated compared to that of GWTS#1.

Based on historic trends, the decreased influent flow volume is likely attributed to a lower water table as precipitation was significantly low prior to and during the reporting period.

Based on the approximate 0.48 million gallons treated and total influent concentration of 0.704 μ g/L (August 25, 2021, sample results), approximately 0.001 kilograms of PFAS were estimated to have been removed from the groundwater during this reporting period.

GROUNDWATER TREATMENT PUMPING AND TREATMENT SUMMARY

During the August reporting period, the treatment systems (GWTS #1 and GWTS#2) were both in operation for all or portions of approximately 31 days.

The overall (average) system flow rate and gallons of groundwater treated are based on the available Effluent flow totalizer readings reported by the O&M contractor. For the August 2021 reporting period GWTS#1 and GWTS#2 treated an approximate combined 0.89 million gallons of groundwater from the downgradient recovery well PRW-4 at an average, total combined effluent flow rate of 20 gpm. Based on the total 0.89 million gallons treated, approximately 0.0021 kilograms of PFAS were estimated to have been removed from the plume area.

Ongoing IRA Activities

Sampling results, system performance, and additional assessment work related to the ongoing response actions, such as system improvement and enhancement details, will be presented in the next IRA Status and RMR Report for the September 2021 reporting period.

Public Involvement Activities

A copy of the municipal notification to the Barnstable Town Manager, with copies to other town officials, is included as Appendix C. The Site has been designated a Public Involvement Plan Site under the MCP. The Public Involvement Plan (PIP) was finalized in June 2019. Written correspondence will be sent to those listed on the PI Mailing List notifying them of the submission of this IRA Status report and availability of this report for review.

Sincerely,

BETA Group, Inc.

Mypelos Chandes

Mykel Mendes Environmental Engineer

Par P. Thild

Roger Thibault, P.E., LSP Associate

Copy: Steve Tebo, Barnstable County Asset and Infrastructure Manager

Attachments:

TABLES

Table 1A – Summary of Groundwater Pump and Treatment System PFAS Analytical Data – System #1Table 1B - Summary of Groundwater Pump and Treatment System PFAS Analytical Data – System #2Table 2A - Summary of Groundwater Pump and Treatment System Operating and Maintenance Data-System #1

Table 2B- Summary of Groundwater Pump and Treatment System Operating and Maintenance Data-System #2

APPENDICES

- A: BWSC 105, 105A, 105B Forms
- B: Laboratory Reports
- C: Municipal Notification Letter to Town Manager

	Massachusetts Department of Environmental Protect <i>Bureau of Waste Site Cleanup</i>	tion BWSC 105
	Immediate Response Action (IRA) Transmittal Form	Release Tracking Number
	Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)	4 - 26179
A. SITE LOCAT	ION:	
1. Release Name/Lo	ocation Aid: BARNSTABLE COUNTY FIRE TRAINING ACADEMY	
2. Street Address:	155 SOUTH FLINT ROCK ROAD	
3. City/Town:	BARNSTABLE 4. Zip Code	226300000
5 . Check here i	f this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114.	
a. CERCL	A 🗖 b. HSWA Corrective Action 🗍 c. Solid Waste Mana	gement
🗌 d. RCRA	State Program (21C Facilities)	
B. THIS FORM	IS BEING USED TO: (check all that apply)	
1. List Submittal Da	ate of Initial IRA Written Plan (if previously submitted): 9/26/2016	
2. Submit an In	itial IRA Plan.	
🔲 3. Submit a Mo	dified IRA Plan of a previously submitted written IRA Plan.	
🔲 4. Submit an In	nminent Hazard Evaluation. (check one)	
🗖 a. An Immi	nent Hazard exists in connection with this Release or Threat of Release.	
🗖 b. An Immi	nent Hazard does not exist in connection with this Release or Threat of Rele	case.
C. It is unkr activities will	own whether an Imminent Hazard exists in connection with this Release or be undertaken.	Threat of Release, and further assessment
d. It is unkn will address th	nown whether an Imminent Hazard exists in connection with this Release or nose conditions that could pose an Imminent Hazard.	Threat of Release. However, response actions
5. Submit a rec	uest to Terminate an Active Remedial System or Response Action(s) Taker	n to Address an Imminent Hazard.
🔽 6. Submit an IF	A Status Report	
7. Submit a Re	medial Monitoring Report. (This report can only be submitted through eDE	P.)
a. Type of Rep	ort: (check one) 🔲 i. Initial Report 📝 ii. Interim Report	🗌 iii. Final Report
b. Frequency o	of Submittal: (check all that apply)	
🔽 i. A Remed	ial Monitoring Report(s) submitted monthly to address an Imminent Hazard.	
🗌 ii. A Remee	dial Monitoring Report(s) submitted monthly to address a Condition of Subs	tantial Release Migration.
🗌 iii. A Reme	dial Monitoring Report(s) submitted every six months, concurrent with an IF	RA Status Report.
🗌 iv. A Reme	dial Monitoring Report(s) submitted annually, concurrent with an IRA Statu	s Report.
c. Number of I	Remedial Systems and/or Monitoring Programs: 2	
A separate BW addressed by t	/SC105A, IRA Remedial Monitoring Report, must be filled out for each Rem	nedial System and/or Monitoring Program



Massachusetts Department of Environmental Protection *Bureau of Waste Site Cleanup*

BWSC 105

Release Tracking Number

79

-	261

4

Immediate Response Action (IRA) Transmittal Form Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

8. Submit an **IRA Completion Statement**.

□ a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN)

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN):

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

9. Submit a **Revised IRA Completion Statement**.

10. Submit a Plan for the Application of Remedial Additives near a sensitive receptor, pursuant to 310 CMR 40.0046(3).

(All sections of this transmittal form must be filled out unless otherwise noted above)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT	AT WARRANT IRA:
1. Media Impacted and Receptors Affected: (check all that apply)	a. Paved Surface b. Basement c. School
✓ d. Public Water Supply ✓ e. Surface Water ✓ f. Zon	ne 2 🔽 g. Private Well 🗌 h. Residence 🔽 i. Soil
✓ j. Groundwater ✓ k. Sediments	tland 🗌 m. Storm Drain 🗌 n. Indoor Air 🔲 o. Air
🗖 p. Soil Gas 👘 q. Sub-Slab Soil Gas 👘 r. Cri	tical Exposure Pathway 🗌 s. NAPL 🗌 t. Unknown
T. Others Specify:	
2. Sources of the Release or TOR: (check all that apply)	□ a. Transformer □ b. Fuel Tank □ c. Pipe
\Box d. OHM Delivery \Box e. AST \Box f. Dru	Ims $\[\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$
□ j. UST Describe:	k. Vehicle I. Boat/Vessel
m. Unknown In. Other: FIRE FIGHTING FOAM	
3. Type of Release or TOR: (check all that apply)	ing 🗆 b. Fire 🗖 c. AST Removal 🗍 d. Overfill
\Box e. Rupture \Box f. Vehicle Accident \Box g. Leak	🗆 h. Spill 👘 i. Test failure 🗍 j. TOR Only
k. UST Removal Describe:	
□ 1. Unknown □ m. Other: HISTORIC FOAM USE	
4. Identify Oils and Hazardous Materials Released: (check all that app	oly) a. Oils b. Chlorinated Solvents
C. Heavy Metals 🔽 d. Others Specify: PFAS	
D. DESCRIPTION OF RESPONSE ACTIONS: (check all that a	pply, for volumes list cumulative amounts)
✓ 1. Assessment and/or Monitoring Only	✓ 2. Temporary Covers or Caps
☐ 3. Deployment of Absorbent or Containment Materials	4. Temporary Water Supplies
5. Structure Venting System/HVAC Modification System	6. Temporary Evacuation or Relocation of Residents
☐ 7. Product or NAPL Recovery	8. Fencing and Sign Posting
9. Groundwater Treatment Systems	10. Soil Vapor Extraction
11. Remedial Additives	☐ 12. Air Sparging
13. Active Exposure Pathway Mitigation System	🔲 14. Passive Exposure Pathway Mitigation System



