Groundwater Remediation Systems
Quarterly Operations Report

April 1, 2023 through June 30, 2023

Brookhaven National Laboratory
Upton, Long Island, New York

Prepared by:

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Prepared for:

U.S. Department of Energy
Brookhaven Site Office

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2nd Quarter Groundwater Remediation Systems Operations Report

April 1, 2023 – June 30, 2023

Environmental Protection Division
Groundwater Protection Group

Brookhaven National Laboratory
Operated by
Brookhaven Science Associates
Upton, NY 11973

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Brookhaven National Laboratory

2nd Quarter Groundwater Remediation System Operations Report
April 1, 2023 through June 30, 2023

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Table 1 – Summary of Operations

Operable Unit System	*Type*	*Target Contaminant*	*Number of Wells*	*Years of Operation*	*Run Time for Quarter (%)*	*Pounds VOCS Removed (Quarter/Cumulative)*
Operable Unit I						
South Boundary	Pump & Treat (AS)	VOC	2	Operate – 16 Standby – 6	Closure Approved 9/19	0 369
Operable Unit III						
South Boundary	Pump and Treat (AS)	VOC	8	26	93%	1.67 3,079
HFBR Pump and Recharge	Pump & Recirculate	Tritium	4	Operate – 9 Standby – 16	Closure Approved 3/19	NA 180
Industrial Park	Recirc./In-Well (AS/Carbon)	VOC	7	Operate – 16 Standby – 7	Standby	0 1,066
	Pump & Treat (Carbon)	VOC	2	Operate – 4 Standby – 3	Standby	0 10
Building 96	Pump & Treat (AS) Recirc./In-Well (AS/Carbon)	VOC	4	Operate – 21 Standby – 1	100% PP	0.1 146
Middle Road	Pump &Treat (AS)	VOC	7	22	100%	5.12 1,367
Western South Boundary	Pump & Treat (AS)	VOC	6	21	100%	2.93 207
North Street	Pump & Treat (Carbon)	VOC	2	Operate – 9 Standby – 7	Closure Approved 3/20	NA 342
North Street East	Pump & Treat (Carbon)	VOC/EDB	4	Operate – 13 Standby – 6	100%	0.39 49
LIPA/Airport	Pump & Treat (Carbon)	VOC	10	19	50%	0.49 503
Industrial Park East	Pump & Treat (Carbon)	VOC	2	Operate – 5 Standby – 4	Dismantled 2013	NA 38
Chemical Holes	Pump & Treat (IE)	Sr-90	3	Operate – 15 Standby – 5	Standby	NA
BGRR/WCF	Pump & Treat (IE)	Sr-90	9	18	100% PP	NA
Freon	Pump & Treat (AS)	Freon-11	1	Operate – 4 Standby – 6	Closure Approved 9/19	0 106
Carbon Tetrachloride	Pump & Treat (Carbon)	VOC/Carbon Tetrachloride	3	Operate – 5 Standby – 5	Closure Approved 10/09	0 349
Operable Unit IV						
AOC 5 1997 Spill	AS/SVE	VOC	71	Operate – 4 Standby – 2	Closure Approved 7/03	0 35
Operable Unit VI						
EDB	Pump & Treat (Carbon)	EDB	2	19	92%	NA*
Operable Unit X						***Pounds PFAS Rem.***
Current Firehouse	Pump & Treat (Carbon)	PFAS	9	<1	100%	0.26
Former Firehouse	Pump & Treat (Carbon)	PFAS	3	<1	100%	0.1

AS = air stripping
SVE = soil vapor extraction
IE = ion exchange
NA = not applicable
PP = system is pulse pumping
EDB = ethylene dibromide
PFAS = per- and polyfluoroalkyl substances
Shaded = system closed
* EDB detected at trace levels.

In response to the recently released New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) discharge guidance values for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and 1,4-dioxane, select treatment systems are being sampled to establish a baseline for per & polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The treatment systems are being sampled on a quarterly basis and include:

- OU III Western South Boundary
- OU III Middle Road
- OU III South Boundary
- OU III LIPA/Airport
- OU III North Street EDB
- OU VI EDB *(being sampled for 1,4-dioxane only)*
- OU III BGRR/WCF Sr-90

During the second quarter and part of the third quarter 2023, each of these systems extraction wells, system influent, and system effluent were sampled for PFAS and 1,4-dioxane and analyzed by EPA Method 1633 and 8270 SIM, respectively. Due to high detection limits in the original dataset for OU III South Boundary, each of these extraction wells required resampling which occurred in August 2023. Due to the sampling timeframe, the OU III LIPA/Airport system was sampled in July 2023. Although collected outside of the second quarter, these data are included in this 2nd Quarter Operations Report to provide a complete dataset for each of the systems. The 'Hits Only' PFAS and 1,4-dioxane results are summarized in each of the relevant sections data tables.

The next treatment system sampling round for PFAS and 1,4-dioxane will be performed in October 2023 and include system influent and effluent only.

OU I/RA V South Boundary Pump & Treat System (System Closed)

Process: Groundwater extraction and air stripping treatment, with discharge to the RA V recharge basin.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030). The system was placed in standby in September 2013 and the Petition for Closure of the OU I South Boundary Groundwater Treatment System was approved by the regulators in September 2019.

Start Date: January 1997

Table 2-1
Pumping Rates (gpm)

Extraction Well	EW-1*	EW-2*
Site ID #	115-27	115-43
Screen Interval (ft bls)	150-190	104-124/134-154
Desired Rate (GPM)	0	0
April	Off	Off
May	Off	Off
June	Off	Off
Actual (Avg. over Qtr.)	Off	Off

* The system was shut down and approved for closure in September 2019.

OU I/RA V South Boundary Pump & Treat System
(System Closed)

Figure 2-1
Cumulative Mass Removal of VOCs vs. Time

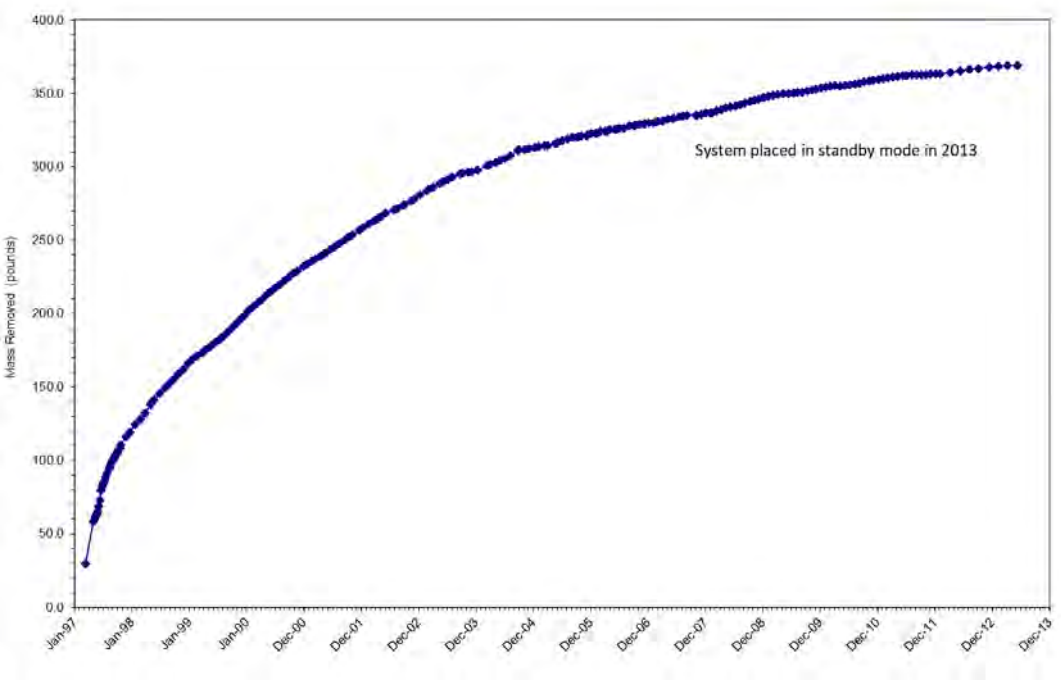
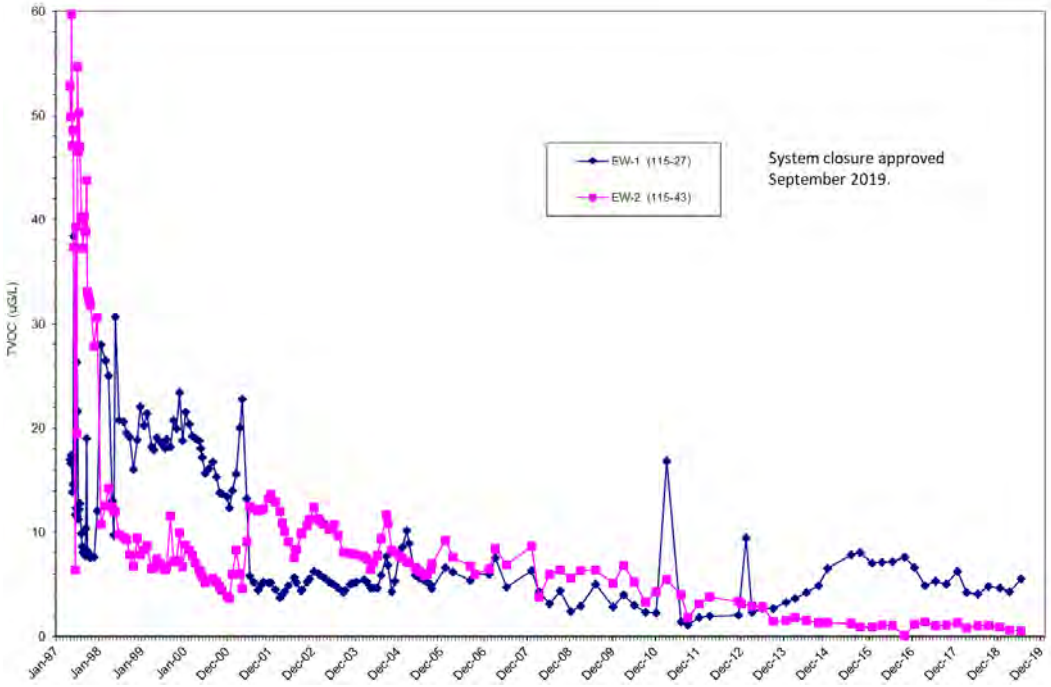


Figure 2-2
Extraction Well TVOC Concentrations vs. Time



OU I/RA V South Boundary Pump & Treat System
(System Closed)

Table 2-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations - April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**NA**	**GPD**	**Continuous**
pH (range)	**6.0- 9.0**	**NA**	**SU**	**Weekly**
Benzene	**0.8**	**NA**	**µg/L**	**Monthly**
Chloroform	**7.0**	**NA**	**µg/L**	**Monthly**
Chloroethane	**5.0**	**NA**	**µg/L**	**Monthly**
1,2-Dichloroethane	**5.0**	**NA**	**µg/L**	**Monthly**
1,1-Dichloroethene	**5.0**	**NA**	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5.0**	**NA**	**µg/L**	**Monthly**
Carbon Tetrachloride	**5.0**	**NA**	**µg/L**	**Quarterly**
1,2-Dichloropropane	**5.0**	**NA**	**µg/L**	**Quarterly**
Methylene Chloride	**5.0**	**NA**	**µg/L**	**Quarterly**
Trichloroethylene	**5.0**	**NA**	**µg/L**	**Quarterly**
Vinyl Chloride	**2.0**	**NA**	**µg/L**	**Quarterly**
1,2-Xylene	**5.0**	**NA**	**µg/L**	**Quarterly**
Sum of 1,3 and 1,4-Xylenes	**10.0**	**NA**	**µg/L**	**Quarterly**

NA = Not applicable, the system was closed in September 2019.

Monitoring Activities

In addition to the OU I/RA V South Boundary monitoring wells, Current Landfill monitoring well data are included since this is one of the sources of the OU I/RA V plume. The OU I / RA V South Boundary monitoring well network is shown on **Figure 2-3** and the 'Hits Only' second quarter 2023 data are summarized in **Table 2-3.**

As a follow-up to temporary monitoring wells installed in 2022, nine additional temporary wells (GP-69, GP-70, GP-71, GP-72, GP-73, GP-74, GP-99, GP-100, and GP-102) were installed in the second quarter of 2023 to track the migration of Sr-90 from the former Hazardous Waste Management Facility (HWMF). The maximum concentration of Sr-90 recorded was 144 pCi/L in GP-71. The temporary well locations are shown on

OU I/RA V South Boundary Pump & Treat System
(System Closed)

Figure 2-3. The data are presented and discussed in greater detail in the 2022 Groundwater Status Report.

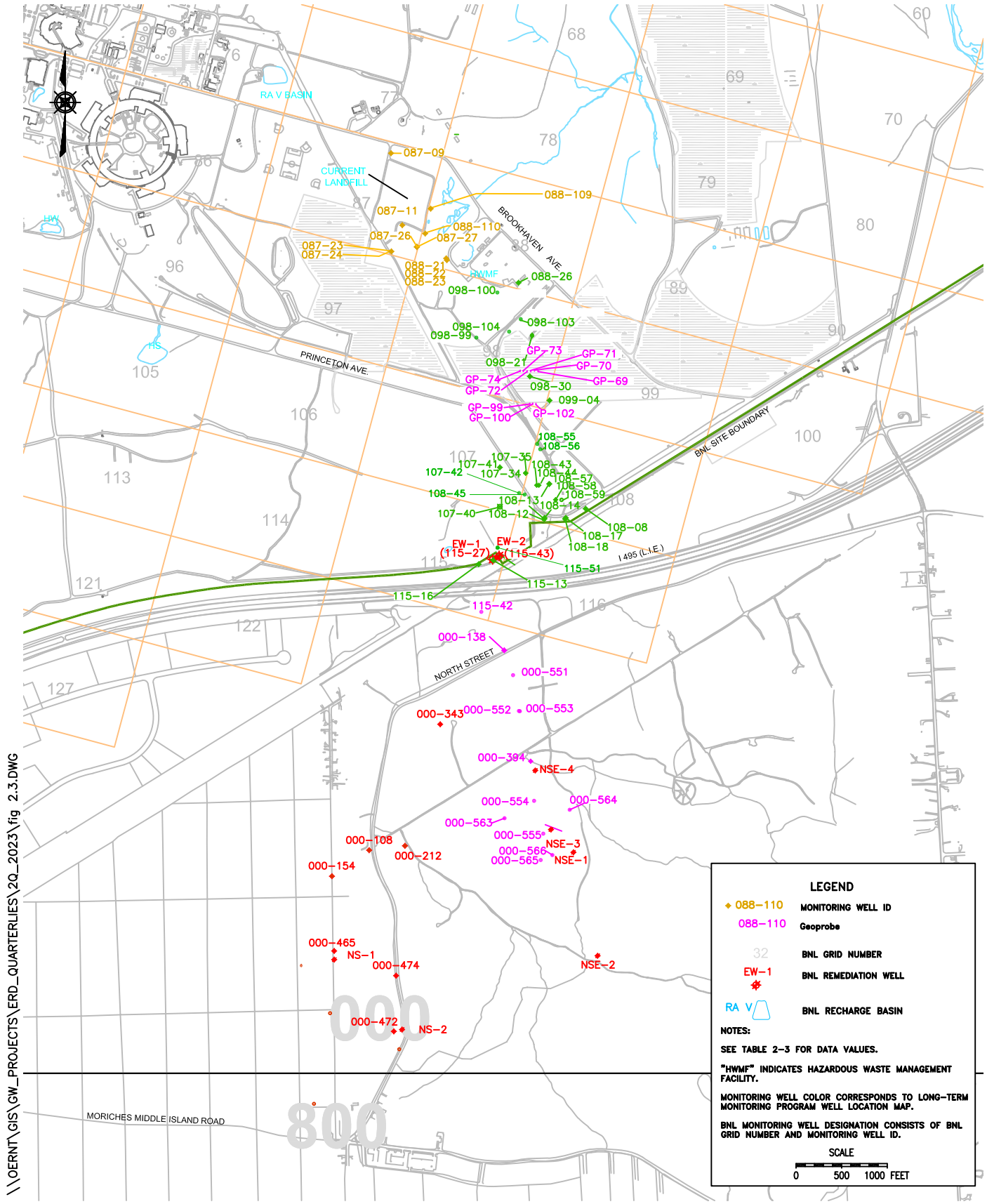
System Operations

April through June 2023:

The system remained closed.

Planned Operational Changes

- No planned operational changes.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I/RA V SOUTH BOUNDARY
OUIII NORTH STREET/NORTH STREET EAST MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	08/08/11	NA
CHKD:	APPD:	REV.:	NOTES:
LDS	––	08/17/23	–

FIGURE NO.: 2-3

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 087-09

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/22/2023	30.4	0.725	--	MG/L	29.00		
Ammonia (as N)	05/22/2023	0.025	0.017	--	MG/L	29.00	J	
Antimony	05/22/2023	6.64	3.5	--	UG/L	29.00	B	
Barium	05/22/2023	19.1	1	--	UG/L	29.00	B	
Calcium	05/22/2023	9860	50	--	UG/L	29.00		
Chloride	05/22/2023	40.2	0.335	--	MG/L	29.00		
Chromium	05/22/2023	7.63	1	--	UG/L	29.00	B	
Iron	05/22/2023	49.2	30	--	UG/L	29.00	B	
Magnesium	05/22/2023	4790	110	--	UG/L	29.00	B	
Manganese	05/22/2023	4.04	2	--	UG/L	29.00	B	
Nitrate (as N)	05/22/2023	1.14	0.165	--	MG/L	29.00		
Nitrite + Nitrate-N	05/22/2023	1.19	0.085	--	MG/L	29.00		
Nitrogen	05/22/2023	1.19	0.085	--	MG/L	29.00		
Potassium	05/22/2023	793	50	--	UG/L	29.00	B	
Sodium	05/22/2023	31000	100	--	UG/L	29.00		
Sulfate	05/22/2023	19.1	0.665	--	MG/L	29.00		
TDS	05/22/2023	105	2.38	--	MG/L	29.00		

Site ID : 087-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/24/2023	4.42	--	--	UG/L	16.00		
Alkalinity (as CaCO3)	05/24/2023	150	0.725	--	MG/L	16.00		
Ammonia (as N)	05/24/2023	2.36	0.085	--	MG/L	16.00		
Arsenic	05/24/2023	6.82	2	--	UG/L	16.00		
Barium	05/24/2023	24.6	1	--	UG/L	16.00	B	
Benzene	05/24/2023	1.96	0.5	--	UG/L	16.00		
Calcium	05/24/2023	17500	50	--	UG/L	16.00		
Chloride	05/24/2023	8.86	0.067	--	MG/L	16.00		
Chlorobenzene	05/24/2023	0.9	0.5	--	UG/L	16.00	J	
Chloroethane	05/24/2023	1.56	0.5	--	UG/L	16.00		
Chromium	05/24/2023	1.17	1	--	UG/L	16.00	B	
Copper	05/24/2023	10.5	3	--	UG/L	16.00	B	
Iron	05/24/2023	81600	30	--	UG/L	16.00		
Magnesium	05/24/2023	2890	110	--	UG/L	16.00	B	

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 087-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Manganese	05/24/2023	1260	2	--	UG/L	16.00		
Nitrogen	05/24/2023	2.64	0.033	--	MG/L	16.00		
Potassium	05/24/2023	2400	50	--	UG/L	16.00	B	
Silver	05/24/2023	1.08	1	--	UG/L	16.00	B	
Sodium	05/24/2023	4500	100	--	UG/L	16.00	B	
Sulfate	05/24/2023	0.345	0.133	--	MG/L	16.00	J	
TDS	05/24/2023	163	2.38	--	MG/L	16.00		
Total Kjeldahl Nitrogen	05/24/2023	2.64	0.033	--	MG/L	16.00		
TSS	05/24/2023	22.4	1.14	--	MG/L	16.00		
Vanadium	05/24/2023	2.18	1	--	UG/L	16.00	B	

Site ID : 087-23

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/24/2023	0.47	--	--	UG/L	35.00		
Alkalinity (as CaCO3)	05/24/2023	49.2	0.725	--	MG/L	35.00		
Ammonia (as N)	05/24/2023	0.321	0.017	--	MG/L	35.00		
Arsenic	05/24/2023	13.1	2	--	UG/L	35.00		
Barium	05/24/2023	25.8	1	--	UG/L	35.00	B	
Calcium	05/24/2023	3230	50	--	UG/L	35.00	B	
Chloride	05/24/2023	9.91	0.067	--	MG/L	35.00		
Chloroethane	05/24/2023	0.47	0.5	--	UG/L	35.00	J	
Cobalt	05/24/2023	12	1	--	UG/L	35.00	B	
Iron	05/24/2023	36900	30	--	UG/L	35.00		
Magnesium	05/24/2023	916	110	--	UG/L	35.00	B	
Manganese	05/24/2023	2780	2	--	UG/L	35.00		
Nitrogen	05/24/2023	0.424	0.033	--	MG/L	35.00		
Potassium	05/24/2023	932	50	--	UG/L	35.00	B	
Sodium	05/24/2023	5940	100	--	UG/L	35.00		
Sulfate	05/24/2023	1.76	0.133	--	MG/L	35.00		
TDS	05/24/2023	62	2.38	--	MG/L	35.00		
Total Kjeldahl Nitrogen	05/24/2023	0.418	0.033	--	MG/L	35.00		
TSS	05/24/2023	10.9	0.814	--	MG/L	35.00		
Zinc	05/24/2023	3.84	3.3	--	UG/L	35.00	B	

Site ID : 087-24

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/24/2023	38.5	0.725	--	MG/L	75.00		

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 087-24

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Antimony	05/24/2023	7.4	3.5	--	UG/L	75.00	B	
Barium	05/24/2023	27.6	1	--	UG/L	75.00	B	
Calcium	05/24/2023	9270	50	--	UG/L	75.00		
Chloride	05/24/2023	76.9	1.34	--	MG/L	75.00		
Magnesium	05/24/2023	5510	110	--	UG/L	75.00		
Nitrate (as N)	05/24/2023	0.269	0.033	--	MG/L	75.00		
Nitrite + Nitrate-N	05/24/2023	0.295	0.017	--	MG/L	75.00		
Nitrogen	05/24/2023	0.295	0.033	--	MG/L	75.00		
Potassium	05/24/2023	1760	50	--	UG/L	75.00	B	
Sodium	05/24/2023	56800	100	--	UG/L	75.00		
Sulfate	05/24/2023	15.4	0.133	--	MG/L	75.00		
TDS	05/24/2023	184	2.38	--	MG/L	75.00		
TSS	05/24/2023	1	0.814	--	MG/L	75.00	J	

Site ID : 087-26

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/22/2023	3.43	--	--	UG/L	75.00		
Alkalinity (as CaCO3)	05/22/2023	31.1	0.725	--	MG/L	75.00		
Ammonia (as N)	05/22/2023	0.017	0.017	--	MG/L	75.00	J	
Antimony	05/22/2023	6.72	3.5	--	UG/L	75.00	B	
Barium	05/22/2023	30.9	1	--	UG/L	75.00	B	
Calcium	05/22/2023	6650	50	--	UG/L	75.00		
Chloride	05/22/2023	47.6	0.67	--	MG/L	75.00		
Chloroform	05/22/2023	3.43	0.5	--	UG/L	75.00		
Iron	05/22/2023	186	30	--	UG/L	75.00		
Magnesium	05/22/2023	3860	110	--	UG/L	75.00	B	
Nitrate (as N)	05/22/2023	0.412	0.033	--	MG/L	75.00		
Nitrite + Nitrate-N	05/22/2023	0.437	0.017	--	MG/L	75.00		
Nitrogen	05/22/2023	0.465	0.033	--	MG/L	75.00		
Potassium	05/22/2023	1460	50	--	UG/L	75.00	B	
Sodium	05/22/2023	34200	100	--	UG/L	75.00		
Sulfate	05/22/2023	9.29	0.133	--	MG/L	75.00		
TDS	05/22/2023	107	2.38	--	MG/L	75.00		
TSS	05/22/2023	0.857	0.814	--	MG/L	75.00	J	

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 087-27

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/22/2023	0.68	--	--	UG/L	12.50		
Alkalinity (as CaCO3)	05/22/2023	106	0.725	--	MG/L	12.50		
Ammonia (as N)	05/22/2023	1.43	0.085	--	MG/L	12.50		
Antimony	05/22/2023	7.65	3.5	--	UG/L	12.50	B	
Arsenic	05/22/2023	5.56	2	--	UG/L	12.50		
Barium	05/22/2023	32	1	--	UG/L	12.50	B	
Benzene	05/22/2023	0.68	0.5	--	UG/L	12.50	J	
Calcium	05/22/2023	15100	50	--	UG/L	12.50		
Chloride	05/22/2023	47.7	0.67	--	MG/L	12.50		
Cobalt	05/22/2023	5.79	1	--	UG/L	12.50	B	
Iron	05/22/2023	48400	30	--	UG/L	12.50		
Magnesium	05/22/2023	3570	110	--	UG/L	12.50	B	
Manganese	05/22/2023	1060	2	--	UG/L	12.50		
Nitrite + Nitrate-N	05/22/2023	0.0296	0.017	--	MG/L	12.50	J	
Nitrogen	05/22/2023	1.66	0.033	--	MG/L	12.50		
Potassium	05/22/2023	2760	50	--	UG/L	12.50	B	
Sodium	05/22/2023	29100	100	--	UG/L	12.50		
Sulfate	05/22/2023	3.95	0.133	--	MG/L	12.50		
TDS	05/22/2023	204	2.38	--	MG/L	12.50		
Total Kjeldahl Nitrogen	05/22/2023	1.63	0.033	--	MG/L	12.50		
TSS	05/22/2023	5.29	0.814	--	MG/L	12.50		

Site ID : 088-109

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/22/2023	17.95	--	--	UG/L	13.50		
1,1-Dichloroethane	05/22/2023	5.09	0.5	--	UG/L	13.50		
Alkalinity (as CaCO3)	05/22/2023	108	0.725	--	MG/L	13.50		
Ammonia (as N)	05/22/2023	1.48	0.085	--	MG/L	13.50		
Antimony	05/22/2023	8.32	3.5	--	UG/L	13.50	B	
Arsenic	05/22/2023	5.59	2	--	UG/L	13.50		
Barium	05/22/2023	38.5	1	--	UG/L	13.50	B	
Benzene	05/22/2023	0.36	0.5	--	UG/L	13.50	J	
Calcium	05/22/2023	24100	50	--	UG/L	13.50		
Chloride	05/22/2023	16.1	0.335	--	MG/L	13.50		

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 088-109

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroethane	05/22/2023	12.5	0.5	--	UG/L	13.50		
Cobalt	05/22/2023	2.62	1	--	UG/L	13.50	B	
Iron	05/22/2023	40700	30	--	UG/L	13.50		
Magnesium	05/22/2023	5070	110	--	UG/L	13.50		
Manganese	05/22/2023	1170	2	--	UG/L	13.50		
Nitrite + Nitrate-N	05/22/2023	0.026	0.017	--	MG/L	13.50	J	
Nitrogen	05/22/2023	1.74	0.033	--	MG/L	13.50		
Potassium	05/22/2023	3410	50	--	UG/L	13.50	B	
Sodium	05/22/2023	12100	100	--	UG/L	13.50		
Sulfate	05/22/2023	8.19	0.133	--	MG/L	13.50		
TDS	05/22/2023	108	2.38	--	MG/L	13.50		
Total Kjeldahl Nitrogen	05/22/2023	1.71	0.033	--	MG/L	13.50		
TSS	05/22/2023	24	1.63	--	MG/L	13.50		
Zinc	05/22/2023	3.9	3.3	--	UG/L	13.50	B	

Site ID : 088-110

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/22/2023	1.1	--	--	UG/L	17.50		
Alkalinity (as CaCO3)	05/22/2023	76.7	0.725	--	MG/L	17.50		
Ammonia (as N)	05/22/2023	0.408	0.017	--	MG/L	17.50		
Arsenic	05/22/2023	7.93	2	--	UG/L	17.50		
Barium	05/22/2023	29.4	1	--	UG/L	17.50	B	
Calcium	05/22/2023	14300	50	--	UG/L	17.50		
Chloride	05/22/2023	38	0.335	--	MG/L	17.50		
Chloroethane	05/22/2023	1.1	0.5	--	UG/L	17.50		
Cobalt	05/22/2023	1.72	1	--	UG/L	17.50	B	
Iron	05/22/2023	31400	30	--	UG/L	17.50		
Magnesium	05/22/2023	3800	110	--	UG/L	17.50	B	
Manganese	05/22/2023	2620	2	--	UG/L	17.50		
Nitrite + Nitrate-N	05/22/2023	0.0267	0.017	--	MG/L	17.50	J	
Nitrogen	05/22/2023	0.447	0.033	--	MG/L	17.50		
Potassium	05/22/2023	2100	50	--	UG/L	17.50	B	
Sodium	05/22/2023	21500	100	--	UG/L	17.50		
Sulfate	05/22/2023	12.3	0.133	--	MG/L	17.50		

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 088-110

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
TDS	05/22/2023	145	2.38	--	MG/L	17.50		
Total Kjeldahl Nitrogen	05/22/2023	0.42	0.033	--	MG/L	17.50		
TSS	05/22/2023	5	0.814	--	MG/L	17.50		

Site ID : 088-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/24/2023	31.8	0.725	--	MG/L	12.50		
Antimony	05/24/2023	4.58	3.5	--	UG/L	12.50	B	
Barium	05/24/2023	39.2	1	--	UG/L	12.50	B	
Calcium	05/24/2023	6200	50	--	UG/L	12.50		
Chloride	05/24/2023	101	1.34	--	MG/L	12.50		
Iron	05/24/2023	162	30	--	UG/L	12.50		
Magnesium	05/24/2023	3460	110	--	UG/L	12.50	B	
Manganese	05/24/2023	37.3	2	--	UG/L	12.50		
Nitrate (as N)	05/24/2023	0.236	0.033	--	MG/L	12.50		
Nitrite + Nitrate-N	05/24/2023	0.249	0.017	--	MG/L	12.50		
Nitrogen	05/24/2023	0.365	0.033	--	MG/L	12.50		
Potassium	05/24/2023	1780	50	--	UG/L	12.50	B	
Sodium	05/24/2023	69700	100	--	UG/L	12.50		
Sulfate	05/24/2023	4.73	0.133	--	MG/L	12.50		
TDS	05/24/2023	207	2.38	--	MG/L	12.50		
Total Kjeldahl Nitrogen	05/24/2023	0.116	0.033	--	MG/L	12.50		
TSS	05/24/2023	1.57	0.814	--	MG/L	12.50	J	

Site ID : 098-99

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/24/2023	3.88	--	--	UG/L	44.50		
1,1-Dichloroethane	05/24/2023	3.88	0.5	--	UG/L	44.50		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III South Boundary Pump and Treat System

Process: Groundwater extraction and air stripping treatment, with discharge to both the OU III and RAV recharge basins.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells in OU III within 30 years for the Upper Glacial aquifer (by 2030).

Start Date: June 1997

Table 3-1
Pumping Rates (gpm)

Extraction Well	EW-3	EW-4	EW-5	EW-6	EW-7	EW-8	EW-12	EW-17
Site ID	121-17	121-16	121-15	122-14	122-13	122-12	122-30	121-46
Screen Interval (ft bls)	150-190	160-180 &190-200	160-200	160-200	170-210	190-210 & 230-250	180-220	207-237
Desired Flow Rate (gpm)	0*	0*	0*	0*	0*	0*	0*	150
April (Avg monthly gpm)	0	0	0	0	0	0	0	102**
May " "	0	0	0	0	0	0	0	146
June " "	0	0	0	0	0	0	0	185
Actual (Avg. over Qtr)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**144**

*Extraction wells placed in standby mode: EW-12 (2003), EW-8 (2006), EW-6 (2007), EW-7 (2007), EW-3 (2015), EW-5 (2015), and EW-4 (2021).
****** EW-17 was off for repairs during the first week of April.

OU III South Boundary Pump and Treat System

Figure 3-1
Cumulative Mass Removal of VOCs vs. Time

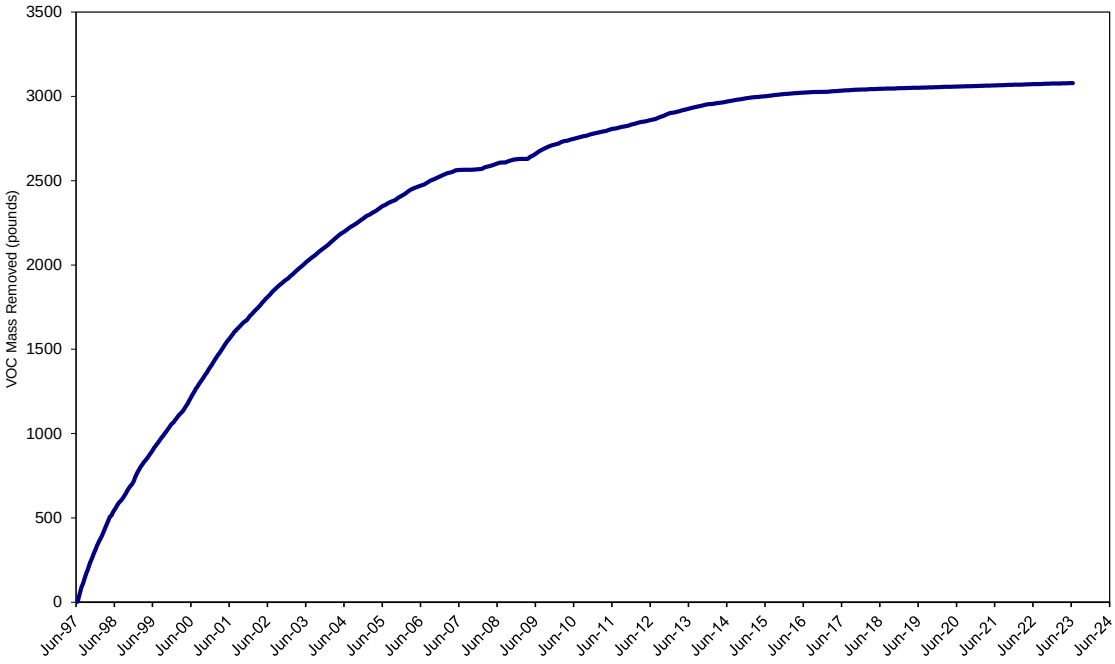
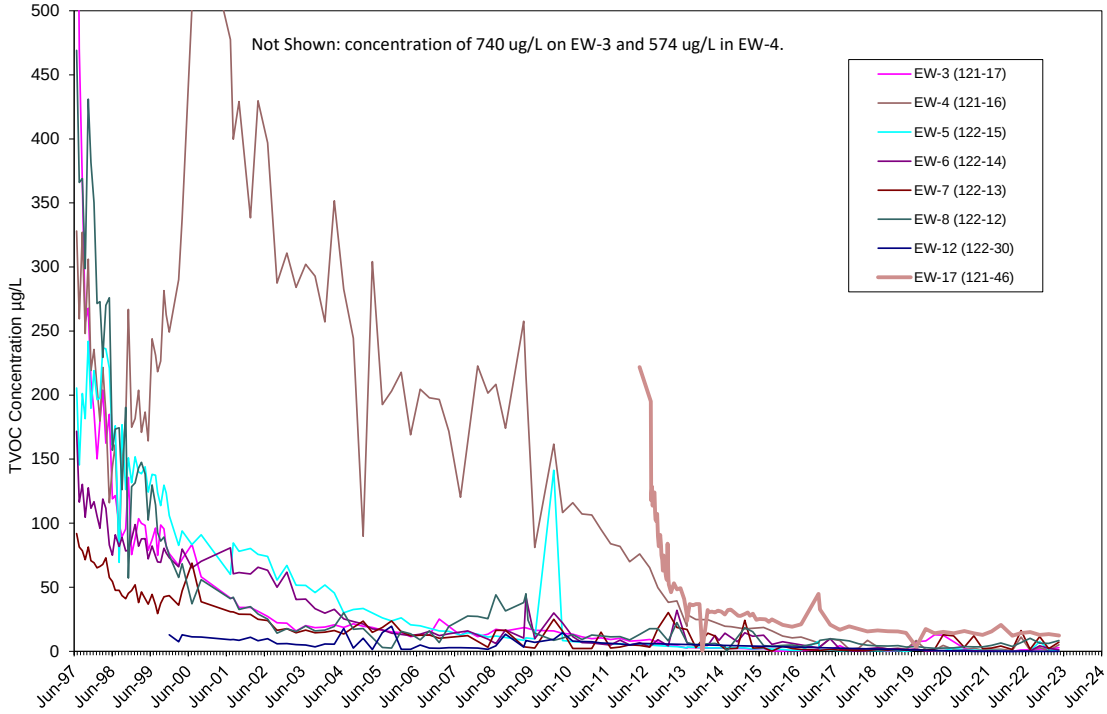


Figure 3-2
Extraction Well TVOC Concentration vs. Time



OU III South Boundary Pump and Treat System

Table 3-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations - April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**1,619,743[1]**	**GPD**	**Continuous**
pH (range)	**6.5 - 8.5**	**7.15 – 7.29[2]**	**SU**	**Monthly[3]**
Carbon Tetrachloride	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Chloroform	**7.0**	**<0.50**	**µg/L**	**Monthly[3]**
Dichlorodifluoromethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1-Dichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1-Dichloroethylene	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Methyl Chloride	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Tetrachloroethylene	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Toluene	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1,1-Trichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1,2 Trichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Trichloroethylene	**10.0**	**<0.50**	**µg/L**	**Monthly[3]**

[1] The maximum monthly average flow rate for both the OU III South Boundary, Middle Road, and Western South Boundary Systems, during the operational period.
[2] The minimum and maximum pH values during the operational period.
[3] Beginning in April 2003, a SPDES modification was approved revising the pH and volatile organic sampling to once a month.

Monitoring Activities:

The OU III South Boundary monitoring well data show the highest concentration of TVOCs in plume core monitoring well 121-54 at 75 µg/L. The highest individual VOC concentration recorded in this well was tetrachloroethylene (PCE) at 64 µg/L. The TVOC concentration in monitoring well 121-53, adjacent to 121-54, was 27 µg/L. PCE was recorded at 25 µg/L in this well. The OU III South Boundary monitoring well network is shown on **Figure 3-3.** The 'Hits Only' second quarter 2023 data are summarized in **Table 3-3.**

OU III South Boundary Pump and Treat System

System Operations

April 2023:

Extraction well EW-17 was off for repairs during the first week of April. EW-17 was in full-time operation the remainder of the month. Wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8, and EW-12 remained in standby mode. An effluent sample was taken from the OU III South Boundary air stripping tower (095-126) and the system treated approximately 4 million gallons of water.

May 2023:

The system operated normally for the month with extraction well EW-17 in full-time operation. Wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8, and EW-12 remained in standby mode. An effluent sample was taken from the OU III South Boundary air stripping tower (095-126) and the system treated approximately 6 million gallons of water.

June 2023:

The system operated normally for the month with extraction well EW-17 in full-time operation. Wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8, and EW-12 remained in standby mode. An effluent sample was taken from the OU III Middle Road air stripping tower (095-270) and the system treated approximately 8 million gallons of water.

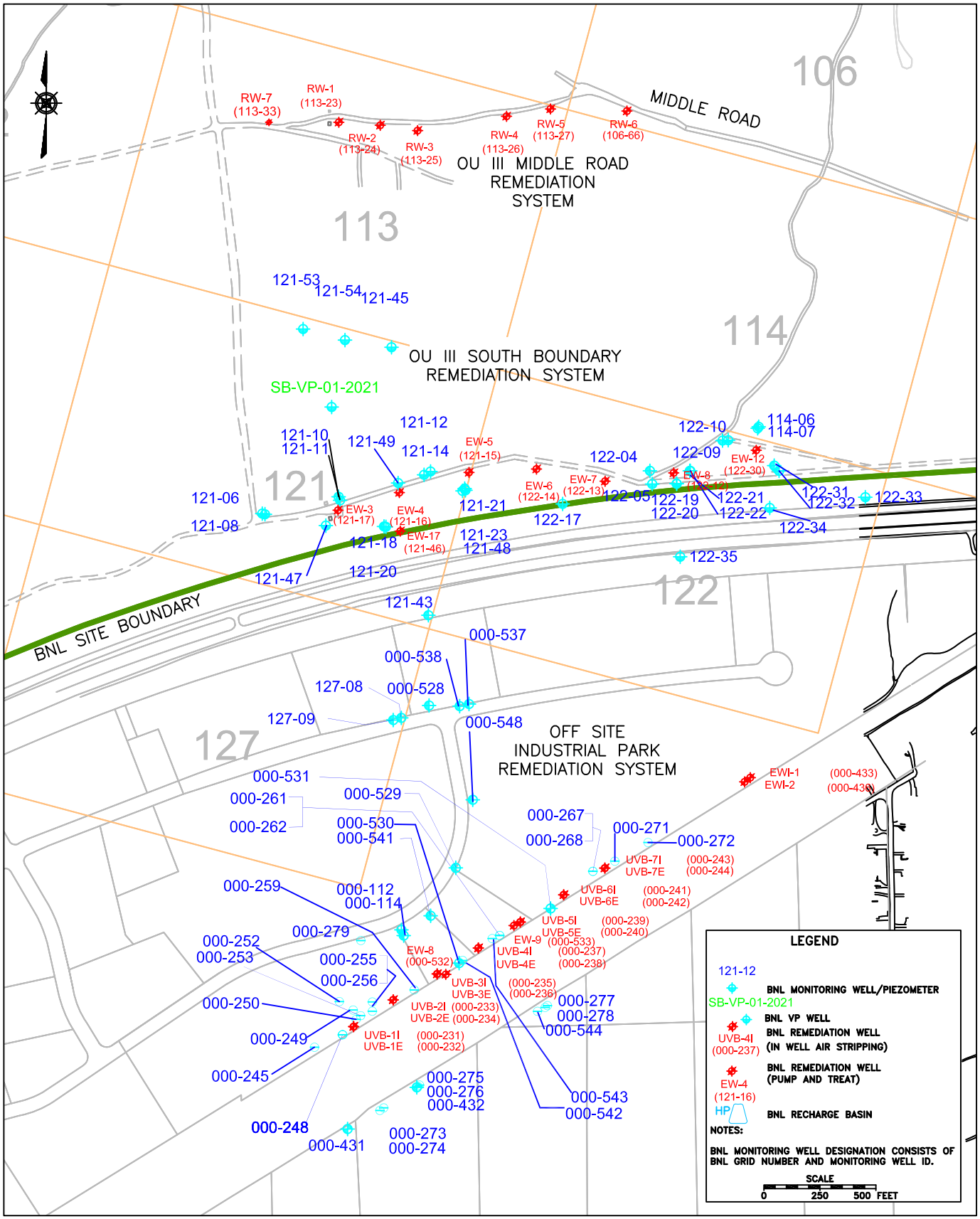
The system treated approximately 18 million gallons of water during the second quarter of 2023. The treatment system 'Hits Only' data, including individual extraction wells, influent, and effluent is summarized in **Table 3-4** through **Table 3-6.**

Planned Operational Changes

- Maintain extraction wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8, and EW-12 in standby mode. The system's extraction wells will continue to be sampled on a quarterly basis, with the exception of EW-12. The wells will be restarted if extraction or monitoring well data indicate TVOC concentrations exceed the 50 µg/L capture goal. During the second quarter, TVOC concentrations in extraction wells EW-3, EW-4 EW-5, EW-6, EW-7, EW-8, and adjacent monitoring wells were each less than 50 µg/L.
- Continue to operate extraction well EW-17 on a full-time basis. During the second quarter, TVOC concentrations in extraction well EW-17 were less than 50 µg/L. TVOC concentrations in monitoring well 121-49 were 130 µg/L during March 2023.
- Discontinue sampling for tritium on the influent of the OU III South Boundary Treatment System as tritium has not been detected at this location for over 20 years.
- Install a permanent monitoring well at the location of the vertical profile SB-VP-01-2021 installed during 2021.

OU III South Boundary Pump and Treat System

- The concentrations of VOCs in the Deep Upper Glacial aquifer in this area of the site are not declining at a rate that will meet the ROD cleanup goal by 2030. To address this, per the 2021 CERCLA Five-Year Review Report (BNL 2021) recommendations, groundwater modeling simulations will be performed to evaluate the best locations, extraction rates, and number of extraction wells to design an appropriate system modification. The regional groundwater model will be reviewed prior to this modeling effort and updated as necessary to accurately represent the Upton Unit and its lower hydraulic conductivity.