D. DESCRIPTION OF RESPONSE ACTIONS: (cont.)

Release Tracking Number

- 26179

4

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

	15.	Excavation of Contamina	ited Soils.							
		a. Re-use, Recycling or	Treatment		i. On Site	Estimated	volume in cubic yards			
					ii. Off Site	Estimated	volume in cubic yards			
		iia. Receiving Facility:				Town:		St	ate:	
		iib. Receiving Facility:				Town:		St	ate:	
		iii. Describe:								
		b. Store			i. On Site	Estimated	volume in cubic yards			
					ii. Off Site	Estimated	volume in cubic yards			
		iia. Receiving Facility:				Town:		St	ate:	
		iib. Receiving Facility:				Town:		St	ate:	
	~	c. Landfill			i. Cover	Estimated	volume in cubic yards			
		Receiving Facility:				Town:		St	ate:	
					ii. Disposal	Estimated	volume in cubic yards	200		
		Receiving Facility:	TAUNTON LANDF	ILL		Town:	TAUNTON	St	ate:	МА
Γ	16.	Removal of Drums, Tank	s, or Containers:							
		a. Describe Quantity an	d Amount:							
		b. Receiving Facility:				Town:		St	ate:	
		c. Receiving Facility:				Town:		St	ate:	
Γ	17.	Removal of Other Contar	minated Media:							
		a. Specify Type and Vol	ume:							
Γ	18.	Other Response Actions	:							
		Describe:								
Γ	19.	Use of Innovative Techn	ologies:							
		Describe:								



Massachusetts Department of Environmental Protection *Bureau of Waste Site Cleanup*

Immediate Response Action (IRA) Transmittal Form Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D) **BWSC 105**

Release Tracking Number

	26179
--	-------

4

E. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish thepurposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Action Status Report** and/or a **Remedial Monitoring Report** is(are) being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000,(ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000,(ii) is (are) appropriate and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an Immediate Response Action Completion Statement or a request to Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 144	3					
2. First Name:	ROGER P		3. Last Name:	THIBAULT		
4. Telephone:	508-331-2700	5. Ext:		6. Email:		
7. Signature:						
8. Date:		(mm,	/dd/yyyy)		9. LSP Stamp:	

Ma Bui Imi Purs	ssachusetts Department of reau of Waste Site Clean mediate Response Action (suant to 310 CMR 40.0424 - 4	f Environmental Protection <i>p</i> IRA) Transmittal Form 0.0427 (Subpart D)	BWSC 105Release Tracking Number4-26179
F. PERSON UNDERTA	KING IRA:		
1. Check all that apply:	☑ a. change in contact name	\Box b. change of address \Box c. change actions	e in the person undertaking response
2. Name of Organization:	BARNSTABLE COUNTY COMMISSIO	NERS	
3. Contact First Name:	STEPHEN	4. Last Name: TEBO	
5. Street: 3195 MAIN ST		6. Title: ASSET AND INFRA	ASTRUCTURE MANAGER
7. City/Town: BARNSTA	3LE	8. State: MA 9.	Zip Code: 026301105
10. Telephone: 508-375-	6643 11. Ext:	12. Email: stebo@BARNST	ABLECOUNTY.ORG
G. RELATIONSHIP TO) RELEASE OR THREAT OF R	ELEASE OF PERSON UNDERTAKI	NG IRA:
Check here to change	; relationship		
▼ 1. RP or PRP	■ a. Owner □ b. Ope	rator C. Generator	d. Transporter
e. Other RP or PRF	Specify Relationship		
2. Fiduciary, Secured	Lender or Municipality with Exemp	Status (as defined by M.G.L. c. 21E, s. 2)	
3. Agency or Public U	Itility on a Right of Way (as defined	by M.G.L. c. 21E, s. 5(j))	
4. Any Other Person	Undertaking Response Actions:	Specify Relationship:	
H. REQUIRED ATTAC	HMENT AND SUBMITTALS:		
1. Check here if any I following submission the appropriate transn	Remediation Waste, generated as a r of the IRA Completion Statement. nittal form.	sult of this IRA, will be stored, treated, n f this box is checked, you must submit or	nanaged, recycled or reused at the site the of the following plans, along with
🗖 a. A Release Aba	atement Measure (RAM) Plan (BWS	C106) 🗌 b. Phase IV Remedy Imp	plementation Plan (BWSC108)

- 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by MassDEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- 3. Check here to certify that the Chief Municipal Officer and the Local Boardof Health were notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- 4. Check here to certify that the Chief Municipal Officer and the Local Boardof Health were notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us.
- 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



1. I,

Release Tracking Number

- 2	6179
-----	------

4

Immediate Response Action (IRA) Transmittal Form Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

I. CERTIFICATION OF PERSON UNDERTAKING IRA:

, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form; (ii) that, based on my inquiry of the/those individual(s) immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge, information and belief, true, accurate and complete; (iii) that, to the best of my knowledge, information and belief, true, accurate and complete; (iii) that, to the best of my knowledge, information and belief, in a belief, true, accurate and complete; (iii) that, to the best of my knowledge, information and belief, is submittal is made satisfy(ies) the criteria in 310 CMR 40.0183(2); (iv) that I/the person(s) or entity(ies) on whose behalf this submittal is made have provided notice in accordance with 310 CMR 40.0183(5); and (v) that I am fully authorized to make this attestation on behalf of the person(s) or entity(ies) legally responsible for this submittal. I/the person(s) or entity(ies) on whose behalf this submittal is made is/are aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By:			3. Title: ASS	ET AND INFRASTRUCTURE MAN	AGER
4. For:	BARNSTABLE COUNTY C	OMMISSIONERS	5. Date:		(mm/dd/yyyy)
☐ 6. Che	ck here if the address of	the person providing certification	n is different from addr	ess recorded in Section F.	
7. Street:					
8. City/Tow	/n:		9. State:	10. Zip Code:	
11. Telepho	one:	12. Ext:	13. Email:		
	YOU ARE SUBJEC	T TO AN ANNUAL COMPLIANO	CE ASSURANCE FEE	OF UP TO \$10,000 PER BILLA	BLE
	YEAR FOR THIS D	ISPOSAL SITE. YOU MUST LEG	IBLY COMPLETE ALI	RELEVANT SECTIONS OF 7	THIS
	FORM OR DEP M	AY RETURN THE DOCUMENT	AS INCOMPLETE. IF	YOU SUBMIT AN INCOMPLI	ETE
	FO	RM, YOU MAY BE PENALIZED I	FOR MISSING A REQU	JIRED DEADLINE.	
Date Stamp	(DEP USE ONLY:)				

Massachusetts Department of Environmental Protection	BWSC105 -A
IRA REMEDIAL MONITORING REPORT	Release Tracking Number
Pursuant to 310 CMR 40.0400 (SUBPART D)	4 - 26170
Remedial System or Monitoring Program: 1 of: 2	
A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:	
1. Type of Active Operation and Maintenance Activity: (check all that apply)	
■ a. Active Remedial System: (check all that apply)	nhase Carbon Adsorption
✓ iv. Groundwater Recovery	us-phase Carbon Adsorption
□ vii. Air Stripping □ viii. Sparging/Biosparging □ ix. Cat/Th	ermal Oxidation
\Box x. Other Describe:	
☐ b. Active Exposure Pathway Elimination Measure Active Exposure Pathway Mitigation System to address (check one): ☐ i. Indoor Air	☐ ii. Drinking Water
\Box c. Application of Remedial Additives: (check all that apply)	
\Box i. To the Subsurface \Box ii. To Groundwater (Injection) \Box iii. To the	Surface
L d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (chec	k all that apply; Sections C, D
\Box i. Reactive Wall \Box ii. Natural Attenuation \Box iii. Other Describe:	
2. Mode of Operation: (check one)	
■ a. Continuous □ b. Intermittent □ c. Pulsed □ d. One-time Event Only □ e. Ot 3. System Effluent/Discharge: (check all that apply)	her:
\Box a. Sanitary Sewer/POTW	
✓ b. Groundwater Re-infiltration/Re-injection: (check one)	adient
\Box c. Vapor-phase Discharge to Ambient Air: (check one) \Box i. Off-gas Controls \Box ii. No	o Off-gas Controls
C. C. Drinking Water Supply	
E e. Surface Water (including Storm Drains)	
P MONITODINC EDEOLENCY.	
1. Reporting period that is the subject of this submittal: From: 8/1/2021 To: 8	3/31/2021
(mm/dd/yyyy)	(mm/dd/yyyy)
2. Number of monitoring events during the reporting period: (check one)	
a. System Startup: (if applicable)	
\Box i. Days 1, 3, 6, and then weekly thereafter, for the first month.	
11. Other Describe:	
\checkmark i. Monthly	
□ ii. Quarterly	
🗌 iii. Annually	
iv. Other Describe:	
☑ 3. Check here to certify that the number of required monitoring events were conducted during the	he reporting period.
C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge h	umits were established)
Image: The second se	nit:
	(mm/dd/vvvv)
2. MCP Performance Standard MCP Citations(s):	
✓ 3. DEP Approval Letter Date of Letter: <u>11/16/2018</u>	
(mm/dd/yyyy)	
☐ 4. Other Describe:	

Remedial Sy Remedial Sy Remedial Sy Required a. Name: TJMCGOFF c. License No: 15570 2. Not Required 3. Not Applicable C. STATUS OF ACTIVE REMER RepORTING PERIOD: (check for the second secon	XT PLANT Al Wastewa ZDIAL SYS all that app stem was f Functional Rate (scfr eck all that s applied d tion Additis: Date	Anitoring P TOPERATO rater Treatme d. Licens STEM OR A ply) functional on l: 31 m): apply) during the Re ives applied: Quantity	Program: R: (check nt Plant in e Exp. Da CTIVE R te or more porting Pe (total quar	1 of: 2 one) place for more than 30 day b. Grade b. Grade te: 12/31/2021 (mm/dd/yyyy) EMEDIAL MONITORING days during the Reporting b. GW Recovere d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for the ii. Peroxides:	G PROGRA Period. ed (gals): 4 ed (gals): 4 g Rate (scfm he current re	M DURING 08034 408034):	1) 1)
 WASTEWATER TREATMEN I. Required due to Remedia a. Name: TJMCGOFF c. License No: 15570 2. Not Required 3. Not Applicable STATUS OF ACTIVE REME EPORTING PERIOD: (check is I. The Active Remedial System was Fully Is c. NAPL Recovered (gals): e. Avg. Soil Gas Recovery 2. Remedial Additives: (che a. No Remedial Additive b. Enhanced Bioremediat i. Nitrogen/Phosphorus Name of Additive 	TPLANT Al Wastewa DIAL SYS all that app stem was f Functional Rate (scfr ck all that s applied d tion Additis: Date	TOPERATO ater Treatme d. Licens STEM OR A ply) functional on l: <u>31</u> m): apply) during the Re ives applied: Quantity	R: (check nt Plant in e Exp. Da CTIVE R e or more porting Pe (total qua	one) place for more than 30 day b. Grade te: 12/31/2021 (mm/dd/yyyy) EEMEDIAL MONITORING days during the Reporting b. GW Recovere d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for th	/s. :: <u>4</u> G PROGRA Period. :d (gals): <u>4</u> ed (gals): <u>4</u> ; Rate (scfm he current re	M DURING 08034 408034):	4)
 c. License No: 15570 2. Not Required 3. Not Applicable STATUS OF ACTIVE REME EPORTING PERIOD: (check I I. The Active Remedial System was Fully I c. NAPL Recovered (gals): e. Avg. Soil Gas Recovery 2. Remedial Additives: (che a. No Remedial Additive b. Enhanced Bioremediai i. Nitrogen/Phosphorus 	CDIAL SYS all that app stem was f Functional Rate (scfr ck all that s applied d tion Additiss Date	d. Licens STEM OR A ply) functional on 1: 31 m): apply) during the Re ives applied: Quantity	e Exp. Da CTIVE R te or more porting Pe (total qua:	te: 12/31/2021 (mm/dd/yyyy) EEMEDIAL MONITORING days during the Reporting b. GW Recovere d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for th [] ii. Peroxides:	G PROGRA Period. ed (gals): 4 ed (gals): ; Rate (scfm he current re	M DURING 08034 408034):	1)
 2. Not Required 3. Not Applicable STATUS OF ACTIVE REME EPORTING PERIOD: (check is a Days System was Fully I c. NAPL Recovered (gals): e. Avg. Soil Gas Recovery 2. Remedial Additives: (che a. No Remedial Additive b. Enhanced Bioremedian i. Nitrogen/Phosphorus Name of Additive 	DIAL SYS all that app stem was f Functional Rate (scfr eck all that s applied d tion Additis: Date	STEM OR A ply) functional on l: 31 m): apply) during the Re ives applied: Quantity	CTIVE R te or more porting Pe (total quar	(mm/dd/yyyy) EMEDIAL MONITORING days during the Reporting b. GW Recovere d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for th ii. Peroxides:	G PROGRA Period. ed (gals): 4 ed (gals): 5 g Rate (scfm he current re	M DURING 08034 408034):	1)
 STATUS OF ACTIVE REME EPORTING PERIOD: (check I. The Active Remedial Sy: a. Days System was Fully I c. NAPL Recovered (gals): e. Avg. Soil Gas Recovery 2. Remedial Additives: (che a. No Remedial Additive b. Enhanced Bioremediat i. Nitrogen/Phosphorus Name of Additive 	DIAL SYS all that app stem was f Functional Rate (scfr eck all that s applied d tion Additis: Date	STEM OR A ply) functional on l: 31 m): apply) during the Re ives applied: Quantity	CTIVE R te or more porting Pe (total qua:	EMEDIAL MONITORING days during the Reporting b. GW Recovere d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for th ii. Peroxides:	G PROGRA Period. ed (gals): 4 ed (gals): ; Rate (scfm he current re	M DURING 08034 408034):	
 a. Days System was Fully c. NAPL Recovered (gals): e. Avg. Soil Gas Recovery 2. Remedial Additives: (che a. No Remedial Additive b. Enhanced Bioremediat i. Nitrogen/Phosphorus Name of Additive 	Functional Rate (scfr ek all that s applied d tion Additi s: Date	l: 31 m): apply) during the Re ives applied: Quantity	porting Pe (total qua	b. GW Recovere d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for th ii. Peroxides:	ed (gals): 4 ed (gals): 5 ; Rate (scfm he current re	08034 408034): eporting period	4)
 c. NAPL Recovered (gals): e. Avg. Soil Gas Recovery □ 2. Remedial Additives: (che □ a. No Remedial Additive □ b. Enhanced Bioremediat □ i. Nitrogen/Phosphorus Name of Additive 	Rate (scfr ck all that s applied d tion Additi : Date	m): apply) during the Re ives applied: Quantity	porting Pe (total qua	d. GW Discharge f. Avg. Sparging eriod. ntity applied at the site for th ii. Peroxides:	ed (gals): ; Rate (scfm he current re	408034): eporting period	 1)
e. Avg. Soil Gas Recovery 2. Remedial Additives: (che a. No Remedial Additive b. Enhanced Bioremedial i. Nitrogen/Phosphorus Name of Additive	Rate (scfr eck all that s applied d tion Additi s: Date	m): apply) during the Re ives applied: Quantity	porting Pe (total qua	f. Avg. Sparging criod. ntity applied at the site for th ii. Peroxides:	; Rate (scfm he current re):eporting period	d)
 a. No Remedial Additives: (che b. Enhanced Bioremedial i. Nitrogen/Phosphorus Name of Additive 	s applied d tion Additi : Date	during the Re ives applied:	porting Pe (total qua:	riod. ntity applied at the site for th ii. Peroxides:	he current re	eporting period	1)
				Name of Additive	Date	Quantity	Units
iii. Microorganisms:				iv. Other:			
Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units
☐ c. Chemical oxidation/red ☐ i. Permanganates:	duction ad	Iditives applie	ed: (total c	quantity applied at the site fo	or the currer	nt reporting pe	riod)
iii. Persulfates:				iv. Other:			
Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units



26179

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING **REPORTING PERIOD: (cont.)**

 \Box d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units

🗆 e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

□ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

b. Total Number of Days of Unscheduled Shutdowns: a. Number of Unscheduled Shutdowns:

c. Reason(s) for Unscheduled Shutdowns:

□ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns:

b. Total Number of Days of Scheduled Shutdowns:

c. Reason(s) for Scheduled Shutdowns:

□ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown:

(mm/dd/yyyy)

□ b. No Further Effluent Discharges.

C. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

 \Box e. Other: Describe:

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

▼ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

▼ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

□ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

1	1		
1	~	-1	R
• /	1	4	
	11	1	
	1.	1.50	

1	Massachusetts Department of Environmental Protection <i>Bureau of Waste Site Cleanup</i>		BWSC105 -B
	IRA REMEDIAL MONITORING REPORT MEASUREMENTS	Relea	se Tracking Number
	Pursuant to 310 CMR 40.0400 (SUBPART D) Remedial System or Monitoring Program:	4	26179
I)			

For each Point of Measurement, related to concentration indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.

For each Point of Measurement for pressure differentials, indicate the lowest pressure differential detected during the reporting period.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one) ↓ Discharge GroundWater Concentration Pressure Differential	Check here, if ND/BDL	Permissible Concentration or Pressure Differential	Units	Within Permissible Limits? (Y/N)
SYSTEM	08/25/2021	PFAS	0.704				0.020	UG/L	YES

Check here if any additional BWSC105 B, Measurements Form(s), are needed.