\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2023\FIG 3-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE: OU III SOUTH BOUNDARY/INDUSTRIAL PARK/INDUSTRIAL PARK AREA MONITORING WELL NETWORKS
SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
JEB	–	09/12/14	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	09/25/23	–

FIGURE NO.: 3–3

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 121-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/08/2023	2.27	--	--	UG/L	185.00		
1,1,1-Trichloroethane	05/08/2023	0.35	0.5	--	UG/L	185.00	J	
1,1-Dichloroethylene	05/08/2023	0.3	0.5	--	UG/L	185.00	J	
Chloroform	05/08/2023	0.32	0.5	--	UG/L	185.00	J	
Tetrachloroethylene	05/08/2023	0.48	0.5	--	UG/L	185.00	J	
Trichloroethylene	05/08/2023	0.82	0.5	--	UG/L	185.00		

Site ID : 121-10

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2023	1.84	--	--	UG/L	165.00		
Chloroform	05/04/2023	0.36	0.5	--	UG/L	165.00	J	
Methyl tert-butyl ether	05/04/2023	0.79	0.5	--	UG/L	165.00		
Tetrachloroethylene	05/04/2023	0.69	0.5	--	UG/L	165.00		

Site ID : 121-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2023	18.11	--	--	UG/L	205.00		
1,1,1-Trichloroethane	05/04/2023	0.43	0.5	--	UG/L	205.00	J	
1,1-Dichloroethylene	05/04/2023	0.42	0.5	--	UG/L	205.00	J	
Carbon tetrachloride	05/04/2023	4.2	0.5	--	UG/L	205.00		
Chloroform	05/04/2023	0.46	0.5	--	UG/L	205.00	J	
Tetrachloroethylene	05/04/2023	12	0.5	--	UG/L	205.00		
Trichloroethylene	05/04/2023	0.6	0.5	--	UG/L	205.00		

Site ID : 121-14

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2023	0.57	--	--	UG/L	195.00		
Chloroform	05/04/2023	0.31	0.5	--	UG/L	195.00	J	
Tetrachloroethylene	05/04/2023	0.26	0.5	--	UG/L	195.00	J	

Site ID : 121-43

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/31/2023	2.15	--	--	UG/L	195.00		
Chloroform	05/31/2023	0.29	0.5	--	UG/L	195.00	J	
Dichlorodifluoromethane	05/31/2023	0.36	0.5	--	UG/L	195.00	J	
Tetrachloroethylene	05/31/2023	1.5	0.5	--	UG/L	195.00		

Site ID : 121-45

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2023	12.01	--	--	UG/L	204.50		

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 121-45

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/12/2023	0.49	1	--	UG/L	204.50	J D	
Chloroform	05/12/2023	0.84	1	--	UG/L	204.50	J D	
Tetrachloroethylene	05/12/2023	9.8	1	--	UG/L	204.50	D	
Trichloroethylene	05/12/2023	0.88	1	--	UG/L	204.50	J D	

Site ID : 121-47

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	10.78	--	--	UG/L	229.00		
1,1,1-Trichloroethane	05/05/2023	2.5	0.5	--	UG/L	229.00		
1,1-Dichloroethane	05/05/2023	1.1	0.5	--	UG/L	229.00		
1,1-Dichloroethylene	05/05/2023	4.1	0.5	--	UG/L	229.00		
Chloroform	05/05/2023	1.2	0.5	--	UG/L	229.00		
Dichlorodifluoromethane	05/05/2023	0.41	0.5	--	UG/L	229.00	J	
Tetrachloroethylene	05/05/2023	0.37	0.5	--	UG/L	229.00	J	
Trichloroethylene	05/05/2023	1.1	0.5	--	UG/L	229.00		

Site ID : 121-48

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2023	19.39	--	--	UG/L	228.00		
1,1,1-Trichloroethane	05/04/2023	4.3	0.5	--	UG/L	228.00		
1,1-Dichloroethylene	05/04/2023	4.3	0.5	--	UG/L	228.00		
1,2-Dichloroethane	05/04/2023	0.2	0.5	--	UG/L	228.00	J	
Carbon tetrachloride	05/04/2023	2.6	0.5	--	UG/L	228.00		
Chloroform	05/04/2023	0.85	0.5	--	UG/L	228.00		
cis-1,2-Dichloroethylene	05/04/2023	0.77	0.5	--	UG/L	228.00		
Dichlorodifluoromethane	05/04/2023	0.27	0.5	--	UG/L	228.00	J	
Tetrachloroethylene	05/04/2023	1.9	0.5	--	UG/L	228.00		
Trichloroethylene	05/04/2023	4.2	0.5	--	UG/L	228.00		

Site ID : 121-53

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	26.59	--	--	UG/L	229.00		
1,1,1-Trichloroethane	05/05/2023	0.18	0.5	--	UG/L	229.00	J	
Carbon tetrachloride	05/05/2023	0.66	0.5	--	UG/L	229.00		
Chloroform	05/05/2023	0.42	0.5	--	UG/L	229.00	J	
Tetrachloroethylene	05/05/2023	25	0.5	--	UG/L	229.00		

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 121-53

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Trichloroethylene	05/05/2023	0.33	0.5	--	UG/L	229.00	J	

Site ID : 121-54

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	75.12	--	--	UG/L	220.00		
1,1,1-Trichloroethane	05/05/2023	0.52	0.5	--	UG/L	220.00		
1,1-Dichloroethylene	05/05/2023	0.46	0.5	--	UG/L	220.00	J	
Carbon tetrachloride	05/05/2023	8.7	0.5	--	UG/L	220.00		
Chloroform	05/05/2023	0.59	0.5	--	UG/L	220.00		
Tetrachloroethylene	05/05/2023	64	1	--	UG/L	220.00	D	
Trichloroethylene	05/05/2023	0.85	0.5	--	UG/L	220.00		

Site ID : 122-05

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	19.62	--	--	UG/L	271.50		
1,1,1-Trichloroethane	05/05/2023	0.71	0.5	--	UG/L	271.50		
1,1-Dichloroethylene	05/05/2023	0.26	0.5	--	UG/L	271.50	J	
Chloroform	05/05/2023	0.35	0.5	--	UG/L	271.50	J	
cis-1,2-Dichloroethylene	05/05/2023	14	0.5	--	UG/L	271.50		
Tetrachloroethylene	05/05/2023	2.7	0.5	--	UG/L	271.50		
Trichloroethylene	05/05/2023	1.6	0.5	--	UG/L	271.50		

Site ID : 122-17

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	6.12	--	--	UG/L	210.00		
1,1,1-Trichloroethane	05/05/2023	0.27	0.5	--	UG/L	210.00	J	
Carbon tetrachloride	05/05/2023	1.4	0.5	--	UG/L	210.00		
Chloroform	05/05/2023	0.78	0.5	--	UG/L	210.00		
cis-1,2-Dichloroethylene	05/05/2023	0.17	0.5	--	UG/L	210.00	J	
Tetrachloroethylene	05/05/2023	2	0.5	--	UG/L	210.00		
Trichloroethylene	05/05/2023	1.5	0.5	--	UG/L	210.00		

Table 3-4
OU III South Boundary Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 121-15 (EW-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	0.26	0	--	UG/L	0		
Tetrachloroethylene	4/17/2023	0.26	0.5	--	UG/L	0	J	
1,4-Dioxane	6/28/2023	1.1	0.2	--	UG/L	180		
1633 TPFAS	8/8/2023	49.48	0	--	NG/L	180		
Perfluorobutanesulfonate (PFBS)	8/8/2023	1.1	1.5	--	NG/L	180	J	
Perfluorobutyric acid (PFBA)	8/8/2023	12	6.1	--	NG/L	180		
Perfluorodecanoic acid (PFDA)	8/8/2023	0.28	1.5	--	NG/L	180	J	
Perfluoroheptanoic acid (PFHpA)	8/8/2023	1.5	1.5	--	NG/L	180		
Perfluorohexanesulfonate (PFHxS)	8/8/2023	13	1.5	--	NG/L	180		
Perfluorohexanoic acid (PFHxA)	8/8/2023	3.6	1.5	--	NG/L	180		
Perfluorononanoic acid (PFNA)	8/8/2023	0.39	1.5	--	NG/L	180	J	
Perfluorooctane sulfonamide (PFOSAm)	8/8/2023	0.91	1.5	--	NG/L	180	J	
Perfluorooctanesulfonate (PFOS)	8/8/2023	8.1	1.5	--	NG/L	180		
Perfluorooctanoic acid (PFOA)	8/8/2023	4.9	1.5	--	NG/L	180		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	1.3	1.5	--	NG/L	180	J	
Perfluoropentanoic acid (PFPeA)	8/8/2023	2.4	3	--	NG/L	180	J	

Site ID : 121-16 (EW-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	5.03	0	--	UG/L	0		
Carbon tetrachloride	4/17/2023	0.54	0.5	--	UG/L	0		
Chloroform	4/17/2023	0.36	0.5	--	UG/L	0	J	
Tetrachloroethylene	4/17/2023	3.9	0.5	--	UG/L	0		
Trichloroethylene	4/17/2023	0.23	0.5	--	UG/L	0	J	
1,4-Dioxane	6/28/2023	0.35	0.2	--	UG/L	180		
1633 TPFAS	8/8/2023	79.81	0	--	NG/L	180		
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	8/8/2023	0.4	5.5	--	NG/L	180	J	
Fluorotelomer sulfonate 6:2 (6:2 FTS)	8/8/2023	0.55	5.5	--	NG/L	180	J	
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	8/8/2023	0.52	5.5	--	NG/L	180	J	
Perfluorobutanesulfonate (PFBS)	8/8/2023	1.8	1.4	--	NG/L	180		
Perfluorobutyric acid (PFBA)	8/8/2023	5.6	5.5	--	NG/L	180		
Perfluorodecanoic acid (PFDA)	8/8/2023	0.29	1.4	--	NG/L	180	J	
Perfluoroheptanesulfonate (PFHpS)	8/8/2023	1	1.4	--	NG/L	180	J	
Perfluoroheptanoic acid (PFHpA)	8/8/2023	1.7	1.4	--	NG/L	180		
Perfluorohexanesulfonate (PFHxS)	8/8/2023	35	1.4	--	NG/L	180		
Perfluorohexanoic acid (PFHxA)	8/8/2023	6.3	1.4	--	NG/L	180		
Perfluorononanoic acid (PFNA)	8/8/2023	0.85	1.4	--	NG/L	180	J	
Perfluorooctane sulfonamide (PFOSAm)	8/8/2023	1.8	1.4	--	NG/L	180		
Perfluorooctanesulfonate (PFOS)	8/8/2023	13	1.4	--	NG/L	180		
Perfluorooctanoic acid (PFOA)	8/8/2023	6.5	1.4	--	NG/L	180		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	2.1	1.4	--	NG/L	180		
Perfluoropentanoic acid (PFPeA)	8/8/2023	2.4	2.8	--	NG/L	180	J	

Table 3-4
OU III South Boundary Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 121-17 (EW-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	2.83	0	--	UG/L	0		
Chloroform	4/17/2023	0.31	0.5	--	UG/L	0	J	
Methyl tert-butyl ether	4/17/2023	0.42	0.5	--	UG/L	0	J	
Tetrachloroethylene	4/17/2023	2.1	0.5	--	UG/L	0		
1,4-Dioxane	6/28/2023	0.59	0.2	--	UG/L	170		
1633 TPFAS	8/8/2023	23.82	0	--	NG/L	170		
Perfluorobutanesulfonate (PFBS)	8/8/2023	0.91	1.6	--	NG/L	170	J	
Perfluorobutyric acid (PFBA)	8/8/2023	9.6	6.3	--	NG/L	170		
Perfluoroheptanoic acid (PFHpA)	8/8/2023	0.65	1.6	--	NG/L	170	J	
Perfluorohexanesulfonate (PFHxS)	8/8/2023	4.9	1.6	--	NG/L	170		
Perfluorohexanoic acid (PFHxA)	8/8/2023	1.1	1.6	--	NG/L	170	J	
Perfluorooctanesulfonate (PFOS)	8/8/2023	2.8	1.6	--	NG/L	170		
Perfluorooctanoic acid (PFOA)	8/8/2023	2.6	1.6	--	NG/L	170		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	0.72	1.6	--	NG/L	170	J	
Perfluoropentanoic acid (PFPeA)	8/8/2023	0.54	3.1	--	NG/L	170	J	

Site ID : 121-46 (EW-17)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	4/17/2023	0.31	0.5	--	UG/L	0	J	
1,1-Dichloroethylene	4/17/2023	0.32	0.5	--	UG/L	0	J	
8260 TVOC	4/17/2023	12.32	0	--	UG/L	0		
Carbon tetrachloride	4/17/2023	1.5	0.5	--	UG/L	0		
Chloroform	4/17/2023	0.48	0.5	--	UG/L	0	J	
Tetrachloroethylene	4/17/2023	9.3	0.5	--	UG/L	0		
Trichloroethylene	4/17/2023	0.41	0.5	--	UG/L	0	J	
1,4-Dioxane	6/28/2023	1.2	0.2	--	UG/L	222		
1633 TPFAS	8/8/2023	67.43	0	--	NG/L	222		
Perfluorobutanesulfonate (PFBS)	8/8/2023	1.6	1.5	--	NG/L	222		
Perfluorobutyric acid (PFBA)	8/8/2023	8.3	5.9	--	NG/L	222		
Perfluorodecanoic acid (PFDA)	8/8/2023	0.14	1.5	--	NG/L	222	J	
Perfluoroheptanoic acid (PFHpA)	8/8/2023	1.5	1.5	--	NG/L	222		
Perfluorohexanesulfonate (PFHxS)	8/8/2023	30	1.5	--	NG/L	222		
Perfluorohexanoic acid (PFHxA)	8/8/2023	4.9	1.5	--	NG/L	222		
Perfluorononanoic acid (PFNA)	8/8/2023	0.59	1.5	--	NG/L	222	J	
Perfluorooctane sulfonamide (PFOSAm)	8/8/2023	1.5	1.5	--	NG/L	222		
Perfluorooctanesulfonate (PFOS)	8/8/2023	8.2	1.5	--	NG/L	222		
Perfluorooctanoic acid (PFOA)	8/8/2023	6.9	1.5	--	NG/L	222		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	1.7	1.5	--	NG/L	222		
Perfluoropentanoic acid (PFPeA)	8/8/2023	2.1	3	--	NG/L	222	J	

Table 3-4
OU III South Boundary Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 122-12 (EW-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	8.38	0	--	UG/L	0		
cis-1,2-Dichloroethylene	4/17/2023	2.8	0.5	--	UG/L	0		
Tetrachloroethylene	4/17/2023	5	0.5	--	UG/L	0		
Trichloroethylene	4/17/2023	0.58	0.5	--	UG/L	0		
1,4-Dioxane	6/28/2023	0.19	0.2	--	UG/L	250	J	
1633 TPFAS	8/8/2023	58.71	0	--	NG/L	250		
Perfluorobutanesulfonate (PFBS)	8/8/2023	0.73	1.5	--	NG/L	250	J	
Perfluorobutyric acid (PFBA)	8/8/2023	2.1	6	--	NG/L	250	J	
Perfluoroheptanesulfonate (PFHpS)	8/8/2023	0.58	1.5	--	NG/L	250	J	
Perfluoroheptanoic acid (PFHpA)	8/8/2023	1.1	1.5	--	NG/L	250	J	
Perfluorohexanesulfonate (PFHxS)	8/8/2023	22	1.5	--	NG/L	250		
Perfluorohexanoic acid (PFHxA)	8/8/2023	3	1.5	--	NG/L	250		
Perfluorooctane sulfonamide (PFOSAm)	8/8/2023	0.19	1.5	--	NG/L	250	J	
Perfluorooctanesulfonate (PFOS)	8/8/2023	21	1.5	--	NG/L	250		
Perfluorooctanoic acid (PFOA)	8/8/2023	6.1	1.5	--	NG/L	250		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	0.91	1.5	--	NG/L	250	J	
Perfluoropentanoic acid (PFPeA)	8/8/2023	1	3	--	NG/L	250	J	

Site ID : 122-13 (EW-7)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	7.2	0	--	UG/L	0		
Carbon tetrachloride	4/17/2023	0.8	0.5	--	UG/L	0		
Chloroform	4/17/2023	0.43	0.5	--	UG/L	0	J	
Tetrachloroethylene	4/17/2023	5.7	0.5	--	UG/L	0		
Trichloroethylene	4/17/2023	0.27	0.5	--	UG/L	0	J	
1,4-Dioxane	6/28/2023	1.1	0.2	--	UG/L	190		
1633 TPFAS	8/28/2023	52.47	0	--	NG/L	190		
Perfluorobutanesulfonate (PFBS)	8/28/2023	1.7	1.5	--	NG/L	190		
Perfluorobutyric acid (PFBA)	8/28/2023	7.4	6.1	--	NG/L	190		
Perfluorodecanoic acid (PFDA)	8/28/2023	0.27	1.5	--	NG/L	190	J	
Perfluoroheptanoic acid (PFHpA)	8/28/2023	1.5	1.5	--	NG/L	190		
Perfluorohexanesulfonate (PFHxS)	8/28/2023	12	1.5	--	NG/L	190		
Perfluorohexanoic acid (PFHxA)	8/28/2023	3.1	1.5	--	NG/L	190		
Perfluorononanoic acid (PFNA)	8/28/2023	1.7	1.5	--	NG/L	190		
Perfluorooctanesulfonate (PFOS)	8/28/2023	16	1.5	--	NG/L	190		
Perfluorooctanoic acid (PFOA)	8/28/2023	4.5	1.5	--	NG/L	190		
Perfluoropentanesulfonate (PFPeS)	8/28/2023	1.4	1.5	--	NG/L	190	J	
Perfluoropentanoic acid (PFPeA)	8/28/2023	2.9	3	--	NG/L	190	J	

Site ID : 122-14 (EW-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	1.1	0	--	UG/L	0		
Tetrachloroethylene	4/17/2023	1.1	0.5	--	UG/L	0		
1,4-Dioxane	6/28/2023	0.6	0.2	--	UG/L	180		
1633 TPFAS	8/8/2023	86.14	0	--	NG/L	180		
Perfluorobutanesulfonate (PFBS)	8/8/2023	2.1	1.6	--	NG/L	180		
Perfluorobutyric acid (PFBA)	8/8/2023	12	6.4	--	NG/L	180		
Perfluorodecanoic acid (PFDA)	8/8/2023	0.43	1.6	--	NG/L	180	J	
Perfluoroheptanoic acid (PFHpA)	8/8/2023	4.2	1.6	--	NG/L	180		
Perfluorohexanesulfonate (PFHxS)	8/8/2023	23	1.6	--	NG/L	180		
Perfluorohexanoic acid (PFHxA)	8/8/2023	10	1.6	--	NG/L	180		
Perfluorononanoic acid (PFNA)	8/8/2023	2.2	1.6	--	NG/L	180		
Perfluorooctane sulfonamide (PFOSAm)	8/8/2023	0.43	1.6	--	NG/L	180	J	
Perfluorooctanesulfonate (PFOS)	8/8/2023	14	1.6	--	NG/L	180		
Perfluorooctanoic acid (PFOA)	8/8/2023	5.6	1.6	--	NG/L	180		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	2.5	1.6	--	NG/L	180		
Perfluoropentanoic acid (PFPeA)	8/8/2023	9.3	3.2	--	NG/L	180		
Perfluoroundecanoic acid (PFUdA)	8/8/2023	0.38	1.6	--	NG/L	180	J	

Table 3-5
OU III South Boundary Influent Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 121-41 (System Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	4/17/2023	0.2	0.5	--	UG/L	0	J	
1,1-Dichloroethylene	4/17/2023	0.24	0.5	--	UG/L	0	J	
8260 TVOC	4/17/2023	11.09	0	--	UG/L	0		
Carbon tetrachloride	4/17/2023	0.98	0.5	--	UG/L	0		
Chloroform	4/17/2023	0.33	0.5	--	UG/L	0	J	
cis-1,2-Dichloroethylene	4/17/2023	0.98	0.5	--	UG/L	0		
Tetrachloroethylene	4/17/2023	7.9	0.5	--	UG/L	0		
Trichloroethylene	4/17/2023	0.46	0.5	--	UG/L	0	J	
1,1,1-Trichloroethane	5/12/2023	0.42	0.5	--	UG/L	0	J	
1,1-Dichloroethylene	5/12/2023	0.44	0.5	--	UG/L	0	J	
8260 TVOC	5/12/2023	15.33	0	--	UG/L	0		
Carbon tetrachloride	5/12/2023	2.5	0.5	--	UG/L	0		
Chloroform	5/12/2023	0.55	0.5	--	UG/L	0		
Tetrachloroethylene	5/12/2023	11	0.5	--	UG/L	0		
Trichloroethylene	5/12/2023	0.42	0.5	--	UG/L	0	J	
1,1,1-Trichloroethane	6/15/2023	0.33	0.5	--	UG/L	0	J	
1,1-Dichloroethylene	6/15/2023	0.31	0.5	--	UG/L	0	J	
8260 TVOC	6/15/2023	13.29	0	--	UG/L	0		
Carbon tetrachloride	6/15/2023	1.8	0.5	--	UG/L	0		
Chloroform	6/15/2023	0.47	0.5	--	UG/L	0	J	
Tetrachloroethylene	6/15/2023	10	0.5	--	UG/L	0		
Trichloroethylene	6/15/2023	0.38	0.5	--	UG/L	0	J	
1,4-Dioxane	6/28/2023	0.82	0.2	--	UG/L	0		
1633 TPFAS	8/8/2023	66.64	0	--	NG/L	0		
Perfluorobutanesulfonate (PFBS)	8/8/2023	1.5	1.5	--	NG/L	0		
Perfluorobutyric acid (PFBA)	8/8/2023	8.1	6	--	NG/L	0		
Perfluoroheptanoic acid (PFHpA)	8/8/2023	1.4	1.5	--	NG/L	0	J	
Perfluorohexanesulfonate (PFHxS)	8/8/2023	32	1.5	--	NG/L	0		
Perfluorohexanoic acid (PFHxA)	8/8/2023	4.7	1.5	--	NG/L	0		
Perfluorononanoic acid (PFNA)	8/8/2023	0.62	1.5	--	NG/L	0	J	
Perfluorooctane sulfonamide (PFOSAm)	8/8/2023	0.22	1.5	--	NG/L	0	J	
Perfluorooctanesulfonate (PFOS)	8/8/2023	8.4	1.5	--	NG/L	0		
Perfluorooctanoic acid (PFOA)	8/8/2023	5.7	1.5	--	NG/L	0		
Perfluoropentanesulfonate (PFPeS)	8/8/2023	2	1.5	--	NG/L	0		
Perfluoropentanoic acid (PFPeA)	8/8/2023	2	3	--	NG/L	0	J	

Table 3-6
OU III South Boundary Effluent Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 095-126 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/17/2023	0	0	--	UG/L	0		
8260 TVOC	5/12/2023	0	0	--	UG/L	0		

Site ID : 095-270 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	6/26/2023	41.512	0	--	NG/L	0		
Perfluorobutanesulfonate (PFBS)	6/26/2023	1.67	1.61	--	NG/L	0		
Perfluorobutyric acid (PFBA)	6/26/2023	7.09	7.28	--	NG/L	0	J	
Perfluoroheptanesulfonate (PFHpS)	6/26/2023	0.672	1.73	--	NG/L	0	J	
Perfluoroheptanoic acid (PFHpA)	6/26/2023	1.17	1.82	--	NG/L	0	J	
Perfluorohexanesulfonate (PFHxS)	6/26/2023	14	1.66	--	NG/L	0		
Perfluorohexanoic acid (PFHxA)	6/26/2023	2.93	1.82	--	NG/L	0		
Perfluorononanoic acid (PFNA)	6/26/2023	0.81	1.82	--	NG/L	0	J	
Perfluorooctanesulfonate (PFOS)	6/26/2023	5.24	1.69	--	NG/L	0		
Perfluorooctanoic acid (PFOA)	6/26/2023	4.11	1.82	--	NG/L	0		
Perfluoropentanesulfonate (PFPeS)	6/26/2023	1.72	1.71	--	NG/L	0		
Perfluoropentanoic acid (PFPeA)	6/26/2023	2.1	1.82	--	NG/L	0		
1,4-Dioxane	6/26/2023	2.1	0.2	--	UG/L	0	B	J+
8260 TVOC	6/15/2023	0	0	--	UG/L	0		
8260 TVOC	7/13/2023	0	0	--	UG/L	0		
8260 TVOC	8/11/2023	0	0	--	UG/L	0		

Qualifiers:
J = Estimated value.
D = Compound was identified in an analysis at a secondary dilution factor.

Organic Compounds:
B = Compound was found in both the sample and associated laboratory blank.

Inorganic Compounds:
B = Reslut is between instrument detection limit and contract required reporting limit.

OU III Middle Road Pump & Treat System

Process: Groundwater extraction and air stripping treatment, with discharge to both the OU III and RAV recharge basins.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells in OU III within 30 years for the Upper Glacial aquifer (by 2030).

Start Date: October 23, 2001

Table 4-1
Pumping Rates (gpm)

Extraction Well	RW-1	RW-2	RW-3	RW-4	RW-5	RW-6	RW-7
Site ID #	113-23	113-24	113-25	113-26	113-27	106-66	113-33
Screen Interval (ft bls)	90-130	170-200	228-268	150-180	150-180	188-218	202-222
Desired Flow Rate (gpm)	0*	150	125	0*	0*	0*	150
April (Avg monthly gpm)	0	135	134	0	0	0	132
May " " "	0	121	124	0	0	0	138
June " " "	0	159	162	0	0	0	165
Actual (Avg. over Qtr.)	**0**	**138**	**140**	**0**	**0**	**0**	**145**

* Extraction wells placed in standby mode: RW-4 and RW-5 (2003), RW-6 (2006), and RW-1 (2015).

OU III Middle Road Pump & Treat System

Figure 4-1
Cumulative Mass Removal of VOCs vs. Time

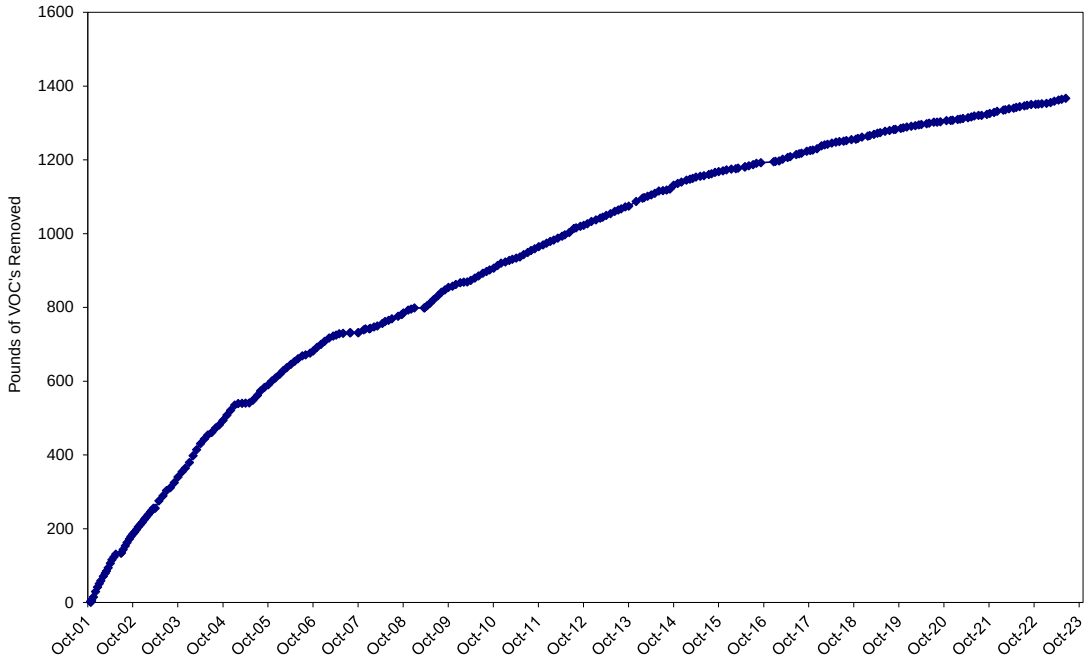
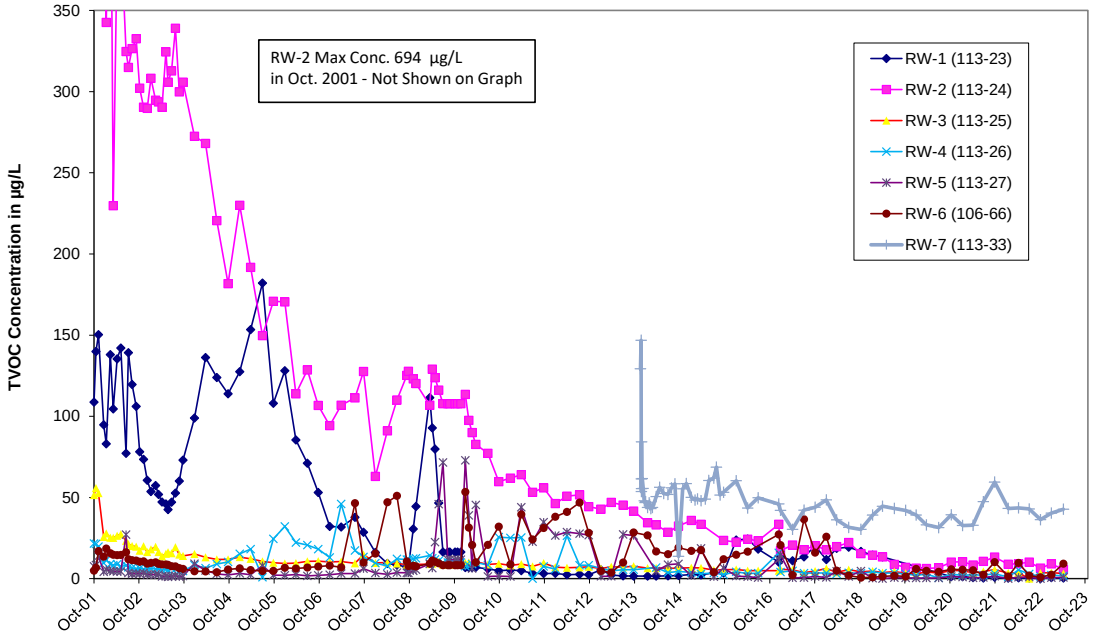


Figure 4-2
Extraction Well TVOC Concentrations vs. Time



OU III Middle Road Pump & Treat System

Table 4-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations - April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**1,619,743[1]**	**GPD**	**Continuous**
pH (range)	**6.5 - 8.5**	**7.15– 7.29[2]**	**SU**	**Monthly[3]**
Carbon Tetrachloride	**5**	**<0.50**	**µg/L**	**Monthly[3]**
Chloroform	**7**	**<0.50**	**µg/L**	**Monthly[3]**
Dichlorodifluoromethane	**5**	**<0.50**	**µg/L**	**Monthly[3]**
1,1-Dichloroethane	**5**	**<0.50**	**µg/L**	**Monthly[3]**
1,1-Dichloroethylene	**5**	**<0.50**	**µg/L**	**Monthly[3]**
Methyl Chloride	**5**	**<0.50**	**µg/L**	**Monthly[3]**
Tetrachloroethylene	**5**	**<0.50**	**µg/L**	**Monthly[3]**
Toluene	**5**	**<0.50**	**µg/L**	**Monthly[3]**
1,1,1-Trichloroethane	**5**	**<0.50**	**µg/L**	**Monthly[3]**
1,1,2 Trichloroethane	**5**	**<0.50**	**µg/L**	**Monthly[3]**
Trichloroethylene	**10**	**<0.50**	**µg/L**	**Monthly[3]**

[1] The maximum monthly average flow for the OU III Middle Road, South Boundary, and Western South Boundary Systems during the operational period.
[2] The minimum and maximum pH values during the operational period.
[3] Beginning in April 2003, a SPDES modification was approved revising the pH and volatile organic sampling to once a month.

Monitoring Activities

The OU III Middle Road well data show the highest concentration of TVOCs recorded in plume core monitoring well 105-66 at 156 µg/L. The highest individual VOC concentration recorded in this well was tetrachloroethylene (PCE) at 140 µg/L. In monitoring well 105-68, a plume core monitoring well west of 105-66, TVOCs were recorded at a concentration of 153 µg/L and PCE was recorded at 130 µg/L in this well. These wells are located upgradient of the OU III South Boundary monitoring wells discussed in Section 3. The OU III Middle Road monitoring well network is shown on **Figure 4-3.** The 'Hits Only' second quarter 2023 data are summarized in **Table 4-3.**

OU III Middle Road Pump & Treat System

System Operations

April 2023:

The system operated normally for the month. Extraction wells RW-2, RW-3, and RW-7 were in full-time operation. Wells RW-1, RW-4, RW-5, and RW-6 remained in standby mode. An effluent sample was collected from OU III South Boundary air stripping tower (095-126) and the system treated approximately 17 million gallons of water.

May 2023:

The system operated normally for the month. Extraction wells RW-2, RW-3, and RW-7 were in full-time operation. Wells RW-1, RW-4, RW-5, and RW-6 remained in standby mode. An effluent sample was taken from OU III South Boundary air stripping tower (095-126) and the system treated approximately 17 million gallons of water.

June 2023:

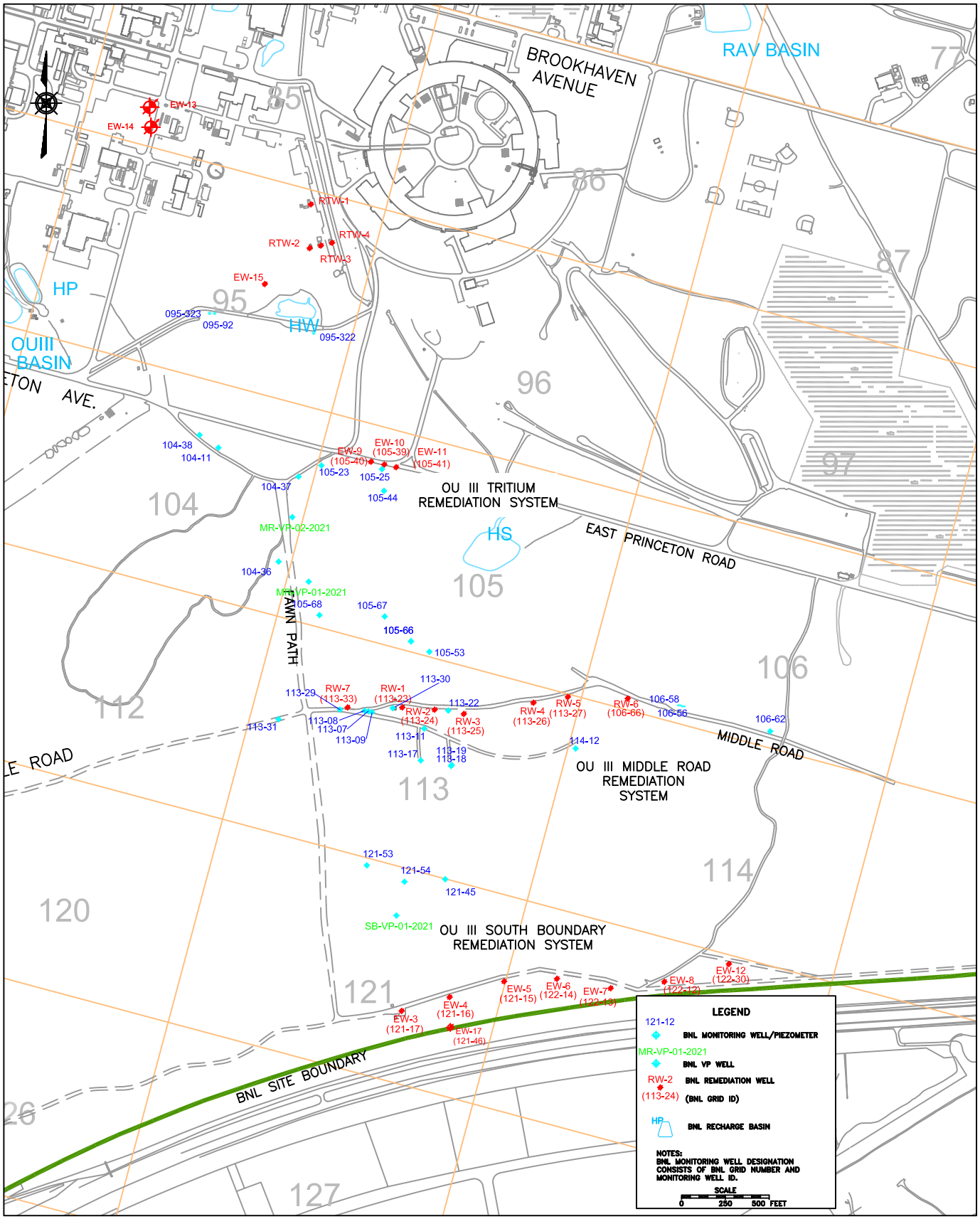
The system operated normally for the month. Extraction wells RW-2, RW-3, and RW-7 were in full-time operation. Wells RW-1, RW- 4, RW-5, and RW-6 remained in standby mode. An effluent sample was collected from the OU III Middle Road air stripping tower (095-270) and the system treated approximately 21 million gallons of water.

The system treated approximately 55 million gallons of water during the second quarter of 2023. The treatment system 'Hits Only' data, including individual extraction wells, influent, and effluent is summarized in **Table 4-4** through **Table 4-6.**

Planned Operational Changes

- Continue operation of extraction wells RW-2, RW-3, and RW-7. Maintain RW-1, RW-4, RW-5, and RW-6 in standby mode. Restart the well(s) if extraction or monitoring well data indicate that TVOC concentrations exceed the 50 µg/L capture goal. TVOC concentrations in extraction wells RW-1, RW-4, RW-5 and RW-6 and adjacent monitoring wells were below 50 µg/L in the second quarter.
- Discontinue sampling for tritium on the influent of the Middle Road Treatment System as tritium has not been detected at this location for over 20 years.
- Install two new permanent monitoring wells at the locations of vertical profile locations MR-VP-01-2021 and MR-VP-02-2021, installed during 2021.
- The concentrations of VOCs in the Deep Upper Glacial aquifer in this area of the site are not declining at a rate that will meet the ROD cleanup goal by 2030. To address this, per the 2021 CERCLA Five-Year Review Report (BNL 2021) recommendations, groundwater modeling simulations will be performed to evaluate the best locations, extraction rates, and number of extraction wells to design an appropriate system

modification. The regional groundwater model will be reviewed prior to this modeling effort and updated as necessary to accurately represent the Upton Unit and its lower hydraulic conductivity.



\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2023\FIG 4-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III MIDDLE ROAD MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS
REPORT

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
JEB	–	02/08/07	–
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/25/23	–

FIGURE NO.: 4–3

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 095-322

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/27/2023	30.93	--	--	UG/L	180.00		
1,1,1-Trichloroethane	04/27/2023	2.6	0.5	--	UG/L	180.00		
1,1-Dichloroethane	04/27/2023	0.45	0.5	--	UG/L	180.00	J	
1,1-Dichloroethylene	04/27/2023	5.4	0.5	--	UG/L	180.00		
Chloroform	04/27/2023	0.58	0.5	--	UG/L	180.00		
Tetrachloroethylene	04/27/2023	15	0.5	--	UG/L	180.00		
Trichloroethylene	04/27/2023	6.9	0.5	--	UG/L	180.00		

Site ID : 095-323

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2023	16.55	--	--	UG/L	205.00		
1,1,1-Trichloroethane	04/28/2023	1.6	0.5	--	UG/L	205.00		
1,1,2,2-Tetrachloroethane	04/28/2023	1	0.5	--	UG/L	205.00		
1,1-Dichloroethylene	04/28/2023	0.86	0.5	--	UG/L	205.00		
Chloroform	04/28/2023	0.69	0.5	--	UG/L	205.00		
Tetrachloroethylene	04/28/2023	8.8	0.5	--	UG/L	205.00		
Trichloroethylene	04/28/2023	3.6	0.5	--	UG/L	205.00		

Site ID : 095-92

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2023	0.38	--	--	UG/L	121.00		
Chloroform	04/28/2023	0.38	0.5	--	UG/L	121.00	J	

Site ID : 104-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2023	1.98	--	--	UG/L	190.00		
1,1-Dichloroethylene	04/28/2023	0.42	0.5	--	UG/L	190.00	J	
Chloroform	04/28/2023	0.9	0.5	--	UG/L	190.00		
Methyl chloride	04/28/2023	0.29	0.5	--	UG/L	190.00	J	
Tetrachloroethylene	04/28/2023	0.18	0.5	--	UG/L	190.00	J	
Trichloroethylene	04/28/2023	0.19	0.5	--	UG/L	190.00	J	

Site ID : 104-36

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/27/2023	0.7	--	--	UG/L	136.00		
Chloroform	04/27/2023	0.7	0.5	--	UG/L	136.00		

Site ID : 104-37

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2023	86.12	--	--	UG/L	209.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 104-37

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	04/28/2023	2.2	0.5	--	UG/L	209.00		
1,1,2,2-Tetrachloroethane	04/28/2023	0.92	0.5	--	UG/L	209.00		
1,1-Dichloroethylene	04/28/2023	2.7	0.5	--	UG/L	209.00		
Carbon tetrachloride	04/28/2023	3.4	0.5	--	UG/L	209.00		
Chloroform	04/28/2023	0.8	0.5	--	UG/L	209.00		
Tetrachloroethylene	04/28/2023	73	2	--	UG/L	209.00	D	
Trichloroethylene	04/28/2023	3.1	0.5	--	UG/L	209.00		

Site ID : 104-38

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2023	3.37	--	--	UG/L	205.00		
1,1,1-Trichloroethane	04/28/2023	0.96	0.5	--	UG/L	205.00		
1,1-Dichloroethylene	04/28/2023	0.48	0.5	--	UG/L	205.00	J	
Chloroform	04/28/2023	0.59	0.5	--	UG/L	205.00		
Tetrachloroethylene	04/28/2023	0.99	0.5	--	UG/L	205.00		
Trichloroethylene	04/28/2023	0.35	0.5	--	UG/L	205.00	J	

Site ID : 105-23

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/27/2023	16.39	--	--	UG/L	180.00		
Carbon tetrachloride	04/27/2023	0.76	0.5	--	UG/L	180.00		
Chloroform	04/27/2023	0.41	0.5	--	UG/L	180.00	J	
Tetrachloroethylene	04/27/2023	15	0.5	--	UG/L	180.00		
Trichloroethylene	04/27/2023	0.22	0.5	--	UG/L	180.00	J	

Site ID : 105-25

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/01/2023	0.26	--	--	UG/L	147.50		
Chloroform	05/01/2023	0.26	0.5	--	UG/L	147.50	J	

Site ID : 105-42

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/27/2023	1.45	--	--	UG/L	147.50		
Chloroform	04/27/2023	0.57	0.5	--	UG/L	147.50		
Tetrachloroethylene	04/27/2023	0.69	0.5	--	UG/L	147.50		
Trichlorofluoromethane	04/27/2023	0.19	0.5	--	UG/L	147.50	J	

Site ID : 105-44

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	2.08	--	--	UG/L	152.50		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 105-44

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,2,3-Trichlorobenzene	05/03/2023	0.18	0.5	--	UG/L	152.50	J	
Chloroform	05/03/2023	0.6	0.5	--	UG/L	152.50		
Tetrachloroethylene	05/03/2023	1.3	0.5	--	UG/L	152.50		

Site ID : 105-53

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	0.86	--	--	UG/L	175.00		
Chloroform	05/03/2023	0.33	0.5	--	UG/L	175.00	J	
Tetrachloroethylene	05/03/2023	0.53	0.5	--	UG/L	175.00		

Site ID : 105-66

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	156.01	--	--	UG/L	184.00		
1,1,1-Trichloroethane	05/03/2023	1.5	0.5	--	UG/L	184.00		
1,1,2,2-Tetrachloroethane	05/03/2023	0.44	0.5	--	UG/L	184.00	J	
1,1-Dichloroethylene	05/03/2023	1.1	0.5	--	UG/L	184.00		
Carbon tetrachloride	05/03/2023	7.7	0.5	--	UG/L	184.00		
Chloroform	05/03/2023	0.77	0.5	--	UG/L	184.00		
Tetrachloroethylene	05/03/2023	140	5	--	UG/L	184.00	D	
Trichloroethylene	05/03/2023	4.5	0.5	--	UG/L	184.00		

Site ID : 105-67

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	83.84	--	--	UG/L	185.00		
1,1,1-Trichloroethane	05/03/2023	4.2	0.5	--	UG/L	185.00		
1,1,2,2-Tetrachloroethane	05/03/2023	0.54	0.5	--	UG/L	185.00		
1,1-Dichloroethylene	05/03/2023	3.2	0.5	--	UG/L	185.00		
Carbon tetrachloride	05/03/2023	0.29	0.5	--	UG/L	185.00	J	
Chloroform	05/03/2023	0.51	0.5	--	UG/L	185.00		
Tetrachloroethylene	05/03/2023	74	2	--	UG/L	185.00	D	
Trichloroethylene	05/03/2023	1.1	0.5	--	UG/L	185.00		

Site ID : 105-68

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	153.73	--	--	UG/L	205.00		
1,1,1-Trichloroethane	05/03/2023	0.97	0.5	--	UG/L	205.00		
1,1,2,2-Tetrachloroethane	05/03/2023	2.5	0.5	--	UG/L	205.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 105-68

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1-Dichloroethylene	05/03/2023	0.86	0.5	--	UG/L	205.00		
Carbon tetrachloride	05/03/2023	7.4	0.5	--	UG/L	205.00		
Chloroform	05/03/2023	1	0.5	--	UG/L	205.00		
Tetrachloroethylene	05/03/2023	130	5	--	UG/L	205.00	D	
Trichloroethylene	05/03/2023	11	0.5	--	UG/L	205.00		

Site ID : 106-58

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/10/2023	1.2	--	--	UG/L	205.00		
Tetrachloroethylene	05/10/2023	1.2	0.5	--	UG/L	205.00		

Site ID : 106-62

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	05/10/2023	0.61	0.312	0.234	PCI/L	72.00		

Site ID : 113-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/02/2023	0.9	--	--	UG/L	142.00		
Tetrachloroethylene	05/02/2023	0.9	0.5	--	UG/L	142.00		