Massachusetts Department of Environmental Protection	BWSC105 -A
IRA REMEDIAL MONITORING REPORT	Release Tracking Number
Pursuant to 310 CMR 40.0400 (SUBPART D)	
Remedial System or Monitoring Program: 2 of: 2	4 20179
A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:	
1. Type of Active Operation and Maintenance Activity: (check all that apply)	
■ a. Active Remedial System: (check all that apply)	
✓ I. NAPL Recovery I II. Soll vapor Extraction/Bioventing I III. Vapo	r-phase Carbon Adsorption
\Box vii. Air Stripping \Box viii. Sparging/Biosparging \Box ix. Cat/T	hermal Oxidation
\Box x. Other Describe:	
□ b. Active Exposure Pathway Elimination Measure Active Exposure Pathway Mitigation System to address (check one): □ i. Indoor Air	☐ ii. Drinking Water
C. Application of Remedial Additives: (check all that apply)	C C
\Box i. To the Subsurface \Box ii. To Groundwater (Injection) \Box iii. To the	e Surface
\Box d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (che	eck all that apply; Sections C, D
and E are not required; attach supporting information, data, maps and/or sketches needed by ch	necking Section G5)
1. Reactive Wall 1 11. Natural Attenuation 1 111. Other Describe:	
2. Mode of Operation: (check one)	
✓ a. Continuous \square b. Intermittent \square c. Pulsed \square d. One-time Event Only \square e. C	Other:
3. System Effluent/Discharge: (check all that apply) \Box a Sanitary Sewer/POTW	
$\overline{\mathbf{v}}$ b. Groundwater Re-infiltration/Re-injection: (check one) $\overline{\mathbf{v}}$ i. Downgradient $\overline{\mathbf{v}}$ ii. Ups	gradient
🗆 c. Vapor-phase Discharge to Ambient Air: (check one) 👘 i. Off-gas Controls 👘 ii. 1	No Off-gas Controls
d. Drinking Water Supply	
e. Surface Water (including Storm Drains)	
B. MONITORING FREQUENCY: 1 Reporting period that is the subject of this submittal: From: 8/1/2021 To:	8/31/2021
(mm/dd/vvvv)	(mm/dd/vvvv)
2. Number of monitoring events during the reporting period: (check one)	
a. System Startup: (if applicable)	
\Box i. Days 1, 3, 6, and then weekly thereafter, for the first month.	
☐ ii. Other Describe:	
✓ b. Post-system Startup (after first month) or Monitoring Program:	
r i. Monuny □ ii Ouarterly	
□ iii. Annually	
☐ iv. Other Describe:	
▼ 3. Check here to certify that the number of required monitoring events were conducted during	the reporting period.
C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge	limits were established)
L 1. NPDES: (check one) L a. Remediation General Permit L b. Individual Perm	it mit
C. Emergency Exclusion Effective Date of Per	(mm/dd/ssaa)
2. MCP Performance Standard MCP Citations(s):	(IIIII/dd/yyyy)
Image: wide of a state of	
(mm/dd/yyyy)	
4. Other Describe:	

Massa Burea IRA R	chusetts D u of Waste EMEDIAL	epartment e Site Clea MONITO	of Envi <i>nup</i> RING RH	ronmental Protection	I F	BWSC Release Track	2105 -A ing Number
Pursuar Remedi	nt to 310 CM al System or	IR 40.0400 (Monitoring F	SUBPAR Program:	TD) 2 of: 2		4 - <u>261</u>	.79
WASTEWATER TREAT ✓ 1. Required due to Rer a. Name: TJMCGOFE	MENT PLAN nedial Waster	TOPERATO	R: (check nt Plant in	one) place for more than 30 day b. Grade	'S. : 4		
c. License No: 15570		d. Licens	e Exp. Dat	e: 12/31/2021			
				(mm/dd/yyyy)			
🗌 2. Not Required							
T 3. Not Applicable							
STATUS OF ACTIVE R	EMEDIAL S	YSTEM OR A	CTIVE R	EMEDIAL MONITORING	G PROGRA	M DURING	
EPORTING PERIOD: (Cl	neck all that a	pply) s functional or	e or more	days during the Reporting	Period		
Devis Science Provide Reinleura	al System was			h CW Deservers			
a. Days System was F	ully Function	al: <u>31</u>		d. GW Discharge	d (gals): 4	84908	
e Avg Soil Gas Reco	$\frac{1}{2}$	fm):		f Avg Sparging	Rate (sofm	484908	,
□ 2 Remedial Additiveau	(abaals all the	$\frac{111}{1}$		1. Avg. sparging	Kate (sem)	
☐ i. Nitrogen/Phosp Name of Additive	horus: Date	Quantity	Units	☐ ii. Peroxides: Name of Additive	Date	Quantity	Units
iii. Microorganism	15:			iv. Other:			
Name of Additive	Date	Ouantity	Units	Name of Additive	Date	Ouantity	Units
C. Chemical oxidation	on/reduction a	udditives appli	ed: (total q	uantity applied at the site fo	or the current	nt reporting pe	riod)
Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units
iii. Persulfates:				iv. Other:			
Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units
	1	1	1		ĺ		1



-	261	79
	201	1 /

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING **REPORTING PERIOD: (cont.)**

 \Box d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units

🗆 e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

□ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

b. Total Number of Days of Unscheduled Shutdowns: a. Number of Unscheduled Shutdowns:

c. Reason(s) for Unscheduled Shutdowns:

□ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns:

b. Total Number of Days of Scheduled Shutdowns:

c. Reason(s) for Scheduled Shutdowns:

□ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown:

(mm/dd/yyyy)

□ b. No Further Effluent Discharges.

C. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

 \Box e. Other: Describe:

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

▼ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

▼ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

□ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

1	1		
1	~	-1	R
• /	1	4	
	11	1	
	1.	1.50	

1	Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	BW	/SC105 -B
	IRA REMEDIAL MONITORING REPORT MEASUREMENTS	Release T	racking Number
	Pursuant to 310 CMR 40.0400 (SUBPART D) Remedial System or Monitoring Program:	4	26179
ч.			

For each Point of Measurement, related to concentration indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.

For each Point of Measurement for pressure differentials, indicate the lowest pressure differential detected during the reporting period.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one) ↓ Discharge GroundWater Concentration Pressure Differential	Check here, if ND/BDL	Permissible Concentration or Pressure Differential	Units	Within Permissible Limits? (Y/N)
SYSTEM	08/25/2021	PFAS	0.704	0.661	0.025		0.020	UG/L	NO

Check here if any additional BWSC105 B, Measurements Form(s), are needed.



Your Project #: 18.06206.01 Site Location: BARNSTABLE COUNTY FTA, MASSACHUSETS, USA Your C.O.C. #: N/A

Attention: Steven Tebo

Barnstable County 3195 Main Street PO Box 427 Barnstable, MA USA 02630

> Report Date: 2021/09/08 Report #: R6801481 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C105329

Received: 2021/08/27, 11:49

Sample Matrix: Water # Samples Received: 5

	Date		Date		
Analyses	Quantity Extrac	ted	Analyzed	Laboratory Method	Analytical Method
PFAS in water by SPE/LCMS (1)	5 2021/	9/01	2021/09/04	CAM SOP-00894	EPA 537 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Per- and polyfluoroalkyl substances (PFAS) identified as surrogates on the certificate of analysis represent the extracted internal standard.

Page 1 of 13

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com



Your Project #: 18.06206.01 Site Location: BARNSTABLE COUNTY FTA, MASSACHUSETS, USA Your C.O.C. #: N/A

Attention: Steven Tebo

Barnstable County 3195 Main Street PO Box 427 Barnstable, MA USA 02630

> Report Date: 2021/09/08 Report #: R6801481 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C105329 Received: 2021/08/27, 11:49

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Lori Dufour, Project Manager Email: Lori.Dufour@bureauveritas.com Phone# (905) 817-5700

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



PERFLUOROALKYL SUBSTANCES (WATER)