Site ID : 113-09

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/02/2023	63.17	--	--	UG/L	222.00		
1,1,1-Trichloroethane	05/02/2023	1.6	0.5	--	UG/L	222.00		
1,1,2,2-Tetrachloroethane	05/02/2023	0.34	0.5	--	UG/L	222.00	J	
1,1-Dichloroethylene	05/02/2023	1.7	0.5	--	UG/L	222.00		
Carbon tetrachloride	05/02/2023	0.47	0.5	--	UG/L	222.00	J	
Chloroform	05/02/2023	0.66	0.5	--	UG/L	222.00		
Tetrachloroethylene	05/02/2023	55	1	--	UG/L	222.00	D	
Trichloroethylene	05/02/2023	3.4	0.5	--	UG/L	222.00		

Site ID : 113-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2023	8.83	--	--	UG/L	201.00		
Carbon tetrachloride	05/12/2023	1.7	0.5	--	UG/L	201.00		
Chloroform	05/12/2023	0.63	0.5	--	UG/L	201.00		
Tetrachloroethylene	05/12/2023	6.5	0.5	--	UG/L	201.00		

Site ID : 113-17

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/08/2023	17	--	--	UG/L	177.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 113-17

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	05/08/2023	17	0.5	--	UG/L	177.00		

Site ID : 113-19

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2023	30.23	--	--	UG/L	230.00		
1,1,1-Trichloroethane	05/12/2023	10	0.5	--	UG/L	230.00		
1,1-Dichloroethane	05/12/2023	1.4	0.5	--	UG/L	230.00		
1,1-Dichloroethylene	05/12/2023	5.6	0.5	--	UG/L	230.00		
Carbon tetrachloride	05/12/2023	7.5	0.5	--	UG/L	230.00		
Chloroform	05/12/2023	1.1	0.5	--	UG/L	230.00		
cis-1,2-Dichloroethylene	05/12/2023	0.43	0.5	--	UG/L	230.00	J	
Trichloroethylene	05/12/2023	4.2	0.5	--	UG/L	230.00		

Site ID : 113-22

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/01/2023	9.71	--	--	UG/L	240.00		
Carbon tetrachloride	05/01/2023	8.6	0.5	--	UG/L	240.00		
Chloroform	05/01/2023	0.81	0.5	--	UG/L	240.00		
Trichloroethylene	05/01/2023	0.3	0.5	--	UG/L	240.00	J	

Site ID : 113-29

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	1.31	--	--	UG/L	190.00		
Chloroform	05/03/2023	0.38	0.5	--	UG/L	190.00	J	
Tetrachloroethylene	05/03/2023	0.93	0.5	--	UG/L	190.00		

Site ID : 113-30

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/02/2023	4.11	--	--	UG/L	190.00		
Carbon tetrachloride	05/02/2023	0.74	0.5	--	UG/L	190.00		
Chloroform	05/02/2023	0.17	0.5	--	UG/L	190.00	J	
Tetrachloroethylene	05/02/2023	3.2	0.5	--	UG/L	190.00		

Site ID : 113-31

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2023	3.01	--	--	UG/L	190.00		
1,1,1-Trichloroethane	05/12/2023	1.8	0.5	--	UG/L	190.00		
1,1-Dichloroethylene	05/12/2023	0.65	0.5	--	UG/L	190.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 113-31

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Trichloroethylene	05/12/2023	0.56	0.5	--	UG/L	190.00		

Site ID : 114-12

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/01/2023	0.77	--	--	UG/L	155.00		
Chloroform	05/01/2023	0.77	0.5	--	UG/L	155.00		

Site ID : 121-45

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2023	12.01	--	--	UG/L	204.50		
1,1,1-Trichloroethane	05/12/2023	0.49	1	--	UG/L	204.50	J D	
Chloroform	05/12/2023	0.84	1	--	UG/L	204.50	J D	
Tetrachloroethylene	05/12/2023	9.8	1	--	UG/L	204.50	D	
Trichloroethylene	05/12/2023	0.88	1	--	UG/L	204.50	J D	

Site ID : 121-53

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	26.59	--	--	UG/L	229.00		
1,1,1-Trichloroethane	05/05/2023	0.18	0.5	--	UG/L	229.00	J	
Carbon tetrachloride	05/05/2023	0.66	0.5	--	UG/L	229.00		
Chloroform	05/05/2023	0.42	0.5	--	UG/L	229.00	J	
Tetrachloroethylene	05/05/2023	25	0.5	--	UG/L	229.00		
Trichloroethylene	05/05/2023	0.33	0.5	--	UG/L	229.00	J	

Site ID : 121-54

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/05/2023	75.12	--	--	UG/L	220.00		
1,1,1-Trichloroethane	05/05/2023	0.52	0.5	--	UG/L	220.00		
1,1-Dichloroethylene	05/05/2023	0.46	0.5	--	UG/L	220.00	J	
Carbon tetrachloride	05/05/2023	8.7	0.5	--	UG/L	220.00		
Chloroform	05/05/2023	0.59	0.5	--	UG/L	220.00		
Tetrachloroethylene	05/05/2023	64	1	--	UG/L	220.00	D	
Trichloroethylene	05/05/2023	0.85	0.5	--	UG/L	220.00		

Table 4-4
OU III Middle Road Extraction Well Data
'Hits Only' April through June 2023

Site ID : 106-66 (RW-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	9.19	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	0.84	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/17/2023	0.64	0.5	--	UG/L	0.00		
Carbon tetrachloride	04/17/2023	0.66	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.38	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/17/2023	6.1	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.57	0.5	--	UG/L	0.00		
1633 TPFAS	06/26/2023	36.746	--	--	NG/L	203.00		
1,4-Dioxane	06/26/2023	3.3	0.2	--	UG/L	203.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.06	1.52	--	NG/L	203.00	J	
Perfluorobutyric acid (PFBA)	06/26/2023	19.9	6.84	--	NG/L	203.00		
Perfluoroheptanoic acid (PFHpA)	06/26/2023	0.74	1.71	--	NG/L	203.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	5.87	1.56	--	NG/L	203.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	1.41	1.71	--	NG/L	203.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	4.51	1.59	--	NG/L	203.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	2.29	1.71	--	NG/L	203.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	0.966	1.61	--	NG/L	203.00	J	

Site ID : 113-23 (RW-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	0.4	--	--	UG/L	0.00		
Chloroform	04/17/2023	0.4	0.5	--	UG/L	0.00	J	
1633 TPFAS	06/26/2023	38.69	--	--	NG/L	110.00		
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.26	1.62	--	NG/L	110.00	J	
Perfluorobutyric acid (PFBA)	06/26/2023	5.76	7.28	--	NG/L	110.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	3.08	1.82	--	NG/L	110.00		
Perfluorohexanesulfonate (PFHxS)	06/26/2023	3.14	1.66	--	NG/L	110.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	5.01	1.82	--	NG/L	110.00		
Perfluorononanoic acid (PFNA)	06/26/2023	1.41	1.82	--	NG/L	110.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	10.2	1.69	--	NG/L	110.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	4.47	1.82	--	NG/L	110.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	0.68	1.71	--	NG/L	110.00	J	
Perfluoropentanoic acid (PFPeA)	06/26/2023	3.68	1.82	--	NG/L	110.00		

Site ID : 113-24 (RW-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	5.63	--	--	UG/L	0.00		

Table 4-4
OU III Middle Road Extraction Well Data
'Hits Only' April through June 2023

Site ID : 113-24 (RW-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Carbon tetrachloride	04/17/2023	0.42	0.5	--	UG/L	0.00	J	
Chloroform	04/17/2023	0.42	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/17/2023	4.5	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.29	0.5	--	UG/L	0.00	J	
1633 TPFAS	06/26/2023	67.207	--	--	NG/L	185.00		
1,4-Dioxane	06/26/2023	0.6	0.2	--	UG/L	185.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.96	1.64	--	NG/L	185.00		
Perfluorobutyric acid (PFBA)	06/26/2023	7.03	7.41	--	NG/L	185.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/26/2023	1.02	1.77	--	NG/L	185.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	2.12	1.85	--	NG/L	185.00		
Perfluorohexanesulfonate (PFHxS)	06/26/2023	22.9	1.69	--	NG/L	185.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	5.47	1.85	--	NG/L	185.00		
Perfluorononanoic acid (PFNA)	06/26/2023	1.97	1.85	--	NG/L	185.00		
Perfluorooctane sulfonamide (PFOSAm)	06/26/2023	0.857	1.85	--	NG/L	185.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	11.6	1.72	--	NG/L	185.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	6.68	1.85	--	NG/L	185.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	2.13	1.74	--	NG/L	185.00		
Perfluoropentanoic acid (PFPeA)	06/26/2023	3.47	1.85	--	NG/L	185.00		

Site ID : 113-25 (RW-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	3.18	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	1.5	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/17/2023	0.37	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/17/2023	0.61	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.7	0.5	--	UG/L	0.00		
1633 TPFAS	06/26/2023	28.78	--	--	NG/L	248.00		
1,4-Dioxane	06/26/2023	1.4	0.2	--	UG/L	248.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.08	1.58	--	NG/L	248.00	J	
Perfluorobutyric acid (PFBA)	06/26/2023	5.31	7.14	--	NG/L	248.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	0.79	1.78	--	NG/L	248.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	11.2	1.63	--	NG/L	248.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	2.58	1.78	--	NG/L	248.00		
Perfluorooctanesulfonate (PFOS)	06/26/2023	2.18	1.66	--	NG/L	248.00		

Table 4-4
OU III Middle Road Extraction Well Data
'Hits Only' April through June 2023

Site ID : 113-25 (RW-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorooctanoic acid (PFOA)	06/26/2023	2.67	1.78	--	NG/L	248.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.34	1.68	--	NG/L	248.00	J	
Perfluoropentanoic acid (PFPeA)	06/26/2023	1.63	1.78	--	NG/L	248.00	J	

Site ID : 113-26 (RW-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	1.73	--	--	UG/L	0.00		
Carbon tetrachloride	04/17/2023	0.28	0.5	--	UG/L	0.00	J	
Chloroform	04/17/2023	0.56	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/17/2023	0.32	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/17/2023	0.57	0.5	--	UG/L	0.00		
1633 TPFAS	06/26/2023	49.04	--	--	NG/L	165.00		
1,4-Dioxane	06/26/2023	2.2	0.2	--	UG/L	165.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.57	1.57	--	NG/L	165.00		
Perfluorobutyric acid (PFBA)	06/26/2023	6.61	7.07	--	NG/L	165.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	1.13	1.77	--	NG/L	165.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	19.8	1.61	--	NG/L	165.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	3.78	1.77	--	NG/L	165.00		
Perfluorononanoic acid (PFNA)	06/26/2023	1.73	1.77	--	NG/L	165.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/26/2023	0.8	1.77	--	NG/L	165.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	4.89	1.64	--	NG/L	165.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	4.49	1.77	--	NG/L	165.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.99	1.66	--	NG/L	165.00		
Perfluoropentanoic acid (PFPeA)	06/26/2023	2.25	1.77	--	NG/L	165.00		

Site ID : 113-27 (RW-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	0.78	--	--	UG/L	0.00		
Chloroform	04/17/2023	0.78	0.5	--	UG/L	0.00		
1633 TPFAS	06/26/2023	34.6	--	--	NG/L	165.00		
1,4-Dioxane	06/26/2023	1.4	1.4	--	UG/L	165.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.62	3.55	--	NG/L	165.00	J	
Perfluorobutyric acid (PFBA)	06/26/2023	8.21	16	--	NG/L	165.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	1.77	4	--	NG/L	165.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	4.94	3.66	--	NG/L	165.00		

Table 4-4
OU III Middle Road Extraction Well Data
'Hits Only' April through June 2023

Site ID : 113-27 (RW-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanoic acid (PFHxA)	06/26/2023	3.47	4	--	NG/L	165.00	J	
Perfluorononanoic acid (PFNA)	06/26/2023	1.63	4	--	NG/L	165.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	4.43	3.71	--	NG/L	165.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	3.14	4	--	NG/L	165.00	J	
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.53	3.76	--	NG/L	165.00	J	
Perfluoropentanoic acid (PFPeA)	06/26/2023	3.86	4	--	NG/L	165.00	J	

Site ID : 113-33 (RW-7)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	42.74	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	0.68	0.5	--	UG/L	0.00		
1,1,2,2-Tetrachloroethane	04/17/2023	0.22	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/17/2023	0.45	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/17/2023	2.9	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.58	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/17/2023	37	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.91	0.5	--	UG/L	0.00		
1633 TPFAS	06/26/2023	36.89	--	--	NG/L	212.00		
1,4-Dioxane	06/26/2023	2	0.2	--	UG/L	212.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	2.14	1.6	--	NG/L	212.00		
Perfluorobutyric acid (PFBA)	06/26/2023	10.5	7.2	--	NG/L	212.00		
Perfluoroheptanoic acid (PFHpA)	06/26/2023	1.03	1.8	--	NG/L	212.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	9.69	1.65	--	NG/L	212.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	2.32	1.8	--	NG/L	212.00		
Perfluorooctanesulfonate (PFOS)	06/26/2023	3.27	1.67	--	NG/L	212.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	4.36	1.8	--	NG/L	212.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.81	1.69	--	NG/L	212.00		
Perfluoropentanoic acid (PFPeA)	06/26/2023	1.77	1.8	--	NG/L	212.00	J	

Table 4-5
OU III Middle Road Influent Data
'Hits Only' April through June 2023

Site ID : 113-34 (Combo Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	18.07	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	0.6	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/17/2023	0.35	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/17/2023	1.1	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.38	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/17/2023	15	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.64	0.5	--	UG/L	0.00		
8260 TVOC	05/12/2023	18.18	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/12/2023	0.84	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	05/12/2023	0.35	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	05/12/2023	0.87	0.5	--	UG/L	0.00		
Chloroform	05/12/2023	0.43	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	05/12/2023	15	0.5	--	UG/L	0.00		
Trichloroethylene	05/12/2023	0.69	0.5	--	UG/L	0.00		
8260 TVOC	06/15/2023	15.3	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/15/2023	0.68	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	06/15/2023	0.3	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	06/15/2023	0.39	0.5	--	UG/L	0.00	J	
Chloroform	06/15/2023	0.35	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	06/15/2023	13	0.5	--	UG/L	0.00		
Trichloroethylene	06/15/2023	0.58	0.5	--	UG/L	0.00		
1633 TPFAS	06/26/2023	49.721	--	--	NG/L	0.00		
1,4-Dioxane	06/26/2023	1.2	0.2	--	UG/L	0.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.58	1.67	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/26/2023	7.74	7.52	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/26/2023	0.751	1.79	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	1.29	1.88	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	15.3	1.72	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	3.46	1.88	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/26/2023	1.03	1.88	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/26/2023	3.97	8.75	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	5.82	1.74	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	4.54	1.88	--	NG/L	0.00		

Table 4-5
OU III Middle Road Influent Data
'Hits Only' April through June 2023

Site ID : 113-34 (Combo Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.96	1.77	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/26/2023	2.28	1.88	--	NG/L	0.00		

Table 4-6
OU III Middle Road Effluent Data
'Hits Only' April through June 2023

Site ID : 095-126 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	0	--	--	UG/L	0.00		
8260 TVOC	05/12/2023	0	--	--	UG/L	0.00		

Site ID : 095-270 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/15/2023	0	--	--	UG/L	0.00		
1633 TPFAS	06/26/2023	41.512	--	--	NG/L	0.00		
1,4-Dioxane	06/26/2023	2.1	0.2	--	UG/L	0.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.67	1.61	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	06/26/2023	7.09	7.28	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/26/2023	0.672	1.73	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	1.17	1.82	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	14	1.66	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	2.93	1.82	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/26/2023	0.81	1.82	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	5.24	1.69	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	4.11	1.82	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.72	1.71	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/26/2023	2.1	1.82	--	NG/L	0.00		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III Industrial Park In-Well Air Stripping System

Process: Groundwater extraction and in-well air stripping treatment, with discharge in the same well (recirculating well technology) for wells UVB-1 through UVB-7, and groundwater extraction and liquid phase granular activated carbon treatment, with discharge to injection wells for wells EW-8 and EW-9.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030), and 65 years for the Magothy aquifer (by 2065).

Start Date: September 1999

Table 5-1
Pumping Rates (gpm)

Recirculation Treatment Well	UVB-1	UVB-2	UVB-3	UVB-4	UVB-5	UVB-6	UVB-7	EW-8	EW-9
Site Id #	000-231	000-233	000-235	000-237	000-239	000-241	000-243	000-532	000-533
Screened Interval (feet below grade)	220-240	195-215	194-214	170-190	180-200	190-210	205-225	230-250	220-240
Desired Flow Rate (GPM)	*0	*0	*0	*0	*0	*0	*0	**0	**0
April	*0	*0	*0	*0	*0	*0	*0	**0	**0
May	*0	*0	*0	*0	*0	*0	*0	**0	**0
June	*0	*0	*0	*0	*0	*0	*0	**0	**0
Actual (Avg.over Qtr.)	*0	*0	*0	*0	*0	*0	*0	**0	**0

* Wells UVB-1 through UVB-7 were placed in stand-by mode January 2017. Wells EW-8 and EW-9 started full-time operation in January 2015.
** Wells EW-8 and EW-9 started one month on and one month off pulsed pumping February 2018 and were placed in stand-by mode July 2019.

OU III Industrial Park In-Well Air Stripping System

Figure 5-1
Cumulative Mass Removal of VOCs vs. Time

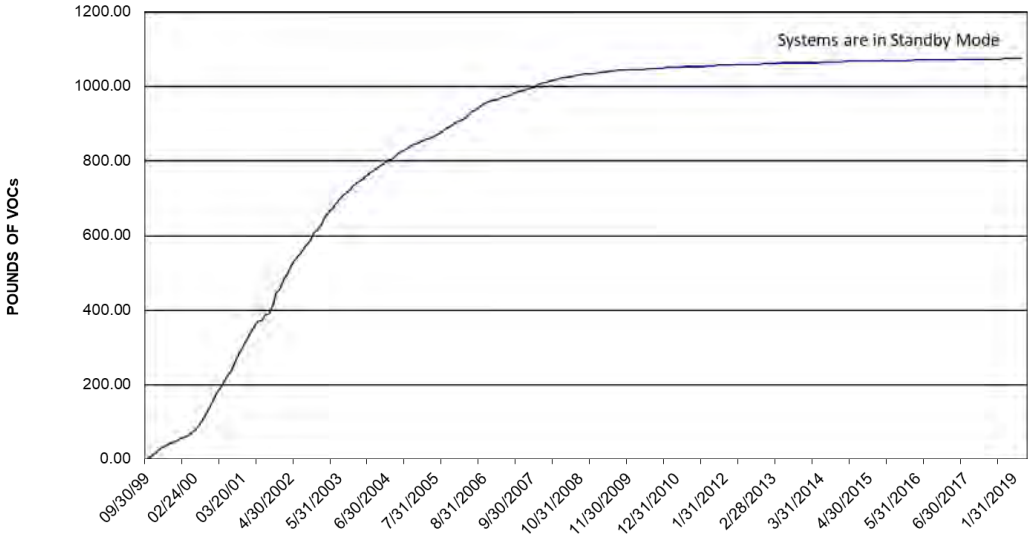
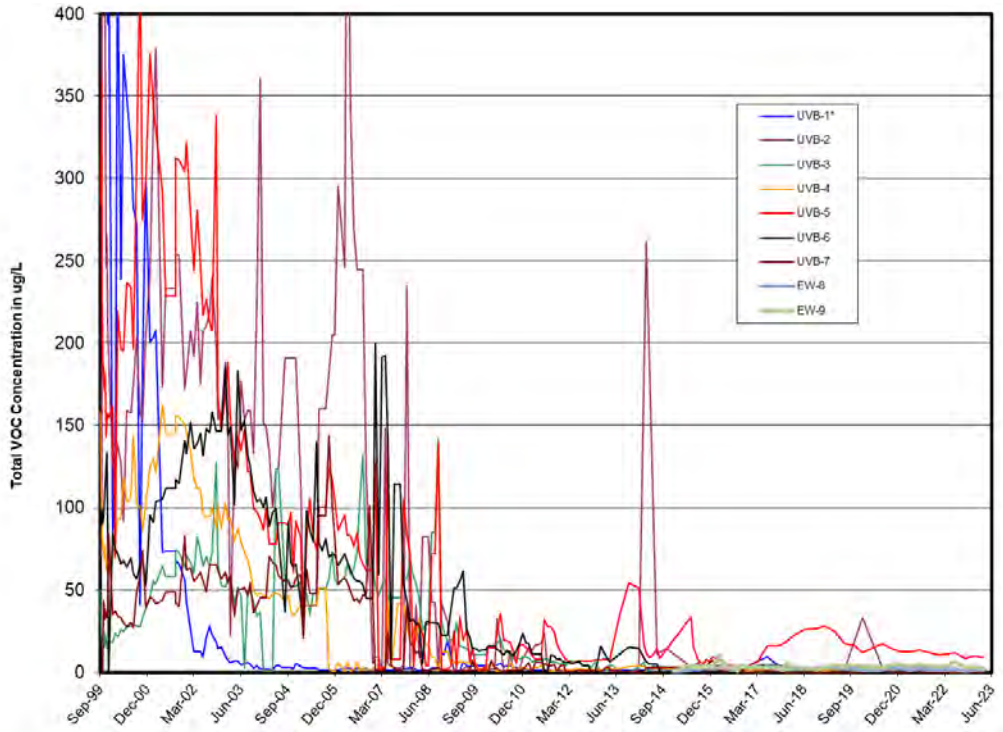


Figure 5-2
Influent TVOC Concentrations vs. Time



Startup concentrations for UVB-1 are not illustrated on this graph. TVOC concentration of 1,900 µg/L in September 1999, and 1,485 µg/L in October 1999.

OU III Industrial Park In-Well Air Stripping System

Table 5-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations - April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**NA**	**GPM**	**Continuous**
pH (range)	**5.0 - 8.5**	**NA**	**SU**	**Weekly**
Carbon Tetrachloride	**5.0**	**NA**	**µg/L**	**Monthly[1]**
Chloroform	**7.0**	**NA**	**µg/L**	**Monthly[1]**
1,2-Dichloroethane	**0.6**	**NA**	**µg/L**	**Monthly[1]**
1,1-Dichloroethylene	**5.0**	**NA**	**µg/L**	**Monthly[1]**
Tetrachloroethylene	**5.0**	**NA**	**µg/L**	**Monthly[1]**
Trichloroethene	**5.0**	**NA**	**µg/L**	**Monthly[1]**
1,1,1-Trichloroethane	**5.0**	**NA**	**µg/L**	**Monthly[1]**

[1] The minimum measurement frequency shall be monthly following a period of 24 consecutive weekly sampling events showing no exceedances of the stated discharge limitations. Monthly sampling was initiated in August 2015.
NA = Not applicable. The system was placed in standby mode in July 2019.

Monitoring Activities:

The OU III Industrial Park monitoring well data show the concentration of TVOCs ranged from 0.19 µg/L in monitoring well 000-271 to 26.8 µg/L in 000-530 during the second quarter 2023. The OU III Industrial Park monitoring wells are shown on **Figure 5-3.** The **'**Hits Only' second quarter 2023 data are summarized in **Table 5-3**.

System Operation

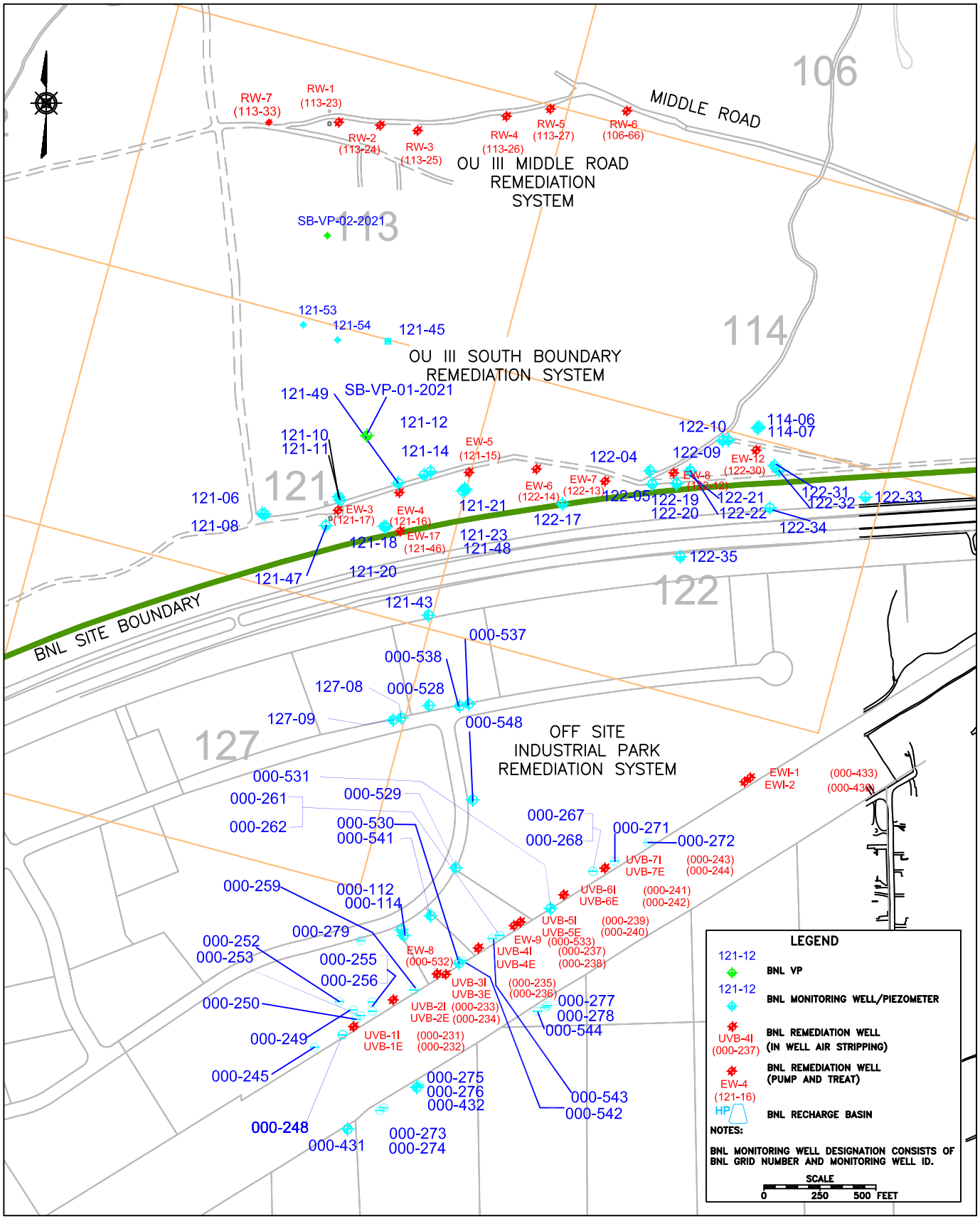
April through June 2023:

Extraction wells UVB-1 through UVB-7, EW-8, and EW-9 remained in stand-by mode. However, the extraction wells were each turned on temporarily to facilitate sampling. The treatment system 'Hits Only' extraction well/influent data is summarized in **Table 5-5**.

OU III Industrial Park In-Well Air Stripping System

Planned Operational Changes

- Maintain the seven UVB wells, EW-8, and EW-9 in standby. If TVOC concentrations exceed the 50 µg/L capture goal the wells may be restarted. During the second quarter, TVOC concentrations in treatment wells UVB-1 through UVB-7, extraction wells EW-8 and EW-9, and each associated monitoring wells were below 50 µg/L.



\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2023\FIG 5-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE: OU III SOUTH BOUNDARY/INDUSTRIAL PARK/INDUSTRIAL PARK AREA MONITORING WELL NETWORKS
SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
JEB	–	09/12/14	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	08/17/23	–

FIGURE NO.: 5–3

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-112

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2023	1.02	--	--	UG/L	180.00		
Chloroform	05/12/2023	0.75	0.5	--	UG/L	180.00		
Tetrachloroethylene	05/12/2023	0.27	0.5	--	UG/L	180.00	J	

Site ID : 000-249

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2023	4.52	--	--	UG/L	264.00		
Carbon tetrachloride	05/11/2023	2.9	0.5	--	UG/L	264.00		
Chloroform	05/11/2023	0.4	0.5	--	UG/L	264.00	J	
Dichlorodifluoromethane	05/11/2023	0.3	0.5	--	UG/L	264.00	J	
Tetrachloroethylene	05/11/2023	0.75	0.5	--	UG/L	264.00		
Trichloroethylene	05/11/2023	0.17	0.5	--	UG/L	264.00	J	

Site ID : 000-253

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2023	2.28	--	--	UG/L	225.50		
Chloroform	05/11/2023	1.7	0.5	--	UG/L	225.50		
Tetrachloroethylene	05/11/2023	0.58	0.5	--	UG/L	225.50		

Site ID : 000-256

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2023	2.13	--	--	UG/L	225.50		
Chloroform	05/11/2023	1.4	0.5	--	UG/L	225.50		
Tetrachloroethylene	05/11/2023	0.73	0.5	--	UG/L	225.50		

Site ID : 000-259

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2023	8.65	--	--	UG/L	202.50		
1,1,1-Trichloroethane	05/11/2023	0.39	0.5	--	UG/L	202.50	J	
Carbon tetrachloride	05/11/2023	0.97	0.5	--	UG/L	202.50		
Chloroform	05/11/2023	0.53	0.5	--	UG/L	202.50		
Tetrachloroethylene	05/11/2023	6.3	0.5	--	UG/L	202.50		
Trichloroethylene	05/11/2023	0.46	0.5	--	UG/L	202.50	J	

Site ID : 000-262

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/15/2023	6.58	--	--	UG/L	182.50		
1,1,1-Trichloroethane	05/15/2023	0.81	0.5	--	UG/L	182.50		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-262

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1-Dichloroethylene	05/15/2023	0.55	0.5	--	UG/L	182.50		
Carbon tetrachloride	05/15/2023	0.36	0.5	--	UG/L	182.50	J	
Chloroform	05/15/2023	0.71	0.5	--	UG/L	182.50		
cis-1,2-Dichloroethylene	05/15/2023	0.93	0.5	--	UG/L	182.50		
Tetrachloroethylene	05/15/2023	2.5	0.5	--	UG/L	182.50		
Trichloroethylene	05/15/2023	0.72	0.5	--	UG/L	182.50		

Site ID : 000-268

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/20/2023	1.74	--	--	UG/L	215.50		
1,1-Dichloroethylene	04/20/2023	0.19	0.5	--	UG/L	215.50	J	
Chloroform	04/20/2023	0.43	0.5	--	UG/L	215.50	J	
Tetrachloroethylene	04/20/2023	0.81	0.5	--	UG/L	215.50		
Trichloroethylene	04/20/2023	0.31	0.5	--	UG/L	215.50	J	

Site ID : 000-271

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/20/2023	0.19	--	--	UG/L	215.50		
Chloroform	04/20/2023	0.19	0.5	--	UG/L	215.50	J	

Site ID : 000-274

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/09/2023	0.24	--	--	UG/L	242.00		
Tetrachloroethylene	05/09/2023	0.24	0.5	--	UG/L	242.00	J	

Site ID : 000-275

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/30/2023	0.29	--	--	UG/L	134.00		
Chloroform	05/30/2023	0.29	0.5	--	UG/L	134.00	J	

Site ID : 000-276

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/30/2023	0.94	--	--	UG/L	164.00		
Chloroform	05/30/2023	0.58	0.5	--	UG/L	164.00		
Dichlorodifluoromethane	05/30/2023	0.36	0.5	--	UG/L	164.00	J	

Site ID : 000-278

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/09/2023	3.12	--	--	UG/L	194.00		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-278

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/09/2023	0.82	0.5	--	UG/L	194.00		
Tetrachloroethylene	05/09/2023	1.5	0.5	--	UG/L	194.00		
Trichloroethylene	05/09/2023	0.8	0.5	--	UG/L	194.00		

Site ID : 000-279

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	13.87	--	--	UG/L	143.00		
Carbon tetrachloride	04/17/2023	0.77	0.5	--	UG/L	143.00		
Chloroform	04/17/2023	1.1	0.5	--	UG/L	143.00		
Tetrachloroethylene	04/17/2023	12	0.5	--	UG/L	143.00		

Site ID : 000-431

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/09/2023	1.6	--	--	UG/L	260.00		
Chloroform	05/09/2023	1.6	0.5	--	UG/L	260.00		

Site ID : 000-432

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/30/2023	0.29	--	--	UG/L	230.00		
Chloroform	05/30/2023	0.29	0.5	--	UG/L	230.00	J	

Site ID : 000-528

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/14/2023	2.02	--	--	UG/L	220.00		
Chloroform	04/14/2023	0.21	0.5	--	UG/L	220.00	J	
Dichlorodifluoromethane	04/14/2023	0.21	0.5	--	UG/L	220.00	J	
Tetrachloroethylene	04/14/2023	1.6	0.5	--	UG/L	220.00		

Site ID : 000-529

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/10/2023	19.15	--	--	UG/L	215.00		
1,1,1-Trichloroethane	05/10/2023	5.2	0.5	--	UG/L	215.00		
1,1-Dichloroethylene	05/10/2023	2.5	0.5	--	UG/L	215.00		
Carbon tetrachloride	05/10/2023	0.87	0.5	--	UG/L	215.00		
Chloroform	05/10/2023	0.65	0.5	--	UG/L	215.00		
Dichlorodifluoromethane	05/10/2023	0.33	0.5	--	UG/L	215.00	J	
Tetrachloroethylene	05/10/2023	7.4	0.5	--	UG/L	215.00		
Trichloroethylene	05/10/2023	2.2	0.5	--	UG/L	215.00		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-530

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/15/2023	26.81	--	--	UG/L	210.00		
1,1,1-Trichloroethane	05/15/2023	15	0.5	--	UG/L	210.00		
1,1-Dichloroethane	05/15/2023	1.2	0.5	--	UG/L	210.00		
1,1-Dichloroethylene	05/15/2023	8.7	0.5	--	UG/L	210.00		
Chloroform	05/15/2023	0.45	0.5	--	UG/L	210.00	J	
cis-1,2-Dichloroethylene	05/15/2023	0.26	0.5	--	UG/L	210.00	J	
Trichloroethylene	05/15/2023	1.2	0.5	--	UG/L	210.00		

Site ID : 000-531

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/20/2023	14.09	--	--	UG/L	205.00		
1,1,1-Trichloroethane	04/20/2023	1.1	0.5	--	UG/L	205.00		
1,1-Dichloroethylene	04/20/2023	1.5	0.5	--	UG/L	205.00		
Carbon tetrachloride	04/20/2023	4.4	0.5	--	UG/L	205.00		
Chloroform	04/20/2023	0.87	0.5	--	UG/L	205.00		
cis-1,2-Dichloroethylene	04/20/2023	0.55	0.5	--	UG/L	205.00		
Tetrachloroethylene	04/20/2023	0.57	0.5	--	UG/L	205.00		
Trichloroethylene	04/20/2023	5.1	0.5	--	UG/L	205.00		

Site ID : 000-538

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/10/2023	19.03	--	--	UG/L	215.00		
1,1,1-Trichloroethane	05/10/2023	4	0.5	--	UG/L	215.00		
1,1-Dichloroethylene	05/10/2023	1.5	0.5	--	UG/L	215.00		
Carbon tetrachloride	05/10/2023	0.81	0.5	--	UG/L	215.00		
cis-1,2-Dichloroethylene	05/10/2023	0.52	0.5	--	UG/L	215.00		
Tetrachloroethylene	05/10/2023	7.9	0.5	--	UG/L	215.00		
Trichloroethylene	05/10/2023	4.3	0.5	--	UG/L	215.00		

Table 5-5
OU III Industrial Park Influent Data
'Hits Only' April through June 2023

Site ID : 000-231 (UVB-1 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2023	0	--	--	UG/L	230.00		

Site ID : 000-237 (UVB-4 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2023	0	--	--	UG/L	180.00		

Site ID : 000-239 (UVB-5 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2023	8.93	--	--	UG/L	190.00		
1,1-Dichloroethylene	04/13/2023	0.38	0.5	--	UG/L	190.00	J	
Carbon tetrachloride	04/13/2023	1.8	0.5	--	UG/L	190.00		
Chloroform	04/13/2023	0.5	0.5	--	UG/L	190.00		
cis-1,2-Dichloroethylene	04/13/2023	0.63	0.5	--	UG/L	190.00		
Ethylbenzene	04/13/2023	0.2	0.5	--	UG/L	190.00	J	
m/p xylene	04/13/2023	0.4	1	--	UG/L	190.00	J	
Tetrachloroethylene	04/13/2023	1.5	0.5	--	UG/L	190.00		
Toluene	04/13/2023	0.62	0.5	--	UG/L	190.00		
Trichloroethylene	04/13/2023	2.5	0.5	--	UG/L	190.00		
Xylene (total)	04/13/2023	0.4	1.5	--	UG/L	190.00	J	

Site ID : 000-241 (UVB-6 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2023	0	--	--	UG/L	200.00		

Site ID : 000-243 (UVB-7 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2023	0	--	--	UG/L	215.00		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III Former Carbon Tetrachloride Pump & Treat System (System Closed)

The Draft Petition for Closure for the OU III Carbon Tetrachloride Groundwater Removal Action was submitted to the regulators for review in August 2009. Following the incorporation of EPA comments, in October 2009, the Final Petition for Closure of the OU III Carbon Tetrachloride Groundwater Removal Action was issued to the regulators. EPA and NYSDEC provided approval in October 2009. Since that time, activities have been concluded with decommissioning and dismantling of the Carbon Tetrachloride treatment system. A decommissioning report was submitted to the regulators in March 2011.

OU III Building 96 Pump & Treat System

Process: Three re-circulation extraction wells are each connected to individual shallow tray air-stripping units. One extraction well is connected to a shallow tray air-stripping unit with discharge to a drainage channel directed to Recharge Basin HS.

Goal: Remediation of volatile organic compounds (VOCs) in the source area and reaching Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030).

Start Date: February 2001

Table 7-1
Pumping Rates (gpm)

Recirculation Treatment Well	RTW-1	RTW-2	RTW-3	RTW-4
Site Id #	095-151	095-153	095-155	095-157
Screen Interval (feet bls)	48-58	48-58	48-58	48-58
Desired Flow Rate (gpm)	60	0	0	0
April	56	0	0	0
May	0	0	0	0
June	54	0	0	0
Actual (Avg. over Qtr.)	**55**	**0**	**0**	**0**

RTW-1 was restarted in 2008 with discharge to Recharge Basin HS. RTW-2 and RTW-3 were placed in standby mode in January 2016. RTW-4 was placed in standby mode in 2012. RTW-2 was restarted November 2018 and placed back in standby June 2020. In June 2019, the RTW-1 pumping rate was increased from 30 gpm to 60 gpm. In May 2022, RTW-1 began pulsed pumping.

OU III Building 96 Pump & Treat System

Figure 7-1
Cumulative Mass Removal of VOCs vs. Time

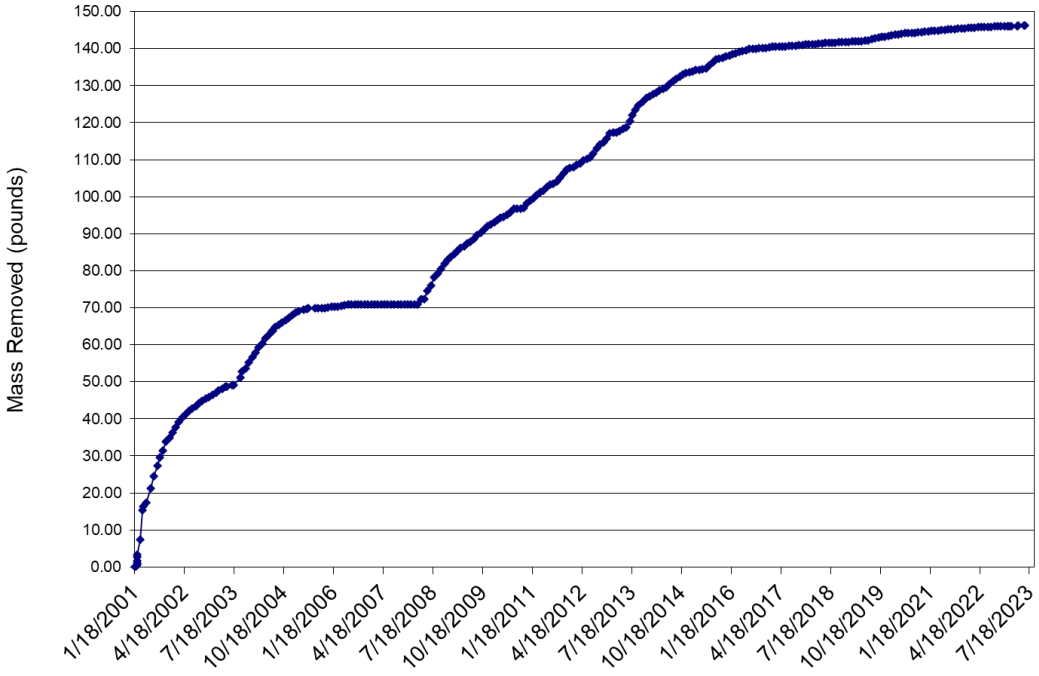
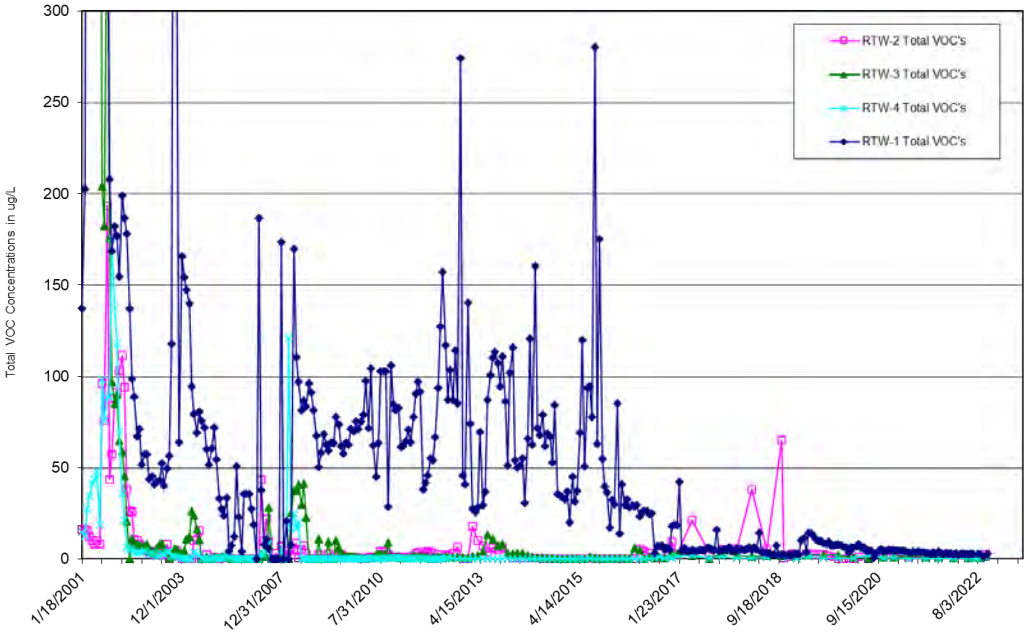


Figure 7-2
Influent TVOC Concentrations vs. Time



OU III Building 96 Pump & Treat System

Table 7-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations – April 1, 2023 – June 31, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	65	56	GPM	Continuous
pH (range)	5.0 - 8.5	7.1 – 7.4*	SU	Monthly
Tetrachloroethylene	5.0	<0.5	µg/L	Monthly
1,1,1-Trichloroethane	5.0	<0.5	µg/L	Monthly
Thallium, Total	Monitor	<2.0	µg/L	Monthly
Trichlorofluoromethane	5.0	<0.5	µg/L	Monthly
Methyl Bromide	5.0	<0.5	µg/L	Monthly
Methyl Chloride	5.0	<0.5	µg/L	Monthly
Methylene Chloride	5.0	<0.5	µg/L	Monthly
1,2-Dichloroethane	0.6	<0.5	µg/L	Monthly
Perfluorooctanesulfonic acid (PFOS)	Monitor	9.5	ng/L	Quarterly
Perfluorooctanoic acid (PFOA)	Monitor	6.6	ng/L	Quarterly

* Minimum to maximum recorded value for pH during this operational period.

In September 2022, a SPDES equivalency permit renewal was issued by NYSDEC. Sampling for PFOS and PFOA is required on a quarterly basis using EPA Method 1633 for the analysis. RTW-1 was off for pulsed pumping during May; therefore, system samples were collected during April and June only.

Monitoring Activities

During the second quarter 2023, the highest concentration of tetrachloroethylene (PCE) (the primary VOC of concern in this area) in the building 96 monitoring wells was 52 µg/L in monitoring well 095-159. The maximum PCE detection in extraction well RTW-1 in the second quarter was 3 µg/L. The maximum concentration of trichlorofluoromethane (freon 11) detected was 0.74 µg/L in monitoring well 085-382. The OU III Building 96 monitoring well network is shown on **Figure 7-3.** The 'Hits Only' first quarter 2023 data are summarized in **Table 7-3.**

OU III Building 96 Pump & Treat System

System Operations

April 2023:

Extraction well RTW-1 ran normally for the month. Wells RTW-2, RTW-3 and RTW-4 remained in standby mode. The system treated approximately 2.1 million gallons of water.

May 2023:

The system was off this month for pulsed pumping. Wells RTW-2, RTW-3 and RTW-4 remained in standby mode.

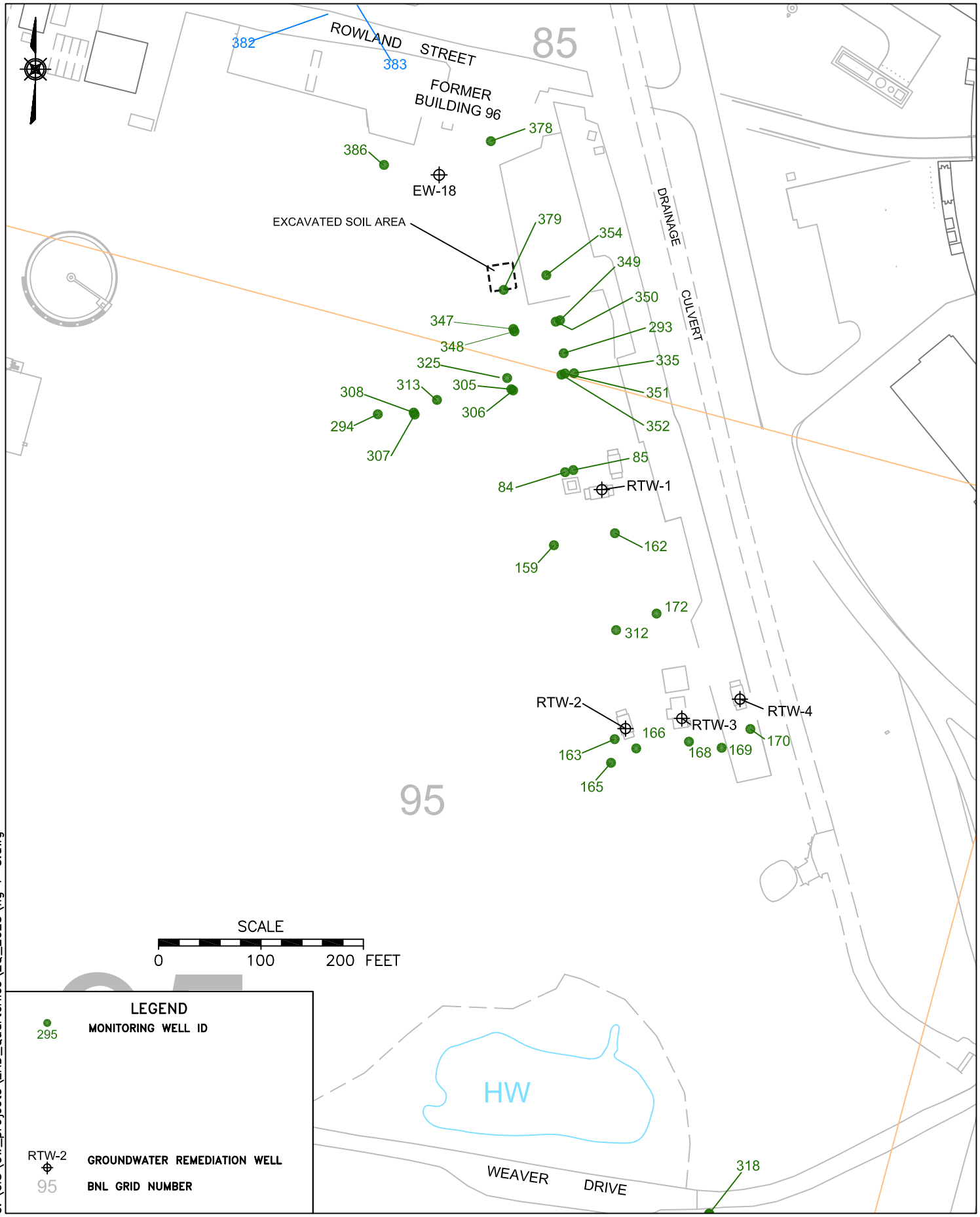
June 2023:

Extraction well RTW-1 ran normally for the month. Wells RTW-2, RTW-3 and RTW-4 remained in standby mode. The system treated approximately 2.2 million gallons of water.

The system treated approximately 4.3 million gallons of water during the second quarter of 2023. The extraction wells maintained in standby mode were temporarily turned on to facilitate sampling. The treatment system 'Hits Only' data, including individual extraction well influent, and effluent (RTW-1), is shown in **Table 7-5** through **Table 7-6**.

Planned Operational Changes

- Maintain extraction well RTW-1 in a pulsed pumping mode and operate every other month. Continue to monitor for any rebound of VOC concentrations over the system capture goal. During the second quarter, 095-159 was the only monitoring well exceeding the 50 µg/L TVOC capture goal with a concentration of 53 µg/L. Well 095-159 is approximately 80 feet southwest of RTW-1.
- Per a recommendation in the 2021 CERCLA Five-Year Review Report, continue to monitor VOC concentrations in the plume source area and evaluate/implement a liquid carbon with zero-valent iron in-situ treatment for the immediate source area.
- Maintain treatment wells RTW-2, RTW-3, and RTW-4 in standby mode, and restart the wells if extraction or monitoring well data indicate that TVOC concentrations exceed 50 µg/L. During the second quarter of 2023, the maximum TVOC concentration recorded in standby extraction wells was 1.47 µg/L in RTW-3.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III BUILDING 96 MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	06/15/18	–
CHKD:	APPD:	REV.:	NOTES:
LDS	--	08/17/23	–

FIGURE NO.: 7-3

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 085-335

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/10/2023	18	--	--	UG/L	35.00		
Tetrachloroethylene	04/10/2023	18	0.5	--	UG/L	35.00		

Site ID : 085-347

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/05/2023	6.7	--	--	UG/L	22.50		
Tetrachloroethylene	04/05/2023	6.7	0.5	--	UG/L	22.50		

Site ID : 085-348

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/05/2023	19.17	--	--	UG/L	34.50		
1,1,1-Trichloroethane	04/05/2023	0.17	0.5	--	UG/L	34.50	J	
Tetrachloroethylene	04/05/2023	19	0.5	--	UG/L	34.50		

Site ID : 085-349

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	2.7	--	--	UG/L	25.50		
Tetrachloroethylene	04/11/2023	2.7	0.5	--	UG/L	25.50		

Site ID : 085-350

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/03/2023	4.39	--	--	UG/L	34.50		
1,1,1-Trichloroethane	04/03/2023	0.19	0.5	--	UG/L	34.50	J	
Tetrachloroethylene	04/03/2023	4.2	0.5	--	UG/L	34.50		

Site ID : 085-351

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/10/2023	1.6	--	--	UG/L	25.50		
Tetrachloroethylene	04/10/2023	1.6	0.5	--	UG/L	25.50		

Site ID : 085-352

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/03/2023	13	--	--	UG/L	34.50		
Tetrachloroethylene	04/03/2023	13	0.5	--	UG/L	34.50		

Site ID : 085-379

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/10/2023	49.24	--	--	UG/L	26.00		
1,1,1-Trichloroethane	04/10/2023	0.24	0.5	--	UG/L	26.00	J	
Tetrachloroethylene	04/10/2023	49	0.5	--	UG/L	26.00		

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 085-379

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Iron	04/18/2023	67.7	30	--	UG/L	26.00	B	
Iron	04/18/2023	10400	30	--	UG/L	26.00		
Manganese	04/18/2023	6.61	2	--	UG/L	26.00	B	
Manganese	04/18/2023	974	2	--	UG/L	26.00		
Nitrite + Nitrate-N	04/18/2023	1.1	0.017	--	MG/L	26.00		
Sulfate	04/18/2023	5.76	0.133	--	MG/L	26.00		

Site ID : 085-382

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0.74	--	--	UG/L	37.50		
Trichlorofluoromethane	04/11/2023	0.74	0.5	--	UG/L	37.50		

Site ID : 085-383

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0.17	--	--	UG/L	37.50		
Trichlorofluoromethane	04/11/2023	0.17	0.5	--	UG/L	37.50	J	

Site ID : 085-386

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2023	0.51	--	--	UG/L	47.50		
Trichlorofluoromethane	04/07/2023	0.51	0.5	--	UG/L	47.50		

Site ID : 095-159

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2023	53.34	--	--	UG/L	50.00		
1,1,1-Trichloroethane	04/07/2023	0.89	0.5	--	UG/L	50.00		
1,1-Dichloroethylene	04/07/2023	0.25	0.5	--	UG/L	50.00	J	
Chloroform	04/07/2023	0.2	0.5	--	UG/L	50.00	J	
Tetrachloroethylene	04/07/2023	52	1	--	UG/L	50.00	D	

Site ID : 095-162

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	3.85	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.35	0.5	--	UG/L	50.00	J	
Tetrachloroethylene	04/04/2023	3.5	0.5	--	UG/L	50.00		

Site ID : 095-163

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	4.89	--	--	UG/L	50.00		

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 095-163

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	04/04/2023	0.29	0.5	--	UG/L	50.00	J	
Tetrachloroethylene	04/04/2023	4.6	0.5	--	UG/L	50.00		

Site ID : 095-165

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/10/2023	6.1	--	--	UG/L	50.00		
Tetrachloroethylene	04/10/2023	6.1	0.5	--	UG/L	50.00		

Site ID : 095-166

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	0.76	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.35	0.5	--	UG/L	50.00	J	
Tetrachloroethylene	04/04/2023	0.41	0.5	--	UG/L	50.00	J	

Site ID : 095-168

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	1.3	--	--	UG/L	60.00		
Chloroform	04/04/2023	1	0.5	--	UG/L	60.00		
Tetrachloroethylene	04/04/2023	0.3	0.5	--	UG/L	60.00	J	

Site ID : 095-169

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	0.67	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.67	0.5	--	UG/L	50.00		

Site ID : 095-170

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	0.85	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.85	0.5	--	UG/L	50.00		

Site ID : 095-172

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	1.25	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.96	0.5	--	UG/L	50.00		
Tetrachloroethylene	04/04/2023	0.29	0.5	--	UG/L	50.00	J	

Site ID : 095-294

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2023	1.6	--	--	UG/L	30.00		
Tetrachloroethylene	04/07/2023	1.6	0.5	--	UG/L	30.00		

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 095-305

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2023	3.4	--	--	UG/L	22.50		
Tetrachloroethylene	04/06/2023	3.4	0.5	--	UG/L	22.50		

Site ID : 095-306

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2023	17.53	--	--	UG/L	34.50		
cis-1,2-Dichloroethylene	04/06/2023	0.53	0.5	--	UG/L	34.50		
Tetrachloroethylene	04/06/2023	17	0.5	--	UG/L	34.50		

Site ID : 095-307

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2023	1.9	--	--	UG/L	32.50		
Tetrachloroethylene	04/06/2023	1.9	0.5	--	UG/L	32.50		

Site ID : 095-308

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2023	2.6	--	--	UG/L	37.50		
Tetrachloroethylene	04/06/2023	2.6	0.5	--	UG/L	37.50		

Site ID : 095-312

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	0.2	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.2	0.5	--	UG/L	50.00	J	

Site ID : 095-313

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2023	3.6	--	--	UG/L	52.50		
Tetrachloroethylene	04/06/2023	3.6	0.5	--	UG/L	52.50		

Site ID : 095-325

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2023	30.7	--	--	UG/L	45.00		
cis-1,2-Dichloroethylene	04/06/2023	1.7	0.5	--	UG/L	45.00		
Tetrachloroethylene	04/06/2023	29	0.5	--	UG/L	45.00		

Site ID : 095-84

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/03/2023	14	--	--	UG/L	25.00		
Tetrachloroethylene	04/03/2023	14	0.5	--	UG/L	25.00		

Table 7-5
OU III Building 96 Influent Data
'Hits Only' April through June 2023

Site ID : 095-151 (RTW-1 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	04/08/2023	34.02	--	--	NG/L	0.00		
8260 TVOC	04/08/2023	2.9	--	--	UG/L	0.00		
Chloroform	04/08/2023	0.5	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/08/2023	1	1.5	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/08/2023	8.2	5.8	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/08/2023	1.6	1.5	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/08/2023	2.8	1.5	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/08/2023	2.3	1.5	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/08/2023	0.72	1.5	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	04/08/2023	8.3	1.5	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/08/2023	7.1	1.5	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/08/2023	2	2.9	--	NG/L	0.00	J	
Tetrachloroethylene	04/08/2023	2.4	0.5	--	UG/L	0.00		
8260 TVOC	06/09/2023	3.62	--	--	UG/L	0.00		
Chloroform	06/09/2023	0.62	0.5	--	UG/L	0.00		
Tetrachloroethylene	06/09/2023	3	0.5	--	UG/L	0.00		

Site ID : 095-153 (RTW-2 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2023	0.85	--	--	UG/L	0.00		
Chloroform	04/08/2023	0.51	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/08/2023	0.34	0.5	--	UG/L	0.00	J	

Site ID : 095-155 (RTW-3 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2023	1.47	--	--	UG/L	0.00		
Chloroform	04/08/2023	1.3	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/08/2023	0.17	0.5	--	UG/L	0.00	J	

Site ID : 095-157 (RTW-4 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2023	0.89	--	--	UG/L	0.00		
Chloroform	04/08/2023	0.72	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/08/2023	0.17	0.5	--	UG/L	0.00	J	

Table 7-6
OU III Building 96 Effluent Data
'Hits Only' April through June 2023

Site ID : 095-152 (RTW-1 Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	04/08/2023	37.15	--	--	NG/L	0.00		
8260 TVOC	04/08/2023	0	--	--	UG/L	0.00		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	04/08/2023	3	5.5	--	NG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/08/2023	1.1	1.4	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/08/2023	8.2	5.5	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/08/2023	1.6	1.4	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/08/2023	2.5	1.4	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/08/2023	2	1.4	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/08/2023	0.75	1.4	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	04/08/2023	9.5	1.4	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/08/2023	6.6	1.4	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/08/2023	1.9	2.8	--	NG/L	0.00	J	
8260 TVOC	06/09/2023	0	--	--	UG/L	0.00		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU IV Former Air Sparge/Soil Vapor Extraction System (System Closed)

A petition was submitted in June 2002 for closure of this project. The EPA and DEC provided their approval for system closure in July 2003. The system was decommissioned in the fall of 2003. Per the *2010 Groundwater Status Report*, groundwater monitoring related to the OU IV Air Sparge/Soil Vapor Extraction System is concluded.

OU VI Ethylene Dibromide Pump & Treat System

Process: Groundwater extraction and liquid phase granular activated carbon (GAC) treatment, with discharge to injection wells.

Goal: Reach the ethylene dibromide (EDB) Maximum Contaminant Level (MCL) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030).

Start Date: October 2004

Table 9-1
Pumping Rates (gpm)

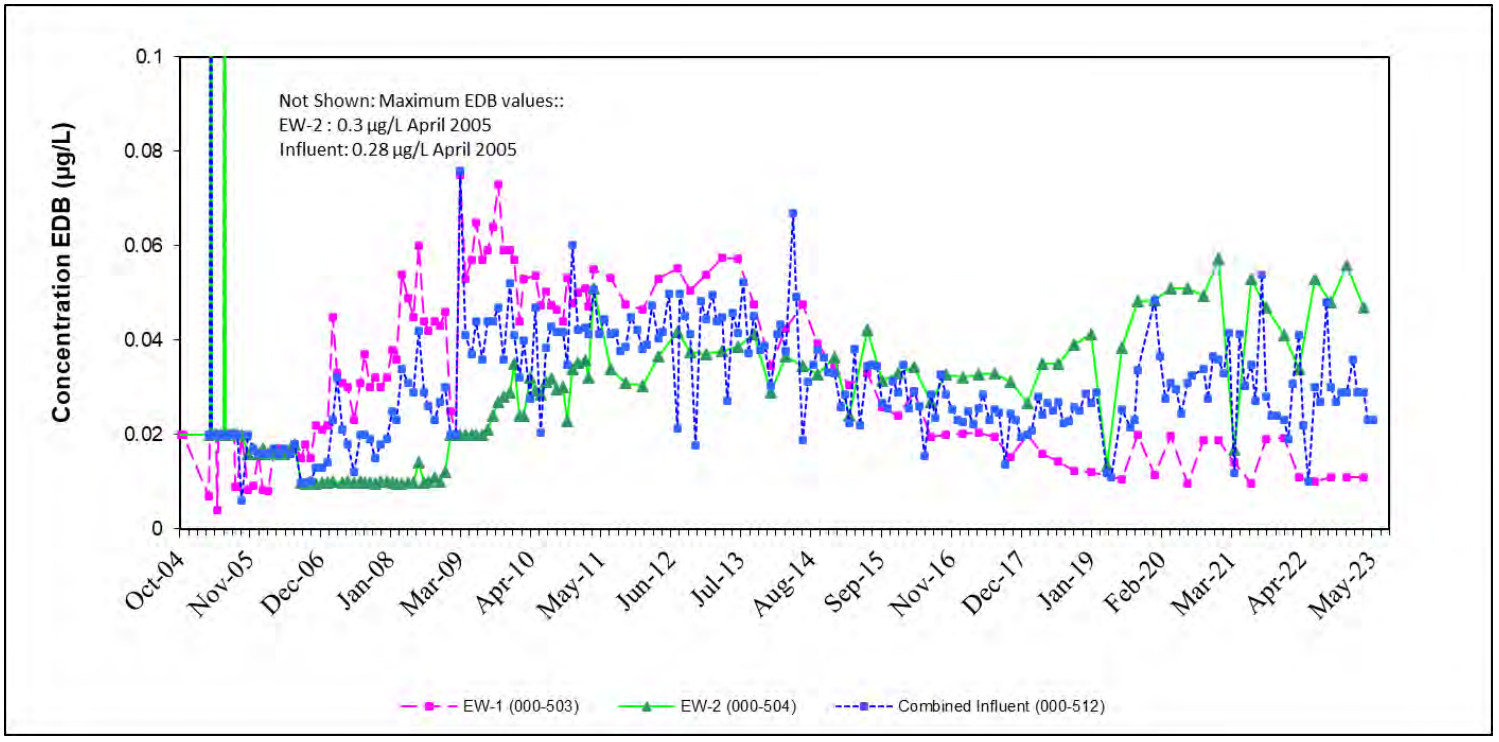
Extraction Well	EW-1E	EW-2E
Site Id #	000-503	000-504
Screened Interval (feet below grade)	115-135	115-135
Desired Flow Rate (GPM)	160	190
April	163	177
May	163	183
June	135	140
Actual (Avg. over Qtr.)	**154**	**167**

OU VI Ethylene Dibromide Pump & Treat System

Figure 9-1
OU VI Cumulative Mass Removal of EDB vs. Time

Due to the low concentrations of EDB in the extraction wells, a presentation of a mass removal graph is not included.

Figure 9-2
Extraction Well and Influent EDB Concentration vs. Time



OU VI Ethylene Dibromide Pump & Treat System

Table 9-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations - April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**450**	**346**	**GPM**	**Continuous**
pH	**5.0 - 8.5**	**5.3-5.8***	**SU**	**Weekly**
Ethylene Dibromide	**.03**	**<0.011**	**µg/L**	**Monthly****
Chloroform	**7.0**	**0.38J**	**µg/L**	**Monthly****
1,1-Dichloroethene	**5.0**	**<0.5**	**µg/L**	**Monthly****
1,1,1-Trichloroethane	**5.0**	**<0.5**	**µg/L**	**Monthly****
Methyl Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly****
Methylene Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly****

*Minimum to maximum value for pH during this operational period.
** The minimum measurement frequency shall be monthly following a period of 24 consecutive weekly sampling events showing no exceedances of the stated discharge limitations.
< - The analyte was not detected above the method detection limit (MDL).
J – The analyte was detected above the MDL but below the reporting limit, the result is estimated.

Monitoring Activities

The OU VI EDB monitoring well data show the concentration of EDB ranged from 0.11 µg/L in 000-284 to 1.8 µg/L in 000-571. The OU VI EDB monitoring well network is shown on **Figure 9-3.** The 'Hits Only' second quarter 2023 monitoring well data are summarized in **Table 9-3.**

System Operations

April 2023:

The system ran normally for the month and treated approximately 15 million gallons of water.

May 2023:

The system ran normally for the month and treated approximately 15 million gallons of water.

June 2023:

The system was shut off on June 22 to redevelop the diffusion wells. The system treated approximately 12 million gallons of water.

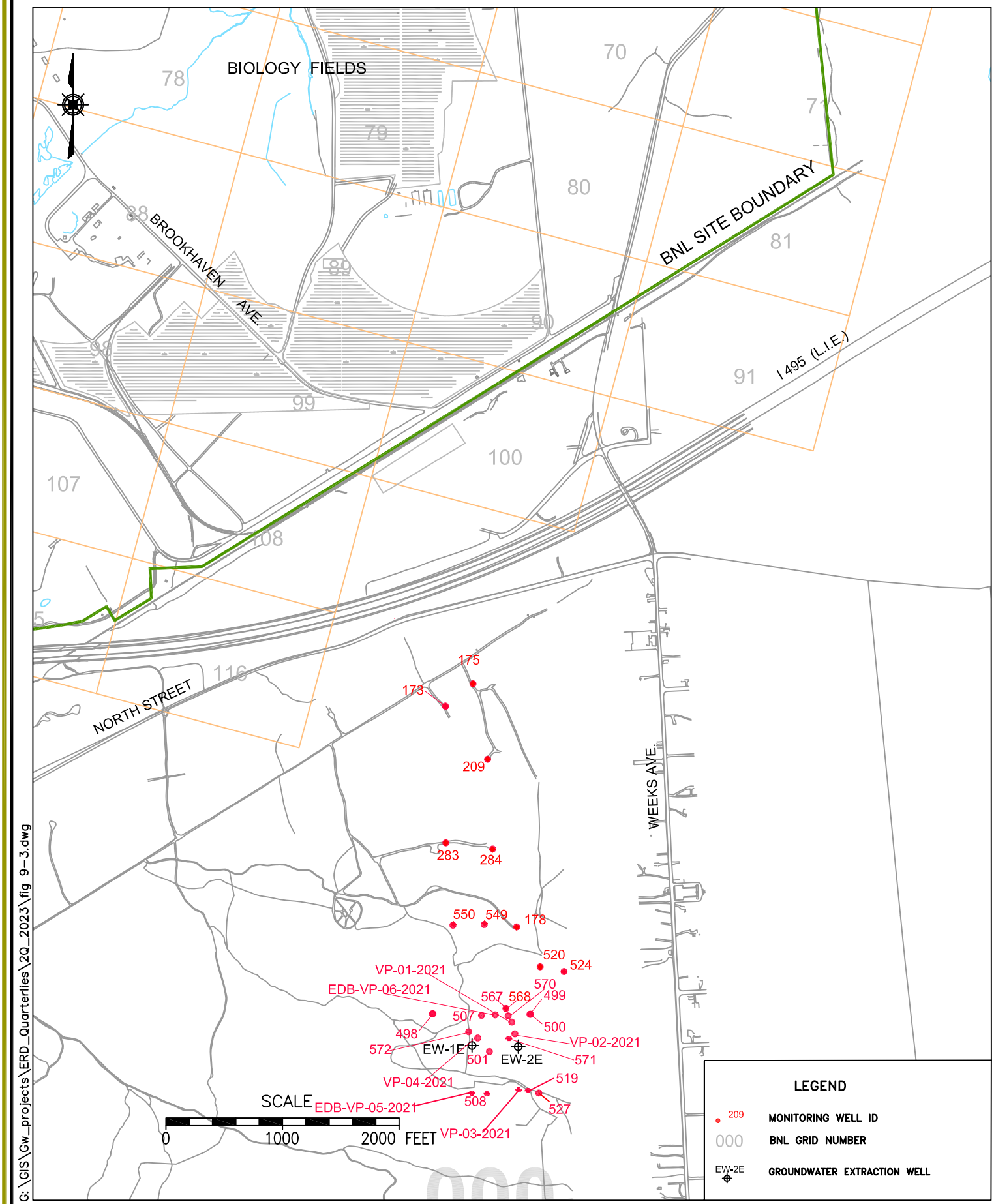
OU VI Ethylene Dibromide Pump & Treat System

The system treated approximately 42 million gallons of water during the second quarter of 2023. The treatment system 'Hits Only' data including individual extraction wells, combined influent, and effluent is summarized in **Table 9-4** through **Table 9-6**.

The EDB Transport Evaluation was performed in March 2023 to evaluate the locations and extraction rates of proposed additional deeper extraction wells. This is documented in the 2022 Groundwater Status Report.

Planned Operational Changes

- Maintain full time operation of the treatment system and continue quarterly sampling of the extraction wells.
- Based on updated groundwater flow and transport modeling, the following is recommended:
  - Submit a system design modification to the regulators in mid-2023 for the addition of two deeper extraction wells immediately adjacent to the existing wells EW-1E and EW-2E. These wells will replace the existing extraction wells, which will no longer be operated.
  - This modification will establish capture of both the deep and slightly shallower portions of the EDB plume in this area and enhance remediation of the high concentration segment of the plume.
  - Additional deep bypass monitoring wells will be installed to monitor the effectiveness of the new extraction wells.



G:\GIS\Gw_projects\ERD_Quarterlies\2Q_2023\fig 9-3.dwg

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU VI EDB

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	09/26/05	–
CHKD:	APPD:	REV.:	NOTES:
LDS	––	08/17/23	–

FIGURE NO.: 9-3

Table 9-3
OU VI Ethylene Dibromide Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-178

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/21/2023	0.19	0.01	--	UG/L	133.00		

Site ID : 000-283

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/21/2023	0.068	0.01	--	UG/L	107.00		

Site ID : 000-284

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/21/2023	0.011	0.01	--	UG/L	107.00		

Site ID : 000-500

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/20/2023	0.16	0.01	--	UG/L	135.00		

Site ID : 000-507

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/21/2023	0.012	0.011	--	UG/L	125.00		

Site ID : 000-520

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/16/2023	0.12	0.01	--	UG/L	140.00		

Site ID : 000-549

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/21/2023	0.35	0.01	--	UG/L	145.00		

Site ID : 000-550

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/22/2023	0.25	0.01	--	UG/L	130.00		

Site ID : 000-567

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/16/2023	0.25	0.01	--	UG/L	145.00		

Site ID : 000-568

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/16/2023	0.58	0.02	--	UG/L	160.00	D	

Site ID : 000-570

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/21/2023	1.2	0.1	--	UG/L	160.00	D	

Site ID : 000-571

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/20/2023	1.8	0.1	--	UG/L	175.00	D	

Table 9-3
OU VI Ethylene Dibromide Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-572

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/20/2023	0.61	0.021	--	UG/L	200.00	D	

Table 9-4
OU VI Ethylene Dibromide Extraction Well Data
'Hits Only' April through June 2023

Site ID : 000-503 (EW-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0.94	--	--	UG/L	0.00		
Chloroform	04/11/2023	0.94	0.5	--	UG/L	0.00		

Site ID : 000-504 (EW-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0.82	--	--	UG/L	0.00		
Chloroform	04/11/2023	0.82	0.5	--	UG/L	0.00		
EDB	04/11/2023	0.047	0.011	--	UG/L	0.00		

Table 9-5
OU VI Ethylene Dibromide Influent Data
'Hits Only' April through June 2023

Site ID : 000-512 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0.91	--	--	UG/L	0.00		
Chloroform	04/11/2023	0.91	0.5	--	UG/L	0.00		
EDB	04/11/2023	0.029	0.011	--	UG/L	0.00		
8260 TVOC	05/04/2023	1	--	--	UG/L	0.00		
Chloroform	05/04/2023	1	0.5	--	UG/L	0.00		
EDB	05/04/2023	0.023	0.01	--	UG/L	0.00		
8260 TVOC	06/05/2023	1	--	--	UG/L	0.00		
Chloroform	06/05/2023	1	0.5	--	UG/L	0.00		
EDB	06/05/2023	0.023	0.01	--	UG/L	0.00		

Table 9-6
OU VI Ethylene Dibromide Effluent Data
'Hits Only' April through June 2023

Site ID : 000-510 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0.16	--	--	UG/L	0.00		
Chloroform	04/11/2023	0.16	0.5	--	UG/L	0.00	J	
EDB	04/11/2023	0.011	0.011	--	UG/L	0.00	U	
EDB	04/11/2023	0.5	0.5	--	UG/L	0.00	U	
8260 TVOC	05/04/2023	0.38	--	--	UG/L	0.00		
Chloroform	05/04/2023	0.38	0.5	--	UG/L	0.00	J	
EDB	05/04/2023	0.011	0.011	--	UG/L	0.00	U	
EDB	05/04/2023	0.5	0.5	--	UG/L	0.00	U	
8260 TVOC	06/05/2023	0	--	--	UG/L	0.00		
EDB	06/05/2023	0.01	0.01	--	UG/L	0.00	U	
EDB	06/05/2023	0.5	0.5	--	UG/L	0.00	U	

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III HFBR Tritium Pump & Recharge System (System Closed)

Process: Pump and recharge (to the RAV basin) with monitored natural attenuation for tritium. Carbon filtration was also included in the pump and recharge system to remove VOCs that were also present in the groundwater.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030). NYSDEC and EPA approved the Petition for Closure in August 2018 and March 2019, respectively.

Start Date: May 1997

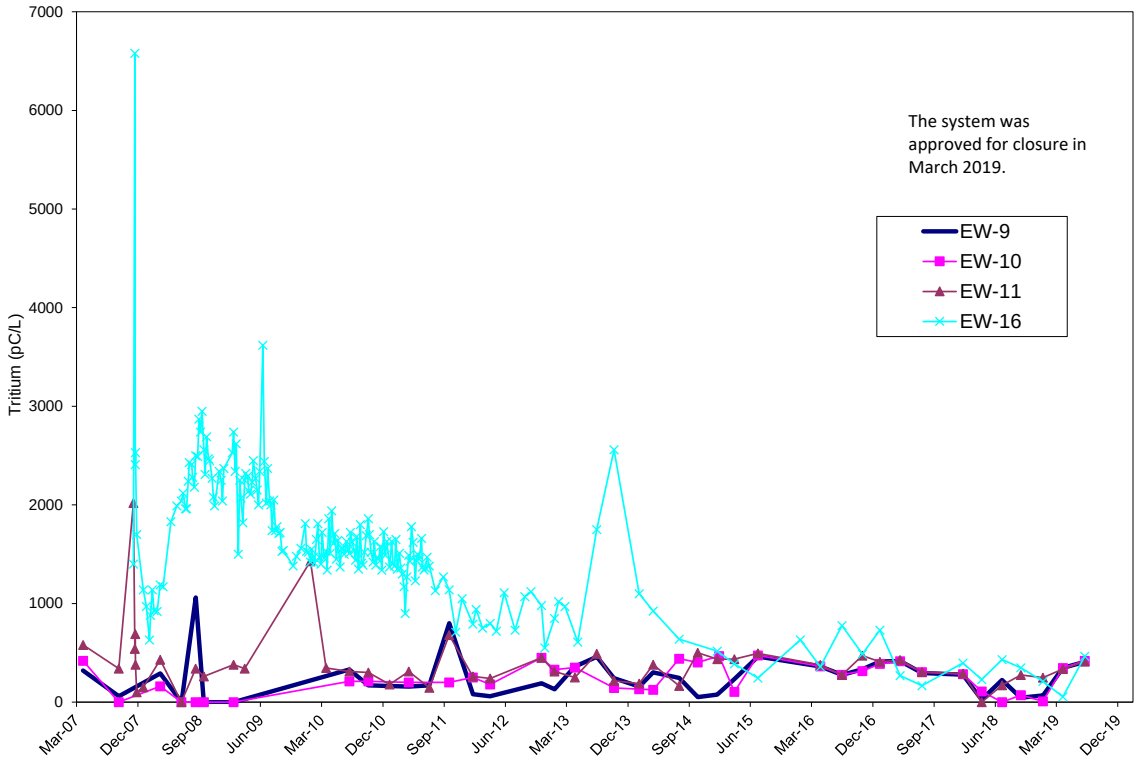
Table 10-1
Pumping Rates (gpm)

Extraction Well	EW-9	EW-10	EW-11	EW-16
Site ID #	105-40	105-39	105-41	096-119
Screen Interval (ft bls)	130-150	130-150	130-150	80-120
Desired Flow Rate (gpm)	0 *	0 *	0 *	0 *
April (Avg monthly gpm)	0	0	0	0
May " "	0	0	0	0
June " "	0	0	0	0
Actual (Avg. over Qtr.)	**0**	**0**	**0**	**0**

* The system was approved for closure in March 2019.

OU III HFBR Tritium Pump & Recharge System (System Closed)

Figure 10-1
Extraction Wells Tritium Concentrations vs. Time



OU III HFBR Tritium Pump & Recharge System
(System Closed)

Table 10-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**NA**	**GPD**	**Continuous**
pH (range)	**5.6 - 8.5**	**NA**	**SU**	**Weekly**
Carbon Tetrachloride	**5.0**	**NA**	**µg/L**	**2/Month**
Chloroform	**7.0**	**NA**	**µg/L**	**2/Month**
1,1-Dichloroethane	**5.0**	**NA**	**µg/L**	**2/Month**
1,2-Dichloroethane	**0.6**	**NA**	**µg/L**	**2/Month**
1,1-Dichloroethene	**5.0**	**NA**	**µg/L**	**2/Month**
cis-1,2-Dichloroethylene	**5.0**	**NA**	**µg/L**	**2/Month**
trans-1,2-Dichloroethylene	**5.0**	**NA**	**µg/L**	**2/Month**
Methyl Chloride	**5.0**	**NA**	**µg/L**	**2/Month**
Methylene Chloride	**5.0**	**NA**	**µg/L**	**2/Month**
Methyl Bromide	**5.0**	**NA**	**µg/L**	**2/Month**
Tetrachloroethylene	**5.0**	**NA**	**µg/L**	**2/Month**
1,1,1-Trichloroethane	**5.0**	**NA**	**µg/L**	**2/Month**
Trichloroethylene	**5.0**	**NA**	**µg/L**	**2/Month**

NA = Not applicable. The system is closed.

OU III HFBR Tritium Pump & Recharge System (System Closed)

Monitoring Activities:

During the second quarter of 2023, the highest concentration of tritium recorded was 7,404 pCi/L, immediately downgradient of the HFBR in well 075-804. The current monitoring well network is shown on **Figure 10-2**. The second quarter 'Hits Only' monitoring well analytical results are summarized in **Table 10-3**.

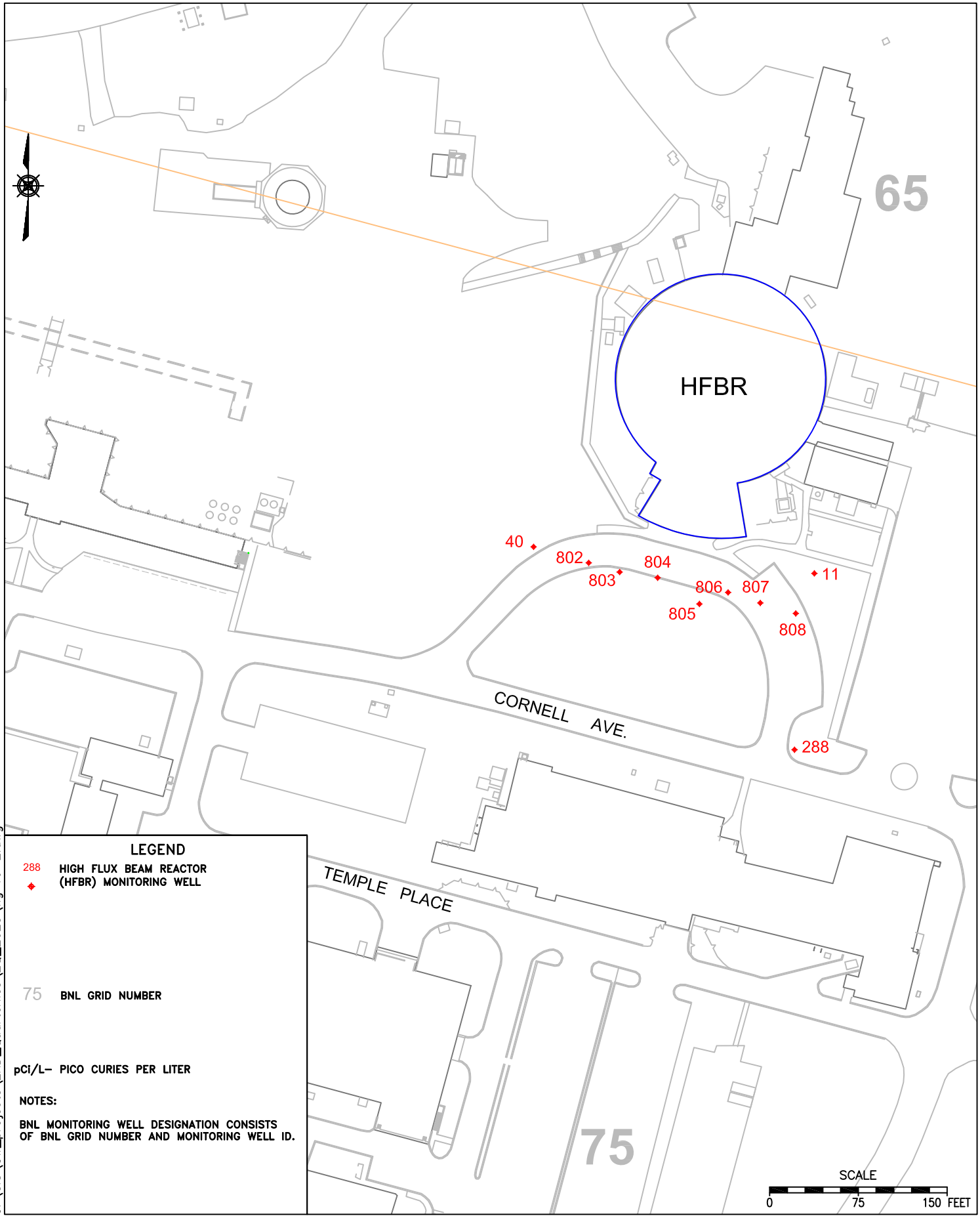
System Operations

April through June 2023:

The system remained closed.

Planned Operational Changes

- Continue to monitor the source area with the ten wells located immediately downgradient of the HFBR on a quarterly basis. Consider reducing the sampling frequency to semi-annual if tritium concentrations remain below 20,000 pCi/L throughout 2023.
- Maintain the downgradient monitoring and extraction wells until a determination is made on their potential utilization related to PFAS and 1,4-dioxane.



G:\GIS\Gw_projects\ERD_Quarterlies\2Q_2023\fig 10-2.dwg

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III HFBR AOC 29

SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	06/14/16	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	08/17/23	–

FIGURE NO.: 10–2

Table 10-3
OU III HFBR Tritium Plume Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 075-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/12/2023	2893.389	409.176	301.969	PCI/L	61.50		

Site ID : 075-804

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/13/2023	7404.192	411.449	381.934	PCI/L	52.13		

Site ID : 075-805

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/13/2023	3473.445	409.777	313.53	PCI/L	51.75		

Site ID : 075-806

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/11/2023	2628.762	411.302	297.988	PCI/L	51.37		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III Western South Boundary Pump & Treat System

Process: Groundwater extraction and air stripping treatment. As of March 2019, the water is treated at the OU III South Boundary/Middle Road air stripper towers and discharged to both the OU III and RA V recharge basins.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells in OU III within 30 years for the Upper Glacial aquifer (by 2030).

Start Date: September 2002

Table 11-1
Pumping Rates (gpm)

Extraction Well	WSB-1	WSB-2	WSB-3	WSB-4	WSB-5	WSB-6
Site ID #	126-12	127-05	111-17	119-13	130-12	130-13
Screen Interval (ft bls)	140-160	150-170	168-188	170-190	160-190	196-216
Desired Flow Rate (GPM)	100	0*	75	75	75	75
April (Avg monthly gpm)	81	0	44	97	59	105
May " "	69	0	64	96	75	95
June " "	72	0	91	96	94	115
Actual (Avg. over Qtr.)	**74**	**0**	**66**	**96**	**76**	**105**

Extraction well WSB-2 is in standby mode. Extraction wells WSB-3 through WSB-6 became operational in March 2019.

OU III Western South Boundary Pump & Treat System

Figure 11-1
Cumulative Mass Removal of VOCs vs. Time

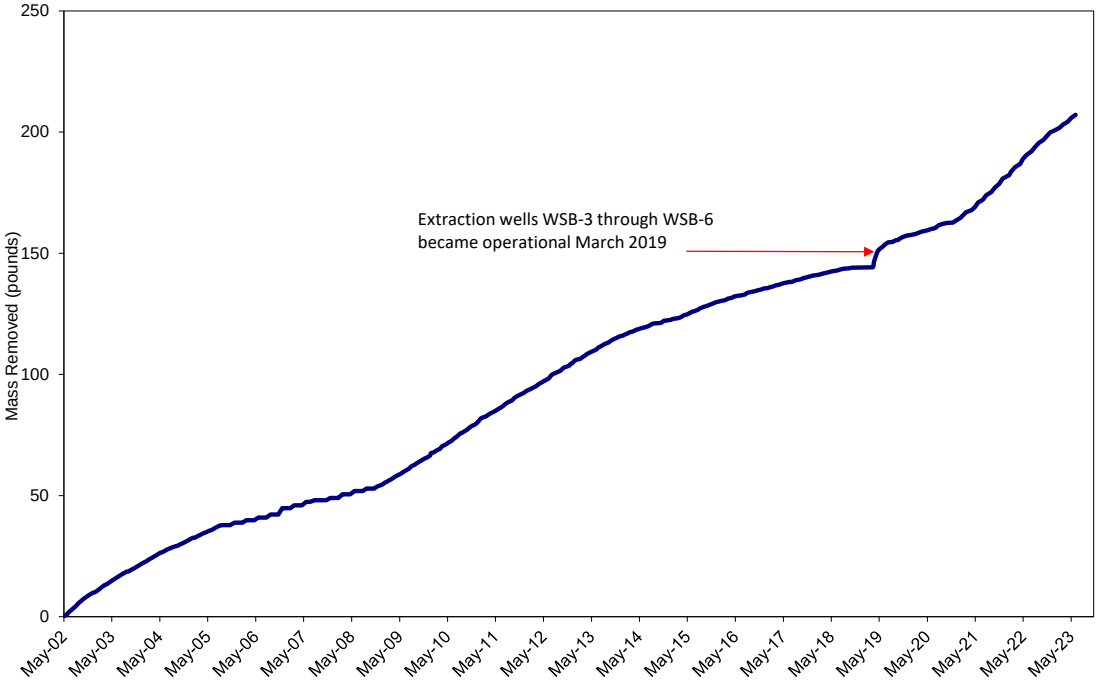
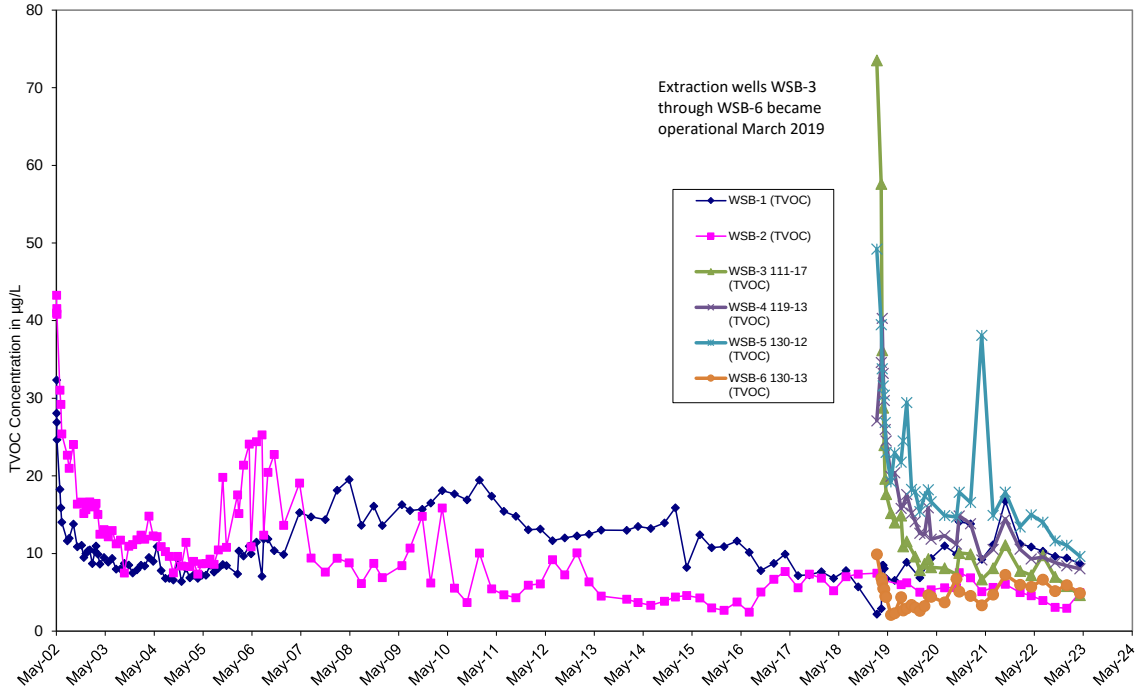


Figure 11-2
Extraction Well TVOC Concentrations vs. Time



OU III Western South Boundary Pump & Treat System

Table 11-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**1,619,743[1]**	**GPD**	**Continuous**
pH (range)	**6.5 - 8.5**	**7.15– 7.29[2]**	**SU**	**Monthly[3]**
Carbon Tetrachloride	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Chloroform	**7.0**	**<0.50**	**µg/L**	**Monthly[3]**
Dichlorodifluoromethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1-Dichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1-Dichloroethylene	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Methyl Chloride	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Tetrachloroethylene	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Toluene	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1,1-Trichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
1,1,2 Trichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly[3]**
Trichloroethylene	**10.0**	**<0.50**	**µg/L**	**Monthly[3]**

[1] The maximum monthly average flow for the Middle Road and South Boundary, and Western South Boundary Systems during the operational period.
[2] The minimum and maximum pH values during the operational period.
[3] Beginning in April 2003, a SPDES modification was approved revising the pH and volatile organic sampling to once a month.
[4] As of March 2019, the water from the Western South Boundary is treated at the OU III South Boundary/Middle Road air stripper towers and discharged under that equivalency permit. This change in discharge location was reflected starting with the April 2019 Discharge Monitoring Report (DMR).
< - The analyte was not detected above the method detection limit (MDL).