BV Labs ID		QMN663	QMN664	QMN665			
Sampling Data		2021/08/25	2021/08/25	2021/08/25			
		13:00	12:30	12:25			
	UNITS	INFLUENT-PRW-4	GWTS #1-MIDPOINT	GWTS #1-EFFLUENT	RDL	MDL	QC Batch
Perfluorinated Compounds							
Perfluorobutanoic acid (PFBA)	ug/L	0.0091	<0.0039	<0.0039	0.020	0.0039	7554735
Perfluoropentanoic acid (PFPeA)	ug/L	0.036	<0.0067	<0.0067	0.020	0.0067	7554735
Perfluorohexanoic acid (PFHxA)	ug/L	0.037	<0.0053	<0.0053	0.020	0.0053	7554735
Perfluoroheptanoic acid (PFHpA)	ug/L	0.024	<0.0067	<0.0067	0.020	0.0067	7554735
Perfluorooctanoic acid (PFOA)	ug/L	0.014	<0.0050	<0.0050	0.020	0.0050	7554735
Perfluorononanoic acid (PFNA)	ug/L	0.017	<0.0051	<0.0051	0.020	0.0051	7554735
Perfluorodecanoic acid (PFDA)	ug/L	<0.0039	<0.0039	<0.0039	0.020	0.0039	7554735
Perfluoroundecanoic acid (PFUnA)	ug/L	0.044	<0.0062	<0.0062	0.020	0.0062	7554735
Perfluorododecanoic acid (PFDoA)	ug/L	<0.0080	<0.0080	<0.0080	0.020	0.0080	7554735
Perfluorotridecanoic acid (PFTRDA)	ug/L	<0.0064	<0.0064	<0.0064	0.020	0.0064	7554735
Perfluorotetradecanoic acid(PFTEDA)	ug/L	<0.0068	<0.0068	<0.0068	0.020	0.0068	7554735
Perfluorobutanesulfonic acid (PFBS)	ug/L	<0.0056	<0.0056	<0.0056	0.020	0.0056	7554735
Perfluorohexanesulfonic acid(PFHxS)	ug/L	0.079	<0.0044	<0.0044	0.020	0.0044	7554735
Perfluoroheptanesulfonic acid PFHpS	ug/L	<0.0065	<0.0065	<0.0065	0.020	0.0065	7554735
Perfluorooctanesulfonic acid (PFOS)	ug/L	0.57	<0.0057	<0.0057	0.020	0.0057	7554735
Perfluorodecanesulfonic acid (PFDS)	ug/L	<0.0064	<0.0064	<0.0064	0.020	0.0064	7554735
Perfluorooctane Sulfonamide (PFOSA)	ug/L	<0.0036	<0.0036	<0.0036	0.020	0.0036	7554735
EtFOSA	ug/L	<0.0070	<0.0070	<0.0070	0.020	0.0070	7554735
MeFOSA	ug/L	<0.0078	<0.0078	<0.0078	0.020	0.0078	7554735
EtFOSE	ug/L	<0.0071	<0.0071	<0.0071	0.020	0.0071	7554735
MeFOSE	ug/L	<0.0070	<0.0070	<0.0070	0.020	0.0070	7554735
6:2 Fluorotelomer sulfonic acid	ug/L	0.038	<0.0065	<0.0065	0.020	0.0065	7554735
8:2 Fluorotelomer sulfonic acid	ug/L	0.078	<0.0067	<0.0067	0.020	0.0067	7554735
Surrogate Recovery (%)							
13C2-6:2-Fluorotelomersulfonic Acid	%	100	107	111	N/A	N/A	7554735
13C2-8:2-Fluorotelomersulfonic Acid	%	94	109	110	N/A	N/A	7554735
13C2-Perfluorodecanoic acid	%	86	97	99	N/A	N/A	7554735
13C2-Perfluorododecanoic acid	%	83	92	95	N/A	N/A	7554735
13C2-Perfluorohexanoic acid	%	89	97	100	N/A	N/A	7554735
13C2-perfluorotetradecanoic acid	%	60	66	69	N/A	N/A	7554735
13C2-Perfluoroundecanoic acid	%	80	95	95	N/A	N/A	7554735
13C3-Perfluorobutanesulfonic acid	%	97	105	108	N/A	N/A	7554735
13C4-Perfluorobutanoic acid	%	86	97	100	N/A	N/A	7554735
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
N/A = Not Applicable							



PERFLUOROALKYL SUBSTANCES (WATER)

BV Labs ID		QMN663	QMN664	QMN665			
Sampling Date		2021/08/25 13:00	2021/08/25 12:30	2021/08/25 12:25			
	UNITS	INFLUENT-PRW-4	GWTS #1-MIDPOINT	GWTS #1-EFFLUENT	RDL	MDL	QC Batch
13C4-Perfluoroheptanoic acid	%	90	101	102	N/A	N/A	7554735
13C4-Perfluorooctanesulfonic acid	%	94	102	103	N/A	N/A	7554735
13C4-Perfluorooctanoic acid	%	92	98	101	N/A	N/A	7554735
13C5-Perfluorononanoic acid	%	93	101	104	N/A	N/A	7554735
13C5-Perfluoropentanoic acid	%	91	97	102	N/A	N/A	7554735
13C8-Perfluorooctane Sulfonamide	%	79	83	85	N/A	N/A	7554735
18O2-Perfluorohexanesulfonic acid	%	102	103	110	N/A	N/A	7554735
D3-MeFOSA	%	58	48 (1)	64	N/A	N/A	7554735
D5-EtFOSA	%	59	50	66	N/A	N/A	7554735
D7-MeFOSE	%	79	78	84	N/A	N/A	7554735
D9-EtFOSE	%	79	75	85	N/A	N/A	7554735

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Extracted internal standard analyte recovery was below the defined lower control limit (LCL) which may result in increased variability of the associated native analyte result (MeFOSA).

Sampler Initials: RT

PERFLUOROALKYL SUBSTANCES (WATER)

BV Labs ID		QMN666	QMN667			
Sampling Date		2021/08/25	2021/08/25			
		13:00	13:00			
	UNITS	GWTS #2-MIDPOINT	GWTS #2-EFFLUENT	RDL	MDL	QC Batch
Perfluorinated Compounds						
Perfluorobutanoic acid (PFBA)	ug/L	0.0086	<0.0039	0.020	0.0039	7554735
Perfluoropentanoic acid (PFPeA)	ug/L	0.034	<0.0067	0.020	0.0067	7554735
Perfluorohexanoic acid (PFHxA)	ug/L	0.035	<0.0053	0.020	0.0053	7554735
Perfluoroheptanoic acid (PFHpA)	ug/L	0.021	<0.0067	0.020	0.0067	7554735
Perfluorooctanoic acid (PFOA)	ug/L	0.014	<0.0050	0.020	0.0050	7554735
Perfluorononanoic acid (PFNA)	ug/L	0.016	<0.0051	0.020	0.0051	7554735
Perfluorodecanoic acid (PFDA)	ug/L	<0.0039	<0.0039	0.020	0.0039	7554735
Perfluoroundecanoic acid (PFUnA)	ug/L	0.038	<0.0062	0.020	0.0062	7554735
Perfluorododecanoic acid (PFDoA)	ug/L	<0.0080	<0.0080	0.020	0.0080	7554735
Perfluorotridecanoic acid (PFTRDA)	ug/L	<0.0064	<0.0064	0.020	0.0064	7554735
Perfluorotetradecanoic acid(PFTEDA)	ug/L	<0.0068	<0.0068	0.020	0.0068	7554735
Perfluorobutanesulfonic acid (PFBS)	ug/L	<0.0056	<0.0056	0.020	0.0056	7554735
Perfluorohexanesulfonic acid(PFHxS)	ug/L	0.080	<0.0044	0.020	0.0044	7554735
Perfluoroheptanesulfonic acid PFHpS	ug/L	<0.0065	<0.0065	0.020	0.0065	7554735
Perfluorooctanesulfonic acid (PFOS)	ug/L	0.53	0.025	0.020	0.0057	7554735
Perfluorodecanesulfonic acid (PFDS)	ug/L	<0.0064	<0.0064	0.020	0.0064	7554735
Perfluorooctane Sulfonamide (PFOSA)	ug/L	<0.0036	<0.0036	0.020	0.0036	7554735
EtFOSA	ug/L	<0.0070	<0.0070	0.020	0.0070	7554735
MeFOSA	ug/L	<0.0078	<0.0078	0.020	0.0078	7554735
EtFOSE	ug/L	<0.0071	<0.0071	0.020	0.0071	7554735
MeFOSE	ug/L	<0.0070	<0.0070	0.020	0.0070	7554735
6:2 Fluorotelomer sulfonic acid	ug/L	0.035	<0.0065	0.020	0.0065	7554735
8:2 Fluorotelomer sulfonic acid	ug/L	0.068	<0.0067	0.020	0.0067	7554735
Surrogate Recovery (%)						
13C2-6:2-Fluorotelomersulfonic Acid	%	103	108	N/A	N/A	7554735
13C2-8:2-Fluorotelomersulfonic Acid	%	102	108	N/A	N/A	7554735
13C2-Perfluorodecanoic acid	%	93	100	N/A	N/A	7554735
13C2-Perfluorododecanoic acid	%	88	94	N/A	N/A	7554735
13C2-Perfluorohexanoic acid	%	96	99	N/A	N/A	7554735
13C2-perfluorotetradecanoic acid	%	67	70	N/A	N/A	7554735
13C2-Perfluoroundecanoic acid	%	87	93	N/A	N/A	7554735
13C3-Perfluorobutanesulfonic acid	%	102	108	N/A	N/A	7554735
13C4-Perfluorobutanoic acid	%	90	97	N/A	N/A	7554735
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
N/A = Not Applicable						