Monitoring Activities

The OU III Western South Boundary monitoring well data reported the concentration of TVOCs slightly above (25 µg/L and 37.4 µg/L) their 20 µg/L capture goal in two monitoring wells (103-15 and 119-11, respectively). The highest concentration of an individual VOC in 103-15 was dichlorodifluoromethane (Freon-12) at 8 µg/L. The

concentration of 1,1-dichloroethylene (1,1-DCE) and trichloroethylene (TCE) was reported at 7.2 µg/L and 5.8 µg/L in this well, respectively. In monitoring well 119-11, the highest concentration of an individual VOC was 1,1-DCE at 23 µg/L. The OU III Western South Boundary monitoring well network is shown in **Figure 11-3.** The 'Hits Only' second quarter 2023 data are summarized in **Table 11-3.**

System Operations

April 2023:

The system operated normally with extraction wells WSB-1, WSB-3, WSB-4, WSB-5, and WSB-6. Extraction well WSB-2 was in standby mode. The effluent sample was collected from the OU III South Boundary air stripping tower (095-126) and the system treated approximately 17 million gallons of water.

May 2023:

The system operated normally with extraction wells WSB-1, WSB-3, WSB-4, WSB-5, and WSB-6. Extraction well WSB-2 was in standby mode. The effluent sample was collected from OU III South Boundary air stripping tower (095-126) and the system treated approximately 17 million gallons of water.

June 2023:

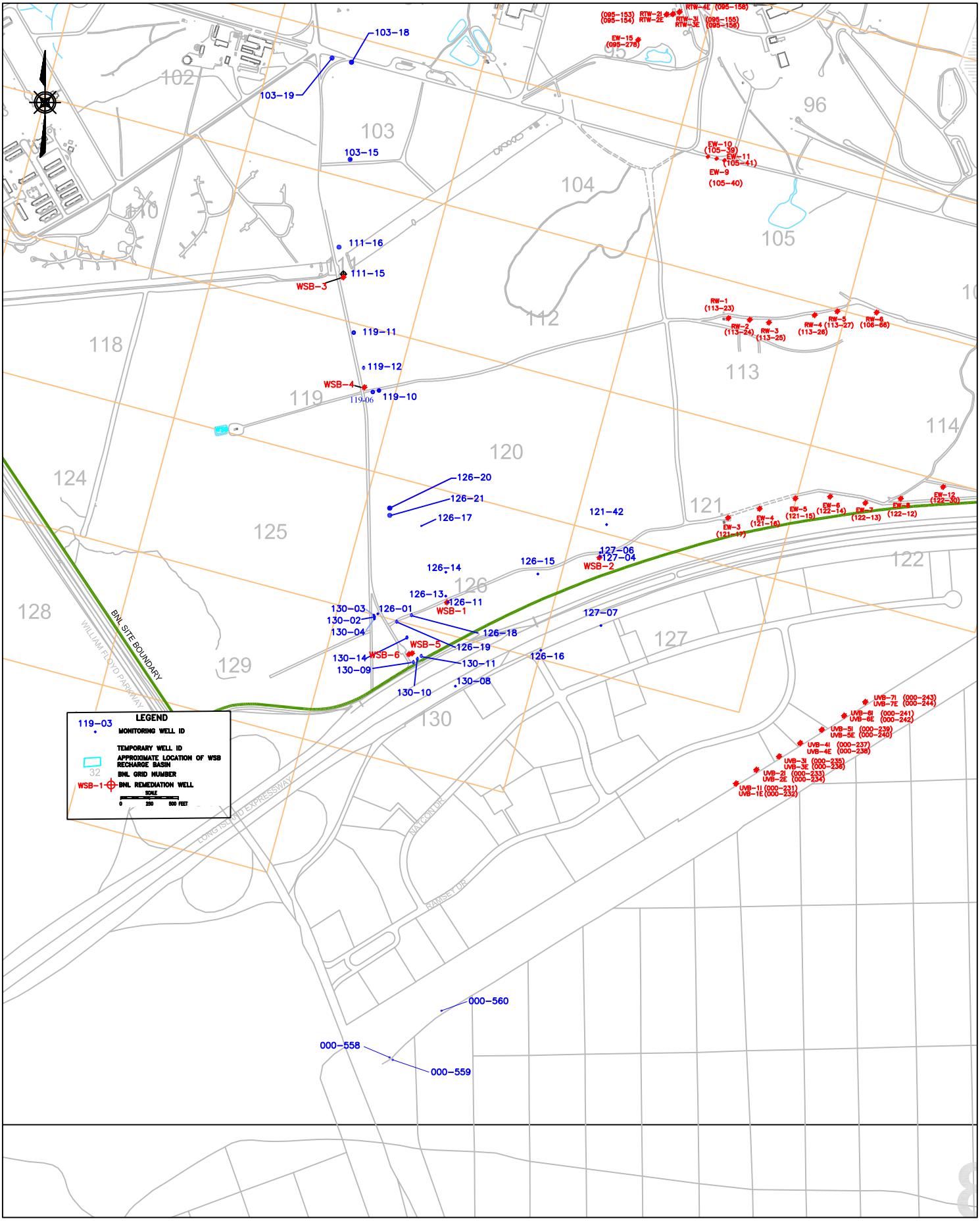
The system operated normally with extraction wells WSB-1, WSB-3, WSB-4, WSB-5, and WSB-6. Extraction well WSB-2 was in standby mode. The effluent sample was collected from OU III Middle Road air stripping tower (095-270) and the system treated approximately 20 million gallons of water.

The system treated approximately 54 million gallons of water during the second quarter of 2023. The treatment system 'Hits Only' data, including individual extraction wells, influent, and effluent is summarized in **Table 11-4** through **Table 11-6**.

Planned Operational Changes

- Based on TVOC concentrations being below the capture goal of 20 µg/L, maintain extraction well WSB-2 in standby mode. If TVOC concentrations greater than 20 µg/L are observed in WSB-2 or the adjacent monitoring wells, extraction well WSB-2 may be placed into full time operation.
- Only two core monitoring wells are currently above the 20 µg/L TVOC concentration capture goal. To enhance the remaining cleanup, begin pulsed pumping the five operating extraction wells to address areas of groundwater stagnation between the extraction wells. The pulsed pumping shall be done with wells WSB-1, WSB- 3, and WSB-5 on one month, while wells WSB-4 and WSB-6 are off. The following month,

wells WSB-4 and WSB-6 shall be on while wells WSB-1, WSB-3 and WSB-5 are off.



\\OERNT\GIS\GW_PROJECTS\ERD QUARTERLIES\2Q_2023\FIG 11-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

OU III WESTERN SOUTH BOUNDARY PUMP AND TREAT SYSTEM MONITORING WELL LOCATIONS

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	09/26/05	–
CHKD:	APPD:	REV.:	NOTES:
LDS	--	05/12/23	–

FIGURE NO.: 11-3

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-558

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2023	19.6	--	--	UG/L	165.00		
1,1,1-Trichloroethane	06/01/2023	2.6	0.5	--	UG/L	165.00		
1,1-Dichloroethane	06/01/2023	0.9	0.5	--	UG/L	165.00		
1,1-Dichloroethylene	06/01/2023	4.1	0.5	--	UG/L	165.00		
Chloroform	06/01/2023	3.6	0.5	--	UG/L	165.00		
Dichlorodifluoromethane	06/01/2023	4.4	0.5	--	UG/L	165.00		
Trichloroethylene	06/01/2023	4	0.5	--	UG/L	165.00		

Site ID : 000-559

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2023	2.2	--	--	UG/L	215.00		
Dichlorodifluoromethane	06/01/2023	2.2	0.5	--	UG/L	215.00		

Site ID : 000-560

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2023	16.79	--	--	UG/L	159.50		
1,1,1-Trichloroethane	06/01/2023	2.2	0.5	--	UG/L	159.50		
1,1-Dichloroethane	06/01/2023	0.89	0.5	--	UG/L	159.50		
1,1-Dichloroethylene	06/01/2023	3.2	0.5	--	UG/L	159.50		
Chloroform	06/01/2023	4.3	0.5	--	UG/L	159.50		
Dichlorodifluoromethane	06/01/2023	2.7	0.5	--	UG/L	159.50		
Trichloroethylene	06/01/2023	3.5	0.5	--	UG/L	159.50		

Site ID : 103-15

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2023	25	--	--	UG/L	200.00		
1,1-Dichloroethane	05/19/2023	4	0.5	--	UG/L	200.00		
1,1-Dichloroethylene	05/19/2023	7.2	0.5	--	UG/L	200.00		
Dichlorodifluoromethane	05/19/2023	8	0.5	--	UG/L	200.00		
Trichloroethylene	05/19/2023	5.8	0.5	--	UG/L	200.00		

Site ID : 103-18

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2023	9.37	--	--	UG/L	170.00		
1,1-Dichloroethane	05/25/2023	1.3	0.5	--	UG/L	170.00		
1,1-Dichloroethylene	05/25/2023	2	0.5	--	UG/L	170.00		
Dichlorodifluoromethane	05/25/2023	2.7	0.5	--	UG/L	170.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 103-18

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	05/25/2023	0.17	0.5	--	UG/L	170.00	J	
Trichloroethylene	05/25/2023	3.2	0.5	--	UG/L	170.00		

Site ID : 103-19

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/23/2023	6.6	--	--	UG/L	170.00		
1,1-Dichloroethane	05/23/2023	1	0.5	--	UG/L	170.00		
1,1-Dichloroethylene	05/23/2023	1.3	0.5	--	UG/L	170.00		
Dichlorodifluoromethane	05/23/2023	1.6	0.5	--	UG/L	170.00		
Trichloroethylene	05/23/2023	2.7	0.5	--	UG/L	170.00		

Site ID : 111-15

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2023	1.77	--	--	UG/L	175.00		
1,1-Dichloroethylene	05/19/2023	0.47	0.5	--	UG/L	175.00	J	
Chloroform	05/19/2023	1.3	0.5	--	UG/L	175.00		

Site ID : 111-16

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/29/2023	2.88	--	--	UG/L	173.00		
1,1,1-Trichloroethane	06/29/2023	0.19	0.5	--	UG/L	173.00	J	
1,1-Dichloroethane	06/29/2023	0.37	0.5	--	UG/L	173.00	J	
1,1-Dichloroethylene	06/29/2023	0.76	0.5	--	UG/L	173.00		
Chloroform	06/29/2023	0.84	0.5	--	UG/L	173.00		
Tetrachloroethylene	06/29/2023	0.21	0.5	--	UG/L	173.00	J	
Trichloroethylene	06/29/2023	0.51	0.5	--	UG/L	173.00		

Site ID : 119-10

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/17/2023	8	--	--	UG/L	200.00		
1,1-Dichloroethane	05/17/2023	2.3	0.5	--	UG/L	200.00		
1,1-Dichloroethylene	05/17/2023	2	0.5	--	UG/L	200.00		
Dichlorodifluoromethane	05/17/2023	2.5	0.5	--	UG/L	200.00		
Trichloroethylene	05/17/2023	1.2	0.5	--	UG/L	200.00		

Site ID : 119-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/23/2023	37.4	--	--	UG/L	180.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 119-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/23/2023	4.3	0.5	--	UG/L	180.00		
1,1-Dichloroethane	05/23/2023	5.1	0.5	--	UG/L	180.00		
1,1-Dichloroethylene	05/23/2023	23	0.5	--	UG/L	180.00		
Dichlorodifluoromethane	05/23/2023	1.7	0.5	--	UG/L	180.00		
Trichloroethylene	05/23/2023	3.3	0.5	--	UG/L	180.00		

Site ID : 119-12

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/17/2023	5.54	--	--	UG/L	179.00		
1,1,1-Trichloroethane	05/17/2023	2.2	0.5	--	UG/L	179.00		
1,1-Dichloroethylene	05/17/2023	0.98	0.5	--	UG/L	179.00		
Chloroform	05/17/2023	0.71	0.5	--	UG/L	179.00		
Dichlorodifluoromethane	05/17/2023	0.25	0.5	--	UG/L	179.00	J	
Trichloroethylene	05/17/2023	1.4	0.5	--	UG/L	179.00		

Site ID : 121-42

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2023	0.27	--	--	UG/L	155.00		
Trichloroethylene	05/25/2023	0.27	0.5	--	UG/L	155.00	J	

Site ID : 126-14

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2023	8.74	--	--	UG/L	155.00		
1,1,1-Trichloroethane	05/25/2023	4.6	0.5	--	UG/L	155.00		
1,1-Dichloroethylene	05/25/2023	2.5	0.5	--	UG/L	155.00		
1,2-Dichloroethane	05/25/2023	0.14	0.5	--	UG/L	155.00	J	
Trichloroethylene	05/25/2023	1.5	0.5	--	UG/L	155.00		

Site ID : 126-15

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2023	4.24	--	--	UG/L	155.00		
Chloroform	05/25/2023	0.24	0.5	--	UG/L	155.00	J	
Dichlorodifluoromethane	05/25/2023	3.8	0.5	--	UG/L	155.00		
Trichloroethylene	05/25/2023	0.2	0.5	--	UG/L	155.00	J	

Site ID : 126-16

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2023	17.11	--	--	UG/L	135.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 126-16

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	06/01/2023	2.2	0.5	--	UG/L	135.00		
1,1-Dichloroethane	06/01/2023	1.1	0.5	--	UG/L	135.00		
1,1-Dichloroethylene	06/01/2023	3.5	0.5	--	UG/L	135.00		
Chloroform	06/01/2023	3.9	0.5	--	UG/L	135.00		
Dichlorodifluoromethane	06/01/2023	2.8	0.5	--	UG/L	135.00		
Tetrachloroethylene	06/01/2023	0.31	0.5	--	UG/L	135.00	J	
Trichloroethylene	06/01/2023	3.3	0.5	--	UG/L	135.00		

Site ID : 126-18

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/16/2023	1.99	--	--	UG/L	165.00		
1,1,1-Trichloroethane	05/16/2023	0.73	0.5	--	UG/L	165.00		
1,1-Dichloroethylene	05/16/2023	1.1	0.5	--	UG/L	165.00		
1,2-Dichloroethane	05/16/2023	0.16	0.5	--	UG/L	165.00	J	

Site ID : 126-19

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/16/2023	17.7	--	--	UG/L	195.00		
1,1,1-Trichloroethane	05/16/2023	2.2	0.5	--	UG/L	195.00		
1,1-Dichloroethane	05/16/2023	2.9	0.5	--	UG/L	195.00		
1,1-Dichloroethylene	05/16/2023	4.8	0.5	--	UG/L	195.00		
Chloroform	05/16/2023	1.2	0.5	--	UG/L	195.00		
Dichlorodifluoromethane	05/16/2023	6.6	0.5	--	UG/L	195.00		

Site ID : 126-20

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/18/2023	5.74	--	--	UG/L	140.00		
1,1,1-Trichloroethane	05/18/2023	2.6	0.5	--	UG/L	140.00		
1,1-Dichloroethylene	05/18/2023	2.1	0.5	--	UG/L	140.00		
Chloroform	05/18/2023	0.26	0.5	--	UG/L	140.00	J	
Tetrachloroethylene	05/18/2023	0.48	0.5	--	UG/L	140.00	J	
Trichloroethylene	05/18/2023	0.3	0.5	--	UG/L	140.00	J	

Site ID : 126-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/23/2023	3.29	--	--	UG/L	204.00		
1,1,1-Trichloroethane	05/23/2023	0.39	0.5	--	UG/L	204.00	J	

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 126-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1-Dichloroethylene	05/23/2023	0.65	0.5	--	UG/L	204.00		
Chloroform	05/23/2023	1.3	0.5	--	UG/L	204.00		
Dichlorodifluoromethane	05/23/2023	0.41	0.5	--	UG/L	204.00	J	
Trichloroethylene	05/23/2023	0.54	0.5	--	UG/L	204.00		

Site ID : 127-04

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/24/2023	0.9	--	--	UG/L	155.00		
Tetrachloroethylene	05/24/2023	0.2	0.5	--	UG/L	155.00	J	
Trichloroethylene	05/24/2023	0.7	0.5	--	UG/L	155.00		

Site ID : 127-06

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/24/2023	0.59	--	--	UG/L	155.00		
Tetrachloroethylene	05/24/2023	0.2	0.5	--	UG/L	155.00	J	
Trichloroethylene	05/24/2023	0.39	0.5	--	UG/L	155.00	J	

Site ID : 127-07

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/31/2023	7.63	--	--	UG/L	151.00		
1,1,1-Trichloroethane	05/31/2023	1.3	0.5	--	UG/L	151.00		
1,1-Dichloroethane	05/31/2023	0.52	0.5	--	UG/L	151.00		
1,1-Dichloroethylene	05/31/2023	1.8	0.5	--	UG/L	151.00		
Chloroform	05/31/2023	1.5	0.5	--	UG/L	151.00		
Dichlorodifluoromethane	05/31/2023	0.81	0.5	--	UG/L	151.00		
Trichloroethylene	05/31/2023	1.7	0.5	--	UG/L	151.00		

Site ID : 130-02

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/23/2023	2.1	--	--	UG/L	115.00		
Chloroform	05/23/2023	2.1	0.5	--	UG/L	115.00		

Site ID : 130-03

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/23/2023	10.51	--	--	UG/L	162.50		
1,1,1-Trichloroethane	05/23/2023	3.2	0.5	--	UG/L	162.50		
1,1-Dichloroethylene	05/23/2023	3.2	0.5	--	UG/L	162.50		
Chloroform	05/23/2023	1.9	0.5	--	UG/L	162.50		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 130-03

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Dichlorodifluoromethane	05/23/2023	0.36	0.5	--	UG/L	162.50	J	
Tetrachloroethylene	05/23/2023	0.75	0.5	--	UG/L	162.50		
Trichloroethylene	05/23/2023	1.1	0.5	--	UG/L	162.50		

Site ID : 130-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/31/2023	1.67	--	--	UG/L	150.00		
Chloroform	05/31/2023	1.2	0.5	--	UG/L	150.00		
Tetrachloroethylene	05/31/2023	0.47	0.5	--	UG/L	150.00	J	

Site ID : 130-09

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/31/2023	1.7	--	--	UG/L	140.00		
Chloroform	05/31/2023	1.7	0.5	--	UG/L	140.00		

Site ID : 130-10

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2023	2.1	--	--	UG/L	155.00		
Chloroform	06/01/2023	2.1	0.5	--	UG/L	155.00		

Site ID : 130-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2023	2.05	--	--	UG/L	200.00		
Chloroform	06/01/2023	1.8	0.5	--	UG/L	200.00		
Dichlorodifluoromethane	06/01/2023	0.25	0.5	--	UG/L	200.00	J	

Site ID : 130-14

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/23/2023	18.7	--	--	UG/L	208.00		
1,1-Dichloroethane	05/23/2023	1.4	0.5	--	UG/L	208.00		
1,1-Dichloroethylene	05/23/2023	1.3	0.5	--	UG/L	208.00		
Dichlorodifluoromethane	05/23/2023	16	0.5	--	UG/L	208.00		

Table 11-4
OU III Western South Boundary Extraction Well Data
'Hits Only' April through June 2023

Site ID : 111-17 (WSB-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	4.63	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	0.39	0.5	--	UG/L	0.00	J	
1,1-Dichloroethane	04/17/2023	0.55	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/17/2023	2.2	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	1.1	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.39	0.5	--	UG/L	0.00	J	
1633 TPFAS	06/29/2023	38.484	--	--	NG/L	178.00		
1,4-Dioxane	06/29/2023	2	0.2	--	UG/L	178.00		
Perfluorobutanesulfonate (PFBS)	06/29/2023	2.31	1.77	--	NG/L	178.00		
Perfluorobutyric acid (PFBA)	06/29/2023	5.33	7.99	--	NG/L	178.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/29/2023	0.834	1.9	--	NG/L	178.00	J	
Perfluoroheptanoic acid (PFHpA)	06/29/2023	1.2	2	--	NG/L	178.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	10.6	1.82	--	NG/L	178.00		
Perfluorohexanoic acid (PFHxA)	06/29/2023	2.16	2	--	NG/L	178.00		
Perfluorooctanesulfonate (PFOS)	06/29/2023	8.7	1.85	--	NG/L	178.00		
Perfluorooctanoic acid (PFOA)	06/29/2023	3.57	2	--	NG/L	178.00		
Perfluoropentanesulfonate (PFPeS)	06/29/2023	2.1	1.88	--	NG/L	178.00		
Perfluoropentanoic acid (PFPeA)	06/29/2023	1.68	2	--	NG/L	178.00	J	

Site ID : 119-13 (WSB-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	8.03	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	1.6	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/17/2023	0.52	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/17/2023	4.8	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.25	0.5	--	UG/L	0.00	J	
Dichlorodifluoromethane	04/17/2023	0.35	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/17/2023	0.51	0.5	--	UG/L	0.00		
1633 TPFAS	06/29/2023	30.746	--	--	NG/L	180.00		
1,4-Dioxane	06/29/2023	3.9	0.2	--	UG/L	180.00		
Perfluorobutanesulfonate (PFBS)	06/29/2023	1.88	1.64	--	NG/L	180.00		
Perfluorobutyric acid (PFBA)	06/29/2023	6.76	7.4	--	NG/L	180.00	J	
Perfluoroheptanoic acid (PFHpA)	06/29/2023	0.806	1.85	--	NG/L	180.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	9.67	1.69	--	NG/L	180.00		

Table 11-4
OU III Western South Boundary Extraction Well Data
'Hits Only' April through June 2023

Site ID : 119-13 (WSB-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanoic acid (PFHxA)	06/29/2023	1.99	1.85	--	NG/L	180.00		
Perfluorooctanesulfonate (PFOS)	06/29/2023	3.9	1.72	--	NG/L	180.00		
Perfluorooctanoic acid (PFOA)	06/29/2023	2.7	1.85	--	NG/L	180.00		
Perfluoropentanesulfonate (PFPeS)	06/29/2023	1.51	1.74	--	NG/L	180.00	J	
Perfluoropentanoic acid (PFPeA)	06/29/2023	1.53	1.85	--	NG/L	180.00	J	

Site ID : 126-12 (WSB-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	8.68	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	3.2	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/17/2023	4.1	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.72	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.66	0.5	--	UG/L	0.00		
1633 TPFAS	06/29/2023	25.714	--	--	NG/L	150.00		
1,4-Dioxane	06/29/2023	3.9	0.2	--	UG/L	150.00		
Perfluorobutanesulfonate (PFBS)	06/29/2023	1.29	1.59	--	NG/L	150.00	J	
Perfluorobutyric acid (PFBA)	06/29/2023	6.44	7.16	--	NG/L	150.00	J	
Perfluoroheptanoic acid (PFHpA)	06/29/2023	0.734	1.79	--	NG/L	150.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	7.94	1.64	--	NG/L	150.00		
Perfluorohexanoic acid (PFHxA)	06/29/2023	1.79	1.79	--	NG/L	150.00	J	
Perfluorooctanesulfonate (PFOS)	06/29/2023	3.58	1.66	--	NG/L	150.00		
Perfluorooctanoic acid (PFOA)	06/29/2023	2.64	1.79	--	NG/L	150.00		
Perfluoropentanesulfonate (PFPeS)	06/29/2023	1.3	1.69	--	NG/L	150.00	J	

Site ID : 127-05 (WSB-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	4.97	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	0.75	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/17/2023	0.33	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/17/2023	2.2	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.42	0.5	--	UG/L	0.00	J	
Dichlorodifluoromethane	04/17/2023	0.49	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/17/2023	0.78	0.5	--	UG/L	0.00		
1633 TPFAS	06/29/2023	23.386	--	--	NG/L	160.00		
1,4-Dioxane	06/29/2023	3.9	0.2	--	UG/L	160.00		

Table 11-4
OU III Western South Boundary Extraction Well Data
'Hits Only' April through June 2023

Site ID : 127-05 (WSB-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorobutanesulfonate (PFBS)	06/29/2023	1.22	1.74	--	NG/L	160.00	J	
Perfluorobutyric acid (PFBA)	06/29/2023	7.16	7.84	--	NG/L	160.00	J	
Perfluoroheptanoic acid (PFHpA)	06/29/2023	0.91	1.96	--	NG/L	160.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	5.96	1.79	--	NG/L	160.00		
Perfluorohexanoic acid (PFHxA)	06/29/2023	1.4	1.96	--	NG/L	160.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/29/2023	0.826	1.96	--	NG/L	160.00	J	
Perfluorooctanesulfonate (PFOS)	06/29/2023	2.37	1.82	--	NG/L	160.00		
Perfluorooctanoic acid (PFOA)	06/29/2023	2.07	1.96	--	NG/L	160.00		
Perfluoropentanesulfonate (PFPeS)	06/29/2023	1.47	1.84	--	NG/L	160.00	J	

Site ID : 130-12 (WSB-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	9.64	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	2.8	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/17/2023	0.27	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/17/2023	4.2	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	1.1	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/17/2023	0.44	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/17/2023	0.83	0.5	--	UG/L	0.00		
1633 TPFAS	06/29/2023	26.86	--	--	NG/L	175.00		
1,4-Dioxane	06/29/2023	3.4	0.2	--	UG/L	175.00		
Perfluorobutanesulfonate (PFBS)	06/29/2023	1.48	1.65	--	NG/L	175.00	J	
Perfluorobutyric acid (PFBA)	06/29/2023	6.78	7.45	--	NG/L	175.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	9.63	1.7	--	NG/L	175.00		
Perfluorohexanoic acid (PFHxA)	06/29/2023	1.51	1.86	--	NG/L	175.00	J	
Perfluorooctanesulfonate (PFOS)	06/29/2023	3.38	1.73	--	NG/L	175.00		
Perfluorooctanoic acid (PFOA)	06/29/2023	2.53	1.86	--	NG/L	175.00		
Perfluoropentanesulfonate (PFPeS)	06/29/2023	1.55	1.75	--	NG/L	175.00	J	

Site ID : 130-13 (WSB-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	4.89	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	0.38	0.5	--	UG/L	0.00	J	
1,1-Dichloroethane	04/17/2023	0.62	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/17/2023	0.99	0.5	--	UG/L	0.00		

Table 11-4
OU III Western South Boundary Extraction Well Data
'Hits Only' April through June 2023

Site ID : 130-13 (WSB-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Dichlorodifluoromethane	04/17/2023	2.9	0.5	--	UG/L	0.00		
1633 TPFAS	06/29/2023	5.949	--	--	NG/L	206.00		
1,4-Dioxane	06/29/2023	5.9	0.21	--	UG/L	206.00		
Perfluorobutanesulfonate (PFBS)	06/29/2023	0.621	1.71	--	NG/L	206.00	J	
Perfluorobutyric acid (PFBA)	06/29/2023	4.47	7.71	--	NG/L	206.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	0.858	1.76	--	NG/L	206.00	J	

Table 11-5
OU III Western South Boundary Influent Data
'Hits Only' April through June 2023

Site ID : 121-55 (System Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	7.87	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/17/2023	1.9	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/17/2023	0.34	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/17/2023	3.8	0.5	--	UG/L	0.00		
Chloroform	04/17/2023	0.55	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/17/2023	0.78	0.5	--	UG/L	0.00		
Trichloroethylene	04/17/2023	0.5	0.5	--	UG/L	0.00		
8260 TVOC	05/12/2023	10.47	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/12/2023	2.5	0.5	--	UG/L	0.00		
1,1-Dichloroethane	05/12/2023	0.39	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	05/12/2023	5.2	0.5	--	UG/L	0.00		
Chloroform	05/12/2023	0.69	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	05/12/2023	1.1	0.5	--	UG/L	0.00		
Trichloroethylene	05/12/2023	0.59	0.5	--	UG/L	0.00		
8260 TVOC	06/15/2023	8.41	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/15/2023	1.9	0.5	--	UG/L	0.00		
1,1-Dichloroethane	06/15/2023	0.44	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	06/15/2023	3.8	0.5	--	UG/L	0.00		
Chloroform	06/15/2023	0.73	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	06/15/2023	0.99	0.5	--	UG/L	0.00		
Trichloroethylene	06/15/2023	0.55	0.5	--	UG/L	0.00		
1633 TPFAS	06/29/2023	18.884	--	--	NG/L	0.00		
1,4-Dioxane	06/29/2023	4.4	0.2	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/29/2023	1.12	1.58	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/29/2023	5.62	7.11	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/29/2023	6.08	1.62	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/29/2023	1.23	1.78	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/29/2023	2.27	1.65	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/29/2023	1.63	1.78	--	NG/L	0.00	J	
Perfluoropentanesulfonate (PFPeS)	06/29/2023	0.934	1.67	--	NG/L	0.00	J	

Table 11-6
OU III Western South Boundary Effluent Data
'Hits Only' April through June 2023

Site ID : 095-126 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/17/2023	0	--	--	UG/L	0.00		
8260 TVOC	05/12/2023	0	--	--	UG/L	0.00		

Site ID : 095-270 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/15/2023	0	--	--	UG/L	0.00		
1633 TPFAS	06/26/2023	41.512	--	--	NG/L	0.00		
1,4-Dioxane	06/26/2023	2.1	0.2	--	UG/L	0.00	B	J+
Perfluorobutanesulfonate (PFBS)	06/26/2023	1.67	1.61	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	06/26/2023	7.09	7.28	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/26/2023	0.672	1.73	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/26/2023	1.17	1.82	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/26/2023	14	1.66	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/26/2023	2.93	1.82	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/26/2023	0.81	1.82	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/26/2023	5.24	1.69	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/26/2023	4.11	1.82	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/26/2023	1.72	1.71	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/26/2023	2.1	1.82	--	NG/L	0.00		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III Strontium-90 Chemical Holes Pump & Treat System

Process: Groundwater extraction and treatment via zeolite resin (Clinoptilolite) for the removal of strontium-90 (Sr-90), with discharge to dry wells.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 40 years for the Upper Glacial aquifer (by 2040).

Start Date: February 2003

Table 12-1
Pumping Rates (gpm)

Extraction Well	EW-1 *	EW-2*	EW-3*
Site Id #	106-92	106-123	106-124
Screen Interval (ft bls)	23.5-38.5	35-45	35-45
Desired Flow Rate (gpm)	0.0	0.0	0.0
April (Avg monthly gpm)	0.0	0.0	0.0
May	0.0	0.0	0.0
June	0.0	0.0	0.0
Actual (Avg. over Qtr. when on)	0.0	0.0	0.0

All three extraction wells began pulse pumping (one month on and two months off) in October 2014. In October 2015, EW-1 resumed full time operation. In April 2016, EW-1 was placed into pulsed pumping mode (one month on and one month off). In October 2016, EW-2 and EW-3 were placed in stand-by mode while EW-1 continued in pulsed pumping mode. EW-1 was placed in stand-by mode in July 2018 and the entire system remains in standby mode.

OU III Strontium-90 Chemical Holes Pump & Treat System

Figure 12-1
Chemical Holes Sr-90 Cumulative Millicuries Removed

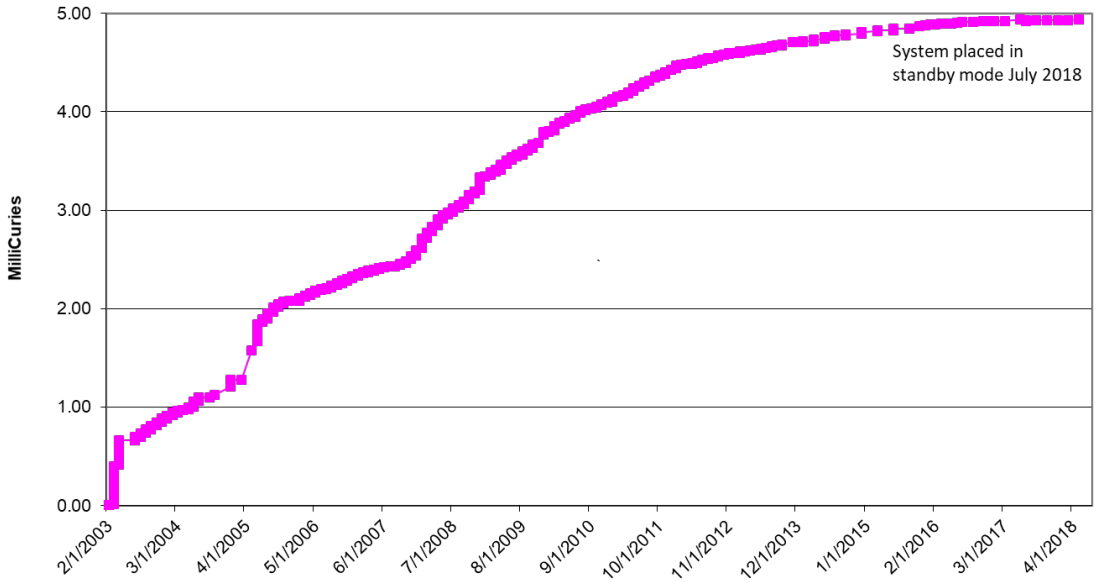
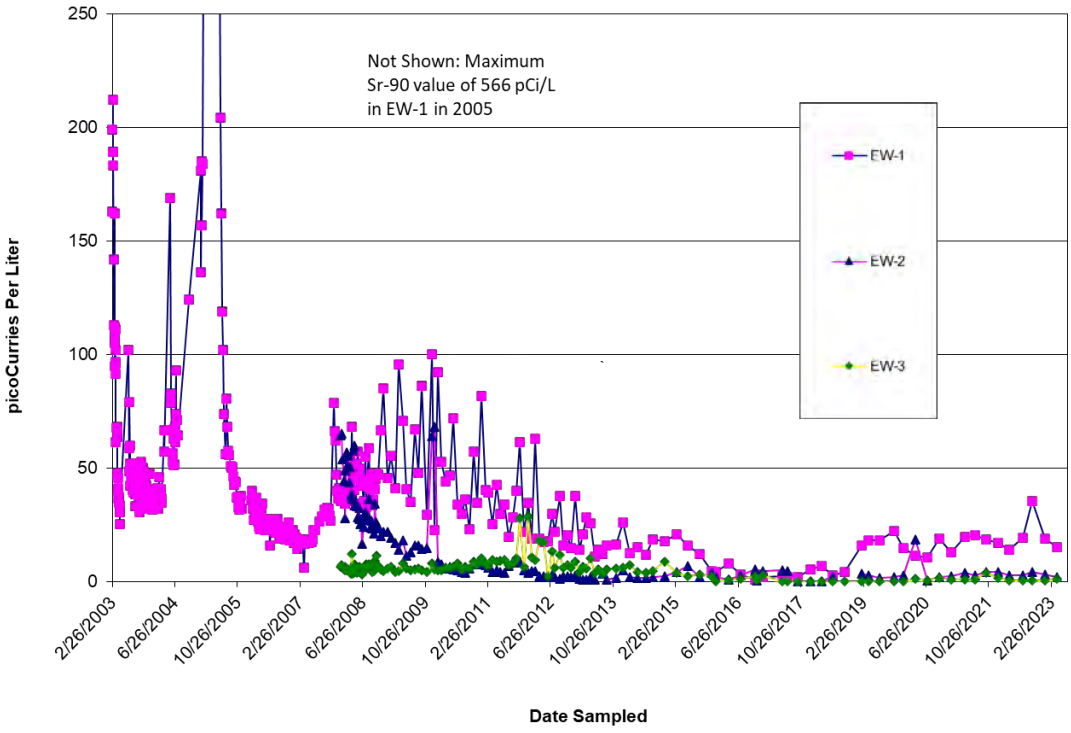


Figure 12-2
Extraction Well Sr-90 Concentrations



OU III Strontium-90 Chemical Holes Pump & Treat System

Table 12-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**NA**	**GPM**	**Continuous**
pH (range)	**5.0 - 8.5**	**NA**	**SU**	**Monthly**
Strontium-90	**8.0**	**NA**	**pCi/L**	**Monthly**
Perfluorooctanoic acid (PFOA)	**6.7**	**NA**	**ng/L**	**Monthly**
Perfluorooctanesulfonate (PFOS)	**2.7**	**NA**	**ng/L**	**Monthly**

NA = Not Applicable. The system was shut down in July 2018.

In February 2023, a SPDES equivalency permit renewal was issued by the NYSDEC. If the system is restarted, sampling for PFOA and PFOS is required monthly using EPA Method 1633 for the analysis.

Monitoring Activities

The monitoring wells were not sampled during the second quarter 2023. During the second quarter, Sr-90 concentrations in extraction well EW-1 and EW-2 were 15.3 pCi/L and 2.24 pCi/L, respectively. Extraction well EW-3 results were not usable based on the results were not distinguishable from the background. The Chemical Holes Sr-90 monitoring well network is shown in **Figure 12-3** and the 'Hits Only' second quarter 2023 extraction well data are summarized on **Table 12-3.**

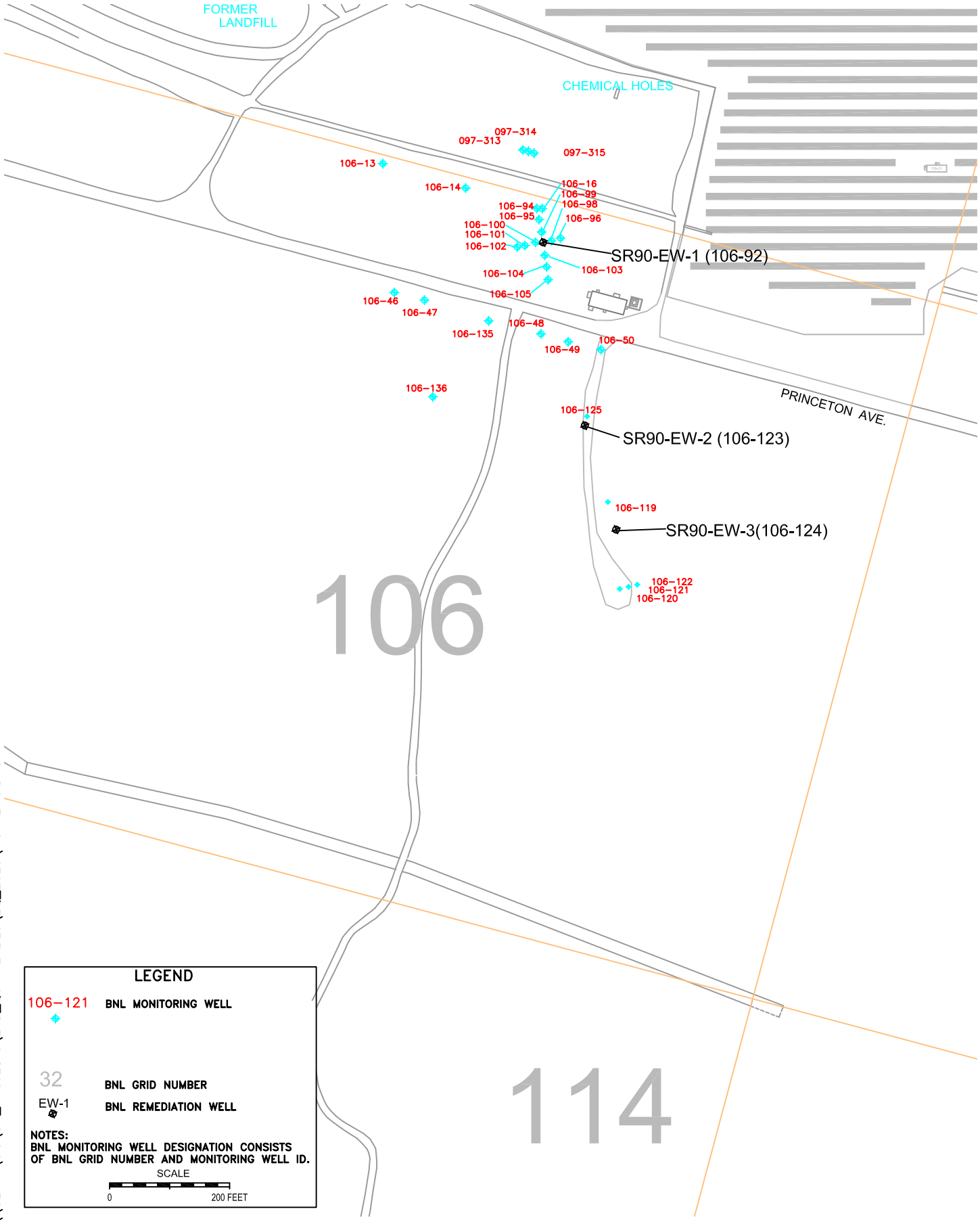
Systems Operations

April through June 2023:

The system was in stand-by mode.

Planned Operational Changes

- Maintain the system in stand-by mode. If significant rebound is identified, the extraction wells may be restarted.



ENVIRONMENTAL PROTECTION DIVISION

TITLE:

CHEMICAL HOLES
Sr-90 MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	07/15/08	–
CHKD:	APPD:	REV.:	NOTES:
LDS	--	08/17/23	–

FIGURE NO.: 12-3

Table 12-4
OU III Strontium-90 Chemical Holes Extraction Well Data
'Hits Only' April through June 2023

Site ID : 106-123 (EW-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/11/2023	2.24	0.777	0.661	PCI/L	0.00		

Site ID : 106-124 (EW-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/11/2023	1.25	0.775	0.528	PCI/L	0.00		N2

Site ID : 106-92 (EW-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/11/2023	15.3	0.761	1.53	PCI/L	0.00		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III Former Industrial Park East Pump & Treat System (System Closed)

The Petition for Closure for the OU III Industrial Park East Groundwater Treatment System was submitted to the regulators for review in May 2013. Approval was received in June and July 2013 that the system met its treatment goals was subsequently dismantled. Based on modeling, the remaining contaminants in the downgradient portion of the plume beyond the capture zone of the extraction wells will attenuate to below MCLs in the Upper Glacial and Magothy aquifers before the required 2030 and 2065 cleanup timeframes, respectively.

Decommissioning activities included the abandonment of four groundwater monitoring wells (000-489, 000-493, 000-513, 000-514) and the two groundwater extraction wells (EWI-1 and EWI-2) in September 2013. Final decommissioning of the treatment system will be performed following the completion of remediation of the deep VOC contamination in the Industrial Park.

The building, carbon units, and the two recharge wells are currently being used with the two new extraction wells for remediation of the deep VOC contamination in the Industrial Park.

The post closure monitoring network consists of four wells. In accordance with the recommendation in the *2015 Groundwater Status Report*, VOC monitoring for seven wells was discontinued in the fourth quarter of 2016 since these wells have been below the MCLs for a minimum of four consecutive sampling events. The data from the four active monitoring wells are also evaluated as part of the North Street and Magothy monitoring programs. Monitoring in these wells will continue until MCLs are achieved for a minimum of four consecutive sampling events. The monitoring schedule is described in the BNL Environmental Monitoring Plan (EMP).

OU III North Street Pump & Treat System
(System Closed)

Process: Groundwater extraction and liquid phase granular activated carbon (GAC) treatment, with discharge to injection wells.

Goal: Reach Maximum Contaminant Levels (MCLs) or asymptotic conditions in core monitoring wells within 30 years for the Upper Glacial aquifer and within 65 years for the Magothy aquifer (by 2030 and 2065, respectively).

Start Date: May 2004

Table 14-1
Pumping Rates (gpm)

Extraction Well	NS-1	NS-2
Site ID #	000-471	000-473
Screen Interval (ft bls)	165-205	190-220
Design Flow Rate (GPM)	0	0
April	0	0
May	0	0
June	0	0
Actual (Avg. over Qtr.)	0	0

The system is shut down and approved for closure in March 2020.

OU III North Street Pump & Treat System
(System Closed)

Figure 14-1
Cumulative Mass Removal of VOCs vs. Time

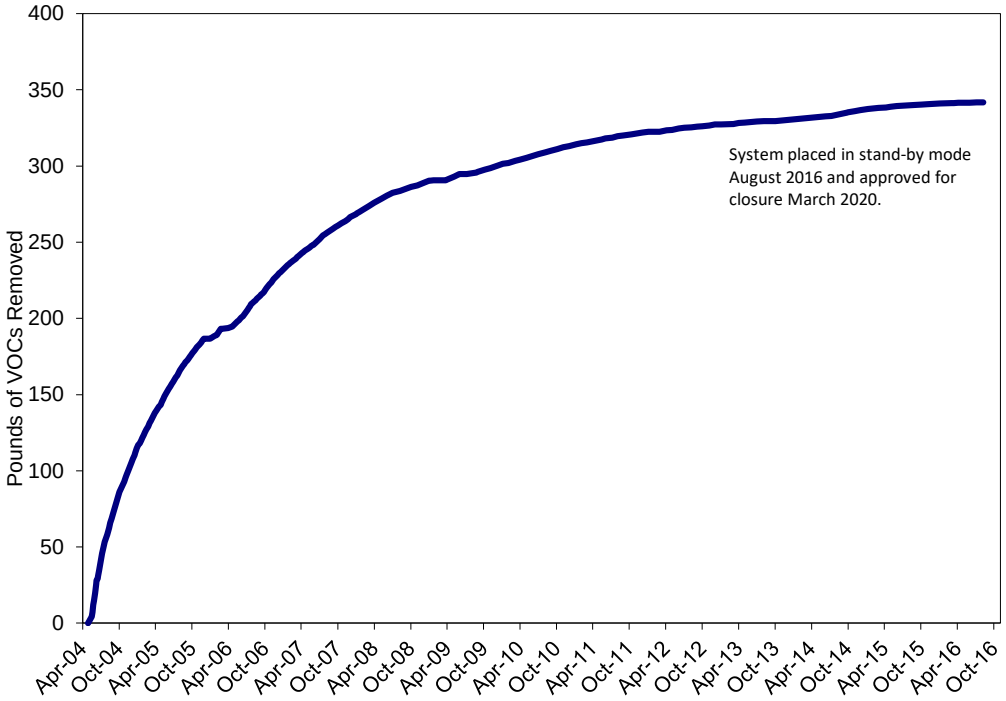
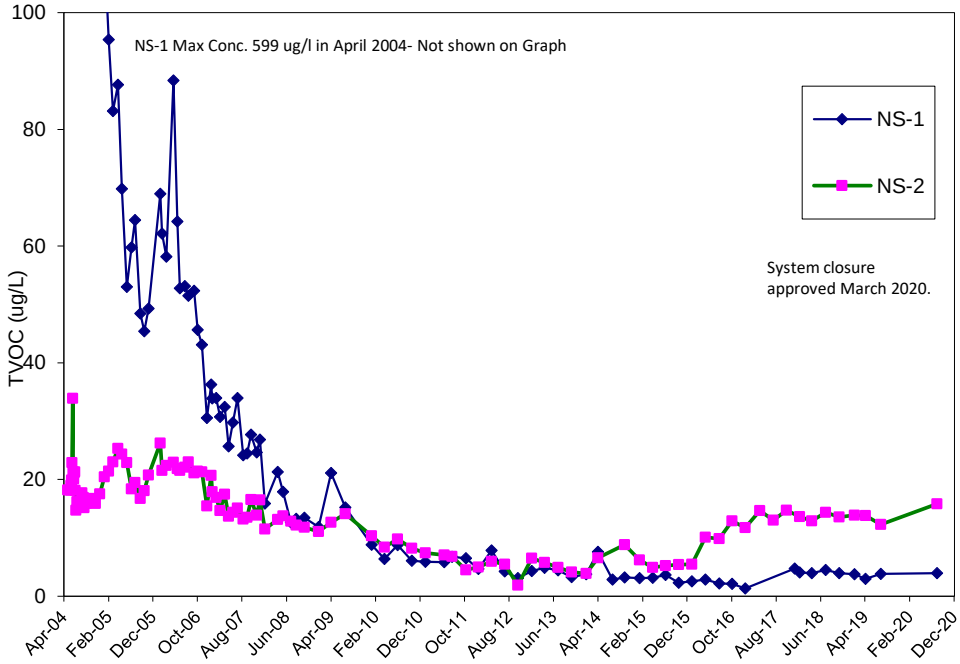


Figure 14-2
Extraction Well TVOC Concentrations vs. Time



OU III North Street Pump & Treat System
(System Closed)

Table 14-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	NA	**GPD**	**Continuous**
pH (range)	**5.5 - 8.5**	NA	**SU**	**Monthly**
Carbon Tetrachloride	**5.0**	NA	**µg/L**	**Monthly**
Chloroform	**5.0**	NA	**µg/L**	**Monthly**
1,1-Dichloroethane	**5.0**	NA	**µg/L**	**Monthly**
1,2-Dichloroethane	**0.6**	NA	**µg/L**	**Monthly**
1,1-Dichloroethylene	**5.0**	NA	**µg/L**	**Monthly**
Tetrachloroethylene	**5.0**	NA	**µg/L**	**Monthly**
Toluene	**5.0**	NA	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5.0**	NA	**µg/L**	**Monthly**
Trichloroethylene	**5.0**	NA	**µg/L**	**Monthly**
Ethylene Dibromide (EDB)	**0.03**	NA	**µg/L**	**Monthly**

NA = Not Applicable, the system is closed.

Monitoring Activities:

As noted in the Petition for Closure, monitoring was reduced to seven monitoring wells following the approval of system closure. These wells are sampled annually in the fourth quarter. The remaining North Street monitoring wells are shown on **Figure 14-3**.

System Operations

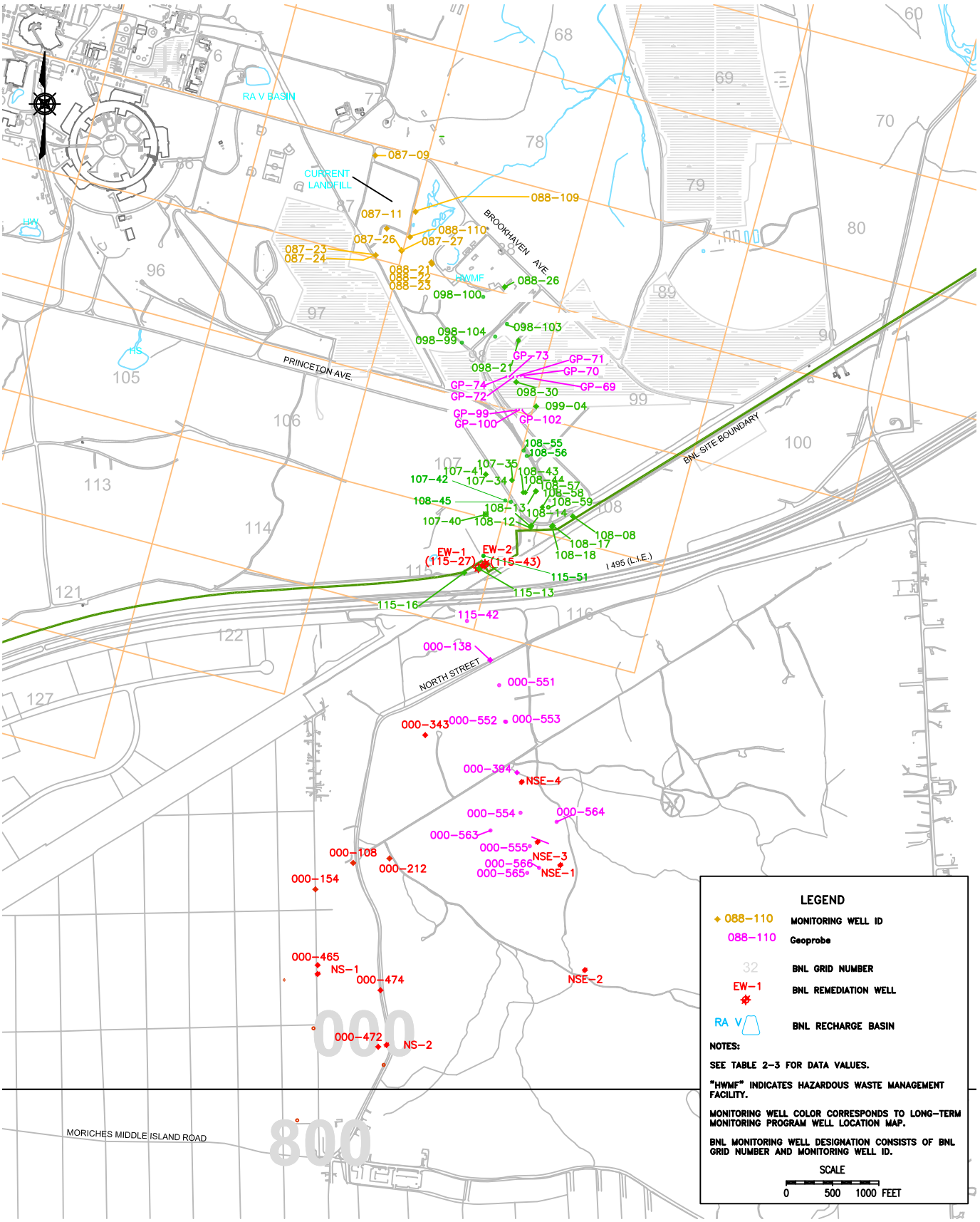
April through June 2023:

The system remained closed.

OU III North Street Pump & Treat System
(System Closed)

Planned Operational Changes

- NS-1 and NS-2 will remain shut down until the PFAS and 1,4 dioxane characterization is completed. After the completion of this characterization, a determination of the potential future use of these wells and treatment system infrastructure will be determined.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I/RA V SOUTH BOUNDARY
OUIII NORTH STREET/NORTH STREET EAST MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	08/08/11	NA
CHKD:	APPD:	REV.:	NOTES:
LDS	––	08/17/23	–

FIGURE NO.: 14–3

OU III North Street East EDB Pump & Treat System

Process: Groundwater extraction and liquid phase granular activated carbon (GAC) treatment, with discharge to injection wells.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030).

Start Date: June 2004

Table 15-1
Pumping Rates (gpm)

Extraction Well	NSE-1	NSE-2	NSE-EDB-EW-3	NSE-EDB-EW-4
Site ID #	000-487	000-488	000-561	000-562
Screen Interval (ft bls)	161-191	152-182	195-215	182-202
Desired Flow Rate (GPM)	0	0	100	100
April	0*	0*	91	93
May	0*	0*	110	111
June	0*	0*	131	134
Actual (Avg. over Qtr.)	0*	0*	111	113

*As documented in the 2019 Groundwater Status Report, the original VOC system (NSE-1 and NSE-2) is administratively closed for its originally designed purpose. NSE-EDB-EW-3 and NSE-EDB-EW-4 began operation in July 2020.

OU III North Street East EDB Pump & Treat System

Figure 15-1
Cumulative Mass Removal of VOCs vs. Time

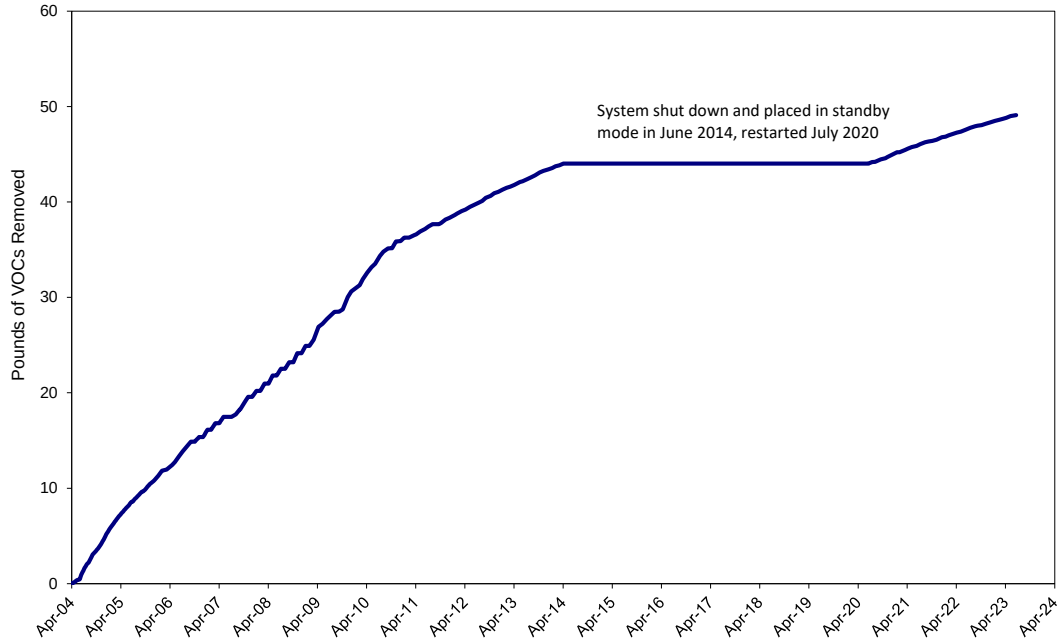
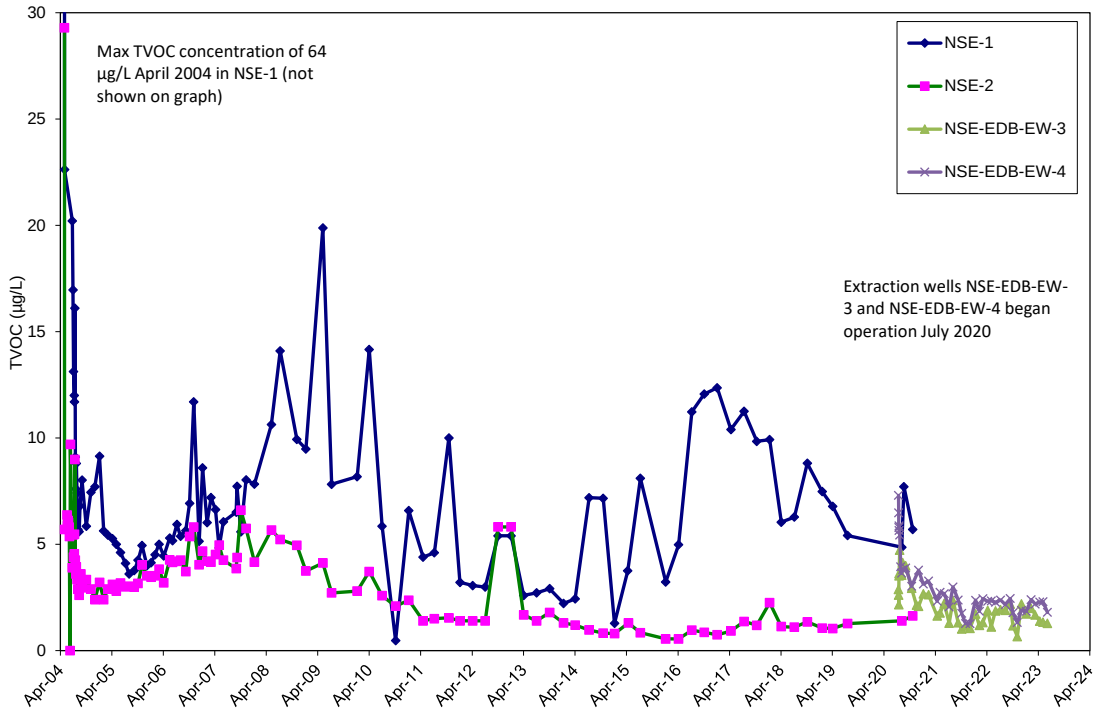


Figure 15-2
Extraction Well TVOC Concentrations vs. Time



OU III North Street East EDB Pump & Treat System

Figure 15-3
Extraction Well EDB Concentrations vs. Time

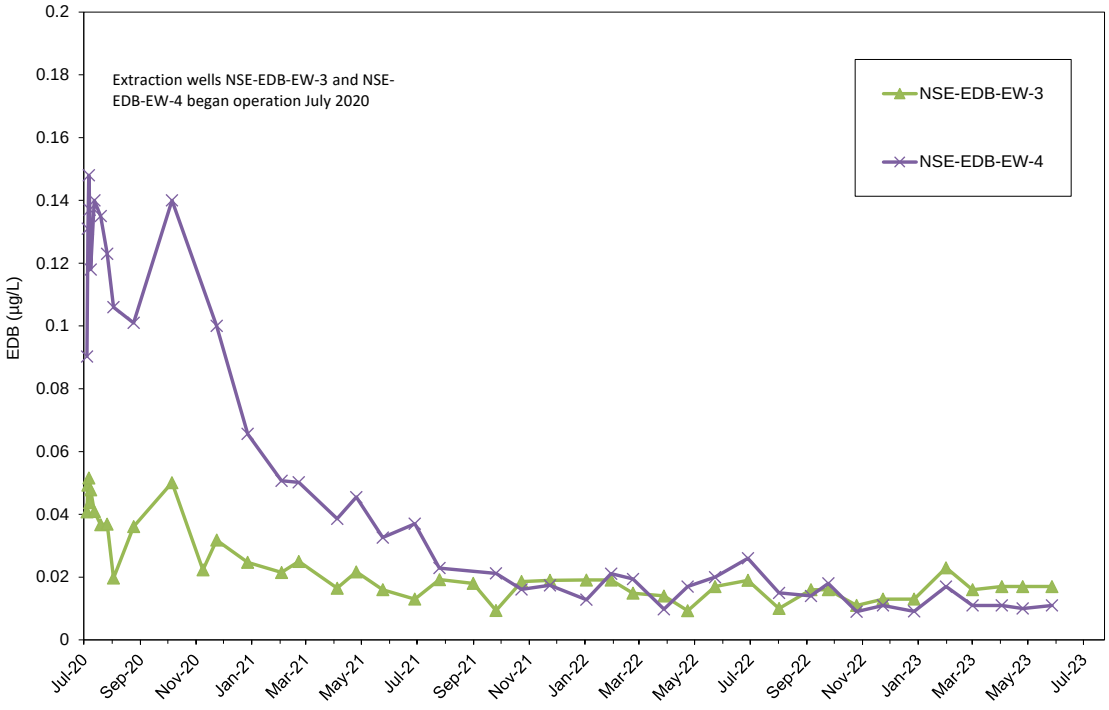


Table 15-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**369,645**	**GPD**	**Continuous**
pH (range)	**5.5 - 8.5**	**5.70-5.81***	**SU**	**Monthly**
Carbon Tetrachloride	**5.0**	**<0.5**	**µg/L**	**Monthly**
Chloroform	**5.0**	**<0.5**	**µg/L**	**Monthly**
1,1-Dichloroethane	**5.0**	**<0.5**	**µg/L**	**Monthly**
1,2-Dichloroethane	**0.6**	**<0.5**	**µg/L**	**Monthly**
1,1-Dichloroethylene	**5.0**	**<0.5**	**µg/L**	**Monthly**
Tetrachloroethylene	**5.0**	**<0.5**	**µg/L**	**Monthly**

OU III North Street East EDB Pump & Treat System

Toluene	**5.0**	**<0.5**	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5.0**	**<0.5**	**µg/L**	**Monthly**
Trichloroethylene	**5.0**	**<0.5**	**µg/L**	**Monthly**
Ethylene Dibromide (EDB)	**0.03**	**<0.011**	**µg/L**	**Monthly**

* Minimum to maximum value for pH during this operational period.
< = Analyte not detected above the Method Detection Limit.

Monitoring Activities

The second quarter 2023 monitoring well analytical results reported the concentration of EDB slightly above the MCL of 0.05 µg/L in one monitoring well (000-554), at a concentration of 0.054 µg/L. The 'Hits Only' analytical results are summarized in **Table 15-3**. The OU III North Street EDB monitoring well network is shown in **Figure 15-4**.

System Operations

April 2023:

Extraction wells NSE-EDB-EW-3 and NSE-EDB-EW-4 operated normally for the month. The system treated approximately 8 million gallons of water.

May 2023:

Extraction wells NSE-EDB-EW-3 and NSE-EDB-EW-4 were operational. The system treated approximately 10 million gallons of water.

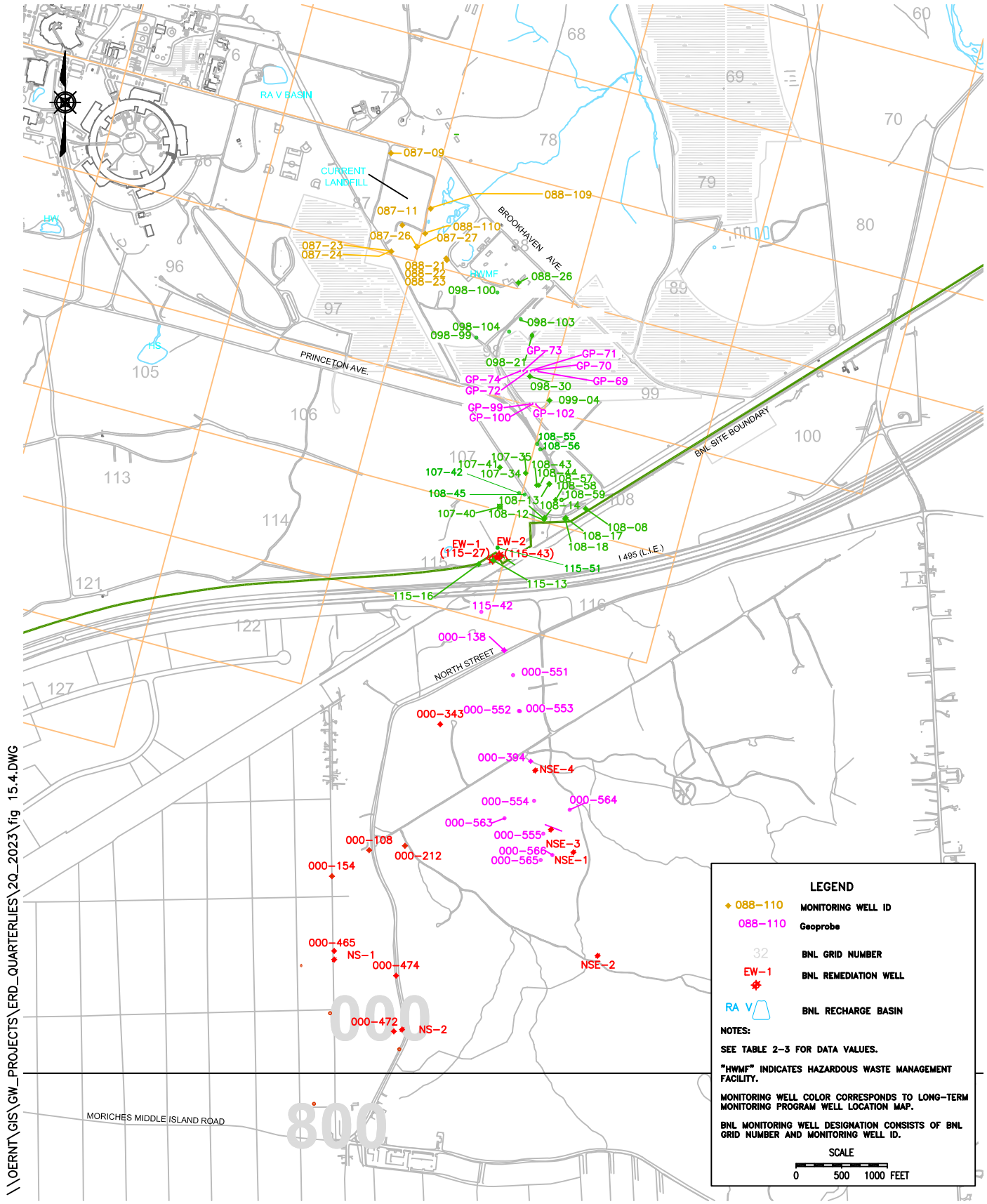
June 2023:

Extraction wells NSE-EDB-EW-3 and NSE-EDB-EW-4 were operational. The system treated approximately 11 million gallons of water.

The system treated approximately 29 million gallons of water during the second quarter of 2023. The concentration of EDB was non-detect in the treatment system effluent. The treatment system 'Hits Only' data, including extraction wells, combined influent, and effluent is summarized in **Table 15-4** through **Table 15-6**.

Planned Operational Changes

- Continue full time operation of the NSE EDB Treatment System and reduce the sampling frequency of extraction wells NSE-EDB-EW-3 and NSE-EDB-EW-4 from monthly to quarterly.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I/RA V SOUTH BOUNDARY
OUIII NORTH STREET/NORTH STREET EAST
MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	08/08/11	NA
CHKD:	APPD:	REV.:	NOTES:
LDS	––	08/17/23	–

FIGURE NO.: 15-4

Table 15-3
OU III North Street East Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-394

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/15/2023	0.036	0.01	--	UG/L	178.00		

Site ID : 000-552

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/13/2023	0.017	0.01	--	UG/L	155.00		

Site ID : 000-554

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/14/2023	0.054	0.011	--	UG/L	195.00		

Table 15-4
OU III North Street East Extraction Well Data
'Hits Only' April through June 2023

Site ID : 000-561 (NSE-EDB-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	1.39	--	--	UG/L	0.00		
Chloroform	04/11/2023	0.96	0.5	--	UG/L	0.00		
EDB	04/11/2023	0.017	0.011	--	UG/L	0.00		
Trichloroethylene	04/11/2023	0.43	0.5	--	UG/L	0.00	J	
8260 TVOC	05/04/2023	1.34	--	--	UG/L	0.00		
Chloroform	05/04/2023	1	0.5	--	UG/L	0.00		
EDB	05/04/2023	0.017	0.011	--	UG/L	0.00		
Trichloroethylene	05/04/2023	0.34	0.5	--	UG/L	0.00	J	
8260 TVOC	06/05/2023	1.28	--	--	UG/L	0.00		
Chloroform	06/05/2023	1.1	0.5	--	UG/L	0.00		
EDB	06/05/2023	0.017	0.01	--	UG/L	0.00		
Tetrachloroethylene	06/05/2023	0.18	0.5	--	UG/L	0.00	J	
1633 TPFAS	06/22/2023	49.125	--	--	NG/L	0.00		
1,4-Dioxane	06/22/2023	1.2	0.2	--	UG/L	0.00		
Perfluorobutyric acid (PFBA)	06/22/2023	45.6	7.71	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/22/2023	1.03	1.76	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/22/2023	0.615	1.79	--	NG/L	0.00	J	
Perfluorooctanoic acid (PFOA)	06/22/2023	1.88	1.93	--	NG/L	0.00	J	

Site ID : 000-562 (NSE-EDB-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	2.28	--	--	UG/L	0.00		
Chloroform	04/11/2023	0.77	0.5	--	UG/L	0.00		
EDB	04/11/2023	0.011	0.01	--	UG/L	0.00		
Methyl tert-butyl ether	04/11/2023	0.23	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/11/2023	1	0.5	--	UG/L	0.00		
Trichloroethylene	04/11/2023	0.28	0.5	--	UG/L	0.00	J	
8260 TVOC	05/04/2023	2.3	--	--	UG/L	0.00		
Chloroform	05/04/2023	1	0.5	--	UG/L	0.00		
Methyl tert-butyl ether	05/04/2023	0.16	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	05/04/2023	0.85	0.5	--	UG/L	0.00		
Trichloroethylene	05/04/2023	0.29	0.5	--	UG/L	0.00	J	
8260 TVOC	06/05/2023	2.02	--	--	UG/L	0.00		
Chloroform	06/05/2023	0.92	0.5	--	UG/L	0.00		

Table 15-4
OU III North Street East Extraction Well Data
'Hits Only' April through June 2023

Site ID : 000-562 (NSE-EDB-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	06/05/2023	0.89	0.5	--	UG/L	0.00		
Trichloroethylene	06/05/2023	0.21	0.5	--	UG/L	0.00	J	
1633 TPFAS	06/22/2023	25.678	--	--	NG/L	0.00		
1,4-Dioxane	06/22/2023	0.52	0.2	--	UG/L	0.00		
Perfluorobutyric acid (PFBA)	06/22/2023	18	7.6	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/22/2023	3.56	1.74	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/22/2023	0.648	1.9	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/22/2023	1.34	1.76	--	NG/L	0.00	J	
Perfluorooctanoic acid (PFOA)	06/22/2023	2.13	1.9	--	NG/L	0.00		

Table 15-5
OU III North Street East Influent Data
'Hits Only' April through June 2023

Site ID : 000-441 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	1.65	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/11/2023	0.17	0.5	--	UG/L	0.00	J	
Chloroform	04/11/2023	0.84	0.5	--	UG/L	0.00		
EDB	04/11/2023	0.015	0.01	--	UG/L	0.00		
Tetrachloroethylene	04/11/2023	0.36	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/11/2023	0.28	0.5	--	UG/L	0.00	J	
8260 TVOC	05/04/2023	1.76	--	--	UG/L	0.00		
Chloroform	05/04/2023	1.1	0.5	--	UG/L	0.00		
EDB	05/04/2023	0.0086	0.01	--	UG/L	0.00	J	
Tetrachloroethylene	05/04/2023	0.34	0.5	--	UG/L	0.00	J	
Trichloroethylene	05/04/2023	0.32	0.5	--	UG/L	0.00	J	
8260 TVOC	06/05/2023	1.9	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/05/2023	0.21	0.5	--	UG/L	0.00	J	
Chloroform	06/05/2023	1.1	0.5	--	UG/L	0.00		
EDB	06/05/2023	0.012	0.01	--	UG/L	0.00		
Tetrachloroethylene	06/05/2023	0.59	0.5	--	UG/L	0.00		
1633 TPFAS	06/22/2023	35.437	--	--	NG/L	0.00		
1,4-Dioxane	06/22/2023	0.81	0.2	--	UG/L	0.00		
Perfluorobutyric acid (PFBA)	06/22/2023	30.9	7.47	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/22/2023	1.73	1.71	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/22/2023	0.967	1.73	--	NG/L	0.00	J	
Perfluorooctanoic acid (PFOA)	06/22/2023	1.84	1.87	--	NG/L	0.00	J	

Table 15-6
OU III North Street East Effluent Data
'Hits Only' April through June 2023

Site ID : 000-444 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2023	0	--	--	UG/L	0.00		
EDB	04/11/2023	0.011	0.011	--	UG/L	0.00	U	
EDB	04/11/2023	0.5	0.5	--	UG/L	0.00	U	
8260 TVOC	05/04/2023	0	--	--	UG/L	0.00		
EDB	05/04/2023	0.01	0.01	--	UG/L	0.00	U	
EDB	05/04/2023	0.5	0.5	--	UG/L	0.00	U	
8260 TVOC	06/05/2023	0	--	--	UG/L	0.00		
EDB	06/05/2023	0.01	0.01	--	UG/L	0.00	U	
EDB	06/05/2023	0.5	0.5	--	UG/L	0.00	U	
1633 TPFAS	06/22/2023	0	--	--	NG/L	0.00		
1,4-Dioxane	06/22/2023	0.92	0.2	--	UG/L	0.00		

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU III LIPA/Airport Pump & Treat System

Process: Groundwater extraction and liquid phase granular activated carbon (GAC) treatment, with discharge to injection wells.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030), and within 65 years for the Magothy aquifer (by 2065).

Start Date: August 2004

Table 16-1
OU III LIPA/Airport Treatment System
Pumping Rates (gpm)

Extraction Well	EW-1L	EW-2L	EW-3L	EW-4L*	RTW-1A	RTW-2A	RTW-3A	RTW-4A*	RTW-5A	RW-6A
Site ID	000-453	000-455	000-457	000-461	800-109	800-110	800-111	800-112	800-113	800-132
Screen Interval (ft bls)	217-237	224-244	216-236	304-324	188-208	188-208	210-230	268-288	220-240	165-185
Desired Flow Rate (GPM)	0**	0**	0**	0**	100	0**	0**	100	0***	200
April	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	34	0	0	64	0	96
June	0	0	0	0	51	0	0	175	0	144
Actual (Avg. over QTR.)	**0**	**0**	**0**	**0**	**28**	**0**	**0**	**80**	**0**	**80**

***** EW-4L and RTW-4A are Magothy aquifer extraction wells.
****** EW-1L and EW-3L were placed in standby mode in 2007, EW-2L in 2010 and EW-4L in 2017. RTW-2A and RTW-3A were placed in standby in March 2020.
*** RTW-5A was placed in standby mode in September 2016.

OU III LIPA/Airport Pump & Treat System

Figure 16-1
Cumulative Mass Removal of VOCs vs. Time

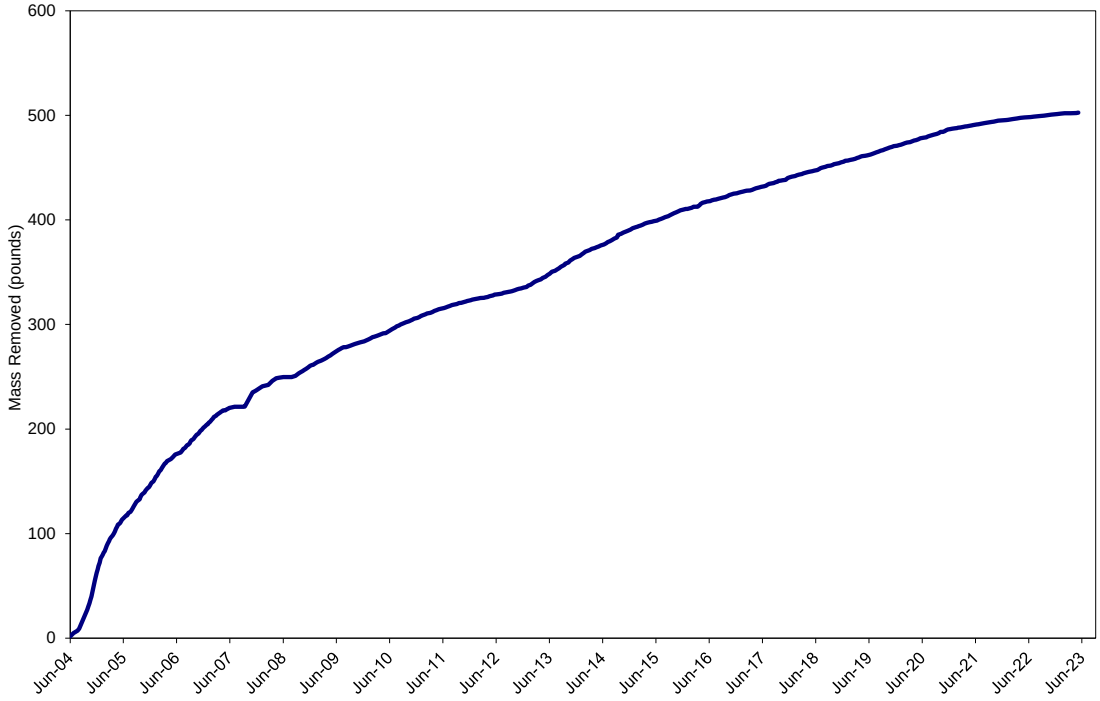
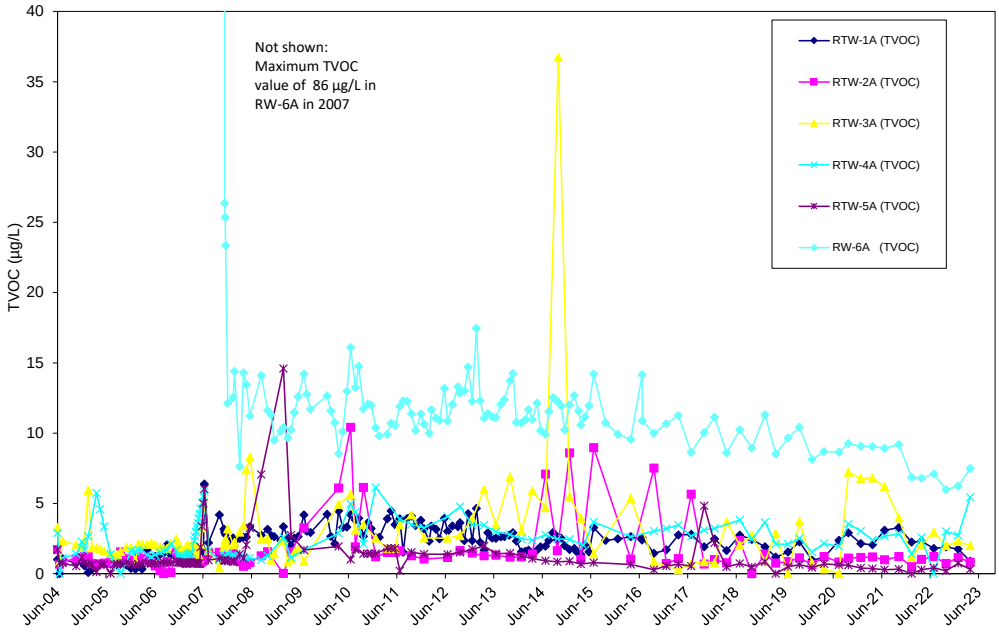


Figure 16-2
Airport Extraction Well TVOC Concentrations vs. Time



OU III LIPA/Airport Pump & Treat System

Figure 16-3
LIPA Extraction Well TVOC Concentrations vs. Time

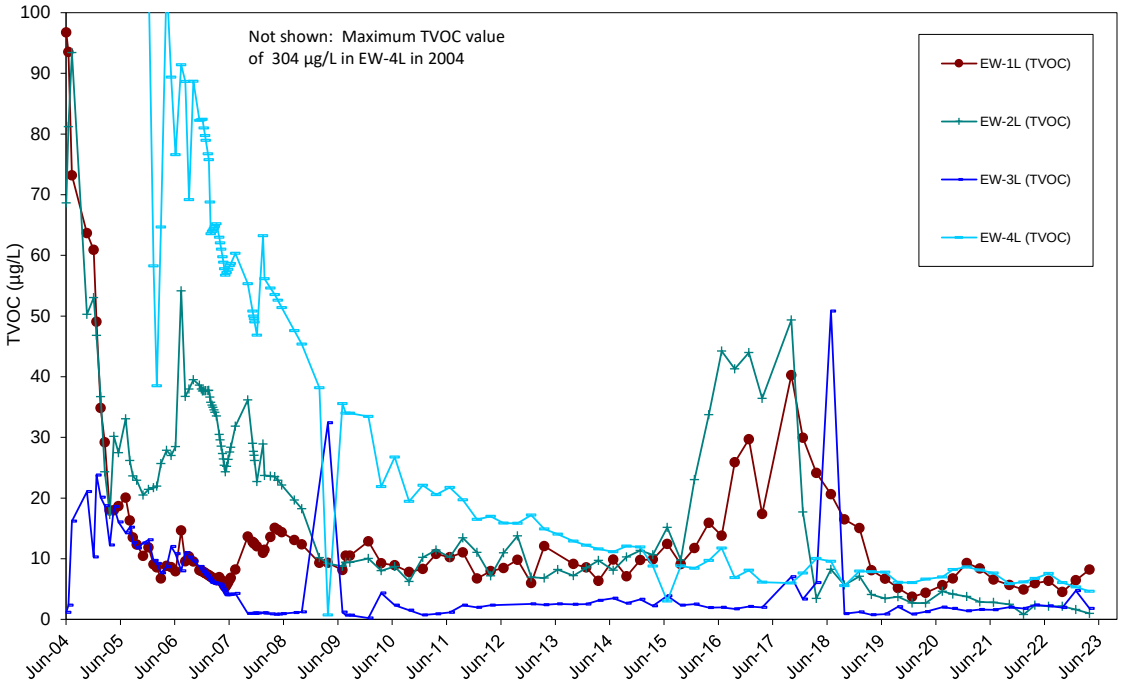


Table 16-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations - April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**579,369** [1]	**GPD**	**Continuous**
pH (range)	**5.5 – 7.5**	**5.67-5.68***	**SU**	**Monthly**
Carbon Tetrachloride	**5.0**	**<0.50**	**µg/L**	**Monthly**
Chloroform	**7.0**	**<0.50**	**µg/L**	**Monthly**
1,1-Dichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly**
1,1-Dichloroethylene	**5.0**	**<0.50**	**µg/L**	**Monthly**
Methylene Chloride	**5.0**	**<0.50**	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5.0**	**<0.50**	**µg/L**	**Monthly**
Trichloroethylene	**10.0**	**<0.50**	**µg/L**	**Monthly**

[1] The average flow for the operational period at the influent flow meter.
***** Minimum to maximum value for pH during this operational period.
< - The analyte was not detected above the Method Detection Limit.

OU III LIPA/Airport Pump & Treat System

Monitoring Activities

The second quarter 2023 monitoring well analytical results reported the highest concentration of TVOCs in 800-96 and 800-94, at 87.7 µg/L and 49.9 µg/L, respectively. The highest concentrations of individual VOCs in these wells were carbon tetrachloride and trichloroethylene, reported at 31 µg/L and 48 µg/L in 800-96, and 25 µg/L and 19 µg/L in 800-94. These monitoring wells are located downgradient of the LIPA system extraction wells. The OU III LIPA/Airport monitoring well network is shown on **Figure 16-4.** The 'Hits Only' second quarter 2023 data are summarized in **Table 16-3.**

System Operations

April 2023:

The treatment system was offline for electrical repairs throughout the month of April. The four LIPA extraction wells remained in standby mode. The system treated 0 gallons of water.

May 2023:

The treatment system was offline for electrical repairs through the middle of May. Extraction wells RTW-1A, RTW-4A and RW-6A were operational during the second half of the month. The four LIPA extraction wells and Airport extraction wells RTW-2A, RTW-3A, and RTW-5A remained in standby mode. The system treated approximately 6 million gallons of water.

June 2023:

Extraction wells RTW-1A, RTW-4A and RW-6A ran normally for the month. The four LIPA extraction wells and Airport extraction wells RTW-2A, RTW-3A, and RTW-5A remained in standby mode. The system treated approximately 18 million gallons of water.

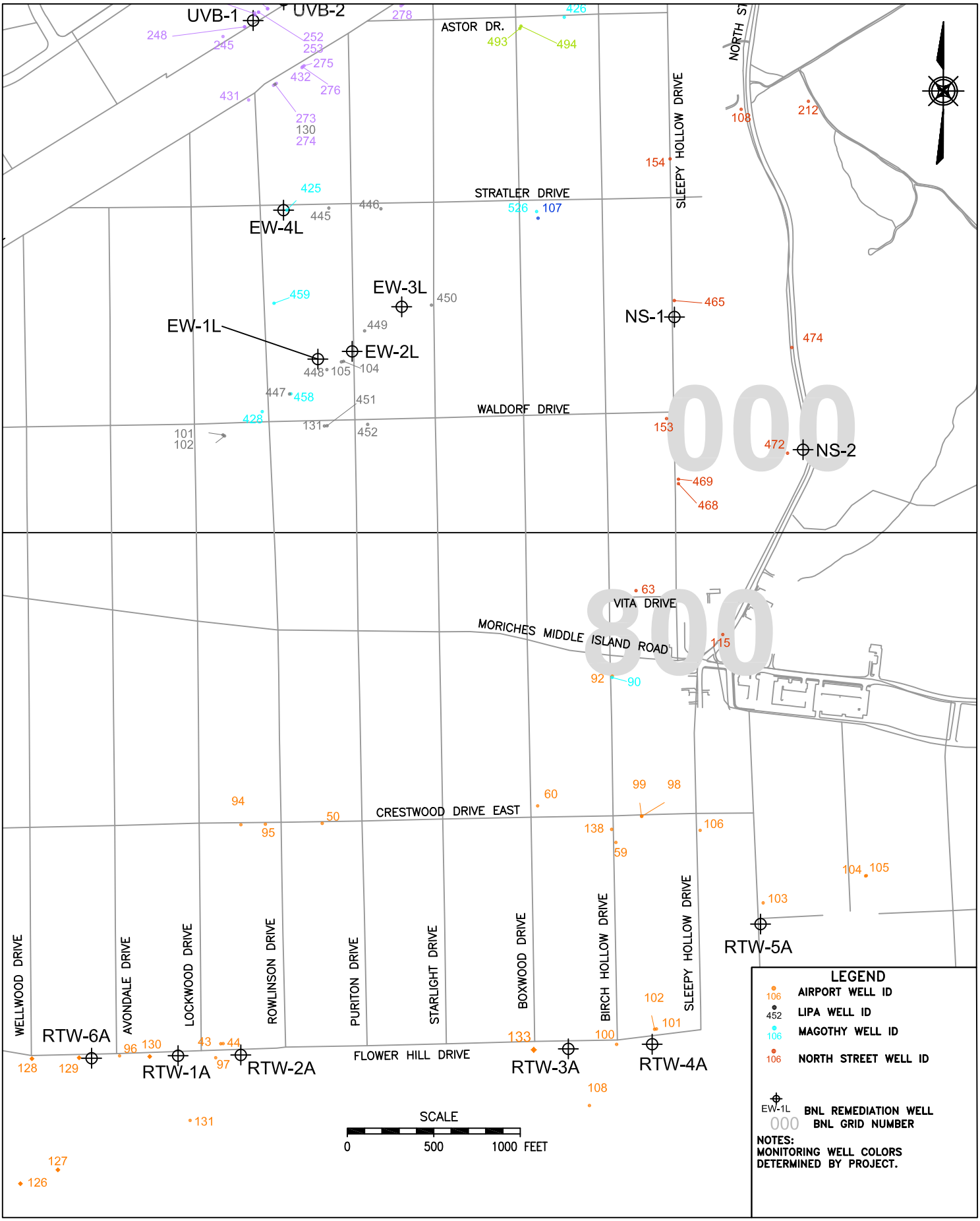
The system treated approximately 24 million gallons of water during the second quarter of 2023. The treatment system 'Hits Only' data, including individual extraction wells, combined influent, and effluent is summarized in **Table 16-4** through **Table 16-6**.

Planned Operational Changes

- Continue full time operation of Airport extraction wells RTW-1A, RTW-4A and RW-6A. Maintain wells RTW-2A, RTW-3A and RTW-5A in standby mode. If TVOC concentrations above the capture goal of 10 µg/L are observed in any of the extraction wells, or the monitoring wells adjacent to extraction wells that are not operating, the well(s) will be put back into full-time operation. During the second

quarter of 2023, extraction wells RTW-2A, RTW-3A, RTW-5A, and adjacent monitoring wells did not exceed TVOC concentrations of 10 µg/L.