Sampler Initials: RT

PERFLUOROALKYL SUBSTANCES (WATER)

BV Labs ID		QMN666	QMN667			
Sampling Date		2021/08/25	2021/08/25			
	UNITS	GWTS #2-MIDPOINT	GWTS #2-EFFLUENT	RDL	MDL	QC Batch
13C4-Perfluoroheptanoic acid	%	97	101	N/A	N/A	7554735
13C4-Perfluorooctanesulfonic acid	%	97	103	N/A	N/A	7554735
13C4-Perfluorooctanoic acid	%	97	100	N/A	N/A	7554735
13C5-Perfluorononanoic acid	%	97	103	N/A	N/A	7554735
13C5-Perfluoropentanoic acid	%	95	100	N/A	N/A	7554735
13C8-Perfluorooctane Sulfonamide	%	82	86	N/A	N/A	7554735
18O2-Perfluorohexanesulfonic acid	%	103	108	N/A	N/A	7554735
D3-MeFOSA	%	61	62	N/A	N/A	7554735
D5-EtFOSA	%	65	63	N/A	N/A	7554735
D7-MeFOSE	%	84	87	N/A	N/A	7554735
D9-EtFOSE	%	82	84	N/A	N/A	7554735
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

N/A = Not Applicable



TEST SUMMARY

BV Labs ID: Sample ID: Matrix:	QMN663 INFLUENT-PRW-4 Water					Collected: Shipped: Received:	2021/08/25 2021/08/27
Test Description		Instrumentation	Batch	Extracted	Date Analyzed	Analyst	
PFAS in water by SPE/LCM	ЛS	LCMS	7554735	2021/09/01	2021/09/04	Xinhe Xing	(Helena)
BV Labs ID: Sample ID: Matrix:	QMN664 GWTS #1-MIDPOINT Water					Collected: Shipped: Received:	2021/08/25 2021/08/27
Test Description		Instrumentation	Batch	Extracted	Date Analyzed	Analyst	
PFAS in water by SPE/LCM	ЛS	LCMS	7554735	2021/09/01	2021/09/04	Xinhe Xing	; (Helena)
BV Labs ID: Sample ID: Matrix:	QMN665 GWTS #1-EFFLUENT Water					Collected: Shipped: Received:	2021/08/25 2021/08/27
Test Description		Instrumentation	Batch	Extracted	Date Analyzed	Analyst	
PFAS in water by SPE/LCM	ЛS	LCMS	7554735	2021/09/01	2021/09/04	Xinhe Xing	g (Helena)
BV Labs ID: Sample ID: Matrix:	QMN666 GWTS #2-MIDPOINT Water					Collected: Shipped: Received:	2021/08/25 2021/08/27
Test Description		Instrumentation	Batch	Extracted	Date Analyzed	Analyst	
PFAS in water by SPE/LCM	ЛS	LCMS	7554735	2021/09/01	2021/09/04	Xinhe Xing	(Helena)
BV Labs ID: Sample ID: Matrix:	QMN667 GWTS #2-EFFLUENT Water					Collected: Shipped: Received:	2021/08/25 2021/08/27
Test Description		Instrumentation	Batch	Extracted	Date Analyzed	Analyst	
PFAS in water by SPE/LCMS		LCMS	7554735	2021/09/01	2021/09/04	Xinhe Xing	; (Helena)

Page 7 of 13 Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com



GENERAL COMMENTS

Results relate only to the items tested.

Page 8 of 13 Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com



QUALITY ASSURANCE REPORT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
7554735	XIN	Spiked Blank	13C2-6:2-Fluorotelomersulfonic Acid	2021/09/03		94	%	50 - 150
			13C2-8:2-Fluorotelomersulfonic Acid	2021/09/03		90	%	50 - 150
			13C2-Perfluorodecanoic acid	2021/09/03		88	%	50 - 150
			13C2-Perfluorododecanoic acid	2021/09/03		82	%	50 - 150
			13C2-Perfluorohexanoic acid	2021/09/03		90	%	50 - 150
			13C2-perfluorotetradecanoic acid	2021/09/03		72	%	50 - 150
			13C2-Perfluoroundecanoic acid	2021/09/03		84	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2021/09/03		93	%	50 - 150
			13C4-Perfluorobutanoic acid	2021/09/03		95	%	50 - 150
			13C4-Perfluoroheptanoic acid	2021/09/03		92	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2021/09/03		88	%	50 - 150
			13C4-Perfluorooctanoic acid	2021/09/03		91	%	50 - 150
			13C5-Perfluorononanoic acid	2021/09/03		91	%	50 - 150
			13C5-Perfluoropentanoic acid	2021/09/03		93	%	50 - 150
			13C8-Perfluorooctane Sulfonamide	2021/09/03		79	%	50 - 150
			1802-Perfluorohexanesulfonic acid	2021/09/03		90	%	50 - 150
			D3-MeFOSA	2021/09/03		56	%	50 - 150
			D5-EtFOSA	2021/09/03		57	%	50 - 150
			D7-MeFOSE	2021/09/03		74	%	50 - 150
			D9-EtFOSE	2021/09/03		71	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2021/09/03		98	%	70 - 130
			Perfluoropentanoic acid (PFPeA)	2021/09/03		97	%	70 - 130
			Perfluorohexanoic acid (PFHxA)	2021/09/03		97	%	70 - 130
			Perfluoroheptanoic acid (PFHpA)	2021/09/03		96	%	70 - 130
			Perfluorooctanoic acid (PFOA)	2021/09/03		96	%	70 - 130
			Perfluorononanoic acid (PFNA)	2021/09/03		95	%	70 - 130
			Perfluorodecanoic acid (PFDA)	2021/09/03		94	%	70 - 130
			Perfluoroundecanoic acid (PFUnA)	2021/09/03		92	%	70 - 130
			Perfluorododecanoic acid (PFDoA)	2021/09/03		92	%	70 - 130
			Perfluorotridecanoic acid (PFTRDA)	2021/09/03		102	%	70 - 130
			Perfluorotetradecanoic acid(PFTEDA)	2021/09/03		96	%	70 - 130
			Perfluorobutanesulfonic acid (PFBS)	2021/09/03		95	%	70 - 130
			Perfluorohexanesulfonic acid(PFHxS)	2021/09/03		98	%	70 - 130
			Perfluoroheptanesulfonic acid PFHpS	2021/09/03		93	%	70 - 130
			Perfluorooctanesulfonic acid (PFOS)	2021/09/03		98	%	70 - 130
			Perfluorodecanesulfonic acid (PFDS)	2021/09/03		88	%	70 - 130
			Perfluorooctane Sulfonamide (PFOSA)	2021/09/03		97	%	70 - 130
			EtFOSA	2021/09/03		91	%	70 - 130
			MeFOSA	2021/09/03		94	%	70 - 130
			EtFOSE	2021/09/03		91	%	70 - 130
			MeFOSE	2021/09/03		93	%	70 - 130
			6:2 Fluorotelomer sulfonic acid	2021/09/03		94	%	70 - 130
			8:2 Fluorotelomer sulfonic acid	2021/09/03		92	%	70 - 130
7554735	XIN	Spiked Blank DUP	13C2-6:2-Fluorotelomersulfonic Acid	2021/09/03		91	%	50 - 150
			13C2-8:2-Fluorotelomersulfonic Acid	2021/09/03		86	%	50 - 150
			13C2-Perfluorodecanoic acid	2021/09/03		85	%	50 - 150
			13C2-Perfluorododecanoic acid	2021/09/03		78	%	50 - 150
			13C2-Perfluorohexanoic acid	2021/09/03		89	%	50 - 150
			13C2-perfluorotetradecanoic acid	2021/09/03		70	%	50 - 150
			13C2-Perfluoroundecanoic acid	2021/09/03		76	%	50 - 150

Page 9 of 13

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init		Parameter	Date Analyzed	Value	% Pocovory		OC Limits
Datch	mit	QC Type	13C3-Perfluorobutanesulfonic acid	2021/09/03	value	29 Recovery	%	50 - 150
			13C4-Perfluorobutanoic acid	2021/09/03		91	%	50 - 150
			13C4-Perfluorobentanoic acid	2021/09/03		90	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2021/09/03		86	%	50 - 150
			13C4-Perfluorooctanoic acid	2021/09/03		90	%	50 - 150
			13C5-Perfluoroponanoic acid	2021/09/03		88	%	50 - 150
			13C5-Perfluoropentanoic acid	2021/09/03		91	%	50 - 150
			13C8-Perfluorooctane Sulfonamide	2021/09/03		51 74	%	50 - 150
			1802-Perfluorobexanesulfonic acid	2021/09/03		89	%	50 - 150
			D3-MeEOSA	2021/09/03		52	%	50 - 150
			D5-FtFOSA	2021/09/03		50	%	50 - 150
			D7-MeEOSE	2021/09/03		69	%	50 - 150
				2021/09/03		67	%	50 - 150
			Perfluorobutanoic acid (PEBA)	2021/05/05		98	%	70 - 130
			Perfluoropentanoic acid ($PEPeA$)	2021/09/03		95	%	70 - 130
			Perfluorobevanoic acid (PEHvA)	2021/09/03		95	%	70 - 130
			Perfluorohentanoic acid (PEHnA)	2021/05/05		94	%	70 - 130
			Perfluorooctanoic acid (PEOA)	2021/05/05		95	%	70 - 130
			Perfluorononanoic acid (PENA)	2021/09/03		95	%	70 - 130
			Perfluorodecanoic acid (PEDA)	2021/05/05		95	%	70 - 130
			Perfluoroundecanoic acid (PELInA)	2021/05/05		94	%	70 - 130
			Perfluorododecanoic acid (PEDoA)	2021/05/05		91	%	70 - 130
			Perfluorotridecanoic acid (PETRDA)	2021/09/03		92	%	70 - 130
				2021/05/05		93	%	70 - 130
			Perfluorobutanesulfonic acid (PEBS)	2021/05/05		96	%	70 - 130
			Perfluorobayanesulfonic acid (PEHyS)	2021/09/03		90	70 0/	70 - 130
			Perfluorohentanesulfonic acid PEHnS	2021/05/05		90	%	70 - 130
			Perfluorooctanesulfonic acid (PEOS)	2021/05/05		95	%	70 - 130
			Perfluorodecanesulfonic acid (PEDS)	2021/05/05		85	%	70 - 130
			Perfluoroactane Sulfonamide (PEOSA)	2021/05/05		96	70 0/	70 - 130
			FtEOSA	2021/05/05		97	%	70 - 130
			MeEOSA	2021/05/05		97	%	70 - 130
			FEOSE	2021/05/05		97	%	70 - 130
			MeEOSE	2021/05/05		92	70 0/	70 - 130
			6:2 Eluorotelomer sulfonic acid	2021/09/03		92	70 %	70 - 130
			8:2 Fluorotelomer sulfonic acid	2021/05/05		95	%	70 - 130
755/1735	YIN	RDD	Perfluorobutanoic acid (PERA)	2021/05/05	0.26	55	%	30
7554755		N D	Perfluoropentanoic acid (PEPeA)	2021/05/05	1 3		%	30
			Perfluorobevanoic acid (PEHyA)	2021/05/05	2.0		%	30
				2021/09/03	1.4		%	30
			Perfluorooctanoic acid (PEOA)	2021/05/05	1.4		%	30
			Perfluorononanoic acid (PENA)	2021/05/05	0.32		%	30
				2021/09/03	0.52		%	30
			Perfluoroundecanoic acid (PELInA)	2021/09/03	1 7		%	30
			Perfluorododecanoic acid (PEDoA)	2021/09/03	1.7		%	30
			Perfluorotridecanoic acid (PETRDA)	2021/03/03	3.7		/0 %	20
			Perfluorotetradecanoic acid (FTTNDA)	2021/09/03	3.4 3.5		%	30
			Perfluorohutanesulfonic acid (DEBS)	2021/03/03	13		%	20
			Perfluorobevanesulfonic acid(PEHvS)	2021/09/03	2.5		%	30
			Perfluorohentanesulfonic acid PEHns	2021/03/03	2.5		/0 %	20
			remuoroneptanesunonic aciu PFApS	2021/09/03	J.4		/0	50

Page 10 of 13

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init		Parameter	Date Analyzed	Value	% Pecover		OC Limita
DalCII	nnt	QC TYPE	Perfluorooctanesulfonic acid (PEOS)	2021/09/03	2 9	10 Recovery	%	20
			Perfluorodecanesulfonic acid (PEDS)	2021/09/03	2.5		%	30
			Perfluorooctane Sulfonamide (PEOSA)	2021/09/03	0.65		%	30
			FtFOSA	2021/09/03	5 9		/0 %	20
			MeEOSA	2021/09/03	2.5		/0 %	20
			FtEOSE	2021/09/03	0.78		%	30
			MeEOSE	2021/09/03	1 5		%	30
			6:2 Eluorotelomer sulfonic acid	2021/09/03	1.5		%	30
			8:2 Fluorotelomer sulfonic acid	2021/09/03	2.2		%	30
7554735	XIN	Method Blank	13C2-6:2-Eluorotelomersulfonic Acid	2021/09/03	2.5	98	%	50 - 150
	/		13C2-8:2-Fluorotelomersulfonic Acid	2021/09/03		92	%	50 - 150
			13C2-Perfluorodecanoic acid	2021/09/03		86	%	50 - 150
			13C2-Perfluorododecanoic acid	2021/09/03		83	%	50 - 150
			13C2-Perfluorohexanoic acid	2021/09/03		93	%	50 - 150
			13C2-perfluorotetradecanoic acid	2021/09/03		72	%	50 - 150
			13C2-Perfluoroundecanoic acid	2021/09/03		82	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2021/09/03		93	%	50 - 150
			13C4-Perfluorobutanoic acid	2021/09/03		97	%	50 - 150
			13C4-Perfluoroheptanoic acid	2021/09/03		97	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2021/09/03		87	%	50 - 150
			13C4-Perfluorooctanoic acid	2021/09/03		94	%	50 - 150
			13C5-Perfluorononanoic acid	2021/09/03		92	%	50 - 150
			13C5-Perfluoropentanoic acid	2021/09/03		95	%	50 - 150
			13C8-Perfluorooctane Sulfonamide	2021/09/03		78	%	50 - 150
			1802-Perfluorohexanesulfonic acid	2021/09/03		91	%	50 - 150
			D3-MeFOSA	2021/09/03		50	%	50 - 150
			D5-EtFOSA	2021/09/03		49 (1)	%	50 - 150
			D7-MeFOSE	2021/09/03		70	%	50 - 150
			D9-EtFOSE	2021/09/03		66	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2021/09/03	<0.0039		ug/L	
			Perfluoropentanoic acid (PFPeA)	2021/09/03	<0.0067		ug/L	
			Perfluorohexanoic acid (PFHxA)	2021/09/03	<0.0053		ug/L	
			Perfluoroheptanoic acid (PFHpA)	2021/09/03	<0.0067		ug/L	
			Perfluorooctanoic acid (PFOA)	2021/09/03	<0.0050		ug/L	
			Perfluorononanoic acid (PFNA)	2021/09/03	<0.0051		ug/L	
			Perfluorodecanoic acid (PFDA)	2021/09/03	<0.0039		ug/L	
			Perfluoroundecanoic acid (PFUnA)	2021/09/03	<0.0062		ug/L	
			Perfluorododecanoic acid (PFDoA)	2021/09/03	<0.0080		ug/L	
			Perfluorotridecanoic acid (PFTRDA)	2021/09/03	<0.0064		ug/L	
			Perfluorotetradecanoic acid(PFTEDA)	2021/09/03	<0.0068		ug/L	
			Perfluorobutanesulfonic acid (PFBS)	2021/09/03	<0.0056		ug/L	
			Perfluorohexanesulfonic acid(PFHxS)	2021/09/03	<0.0044		ug/L	
			Perfluoroheptanesulfonic acid PFHpS	2021/09/03	<0.0065		ug/L	
			Perfluorooctanesulfonic acid (PFOS)	2021/09/03	<0.0057		ug/L	
			Perfluorodecanesulfonic acid (PFDS)	2021/09/03	<0.0064		ug/L	
			Perfluorooctane Sulfonamide (PFOSA)	2021/09/03	<0.0036		ug/L	
			EtFOSA	2021/09/03	<0.0070		ug/L	
			MeFOSA	2021/09/03	<0.0078		ug/L	
			EtFOSE	2021/09/03	<0.0071		ug/L	
			MeFOSE	2021/09/03	<0.0070		ug/L	

Page 11 of 13

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC										
Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits		
			6:2 Fluorotelomer sulfonic acid	2021/09/03	<0.0065		ug/L			
			8:2 Fluorotelomer sulfonic acid	2021/09/03	<0.0067		ug/L			
Duplicate	Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.									
Spiked B	lank: A b	olank matrix sample	e to which a known amount of the analyte, usually fro	om a second source, has b	een added. Use	d to evaluate me	thod accu	racy.		