- Maintain LIPA wells EW-1L, EW-2L, EW-3L and EW-4L in standby mode. All of the monitoring wells for the LIPA system were below MCL's during 2022 for individual VOCs. During the second quarter of 2023, none of the LIPA extraction wells or adjacent monitoring wells detected TVOCs above the capture goal of 50 µg/L. Based on the low VOC concentrations for the past several years in the LIPA monitoring and extraction wells, submit a petition for closure of the LIPA system to the regulators.
- Decrease the sampling frequency for the 17 LIPA monitoring wells from quarterly to semiannual.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III AIRPORT/LIPA

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	09/26/05	–
CHKD:	APPD:	REV.:	NOTES:
LDS	––	08/17/23	–

FIGURE NO.: 16–4

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-101

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/05/2023	1.4	--	--	UG/L	195.00		
Chloroform	06/05/2023	1.4	0.5	--	UG/L	195.00		

Site ID : 000-104

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/06/2023	1.79	--	--	UG/L	205.00		
1,1,1-Trichloroethane	06/06/2023	0.39	0.5	--	UG/L	205.00	J	
1,1-Dichloroethylene	06/06/2023	0.41	0.5	--	UG/L	205.00	J	
1,2-Dichloroethane	06/06/2023	0.18	0.5	--	UG/L	205.00	J	
Chloroform	06/06/2023	0.53	0.5	--	UG/L	205.00		
Trichloroethylene	06/06/2023	0.28	0.5	--	UG/L	205.00	J	

Site ID : 000-130

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/09/2023	1.24	--	--	UG/L	280.00		
Chloroform	06/09/2023	0.88	0.5	--	UG/L	280.00		
Tetrachloroethylene	06/09/2023	0.36	0.5	--	UG/L	280.00	J	

Site ID : 000-131

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/05/2023	2.54	--	--	UG/L	227.50		
1,1,1-Trichloroethane	06/05/2023	0.58	0.5	--	UG/L	227.50		
1,1-Dichloroethylene	06/05/2023	0.86	0.5	--	UG/L	227.50		
Chloroform	06/05/2023	1.1	0.5	--	UG/L	227.50		

Site ID : 000-425

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/12/2023	3.58	--	--	UG/L	315.00		
1,1,1-Trichloroethane	06/12/2023	0.34	0.5	--	UG/L	315.00	J	
1,1-Dichloroethylene	06/12/2023	0.2	0.5	--	UG/L	315.00	J	
Carbon tetrachloride	06/12/2023	0.33	0.5	--	UG/L	315.00	J	
Chloroform	06/12/2023	0.46	0.5	--	UG/L	315.00	J	
Tetrachloroethylene	06/12/2023	1.4	0.5	--	UG/L	315.00		
Trichloroethylene	06/12/2023	0.85	0.5	--	UG/L	315.00		

Site ID : 000-445

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/02/2023	0.52	--	--	UG/L	219.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-445

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	06/02/2023	0.52	0.5	--	UG/L	219.00		

Site ID : 000-446

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/02/2023	0.38	--	--	UG/L	212.00		
Chloroform	06/02/2023	0.38	0.5	--	UG/L	212.00	J	

Site ID : 000-447

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/13/2023	0.95	--	--	UG/L	219.00		
1,1,1-Trichloroethane	06/13/2023	0.17	0.5	--	UG/L	219.00	J	
1,1-Dichloroethylene	06/13/2023	0.17	0.5	--	UG/L	219.00	J	
Chloroform	06/13/2023	0.61	0.5	--	UG/L	219.00		

Site ID : 000-448

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/06/2023	5.87	--	--	UG/L	212.00		
1,1,1-Trichloroethane	06/06/2023	1.4	0.5	--	UG/L	212.00		
1,1-Dichloroethylene	06/06/2023	2.3	0.5	--	UG/L	212.00		
1,2-Dichloroethane	06/06/2023	0.39	0.5	--	UG/L	212.00	J	
Carbon tetrachloride	06/06/2023	0.22	0.5	--	UG/L	212.00	J	
Chloroform	06/06/2023	0.78	0.5	--	UG/L	212.00		
Trichloroethylene	06/06/2023	0.78	0.5	--	UG/L	212.00		

Site ID : 000-449

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/09/2023	1.75	--	--	UG/L	193.00		
1,1,1-Trichloroethane	06/09/2023	0.79	0.5	--	UG/L	193.00		
1,1-Dichloroethylene	06/09/2023	0.47	0.5	--	UG/L	193.00	J	
Chloroform	06/09/2023	0.49	0.5	--	UG/L	193.00	J	

Site ID : 000-450

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/12/2023	1.3	--	--	UG/L	208.00		
Chloroform	06/12/2023	1.3	0.5	--	UG/L	208.00		

Site ID : 000-451

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/05/2023	2.69	--	--	UG/L	193.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 000-451

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	06/05/2023	0.26	0.5	--	UG/L	193.00	J	
Chloroform	06/05/2023	1.7	0.5	--	UG/L	193.00		
Trichloroethylene	06/05/2023	0.73	0.5	--	UG/L	193.00		

Site ID : 000-452

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/05/2023	1.1	--	--	UG/L	217.00		
Chloroform	06/05/2023	1.1	0.5	--	UG/L	217.00		

Site ID : 800-100

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/26/2023	0.77	--	--	UG/L	214.00		
Chloroform	06/26/2023	0.77	0.5	--	UG/L	214.00		

Site ID : 800-101

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	40.47	--	--	UG/L	280.00		
1,1,1-Trichloroethane	06/27/2023	3	0.5	--	UG/L	280.00		
1,1,2,2-Tetrachloroethane	06/27/2023	5.3	0.5	--	UG/L	280.00		
1,1-Dichloroethane	06/27/2023	0.31	0.5	--	UG/L	280.00	J	
1,1-Dichloroethylene	06/27/2023	3.3	0.5	--	UG/L	280.00		
1,2-Dichloroethane	06/27/2023	0.96	0.5	--	UG/L	280.00		
Carbon tetrachloride	06/27/2023	3.7	0.5	--	UG/L	280.00		
Chloroform	06/27/2023	8.4	0.5	--	UG/L	280.00		
Dichlorodifluoromethane	06/27/2023	0.19	0.5	--	UG/L	280.00	J	
Trichloroethylene	06/27/2023	15	0.5	--	UG/L	280.00		
Trichlorofluoromethane	06/27/2023	0.31	0.5	--	UG/L	280.00	J	

Site ID : 800-102

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	0.58	--	--	UG/L	304.00		
Chloroform	06/27/2023	0.58	0.5	--	UG/L	304.00		

Site ID : 800-103

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	0.9	--	--	UG/L	225.00		
Chloroform	06/27/2023	0.9	0.5	--	UG/L	225.00		

Site ID : 800-104

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/26/2023	0.31	--	--	UG/L	170.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 800-104

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	06/26/2023	0.31	0.5	--	UG/L	170.00	J	

Site ID : 800-105

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/26/2023	2.64	--	--	UG/L	233.00		
Chloroform	06/26/2023	2.2	0.5	--	UG/L	233.00		
Methyl chloride	06/26/2023	0.44	0.5	--	UG/L	233.00	J	

Site ID : 800-108

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/26/2023	0.29	--	--	UG/L	216.00		
Chloroform	06/26/2023	0.29	0.5	--	UG/L	216.00	J	

Site ID : 800-129

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/23/2023	0.48	--	--	UG/L	180.00		
Carbon tetrachloride	06/23/2023	0.18	0.5	--	UG/L	180.00	J	
Chloroform	06/23/2023	0.3	0.5	--	UG/L	180.00	J	

Site ID : 800-130

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/23/2023	16.01	--	--	UG/L	185.00		
Carbon tetrachloride	06/23/2023	3.4	0.5	--	UG/L	185.00		
Chloroform	06/23/2023	0.61	0.5	--	UG/L	185.00		
Trichloroethylene	06/23/2023	12	0.5	--	UG/L	185.00		

Site ID : 800-131

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	0.89	--	--	UG/L	194.00		
Carbon tetrachloride	06/27/2023	0.89	0.5	--	UG/L	194.00		

Site ID : 800-133

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/26/2023	6.3	--	--	UG/L	225.00		
1,1,1-Trichloroethane	06/26/2023	0.4	0.5	--	UG/L	225.00	J	
Carbon tetrachloride	06/26/2023	4.3	0.5	--	UG/L	225.00		
Chloroform	06/26/2023	1.6	0.5	--	UG/L	225.00		

Site ID : 800-138

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	2.35	--	--	UG/L	250.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 800-138

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	06/27/2023	0.16	0.5	--	UG/L	250.00	J	
Chloroform	06/27/2023	1.5	0.5	--	UG/L	250.00		
Trichloroethylene	06/27/2023	0.69	0.5	--	UG/L	250.00		

Site ID : 800-43

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	1.1	--	--	UG/L	157.00		
Chloroform	06/28/2023	1.1	0.5	--	UG/L	157.00		

Site ID : 800-44

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	6.29	--	--	UG/L	212.00		
1,1,1-Trichloroethane	06/28/2023	0.18	0.5	--	UG/L	212.00	J	
Carbon tetrachloride	06/28/2023	5.7	0.5	--	UG/L	212.00		
Chloroform	06/28/2023	0.41	0.5	--	UG/L	212.00	J	

Site ID : 800-50

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	0.79	--	--	UG/L	205.00		
Chloroform	06/28/2023	0.79	0.5	--	UG/L	205.00		

Site ID : 800-59

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	0.42	--	--	UG/L	208.00		
Chloroform	06/27/2023	0.42	0.5	--	UG/L	208.00	J	

Site ID : 800-60

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	0.44	--	--	UG/L	215.00		
Chloroform	06/28/2023	0.44	0.5	--	UG/L	215.00	J	

Site ID : 800-63

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	0.79	--	--	UG/L	206.00		
Chloroform	06/28/2023	0.3	0.5	--	UG/L	206.00	J	
Trichloroethylene	06/28/2023	0.49	0.5	--	UG/L	206.00	J	

Site ID : 800-90

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	2.66	--	--	UG/L	255.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 800-90

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Carbon tetrachloride	06/28/2023	0.61	0.5	--	UG/L	255.00		
Chloroform	06/28/2023	1.2	0.5	--	UG/L	255.00		
Trichloroethylene	06/28/2023	0.85	0.5	--	UG/L	255.00		

Site ID : 800-92

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	3.05	--	--	UG/L	200.00		
Carbon tetrachloride	06/28/2023	0.45	0.5	--	UG/L	200.00	J	
Chloroform	06/28/2023	1.4	0.5	--	UG/L	200.00		
Trichloroethylene	06/28/2023	1.2	0.5	--	UG/L	200.00		

Site ID : 800-94

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	49.89	--	--	UG/L	185.00		
1,1,1-Trichloroethane	06/28/2023	1.4	0.5	--	UG/L	185.00		
1,1-Dichloroethylene	06/28/2023	2.6	0.5	--	UG/L	185.00		
1,2-Dichloroethane	06/28/2023	0.32	0.5	--	UG/L	185.00	J	
Carbon tetrachloride	06/28/2023	25	0.5	--	UG/L	185.00		
Chloroform	06/28/2023	1.1	0.5	--	UG/L	185.00		
cis-1,2-Dichloroethylene	06/28/2023	0.47	0.5	--	UG/L	185.00	J	
Trichloroethylene	06/28/2023	19	0.5	--	UG/L	185.00		

Site ID : 800-95

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/28/2023	17.02	--	--	UG/L	187.00		
1,1,1-Trichloroethane	06/28/2023	0.57	0.5	--	UG/L	187.00		
1,1-Dichloroethylene	06/28/2023	1.1	0.5	--	UG/L	187.00		
Carbon tetrachloride	06/28/2023	9.6	0.5	--	UG/L	187.00		
Chloroform	06/28/2023	0.79	0.5	--	UG/L	187.00		
cis-1,2-Dichloroethylene	06/28/2023	0.16	0.5	--	UG/L	187.00	J	
Trichloroethylene	06/28/2023	4.8	0.5	--	UG/L	187.00		

Site ID : 800-96

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/23/2023	87.65	--	--	UG/L	189.00		
1,1,1-Trichloroethane	06/23/2023	2.4	0.5	--	UG/L	189.00		
1,1-Dichloroethylene	06/23/2023	3.5	0.5	--	UG/L	189.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 800-96

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,2-Dichloroethane	06/23/2023	0.35	0.5	--	UG/L	189.00	J	
Carbon tetrachloride	06/23/2023	31	0.5	--	UG/L	189.00		
Chloroform	06/23/2023	1.1	0.5	--	UG/L	189.00		
cis-1,2-Dichloroethylene	06/23/2023	1.3	0.5	--	UG/L	189.00		
Trichloroethylene	06/23/2023	48	0.5	--	UG/L	189.00		

Site ID : 800-97

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/26/2023	3.4	--	--	UG/L	199.00		
1,1,1-Trichloroethane	06/26/2023	0.2	0.5	--	UG/L	199.00	J	
Carbon tetrachloride	06/26/2023	2.9	0.5	--	UG/L	199.00		
Chloroform	06/26/2023	0.3	0.5	--	UG/L	199.00	J	

Site ID : 800-98

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	0.41	--	--	UG/L	184.00		
Chloroform	06/27/2023	0.41	0.5	--	UG/L	184.00	J	

Site ID : 800-99

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/27/2023	6.29	--	--	UG/L	248.00		
1,1,1-Trichloroethane	06/27/2023	0.81	0.5	--	UG/L	248.00		
1,1-Dichloroethylene	06/27/2023	0.86	0.5	--	UG/L	248.00		
Carbon tetrachloride	06/27/2023	0.18	0.5	--	UG/L	248.00	J	
Chloroform	06/27/2023	3.7	0.5	--	UG/L	248.00		
Dichlorodifluoromethane	06/27/2023	0.17	0.5	--	UG/L	248.00	J	
Trichloroethylene	06/27/2023	0.57	0.5	--	UG/L	248.00		

Table 16-4
OU III LIPA/Airport Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 000-453 (EW-1L)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	8.23	0	--	UG/L	227		
1,1-Dichloroethane	4/13/2023	0.29	0.5	--	UG/L	227	J	
1,1-Dichloroethylene	4/13/2023	1.1	0.5	--	UG/L	227		
1,2-Dichloroethane	4/13/2023	0.26	0.5	--	UG/L	227	J	
Chloroform	4/13/2023	0.23	0.5	--	UG/L	227	J	
Toluene	4/13/2023	5.9	0.5	--	UG/L	227		
Trichloroethylene	4/13/2023	0.45	0.5	--	UG/L	227	J	
1633 TPFAS	6/30/2023	13.355	0	--	NG/L	227		
Perfluorobutanesulfonate (PFBS)	6/30/2023	0.654	1.6	--	NG/L	227	J	
Perfluorobutyric acid (PFBA)	6/30/2023	3.15	7.2	--	NG/L	227	J	
Perfluorohexanesulfonate (PFHxS)	6/30/2023	1.9	1.65	--	NG/L	227		
Perfluorohexanoic acid (PFHxA)	6/30/2023	1.39	1.8	--	NG/L	227	J	
Perfluorooctanesulfonate (PFOS)	6/30/2023	3.97	1.67	--	NG/L	227		
Perfluorooctanoic acid (PFOA)	6/30/2023	1.64	1.8	--	NG/L	227	J	
Perfluoropentanesulfonate (PFPeS)	6/30/2023	0.651	1.69	--	NG/L	227	J	
1,4-Dioxane	6/30/2023	2.7	0.24	--	UG/L	227		

Site ID : 000-455 (EW-2L)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	0.99	0	--	UG/L	234		
Chloroform	4/13/2023	0.43	0.5	--	UG/L	234	J	
Toluene	4/13/2023	0.22	0.5	--	UG/L	234	J	
Trichloroethylene	4/13/2023	0.34	0.5	--	UG/L	234	J	
1633 TPFAS	6/30/2023	5.978	0	--	NG/L	234		
Perfluorohexanesulfonate (PFHxS)	6/30/2023	2.68	1.73	--	NG/L	234		
Perfluorooctanesulfonate (PFOS)	6/30/2023	2.4	1.76	--	NG/L	234		
Perfluorooctanoic acid (PFOA)	6/30/2023	0.898	1.9	--	NG/L	234	J	
1,4-Dioxane	6/30/2023	0.36	0.2	--	UG/L	234		

Site ID : 000-457 (EW-3L)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	1.79	0	--	UG/L	226		
Chloroform	4/13/2023	1.6	0.5	--	UG/L	226		
Trichloroethylene	4/13/2023	0.19	0.5	--	UG/L	226	J	
1633 TPFAS	6/30/2023	5.94	0	--	NG/L	226		
Perfluorohexanesulfonate (PFHxS)	6/30/2023	1.43	1.78	--	NG/L	226	J	
Perfluorooctanesulfonate (PFOS)	6/30/2023	3.48	1.81	--	NG/L	226		
Perfluorooctanoic acid (PFOA)	6/30/2023	1.03	1.95	--	NG/L	226	J	

Table 16-4
OU III LIPA/Airport Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 000-461 (EW-4L)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	4.63	0	--	UG/L	314		
Chloroform	4/13/2023	0.55	0.5	--	UG/L	314		
Tetrachloroethylene	4/13/2023	3.5	0.5	--	UG/L	314		
Trichloroethylene	4/13/2023	0.58	0.5	--	UG/L	314		
1633 TPFAS	6/30/2023	20.358	0	--	NG/L	314		
Perfluorobutanesulfonate (PFBS)	6/30/2023	0.846	1.76	--	NG/L	314	J	
Perfluorobutyric acid (PFBA)	6/30/2023	3.71	7.92	--	NG/L	314	J	
Perfluoroheptanoic acid (PFHpA)	6/30/2023	1.65	1.98	--	NG/L	314	J	
Perfluorohexanesulfonate (PFHxS)	6/30/2023	1.24	1.81	--	NG/L	314	J	
Perfluorohexanoic acid (PFHxA)	6/30/2023	3.45	1.98	--	NG/L	314		
Perfluorooctanesulfonate (PFOS)	6/30/2023	2.1	1.84	--	NG/L	314		
Perfluorooctanoic acid (PFOA)	6/30/2023	1.81	1.98	--	NG/L	314	J	
Perfluoropentanesulfonate (PFPeS)	6/30/2023	0.842	1.86	--	NG/L	314	J	
Perfluoropentanoic acid (PFPeA)	6/30/2023	4.71	1.98	--	NG/L	314		
1,4-Dioxane	6/30/2023	0.18	0.2	--	UG/L	314	J	

Site ID : 800-109 (RTW-1A)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	0.88	0	0	UG/L	198		
Carbon tetrachloride	4/13/2023	0.23	0.5	0	UG/L	198	J	
Chloroform	4/13/2023	0.65	0.5	0	UG/L	198		
1633 TPFAS	7/10/2023	15.95	0	0	NG/L	198		
Perfluorobutanesulfonate (PFBS)	7/10/2023	2.15	1.55	0	NG/L	198		
Perfluoroheptanoic acid (PFHpA)	7/10/2023	1.17	1.74	0	NG/L	198	J	
Perfluorohexanesulfonate (PFHxS)	7/10/2023	1.57	1.59	0	NG/L	198	J	
Perfluorohexanoic acid (PFHxA)	7/10/2023	3.82	1.74	0	NG/L	198		
Perfluorooctanesulfonate (PFOS)	7/10/2023	1.3	1.62	0	NG/L	198	J	
Perfluorooctanoic acid (PFOA)	7/10/2023	2.8	1.74	0	NG/L	198		
Perfluoropentanoic acid (PFPeA)	7/10/2023	3.14	1.74	0	NG/L	198		
1,4-Dioxane	7/10/2023	0.36	0.2	0	UG/L	198		

Site ID : 800-110 (RTW-2A)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	0.82	0	--	UG/L	198		
Carbon tetrachloride	4/13/2023	0.29	0.5	--	UG/L	198	J	
Chloroform	4/13/2023	0.53	0.5	--	UG/L	198		
1633 TPFAS	7/10/2023	0	0	--	NG/L	198		
1,4-Dioxane	7/10/2023	0.89	0.2	--	UG/L	198		

Table 16-4
OU III LIPA/Airport Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 800-111 (RTW-3A)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	2	0	--	UG/L	220		
1,1,1-Trichloroethane	4/13/2023	0.29	0.5	--	UG/L	220	J	
1,1-Dichloroethylene	4/13/2023	0.17	0.5	--	UG/L	220	J	
Carbon tetrachloride	4/13/2023	0.49	0.5	--	UG/L	220	J	
Chloroform	4/13/2023	0.45	0.5	--	UG/L	220	J	
Trichloroethylene	4/13/2023	0.6	0.5	--	UG/L	220		
1633 TPFAS	7/10/2023	16.652	0	--	NG/L	220		
Perfluorobutanesulfonate (PFBS)	7/10/2023	5.19	1.64	--	NG/L	220		
Perfluoroheptanoic acid (PFHpA)	7/10/2023	1.18	1.85	--	NG/L	220	J	
Perfluorohexanesulfonate (PFHxS)	7/10/2023	1.09	1.69	--	NG/L	220	J	
Perfluorohexanoic acid (PFHxA)	7/10/2023	2.86	1.85	--	NG/L	220		
Perfluorooctanesulfonate (PFOS)	7/10/2023	0.872	1.71	--	NG/L	220	J	
Perfluorooctanoic acid (PFOA)	7/10/2023	2.43	1.85	--	NG/L	220		
Perfluoropentanoic acid (PFPeA)	7/10/2023	3.03	1.85	--	NG/L	220		
1,4-Dioxane	7/10/2023	0.45	0.2	--	UG/L	220		

Site ID : 800-112 (RTW-4A)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	5.44	0	--	UG/L	278		
1,1,1-Trichloroethane	4/13/2023	0.36	0.5	--	UG/L	278	J	
1,1,2,2-Tetrachloroethane	4/13/2023	0.54	0.5	--	UG/L	278		
1,1-Dichloroethylene	4/13/2023	0.32	0.5	--	UG/L	278	J	
Carbon tetrachloride	4/13/2023	0.52	0.5	--	UG/L	278		
Chloroform	4/13/2023	1.1	0.5	--	UG/L	278		
Trichloroethylene	4/13/2023	2.6	0.5	--	UG/L	278		
1633 TPFAS	7/12/2023	10.987	0	--	NG/L	278		
Perfluorobutanesulfonate (PFBS)	7/12/2023	0.887	1.64	--	NG/L	278	J	
Perfluorobutyric acid (PFBA)	7/12/2023	7.75	7.4	--	NG/L	278		
Perfluorohexanoic acid (PFHxA)	7/12/2023	0.866	1.85	--	NG/L	278	J	
Perfluorooctanoic acid (PFOA)	7/12/2023	0.641	1.85	--	NG/L	278	J	
Perfluoropentanoic acid (PFPeA)	7/12/2023	0.843	1.85	--	NG/L	278	J	
1,4-Dioxane	7/12/2023	2.4	0.2	--	UG/L	278		

Site ID : 800-113 (RTW-5A)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	0.31	0	--	UG/L	230		
Chloroform	4/13/2023	0.31	0.5	--	UG/L	230	J	
1633 TPFAS	7/10/2023	14.8	0	--	NG/L	230		
Perfluorobutyric acid (PFBA)	7/10/2023	14.8	8.03	--	NG/L	230		
1,4-Dioxane	7/10/2023	3	0.2	--	UG/L	230		

Table 16-4
OU III LIPA/Airport Extraction Well Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 800-132 (RTW-6A)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	7.49	0	--	UG/L	175		
Carbon tetrachloride	4/13/2023	1.7	0.5	--	UG/L	175		
Chloroform	4/13/2023	0.69	0.5	--	UG/L	175		
Trichloroethylene	4/13/2023	5.1	0.5	--	UG/L	175		
1633 TPFAS	7/10/2023	40.42	0	--	NG/L	175		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	7/10/2023	3	6.67	--	NG/L	175	J	
Perfluorobutanesulfonate (PFBS)	7/10/2023	2.79	1.56	--	NG/L	175		
Perfluorobutyric acid (PFBA)	7/10/2023	3.85	7.02	--	NG/L	175	J	
Perfluoroheptanoic acid (PFHpA)	7/10/2023	2.72	1.75	--	NG/L	175		
Perfluorohexanesulfonate (PFHxS)	7/10/2023	2.66	1.6	--	NG/L	175		
Perfluorohexanoic acid (PFHxA)	7/10/2023	8.2	1.75	--	NG/L	175		
Perfluorooctanesulfonate (PFOS)	7/10/2023	1.84	1.63	--	NG/L	175		
Perfluorooctanoic acid (PFOA)	7/10/2023	3.36	1.75	--	NG/L	175		
Perfluoropentanoic acid (PFPeA)	7/10/2023	12	1.75	--	NG/L	175		
1,4-Dioxane	7/10/2023	0.85	0.2	--	UG/L	175		

Table 16-5
OU III LIPA/Airport Influent Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 800-122 (Combined Influent)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	1.43	0	--	UG/L	0		
Chloroform	4/13/2023	0.57	0.5	--	UG/L	0		
Trichloroethylene	4/13/2023	0.86	0.5	--	UG/L	0		
8260 TVOC	5/22/2023	2.66	0	--	UG/L	0		
1,1,2,2-Tetrachloroethane	5/22/2023	0.22	0.5	--	UG/L	0	J	
Carbon tetrachloride	5/22/2023	0.52	0.5	--	UG/L	0		
Chloroform	5/22/2023	0.94	0.5	--	UG/L	0		
Trichloroethylene	5/22/2023	0.98	0.5	--	UG/L	0		
1,1-Dichloroethylene	6/5/2023	0.18	0.5	--	UG/L	0	J	
8260 TVOC	6/5/2023	4.57	0	--	UG/L	0		
Carbon tetrachloride	6/5/2023	1.1	0.5	--	UG/L	0		
Chloroform	6/5/2023	0.79	0.5	--	UG/L	0		
Trichloroethylene	6/5/2023	2.5	0.5	--	UG/L	0		
1633 TPFAS	7/10/2023	33.09	0	--	NG/L	0		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	7/10/2023	2.5	7.18	--	NG/L	0	J	
Perfluorobutanesulfonate (PFBS)	7/10/2023	2.39	1.68	--	NG/L	0		
Perfluorobutyric acid (PFBA)	7/10/2023	3.11	7.55	--	NG/L	0	J	
Perfluoroheptanoic acid (PFHpA)	7/10/2023	2.27	1.89	--	NG/L	0		
Perfluorohexanesulfonate (PFHxS)	7/10/2023	2.27	1.73	--	NG/L	0		
Perfluorohexanoic acid (PFHxA)	7/10/2023	6.49	1.89	--	NG/L	0		
Perfluorooctanesulfonate (PFOS)	7/10/2023	1.61	1.75	--	NG/L	0	J	
Perfluorooctanoic acid (PFOA)	7/10/2023	3.3	1.89	--	NG/L	0		
Perfluoropentanoic acid (PFPeA)	7/10/2023	9.15	1.89	--	NG/L	0		
1,4-Dioxane	7/10/2023	0.62	0.2	--	UG/L	0		

Table 16-6
OU III LIPA/Airport Effluent Data
'Hits Only' April through June 2023 (PFAS & 1,4-Dioxane: June - August 2023)

Site ID : 800-124 (System Effluent)

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	4/13/2023	0	0	--	UG/L	0		
8260 TVOC	5/22/2023	0	0	--	UG/L	0		
8260 TVOC	6/5/2023	0	0	--	UG/L	0		
1633 TPFAS	7/10/2023	4.67	0	--	NG/L	0		
Perfluorobutyric acid (PFBA)	7/10/2023	4.67	7.24	--	NG/L	0	J	
1,4-Dioxane	7/10/2023	1.3	1	--	UG/L	0	D	

Qualifiers:
J = Estimated value.
D = Compound was identified in an analysis at a secondary dilution factor.

OU III Strontium-90 BGRR/WCF Pump & Treat System

Process: Groundwater extraction with liquid phase granular activated carbon (GAC) treatment for volatile organic compounds (VOCs), followed by clinoptilolite zeolite resin treatment for the removal of strontium-90 (Sr-90), with discharge to dry wells.

Goal: Reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 70 years for the Upper Glacial aquifer (by 2070).

Start Date: June 2005

Table 17-1
Pumping Rates (gpm)

Extraction Well	SR-1	SR-2	SR-3*	SR-4*	SR-5*	SR-6*	SR-7*	SR-8*	SR-9*
Site Id #	065-368	065-369	075-676	075-677	075-678	065-403	075-702	075-703	075-704
Screen Interval (ft bls)	33-53	33.5-53.5	51-71	35-75	35-75	85-105	82-102	77-97	67-87
Desired Flow Rate (gpm)	**5**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**10**
April (Avg gpm)	5.4	5.4	0	0	0	0	0	0	10
May "	5.4	5.4	0	0	0	0	0	0	0
June "	5.4	5.4	0	0	0	0	0	0	0
Actual (Avg. over Qtr.)	**5.4**	**5.4**	**0**	**0**	**0**	**0**	**0**	**0**	**10**

*Wells SR-4 and SR-5 were placed in standby mode in September 2016. Well SR-6 was placed in standby mode in October 2017. Wells SR-3 and SR-7 were placed in standby mode in October 2018. Well SR-8 was placed in pulsed pumping mode in October 2018. Well SR-3 was put back in operation in February 2019. Well SR-3 and SR-8 were put in standby mode in May 2022. Well SR-9 was placed in pulsed pumping mode in May 2022.

OU III Strontium-90 BGRR/WCF Pump & Treat System

Figure 17-1
Cumulative Millicuries Removed

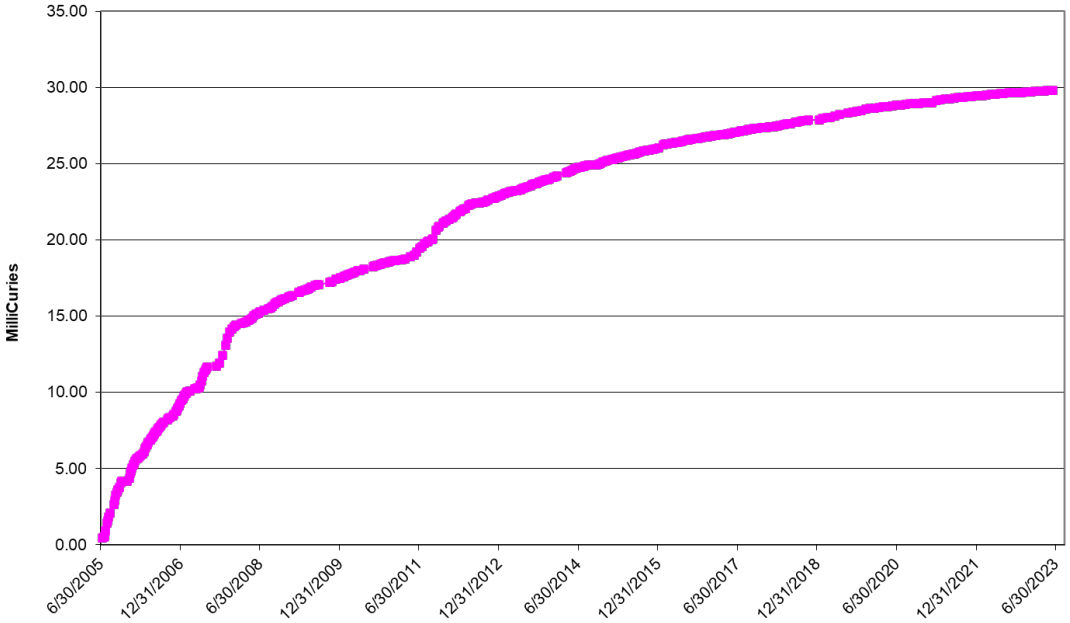
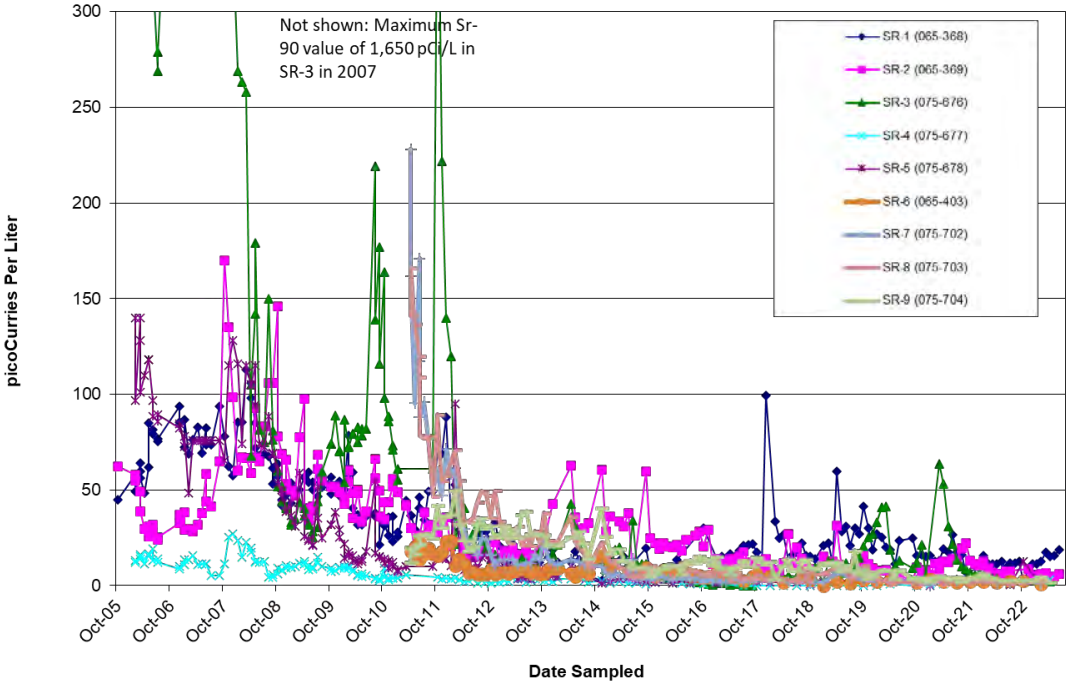


Figure 17-2
Extraction Well Sr-90 Concentrations vs. Time



OU III Strontium-90 BGRR/WCF Pump & Treat System

Table 17-2
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**75**	**21**	**GPM**	**Continuous**
pH (range)	**5.5 – 8.5**	**6.7– 6.7***	**SU**	**Weekly**
Strontium-90	**8.0**	**<0.67**	**PCi/L**	**Monthly[1]**
Chloroform	**7.0**	**0.61J**	**µg/L**	**Monthly[1]**
1,1-Dichloroethane	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Ethylbenzene	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Methyl Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Methylene Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Toluene	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
1,2,3-Trichlorobenzene	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
1,1,1-Trichloroethane	**5.0**	**0.5**	**µg/L**	**Monthly[1]**
1,2,4-Trimethylbenzene	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Xylene, total	**10.0**	**<0.5**	**µg/L**	**Monthly[1]**
Dibromochloromethane	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Cis-1,2 Dichloroethene	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Trans-1,2- dichloroethene	**10.0**	**<0.5**	**µg/L**	**Monthly[1]**

[1] The minimum measurement frequency shall be monthly following a period of 24 consecutive weekly sampling events showing no exceedances of the stated discharge limitations.
* Minimum to maximum value for pH during this operational period.
J = Estimated value.
< = The analyte was not detected above the Method Detection Limit.

OU III Strontium-90 BGRR/WCF Pump & Treat System

Monitoring Activities

The second quarter 2023 monitoring results reported the highest concentration of Sr-90 in monitoring well 065-175, immediately downgradient of the former Waste Concentration Facility, at 61.4 pCi/L. The OU III BGRR/WCF monitoring well network is shown on **Figure 17-3**. The 'Hits Only' second quarter 2023 data are summarized in **Table 17-3**.

System Operations

April 2023:

The system ran normally for the month with extraction wells SR-1 and SR-2 operating. Extraction well SR-9 was on this month for pulsed-pumping. The system treated approximately 0.9 million gallons of water.

May 2022:

The system ran normally for the month with extraction wells SR-1 and SR-2 operating. Extraction well SR-9 was placed in stand-by mode on May 1. The system treated approximately 0.5 million gallons of water.

June 2023:

The system ran normally for the month with extraction wells SR-1 and SR-2 operating. The system treated approximately 0.5 million gallons of water.

Extraction wells SR-3 through SR-8 were off in stand-by mode for this quarter. As identified in the 2022 Groundwater Status Report, in May 2023, extraction well SR-9 was placed in standby mode. The system treated approximately 1.9 million gallons of water during the second quarter of 2023.

The treatment system 'Hits Only' data, including individual extraction wells, influent, and effluent is summarized in **Table 17-4** through **Table 17-6**.

Planned Operational Changes

- Continue operating wells SR-1 and SR-2 in full time mode, and maintain wells SR-3, SR-4, SR-5, SR-6, SR-7, SR-8, and SR-9 in standby mode. If significant rebound occurs, place these extraction wells back in full time operation. Sr-90 concentrations in SR-4, SR-5, SR-6, and SR-7 have remained below the MCL since May 2016. Sr-90 concentrations in SR-8 have remained below the MCL since November 2019. The last Sr-90 detection above the MCL for SR-3 or 075-701 was in SR-3 in September 2021.

OU III Strontium-90 BGRR/WCF Pump & Treat System

- Install a temporary vertical profile well to a depth of 140 feet below ground surface adjacent to well 085-402 to monitor for the high Sr-90 concentration segment of the Pile Fan Sump plume migrating beneath Building 725.

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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III BGRR/WCF

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS
REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	03/15/13	
CHKD:	APPD:	REV.:	NOTES:
LDS	--	08/17/23	
FIGURE NO.:		17–3	

Table 17-3
OU III Strontium-90 BGRR/WCF Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 065-160

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/24/2023	1.07	0.668	0.485	PCI/L	44.00		N2

Site ID : 065-169

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2023	14.7	0.517	1.13	PCI/L	85.00		

Site ID : 065-175

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/25/2023	61.4	0.782	2.2	PCI/L	40.00		

Site ID : 065-325

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/27/2023	13.3	0.58	1.13	PCI/L	77.00		

Site ID : 065-37

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/26/2023	10.5	0.612	1.1	PCI/L	76.60		

Site ID : 065-39

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/24/2023	5.67	0.492	0.772	PCI/L	87.40		

Site ID : 065-405

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/27/2023	0.786	0.661	0.443	PCI/L	80.00	J	N2

Site ID : 075-48

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2023	1.03	1.02	0.661	PCI/L	68.00		N2

Site ID : 075-664

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/13/2023	1.68	0.794	0.551	PCI/L	68.00		

Site ID : 075-671

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/25/2023	1.51	0.792	0.571	PCI/L	109.00		

Site ID : 075-684

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2023	2.49	0.667	0.629	PCI/L	79.00		

Site ID : 075-701

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/13/2023	1.18	0.648	0.497	PCI/L	61.64		

Table 17-3
OU III Strontium-90 BGRR/WCF Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 075-701

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	06/29/2023	2.62	0.771	0.68	PCI/L	68.00		

Site ID : 075-705

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/19/2023	1.13	0.391	0.336	PCI/L	90.00		

Site ID : 075-706

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/19/2023	1.52	0.856	0.615	PCI/L	95.00		

Site ID : 075-707

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2023	1.98	0.564	0.508	PCI/L	75.00		

Site ID : 085-398

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/21/2023	8.64	0.836	1.14	PCI/L	130.00		

Site ID : 085-399

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/26/2023	2.05	0.595	0.526	PCI/L	65.00		

Site ID : 085-402

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/26/2023	3.15	0.493	0.52	PCI/L	100.00		

Site ID : 085-403

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/21/2023	6.44	1.27	1.32	PCI/L	120.00		

Site ID : 095-326

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/21/2023	0.989	0.679	0.476	PCI/L	120.00		N2

Table 17-4
OU III Strontium-90 BGRR/WCF Extraction Well Data
'Hits Only' April through June 2023

Site ID : 065-368 (SR-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/12/2023	15.1	0.716	1.28	PCI/L	0.00		
Strontium-90	06/12/2023	18.8	0.483	0.77	PCI/L	0.00		
1633 TPFAS	06/23/2023	33.806	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.598	1.52	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	9.09	6.83	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/23/2023	1.21	1.71	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	1.27	1.56	--	NG/L	0.00	J	
Perfluorohexanoic acid (PFHxA)	06/23/2023	1.89	1.71	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/23/2023	1.9	1.71	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/23/2023	11.9	1.59	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	4.98	1.71	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	0.968	1.71	--	NG/L	0.00	J	

Site ID : 065-369 (SR-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/12/2023	4.35	0.68	0.757	PCI/L	0.00		
Strontium-90	06/12/2023	6.25	1.09	0.773	PCI/L	0.00		
1633 TPFAS	06/23/2023	27.814	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.663	1.64	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	5.17	7.39	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	0.934	1.85	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	2.7	1.69	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/23/2023	1.63	1.85	--	NG/L	0.00	J	
Perfluorononanoic acid (PFNA)	06/23/2023	1.6	1.85	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/23/2023	0.647	1.85	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/23/2023	10.1	1.71	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	3.12	1.85	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.25	1.85	--	NG/L	0.00	J	

Site ID : 075-676 (SR-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/12/2023	2.13	0.52	0.562	PCI/L	0.00		
1633 TPFAS	06/23/2023	26.86	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	1.05	1.65	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	9.51	7.46	--	NG/L	0.00		

Table 17-4
OU III Strontium-90 BGRR/WCF Extraction Well Data
'Hits Only' April through June 2023

Site ID : 075-676 (SR-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluoroheptanoic acid (PFHpA)	06/23/2023	1.31	1.86	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	1.18	1.7	--	NG/L	0.00	J	
Perfluorohexanoic acid (PFHxA)	06/23/2023	2.76	1.86	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/23/2023	5.51	1.73	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	3.65	1.86	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.89	1.86	--	NG/L	0.00		

Site ID : 075-677 (SR-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/12/2023	3.24	0.583	0.669	PCI/L	0.00		
1633 TPFAS	06/23/2023	23.736	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.906	1.56	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	6.66	7.06	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	0.686	1.76	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	2.05	1.61	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/23/2023	1.73	1.76	--	NG/L	0.00	J	
Perfluorononanoic acid (PFNA)	06/23/2023	0.624	1.76	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/23/2023	6.82	1.64	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	3.25	1.76	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.01	1.76	--	NG/L	0.00	J	

Site ID : 075-678 (SR-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/23/2023	21.164	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.854	1.55	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	5.44	7	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	1.07	1.75	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	1.32	1.6	--	NG/L	0.00	J	
Perfluorohexanoic acid (PFHxA)	06/23/2023	2.43	1.75	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/23/2023	5.45	1.62	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	3.17	1.75	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.43	1.75	--	NG/L	0.00	J	

Site ID : 075-703 (SR-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/12/2023	2.25	0.774	0.607	PCI/L	0.00		

Table 17-4
OU III Strontium-90 BGRR/WCF Extraction Well Data
'Hits Only' April through June 2023

Site ID : 075-703 (SR-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/23/2023	23.927	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.863	1.65	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	4.14	7.45	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	1.19	1.86	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	2.53	1.7	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/23/2023	2.93	1.86	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/23/2023	0.764	1.86	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/23/2023	5.74	1.73	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	3.86	1.86	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.91	1.86	--	NG/L	0.00		

Site ID : 075-704 (SR-9)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/12/2023	1.8	0.725	0.591	PCI/L	0.00		
1633 TPFAS	06/23/2023	16.805	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	1.06	1.54	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	4.67	6.94	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	0.927	1.73	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	2.48	1.59	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/23/2023	0.848	1.73	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/23/2023	4.79	1.61	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	2.03	1.73	--	NG/L	0.00		

Table 17-5
OU III Strontium-90 BGRR/WCF Influent Data
'Hits Only' April through June 2023

Site ID : 066-216 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/12/2023	6.96	--	--	UG/L	0.00		
Chloroform	04/12/2023	0.36	0.5	--	UG/L	0.00	J	
Ethene, 1,2-dichloro-, (E)-	04/12/2023	6.6	0.5	--	UG/L	0.00		
Strontium-90	04/12/2023	4.85	0.79	0.891	PCI/L	0.00		
8260 TVOC	06/12/2023	0.96	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/12/2023	0.41	0.5	--	UG/L	0.00	J	
Chloroform	06/12/2023	0.55	0.5	--	UG/L	0.00	J	
Strontium-90	06/12/2023	8.26	0.601	0.643	PCI/L	0.00		
1633 TPFAS	06/23/2023	29.543	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.683	1.61	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	6.18	7.27	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	1.19	1.82	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/23/2023	2.59	1.66	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/23/2023	1.74	1.82	--	NG/L	0.00	J	
Perfluorononanoic acid (PFNA)	06/23/2023	1.73	1.82	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/23/2023	10.4	1.69	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/23/2023	3.73	1.82	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.3	1.82	--	NG/L	0.00	J	

Table 17-6
OU III Strontium-90 BGRR/WCF Effluent Data
'Hits Only' April through June 2023

Site ID : 066-219 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/12/2023	117.36	--	--	UG/L	0.00		
Chloroform	04/12/2023	0.36	0.5	--	UG/L	0.00	J	
cis-1,2-Dichloroethylene	04/12/2023	5	0.5	--	UG/L	0.00		
Ethene, 1,2-dichloro-, (E)-	04/12/2023	112	0.5	--	UG/L	0.00	D	
Strontium-90	04/12/2023	-0.057	0.672	0.335	PCI/L	0.00	U	
8260 TVOC	06/12/2023	1.44	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/12/2023	0.56	0.5	--	UG/L	0.00	J	
Chloroform	06/12/2023	0.46	0.5	--	UG/L	0.00	J	
Ethene, 1,2-dichloro-, (E)-	06/12/2023	0.42	0.5	--	UG/L	0.00	J	
Strontium-90	06/12/2023	0.595	0.667	0.407	PCI/L	0.00	U	
1633 TPFAS	06/23/2023	15.146	--	--	NG/L	0.00		
1,4-Dioxane	06/23/2023	0.2	0.2	--	UG/L	0.00	U	
Perfluorobutanesulfonate (PFBS)	06/23/2023	0.976	1.58	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/23/2023	6.45	7.13	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/23/2023	1	1.78	--	NG/L	0.00	J	
Perfluorohexanoic acid (PFHxA)	06/23/2023	1.91	1.78	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/23/2023	0.94	1.65	--	NG/L	0.00	J	
Perfluorooctanoic acid (PFOA)	06/23/2023	2.43	1.78	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/23/2023	1.44	1.78	--	NG/L	0.00	J	

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

g-2 Source Area & Tritium Plume Monitoring Summary

Background

In November 1999, tritium was detected in the groundwater near the g-2 experiment at concentrations above the 20,000 pCi/L maximum contaminant level (MCL). Sodium-22 was also detected in the groundwater, but at concentrations well below the 400 pCi/L MCL. An investigation into the source of the contamination revealed that the tritium and sodium-22 originated from activated soil shielding located adjacent to the g-2 target building. Rainwater was able to infiltrate the activated soils and carry tritium and sodium-22 into the groundwater. To prevent additional rainwater infiltration into the activated soil shielding, a concrete cap was constructed over the soil shielding in December 1999.