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) Extracted internal standard analyte recovery was below the defined lower control limit (LCL) which may result in increased variability of the associated native analyte result (EtFOSA).



VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Colm McNamara, Senior Analyst, Liquid Chromatography

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

3						
	THIM IS A	H B B	7	~		· · · ·
S	O READER A			CHAIN OF CLISTORY RECORD		
	AND	6740 Campobello Road, Mississauga, Ontario LSN 2L8	3	FIN COC STOLEN	Page 1 of 1	
the second	4. Film	ne. 503-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266		ENV COC - 00014v0		Park in
1	Invoice Information Invoice To Requires Report	Report-Information (if differs from invoice)	<i>b</i>			
	company: BARNETAWLE (Duity	Company: R = Ta GA 2.1 T		Project Information		1 A A
10.11	Contact Name: STELE TER	Contact M	Quotation II:		27-Aug-21 11:49	
	Street Address Or Street Address Of Street Address Or Street	Name: M.M.ENDES/ P. THIBBULT	P.O. #/ AFE#:		Lori Dufour	f
	ATTENDED STATS MAINST. P.O. B 425	Address 701 George Wasit INGTON High	Project #:	18.06206.01		
· · ·	City: BARNSTARE Prov: MA Code: 02601	V City: LINCOLN Prov: RI Code Q28	65 Site #:	BARNSTALLE COUNTY FTA	C105329	
	Phone: 508-375-6603	Phone: 40(-333-2385	Site Location:	A The second sec		.*
	Email: Stebo@beinstable county. OB	Email: Man Mendesco BETA-ING. (S	A Province	MAGGACHUSETTS ILSA		4
•	copies: Pellisco bainstakecounty.oe	Expoples: Rthibartto BETA-INC. CON	Sampled By:	Rathibault		
	Regulatory Criti	1 2 3	4 5 6 7	8 9 10 11 12 13 14 15 16 17 18	19 20 21 22 Benular TurnAround Time (TAT)	
	ST Course G	Reg 558* Sanitary Sewer Bylaw			X 5 to 7 days D 10 days	x
		*min 3 day TAT Storm Sewer Bylaw MISA Municpality:		8	Bush Turn Around Time (TAT)	
	Include Criteria on Certificate o	Of Analysis (check if yes):	ANICS	sa t	Surcharges apply	-
	SAMPLES MUST BE KEPT COOL (21010) EROM THAT OF SAMPLES		ORG	3 3 4	Same Day Day	
	and a contract of the state of the state of the state of states	PLING ONTIL DELIVERY TO BUREAU VERITAS	8	Vera Met	🛱 🛱 🗆 2 Day 🗆 3 Day	_ ***
		Date Sampled Time (24hr)	F1 5	WIS WAS IN TAILS		
* e	Sample Identification	Matrix 111	F2 - F		Date YY MM DD	
		YY MM DD MH MM G G G E	HCs HCs CCs EG 1		Bequired:	
	1 INFLUENT-PRW-X4	2/ 08 25 13 00 000				*:
	2 GWTS #1- MIDPOINT	1 1730 000				
3 a	3 GWTS # 1 - EFFIVENT	1723 000				d 😜
-	4 GWTS # 2 - MIDPOINT					
	5 / WTS # Z - EFERMENT					52 52
	6					
	7					м — — — — — — — — — — — — — — — — — — —
*	8					
	0					
	10					
	10					1. R. R.
	11					
	12					
	13					
	14					1. A.
	15					
35	UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS C	CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITI	ONS SIGNING OF THE	S CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACC	EPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE	•
	LAR USE ONLY Yes No -	VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR E	Y CALLING THE LABOR	TATORY LISTED ABOVE TO OBTAIN A COPY	STATES OF BOATENINS AND CONDITIONS WHICH ARE AVAILABLE FOR	
	Seal intact V C 3.H S.S	2 H, 4 Seal Present "C		Seal present Yes	TEMPS BY:	
	Cooling medai present 1 2	3 Cooling Media Present	2	Seal intact 3 Cooling Marija Presard		· · · · · · · · · · · · · · · · · · ·
<i></i>	Relinquished by: (Signature/ Print) Dat	MM DD HH MM Relinquished by: (S	ignature/ Print)	Date	Time SPECIAL INSTRUCTIONS	
	Rutho Raca Tuin 1-21-	NO 24 14 10 10 1	+	YY MM DD HI	H MM	
	prover prover internet 21 - C	0.00 1300 00			0	
					1220033	
		A. Die	VA SU	CH Quelon Hur		
		no Ult	RASIN	CH ZOJIOXIJI IIUC	1	

z



October 20, 2021

Mark S. Ells, Town Manager Town of Barnstable 200 Main Street Hyannis, MA 02601

RE: Immediate Response Action Status and Remedial Monitoring Report #58 Barnstable County Fire and Rescue Training Academy 155 South Flint Rock Road Barnstable, Massachusetts DEP Release Tracking No. 4-26179 Project File #6206

Dear Mr. Ells,

As required by the Massachusetts Contingency Plan (MCP) 310 CMR 40.1403(3)(e) and 40.1403(6), BETA Group, Inc.(BETA) is notifying you on behalf of our client, Barnstable County, that an Immediate Response Action (IRA) Status and Remedial Monitoring Report (RMR) No. 58 is being submitted to the Massachusetts Department of Environmental Protection – Bureau of Waste Site Cleanup (MassDEP – BWSC) for the release site referenced as the Barnstable County Fire and Rescue Training Academy (BCFRTA) located at 155 South Flint Rock Road in Barnstable, Massachusetts (the site). This Report summarizes the IRA activities that occurred during the August 2021 monthly reporting period.

Pursuant to the Massachusetts Contingency Plan (310 CMR 40.0480), an Initial Site Investigation has been performed at the site. A release of oils and/or hazardous materials has occurred at the site. In August 2016, MassDEP Southeast Regional Office issued a Notice of Responsibility (NOR) to Barnstable County, as current owner and operator of the Barnstable County Fire and Rescue Training Academy (BCFRTA), that the detection of elevated concentrations of poly- and perfluorylalkyl substances (PFAS) in groundwater at the site constituted a release under the MCP. MassDEP issued Release Tracking Number (RTN) 4-26179 to this release. As summarized in the NOR, based on the detected PFAS concentrations in soil and groundwater at the BCFRTA and the inferred groundwater flow, MassDEP determined that the releases of PFAS from the use of aqueous film-forming foam (AFFF) at the BCFRTA is a source of PFAS detected in the Mary Dunn public water supply wells.

During the August reporting period, the treatment systems (GWTS #1 and GWTS#2) were both in operation for all or portions of approximately 31 days. The overall (average) system flow rate and gallons of groundwater treated are based on the available Effluent flow totalizer readings reported by the O&M contractor. For the August 2021 reporting period GWTS#1 and GWTS#2 treated an approximate combined 0.89 million gallons of groundwater from the downgradient recovery well PRW-4 at an average, total combined effluent flow rate of 20 gpm. Based on the total 0.89 million gallons treated, approximately 0.0021 kilograms of PFAS were estimated to have been removed from the plume area.

At this time, IRA activities are ongoing. Continuing IRA activities will include operation and monitoring of the on--Site Groundwater Pump and Treatment Systems (GWPTS), including performance sampling of GWPTS, review and evaluation of the on-Site GWPTS operation and maintenance activities as they affect groundwater treatment, periodic groundwater monitoring, and construction of the capping and select demolition project is underway. Additional details regarding the continuing IRA activities are included in the IRA Status and RMR No. 58 report document.

The IRA Status and RMR document is available electronically via the searchable sites database of the MassGOV / MassDEP website via the following link:

https://eeaonline.eea.state.ma.us/portal#!/wastesite/4-0026179

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely, BETA Group, Inc.

Par P. Theo

Roger P. Thibault, P.E., LSP Associate/Project Manager

Copies: Mass Department of Environmental Protection Southeast Regional Office 20 Riverside Drive Lakeville, MA 02347

> Thomas Mckean, Director Town of Barnstable Health Division 200 Main Street Hyannis, MA 02601

Hans Keijser, Supervisor Town of Barnstable Water Supply Division 47 Old Yarmouth Road Hyannis, MA 02601