Following the concurrence of the NYSDEC, a Record of Decision (ROD) was signed by the U.S. DOE and U.S. EPA in early 2007. This ROD requires continued routine inspection and maintenance of the impermeable cap, groundwater monitoring of the source area to verify the continued effectiveness of the storm water controls and monitoring the tritium plume until it attenuates to less than the 20,000 pCi/L MCL.

Monitoring Activities

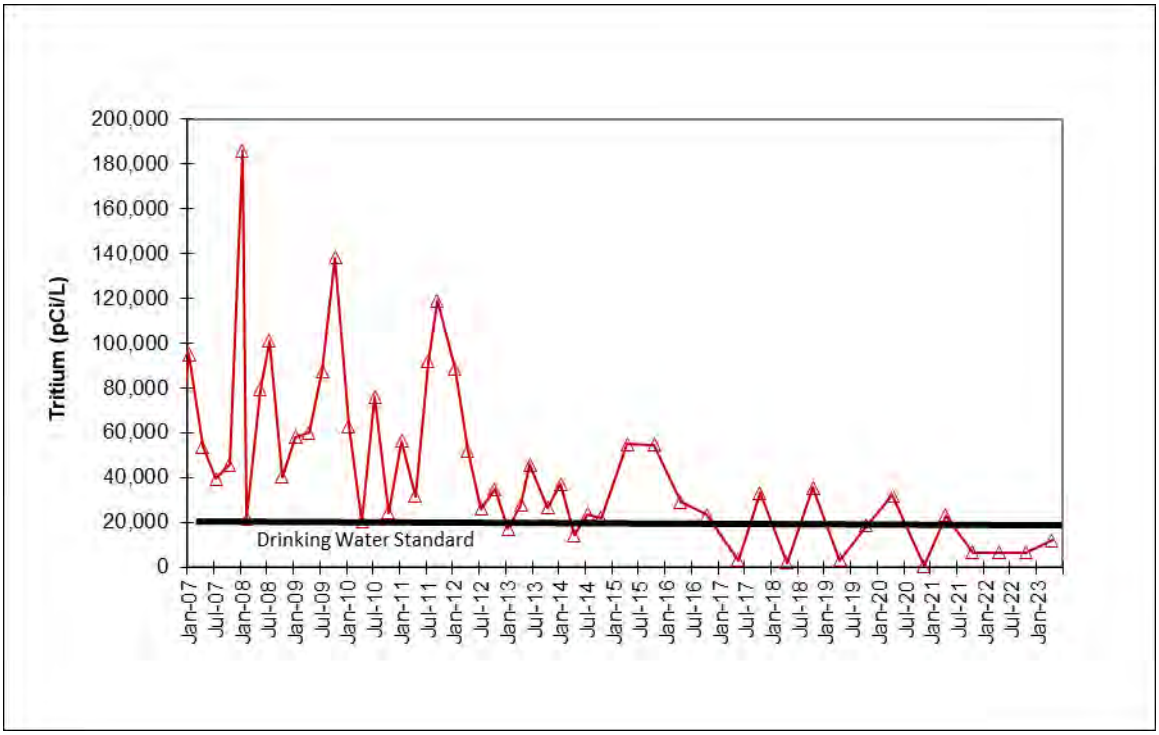
Surveillance of groundwater quality is accomplished using six wells located immediately downgradient of the source area, and 10 wells located further downgradient, southeast of AGS facility Building 912. The monitoring frequency for the six wells located immediately downgradient of the source area wells is semi-annual, with samples collected during the 2nd and 4th quarters of the year. The 10 wells located downgradient of Building 912 are sampled during the 4th quarter.

Source Area Monitoring Results:

During the 2nd Quarter 2023 sampling period, the maximum tritium concentration in source area monitoring wells was 11,900 pCi/L in well 054-07 (Figure 18-1). The overall reductions in tritium concentrations observed in source area monitoring wells indicate that the cap is effectively preventing rainwater infiltration into the activated soil shielding and the amount of residual tritium that is available to be flushed out of the deep vadose zone is decreasing.

g-2 Source Area & Tritium Plume Monitoring Summary

Figure 18-1
Maximum Tritium Concentrations – January 2007 through April 2023



Maximum tritium concentrations observed from January 2007 through April 2023 in groundwater downgradient of the g-2 source area.

Recommendations

- Continue to sample the six monitoring wells directly downgradient of the source area (near Building 912A) semiannually (2nd and 4th Quarters), and the 10 wells located near Building 912 annually (4th Quarter).
- Continue scheduled inspections and perform required maintenance of the g-2 cap.
- Monitoring results will be communicated to the regulatory agencies via quarterly and annual reports.

BLIP Source Area Monitoring Summary

Background

The Brookhaven Linac Isotope Producer (BLIP) is an active accelerator facility located in the central portion of the site. The BLIP facility has been in operation since 1972 and is a national resource for producing the radioisotopes that are crucial in nuclear medicine for both research and clinical use. BLIP also supports BNL's research on diagnostic and therapeutic radiopharmaceuticals.

Beam line operations have resulted in the activation of soils that surround the BLIP target vessel. These activated soils are approximately 30 feet below the BLIP building, in a small zone surrounding the target vessel. In 1998, low levels of tritium were detected in the groundwater near the BLIP facility experiment at concentrations of approximately three times the 20,000 pCi/L MCL. Sodium-22 was also detected in the groundwater, but the levels were less than the 400 pCi/L MCL. Corrective actions were implemented in 1998 to prevent additional rainwater from entering the activated soil. These included repairing and reconfiguring the building's roof gutters and downspouts, resealing the paved areas south of the building, and installing a concrete cap in the remaining areas around the building. In 2000, a colloidal silica grout was injected into the activated soil to further immobilize the tritium and sodium-22, and in 2004 an additional impermeable cap was constructed over the beam line that runs from the Linac to the BLIP facility. During 2015, this cap section was extended in several areas to provide protection of soil shielding that was expected to become activated following a change in beamline operations.

Following the concurrence of the NYSDEC, a Record of Decision (ROD) was signed by the U.S. DOE and U.S. EPA in early 2007. This ROD requires continued routine inspection and maintenance of the impermeable cap and groundwater monitoring to verify the continued effectiveness of the storm water controls.

Monitoring Activities

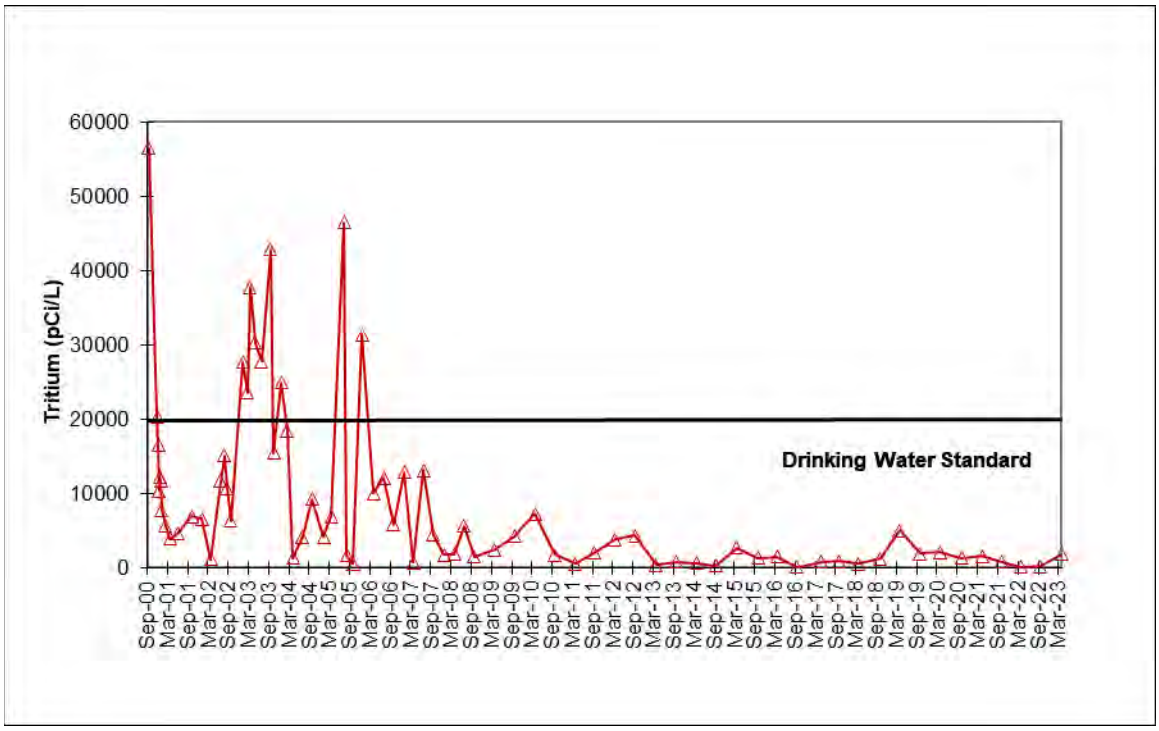
Three groundwater monitoring wells are positioned immediately downgradient of the BLIP facility. The wells are currently monitored on a semi-annual basis (during the 2nd and 4th Quarters).

Monitoring Results

During the 2nd Quarter 2023 sample period, tritium was detected in downgradient well 064-67 at a concentration of 1,890 pCi/L. Since early 2006, tritium concentrations in the groundwater downgradient of BLIP have been continually less than the 20,000 pCi/L MCL (Figure 19-1). The overall reductions in tritium concentrations observed in the source area wells since 2006 indicate that the cap is effectively preventing rainwater infiltration into the activated soil shielding and the amount of residual tritium that is available to be flushed out of the deep vadose zone is decreasing.

BLIP Source Area Monitoring Summary

Figure 19-1
Maximum Tritium Concentrations – September 2000 through April 2023



Maximum tritium concentrations observed from September 2000 through April 2023 in groundwater immediately downgradient of the BLIP Facility.

Recommendations

- Continue monitoring the three wells immediately downgradient of BLIP for tritium on a semiannual basis (2nd and 4th Quarters).
- Continue scheduled inspections and perform required maintenance of the BLIP cap.
- Monitoring results will continue to be communicated to the regulatory agencies via quarterly and annual reports.

OU III Building 452 Freon-11 Pump & Treat System (System Closed)

Process: Groundwater extraction and air stripping treatment, with discharge to a drainage channel leading to Recharge Basin HS.

Goal: Remediation of Freon-11 in the groundwater and reach Maximum Contaminant Levels (MCLs) in core monitoring wells within 30 years for the Upper Glacial aquifer (by 2030). NYSDEC and EPA approved the Petition for Closure in August and September 2019, respectively.

Start Date: March 2012

Table 20-1
Pumping Rate (gpm)

Extraction Well	EW-18
Site Id #	095-316
Screened Interval (feet below grade)	55-65
Desired Flow Rate (GPM)	0*
Actual Flow Rate	0*

* The system was approved for closure in September 2019.

OU III Building 452 Freon-11 Pump & Treat System (System Closed)

Figure 20-1
Cumulative Mass Removal of Trichlorofluoromethane vs. Time

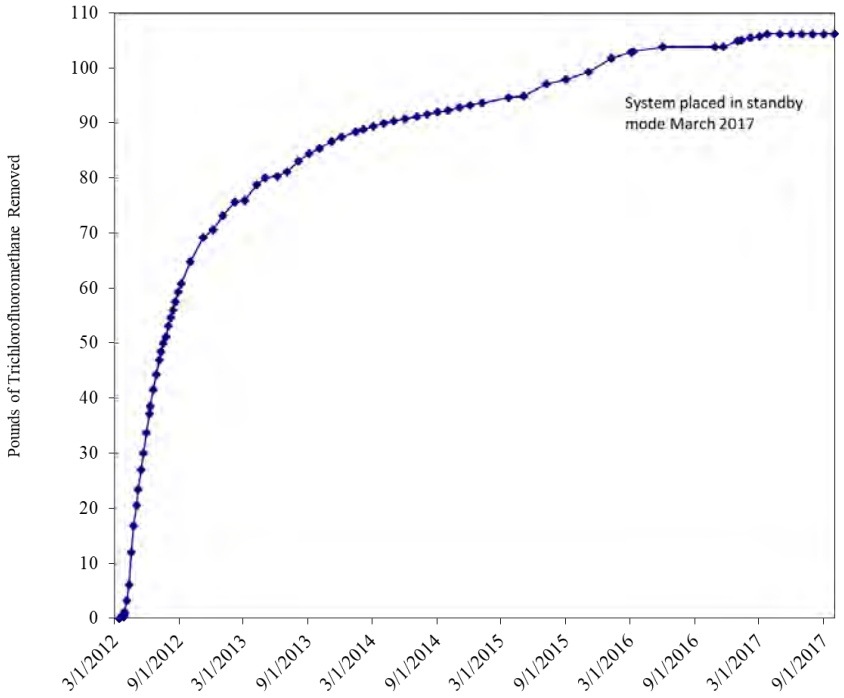
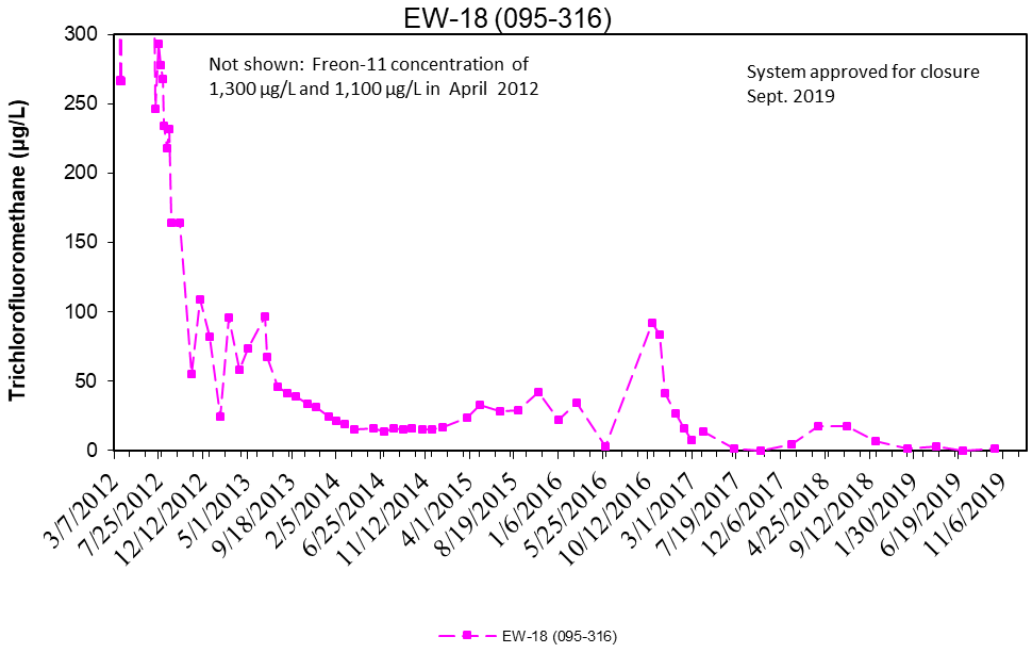


Figure 20-2
Influent Trichlorofluoromethane Concentration vs. Time



OU III Building 452 Freon-11 Pump & Treat System (System Closed)

Table 20-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations (System Closed)

Parameter	Permit Limit	Max. Measured Value	Units	Frequency*
Flow	**120**	**NA**	**GPM**	**Continuous**
pH (range)	**5.0 - 8.5**	**NA**	**SU**	**Weekly**
Benzene	**1.0**	**NA**	**µg/L**	**Monthly**
Bromodichloromethane	**50**	**NA**	**µg/L**	**Monthly**
Carbon Tetrachloride	**5.0**	**NA**	**µg/L**	**Monthly**
Chloroform	**7.0**	**NA**	**µg/L**	**Monthly**
Dichlorodifluoromethane	**5.0**	**NA**	**µg/L**	**Monthly**
1,1-Dichloroethylene	**5.0**	**NA**	**µg/L**	**Monthly**
4-Isopropyltoluene	**5.0**	**NA**	**µg/L**	**Monthly**
Methyl Chloride	**5.0**	**NA**	**µg/L**	**Monthly**
Methylene Chloride	**5.0**	**NA**	**µg/L**	**Monthly**
Tetrachloroethylene	**5.0**	**NA**	**µg/L**	**Monthly**
Toluene	**5.0**	**NA**	**µg/L**	**Monthly**
1,2,3-Trichlorobenzene	**5.0**	**NA**	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5.0**	**NA**	**µg/L**	**Monthly**
Trichlorofluoromethane	**5.0**	**NA**	**µg/L**	**Monthly**
1,2,4-Trimethylbenzene	**5.0**	**NA**	**µg/L**	**Monthly**
Xylene (meta + para)	**10.0**	**NA**	**µg/L**	**Monthly**

NA = Not applicable. The system is closed.

OU III Building 452 Freon-11 Pump & Treat System (System Closed)

Monitoring Activities

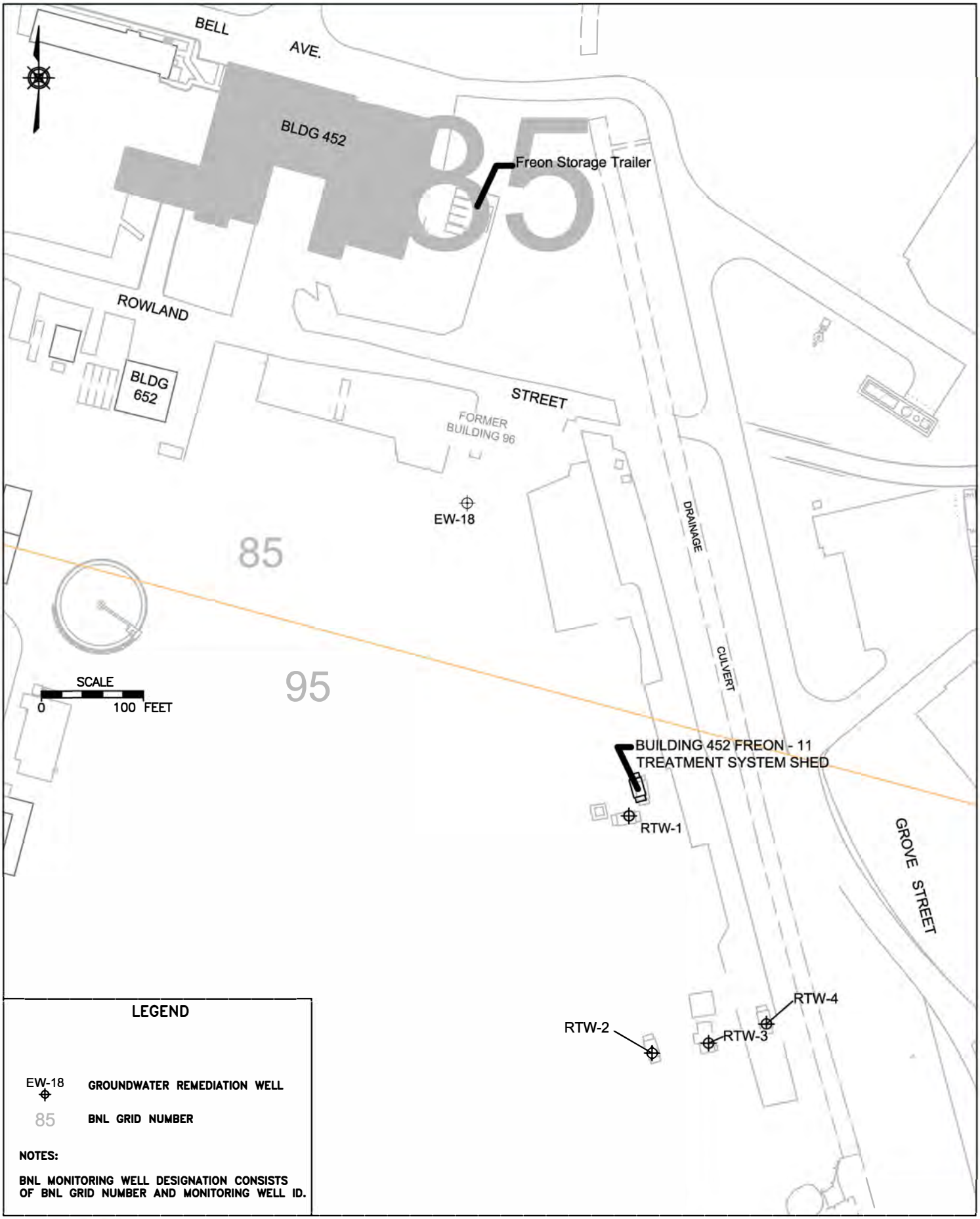
Monitoring was discontinued following the approval from regulators to close the treatment system. The former extraction well EW-18 and treatment building are shown on **Figure 20-3.**

System Operations

Treatment of the former Freon-11 plume is complete. The air stripping treatment system is being used to treat groundwater from the Building 96 extraction well RTW-1.

Planned Operational Changes

- Postpone decisions to abandon extraction well EW-18 and the remaining monitoring wells until PFAS has been fully characterized and a determination is made on their utilization related to emerging contaminants.



LEGEND

EW-18 — GROUNDWATER REMEDIATION WELL

85 — BNL GRID NUMBER

NOTES:

BNL MONITORING WELL DESIGNATION CONSISTS OF BNL GRID NUMBER AND MONITORING WELL ID.

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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

BUILDING 452 AREA FREON-11 MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	08/24/12	
CHKD:	APPD:	REV.:	NOTES:
LDS	--	01/06/23	--

FIGURE NO.: 20-3

OU X Current Firehouse/Building 170 PFAS Pump & Treat System

Process: Groundwater extraction with liquid phase granular activated carbon (GAC) treatment for per- and polyfluoroalkyl substances (PFAS), with discharge to recharge basins.

Goal: Final cleanup goals will be determined following the completion of the forthcoming Remedial Investigation/Feasibility Study and documented in the future OU X Record of Decision (ROD).

Start Date: October 2022

Table 21-1
Pumping Rates (gpm)

Extraction Well	RW-A	RW-B	RW-C	RW-D	RW-E	RW-F	RW-G	RW-H	RW-I
Site Id #	073-34	073-35	083-45	083-46	084-102	102-32	102-33	102-34	102-35
Screen Interval (ft bls)	48-68	54-74	117-137	70-90	132-152	121-141	88-108	98-118	70-90
`Desired Flow Rate (gpm)	**50**	**50**	**60**	**30**	**60**	**50**	**50**	**40**	**90**
April (Avg gpm)	44	45	1	34	71	1	56	46	92
May " "	40	41	12	30	62	21	48	49	85
June " "	42	43	14	32	66	0	50	53	91
Actual (Avg. over Qtr.)	**42**	**43**	**9**	**32**	**66**	**7**	**51**	**49**	**89**

OU X Current Firehouse/Building 170 PFAS Pump & Treat System

Figure 21-1
Cumulative Pounds of PFAS Removed

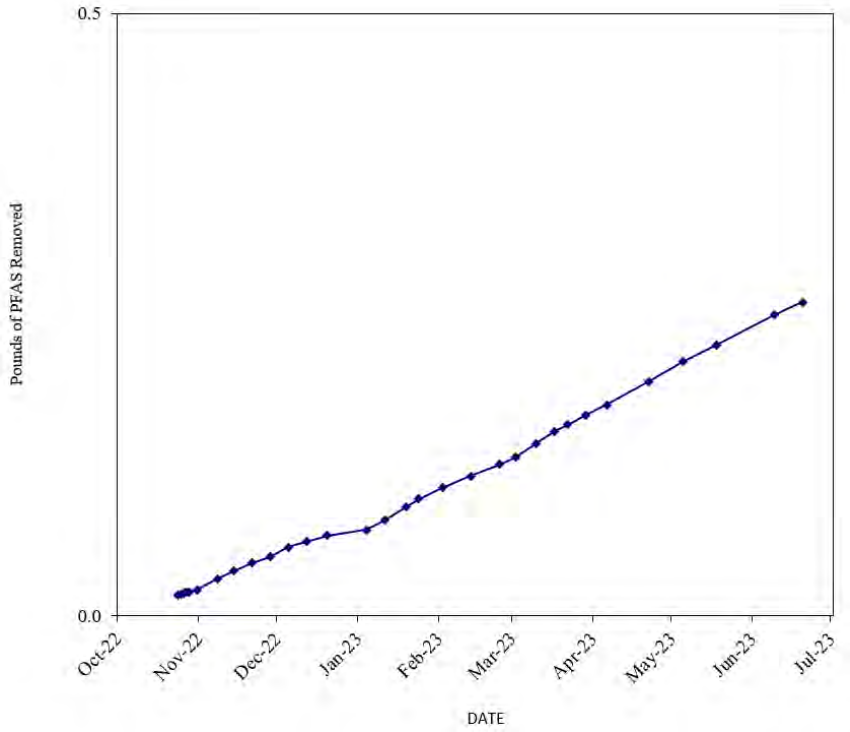
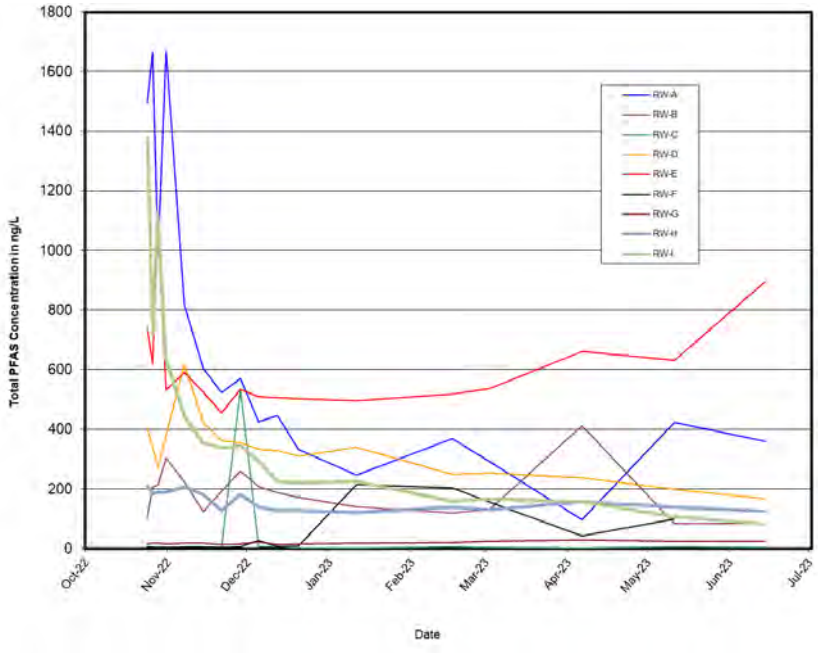


Figure 21-2
Extraction Well Total PFAS Concentration vs. Time



OU X Current Firehouse/Building 170 PFAS Pump & Treat System

Table 21-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**1000**	**390**	**GPM**	**Continuous**
pH (range)	**5.0 – 8.5**	**5.9– 6.4***	**SU**	**Monthly**
Carbon Tetrachloride	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Perfluoroocanesulfonic acid (PFOS)	**2.7**	**<1.76**	**ng/L**	**Monthly[1]**
Perfluorooctanoic acid (PFOA)	**6.7**	**<1.76**	**ng/L**	**Monthly[1]**
1,4-Dioxane	**0.35**	**0.22**	**µg/L**	**Monthly[1]**
Chloroform	**7.0**	**<0.5**	**µg/L**	**Monthly[1]**
Methyl Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**
Methylene Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**

[1] The minimum measurement frequency shall be monthly following a period of 8 consecutive weekly sampling events showing no exceedances of the stated discharge limitations. This was achieved in March 2023 and monthly sampling started in April 2023.
* Minimum to maximum value for pH during this operational period.
< = The analyte was not detected above the Method Detection Limit.

Monitoring Activities

The Current Firehouse/Building 170 monitoring well data show the highest total PFAS concentration (2,905.4 ng/L) in monitoring well 093-94, immediately downgradient of the Building 170 former training area. The highest total PFAS concentration recorded at the Current Firehouse was 2,896.3 ng/L in monitoring well 073-31. The Current Firehouse/Building 170 monitoring well network is shown on **Figure 21-3**. The 'Hits Only' second quarter 2023 data are summarized in **Table 21-3**.

OU X Current Firehouse/Building 170 PFAS Pump & Treat System

System Operations

April 2023:

Extraction well CF-RW-H was off from April 13 through 17 to change the depth of the pump setting in this well. Extraction well CF-RW-C was shut off for development on April 20 and CF-RW-F was kept off due to fouling issues with the GAC vessels. The remaining extraction wells ran normally for the remainder of the month. The system treated approximately 16.8 million gallons of water.

May 2023:

Extraction well CF-RW-F was restarted on May 10 following a backwash of the GAC vessels. Well CF-RW-C was restarted on May 22 after completion of development activities. The system was backwashed again on May 24 with all wells operating except CF-RW-F. The system treated approximately 16.8 million gallons of water.

June 2023:

Extraction well CF-RW-F was left off for the month due to fouling issues with the system. Well CF-RW-C ran from June 1 to June 7 and was subsequently turned off also due to fouling issues. Both extraction wells CF-RW-C and CF-RW-F have low concentrations of PFAS compounds. The remainder of the wells ran normally for the month. The system treated approximately 16.9 million gallons of water.

The system treated approximately 50.5 million gallons of water during the second quarter of 2023. The treatment system 'Hits Only' data, including individual extraction wells, influent, and effluent is summarized in **Table 21-4** through **Table 21-6**.

Planned Operational Changes

- Maintain full time operation of the treatment system.
- Discontinue monthly sampling for VOCs using EPA Method 8260LL on extraction wells CF-RW-A through CF-RW-I.
- Starting in August 2023, the analytical method for treatment system PFAS was transitioned from EPA Method 537.1 to EPA Method 1633.

LEGEND

29 — NEW MONITORING WELL ID

02 — EXISTING MONITORING WELL & PERMANENT MONITORING WELLS FOR WILLIAM FLOYD WELL FIELD

BNL-4 — POTABLE SUPPLY WELL (PRESENTLY INACTIVE)

GENERAL GROUNDWATER FLOW DIRECTION

SUSPECTED FOAM RELEASE AREA

NOTE:
PFAS RESULTS BASED ON METHOD 537.1

Water Treatment Plant Recharge Basins
Training Area
Current Fire House
CF-RW-A
CF-RW-B
CF-RW-C
CF-RW-D
CF-RW-E
CF-RW-F
CF-RW-G
CF-RW-H
CF-RW-I
BNL Paint Shop
Training Areas
Bldg. 170
BNL-7
BNL-6
Stormwater Discharge Area
Recreation Center Area
Suffolk County Water Authority
William Floyd Well Field
Well 1
Well 2
Well 3A
000-42
000-43
000-44
Upton Road
Cornell Avenue
West Brookhaven Avenue
Woods Road
Mitchell Lane
Bell Avenue
Columbia Street
Johns Hopkins
West Princeton Ave.
East Princeton Ave.
Yale Road
Yule Lane
York Lane
Carver Court
Aston
Yaphank
Mendel Lane
William Floyd Parkway
72
73
74
82
83
84
92
93
94
101
102
103
109
110
111
117
118
119
123

SCALE
0 400 800 FEET

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Brookhaven National Laboratory
ENVIRONMENTAL PROTECTION DIVISION

TITLE:
CURRENT FIREHOUSE AND BUILDING 170 MONITORING WELL NETWORK
SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	05/19/23	–
CHKD:	APPD:	REV.:	NOTES:
LDS		08/17/23	–

FIGURE NO.: 21–3

Table 21-3
Current Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 073-26

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/08/2023	1225.383	--	--	NG/L	42.50		
Perfluorobutanesulfonate (PFBS)	06/08/2023	2.34	1.63	--	NG/L	42.50		
Perfluorobutyric acid (PFBA)	06/08/2023	2.96	7.34	--	NG/L	42.50	J	
Perfluoroheptanesulfonate (PFHpS)	06/08/2023	7.58	1.75	--	NG/L	42.50		
Perfluoroheptanoic acid (PFHpA)	06/08/2023	3.64	1.83	--	NG/L	42.50		
Perfluorohexanesulfonate (PFHxS)	06/08/2023	142	1.68	--	NG/L	42.50		
Perfluorohexanoic acid (PFHxA)	06/08/2023	7.48	1.83	--	NG/L	42.50		
Perfluorononanoic acid (PFNA)	06/08/2023	2.26	1.83	--	NG/L	42.50		
Perfluorooctane sulfonamide (PFOSAm)	06/08/2023	0.803	1.83	--	NG/L	42.50	J	
Perfluorooctanesulfonate (PFOS)	06/08/2023	1020	17	--	NG/L	42.50	D	
Perfluorooctanoic acid (PFOA)	06/08/2023	9.63	1.83	--	NG/L	42.50		
Perfluoropentanesulfonate (PFPeS)	06/08/2023	5.02	1.73	--	NG/L	42.50		
Perfluoropentanoic acid (PFPeA)	06/08/2023	4.23	1.83	--	NG/L	42.50		
Perfluorotridecanoic acid (PFTrDA)	06/08/2023	0.74	1.83	--	NG/L	42.50	J	
Perfluoroundecanoic acid (PFUdA)	06/08/2023	16.7	1.83	--	NG/L	42.50		

Site ID : 073-27

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/08/2023	792.22	--	--	NG/L	42.50		
Perfluorobutanesulfonate (PFBS)	06/08/2023	11.9	1.54	--	NG/L	42.50		
Perfluorobutyric acid (PFBA)	06/08/2023	8.66	6.95	--	NG/L	42.50		
Perfluoroheptanesulfonate (PFHpS)	06/08/2023	4.02	1.66	--	NG/L	42.50		
Perfluoroheptanoic acid (PFHpA)	06/08/2023	5.94	1.74	--	NG/L	42.50		
Perfluorohexanesulfonate (PFHxS)	06/08/2023	206	7.94	--	NG/L	42.50	D	
Perfluorohexanoic acid (PFHxA)	06/08/2023	82.5	1.74	--	NG/L	42.50		
Perfluorooctanesulfonate (PFOS)	06/08/2023	412	8.06	--	NG/L	42.50	D	
Perfluorooctanoic acid (PFOA)	06/08/2023	12.6	1.74	--	NG/L	42.50		
Perfluoropentanesulfonate (PFPeS)	06/08/2023	36.2	1.64	--	NG/L	42.50		
Perfluoropentanoic acid (PFPeA)	06/08/2023	12.4	1.74	--	NG/L	42.50		

Site ID : 073-28

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/08/2023	1423.9	--	--	NG/L	42.50		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	06/08/2023	9.3	7.2	--	NG/L	42.50		
Perfluorobutanesulfonate (PFBS)	06/08/2023	21.1	1.68	--	NG/L	42.50		

Table 21-3
Current Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 073-28

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorobutyric acid (PFBA)	06/08/2023	10.9	7.57	--	NG/L	42.50		
Perfluoroheptanesulfonate (PFHpS)	06/08/2023	12.5	1.8	--	NG/L	42.50		
Perfluoroheptanoic acid (PFHpA)	06/08/2023	26.4	1.89	--	NG/L	42.50		
Perfluorohexanesulfonate (PFHxS)	06/08/2023	353	8.65	--	NG/L	42.50	D	
Perfluorohexanoic acid (PFHxA)	06/08/2023	86.4	1.89	--	NG/L	42.50		
Perfluorooctanesulfonate (PFOS)	06/08/2023	761	8.79	--	NG/L	42.50	D	
Perfluorooctanoic acid (PFOA)	06/08/2023	27.5	1.89	--	NG/L	42.50		
Perfluoropentanesulfonate (PFPeS)	06/08/2023	61.1	1.78	--	NG/L	42.50		
Perfluoropentanoic acid (PFPeA)	06/08/2023	54.7	1.89	--	NG/L	42.50		

Site ID : 073-29

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/09/2023	2.771	--	--	NG/L	42.50		
Perfluorohexanesulfonate (PFHxS)	06/09/2023	0.974	1.54	--	NG/L	42.50	J	
Perfluorohexanoic acid (PFHxA)	06/09/2023	0.697	1.69	--	NG/L	42.50	J	
Perfluoropentanoic acid (PFPeA)	06/09/2023	1.1	1.69	--	NG/L	42.50	J	

Site ID : 073-30

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/08/2023	244.695	--	--	NG/L	42.50		
Perfluorobutanesulfonate (PFBS)	06/08/2023	2.1	1.55	--	NG/L	42.50		
Perfluorobutyric acid (PFBA)	06/08/2023	3.36	7	--	NG/L	42.50	J	
Perfluorodecanoic acid (PFDA)	06/08/2023	0.94	1.75	--	NG/L	42.50	J	
Perfluoroheptanesulfonate (PFHpS)	06/08/2023	6.58	1.67	--	NG/L	42.50		
Perfluoroheptanoic acid (PFHpA)	06/08/2023	1.34	1.75	--	NG/L	42.50	J	
Perfluorohexanesulfonate (PFHxS)	06/08/2023	16.9	1.6	--	NG/L	42.50		
Perfluorohexanoic acid (PFHxA)	06/08/2023	3.25	1.75	--	NG/L	42.50		
Perfluorooctanesulfonate (PFOS)	06/08/2023	202	1.62	--	NG/L	42.50		
Perfluorooctanoic acid (PFOA)	06/08/2023	5.25	1.75	--	NG/L	42.50		
Perfluoropentanesulfonate (PFPeS)	06/08/2023	0.665	1.65	--	NG/L	42.50	J	
Perfluoropentanoic acid (PFPeA)	06/08/2023	2.31	1.75	--	NG/L	42.50		

Site ID : 073-31

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	2896.302	--	--	NG/L	42.50		
1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	06/07/2023	3.75	6.9	--	NG/L	42.50	J	

Table 21-3
Current Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 073-31

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Fluorotelomer sulfonate 6:2 (6:2 FTS)	06/07/2023	10.7	6.82	--	NG/L	42.50		
Perfluorobutanesulfonate (PFBS)	06/07/2023	34.9	1.59	--	NG/L	42.50		
Perfluorobutyric acid (PFBA)	06/07/2023	27.2	7.18	--	NG/L	42.50		
Perfluorodecanoic acid (PFDA)	06/07/2023	1.43	1.8	--	NG/L	42.50	J	
Perfluorododecane sulfonic acid (PFDoS)	06/07/2023	0.882	1.74	--	NG/L	42.50	J	
Perfluoroheptanesulfonate (PFHpS)	06/07/2023	30.3	1.71	--	NG/L	42.50		
Perfluoroheptanoic acid (PFHpA)	06/07/2023	52	1.8	--	NG/L	42.50		
Perfluorohexanesulfonate (PFHxS)	06/07/2023	1070	16.4	--	NG/L	42.50	D	
Perfluorohexanoic acid (PFHxA)	06/07/2023	133	1.8	--	NG/L	42.50		
Perfluorononanesulfonate (PFNS)	06/07/2023	1.02	1.73	--	NG/L	42.50	J	
Perfluorononanoic acid (PFNA)	06/07/2023	2.71	1.8	--	NG/L	42.50		
Perfluorooctane sulfonamide (PFOSAm)	06/07/2023	9.41	1.8	--	NG/L	42.50		
Perfluorooctanesulfonate (PFOS)	06/07/2023	1220	16.7	--	NG/L	42.50	D	
Perfluorooctanoic acid (PFOA)	06/07/2023	48	1.8	--	NG/L	42.50		
Perfluoropentanesulfonate (PFPeS)	06/07/2023	141	1.69	--	NG/L	42.50		
Perfluoropentanoic acid (PFPeA)	06/07/2023	110	1.8	--	NG/L	42.50		

Site ID : 073-32

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	60.181	--	--	NG/L	60.00		
Perfluorobutanesulfonate (PFBS)	06/07/2023	0.689	1.6	--	NG/L	60.00	J	
Perfluorohexanesulfonate (PFHxS)	06/07/2023	11.2	1.65	--	NG/L	60.00		
Perfluorohexanoic acid (PFHxA)	06/07/2023	1.83	1.8	--	NG/L	60.00		
Perfluorooctane sulfonamide (PFOSAm)	06/07/2023	1.99	1.8	--	NG/L	60.00		
Perfluorooctanesulfonate (PFOS)	06/07/2023	41.4	1.67	--	NG/L	60.00		
Perfluorooctanoic acid (PFOA)	06/07/2023	1.15	1.8	--	NG/L	60.00	J	
Perfluoropentanesulfonate (PFPeS)	06/07/2023	0.772	1.7	--	NG/L	60.00	J	
Perfluoropentanoic acid (PFPeA)	06/07/2023	1.15	1.8	--	NG/L	60.00	J	

Site ID : 073-33

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/08/2023	550.2	--	--	NG/L	42.50		
Perfluorobutanesulfonate (PFBS)	06/08/2023	10	1.62	--	NG/L	42.50		
Perfluorobutyric acid (PFBA)	06/08/2023	3.93	7.3	--	NG/L	42.50	J	
Perfluoroheptanesulfonate (PFHpS)	06/08/2023	1.16	1.74	--	NG/L	42.50	J	

Table 21-3
Current Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 073-33

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluoroheptanoic acid (PFHpA)	06/08/2023	1.26	1.83	--	NG/L	42.50	J	
Perfluorohexanesulfonate (PFHxS)	06/08/2023	38	1.67	--	NG/L	42.50		
Perfluorohexanoic acid (PFHxA)	06/08/2023	5.41	1.83	--	NG/L	42.50		
Perfluorooctanesulfonate (PFOS)	06/08/2023	475	8.47	--	NG/L	42.50	D	
Perfluorooctanoic acid (PFOA)	06/08/2023	1.99	1.83	--	NG/L	42.50		
Perfluoropentanesulfonate (PFPeS)	06/08/2023	7.16	1.72	--	NG/L	42.50		
Perfluoropentanoic acid (PFPeA)	06/08/2023	6.29	1.83	--	NG/L	42.50		

Site ID : 074-135

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	56.59	--	--	NG/L	60.00		
Perfluorobutanesulfonate (PFBS)	06/07/2023	1.94	1.56	--	NG/L	60.00		
Perfluorobutyric acid (PFBA)	06/07/2023	3.03	7.02	--	NG/L	60.00	J	
Perfluoroheptanoic acid (PFHpA)	06/07/2023	2.18	1.75	--	NG/L	60.00		
Perfluorohexanesulfonate (PFHxS)	06/07/2023	12.4	1.6	--	NG/L	60.00		
Perfluorohexanoic acid (PFHxA)	06/07/2023	7.79	1.75	--	NG/L	60.00		
Perfluorooctanesulfonate (PFOS)	06/07/2023	16.5	1.63	--	NG/L	60.00		
Perfluorooctanoic acid (PFOA)	06/07/2023	3.47	1.75	--	NG/L	60.00		
Perfluoropentanesulfonate (PFPeS)	06/07/2023	1.72	1.65	--	NG/L	60.00		
Perfluoropentanoic acid (PFPeA)	06/07/2023	7.56	1.75	--	NG/L	60.00		

Site ID : 093-04

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	2718.8	--	--	NG/L	49.50		
Perfluorobutanesulfonate (PFBS)	06/07/2023	35	8.87	--	NG/L	49.50		
Perfluoroheptanesulfonate (PFHpS)	06/07/2023	37.8	9.53	--	NG/L	49.50		
Perfluoroheptanoic acid (PFHpA)	06/07/2023	15.5	10	--	NG/L	49.50		
Perfluorohexanesulfonate (PFHxS)	06/07/2023	468	9.14	--	NG/L	49.50		
Perfluorohexanoic acid (PFHxA)	06/07/2023	43.1	10	--	NG/L	49.50		
Perfluorononanoic acid (PFNA)	06/07/2023	4.4	10	--	NG/L	49.50	J	
Perfluorooctanesulfonate (PFOS)	06/07/2023	2020	46.4	--	NG/L	49.50	D	
Perfluorooctanoic acid (PFOA)	06/07/2023	39.7	10	--	NG/L	49.50		
Perfluoropentanesulfonate (PFPeS)	06/07/2023	37.9	9.41	--	NG/L	49.50		
Perfluoropentanoic acid (PFPeA)	06/07/2023	17.4	10	--	NG/L	49.50		

Site ID : 093-93

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	8.55	--	--	NG/L	60.00		

Table 21-3
Current Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 093-93

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanesulfonate (PFHxS)	06/07/2023	1.38	1.62	--	NG/L	60.00	J	
Perfluorooctanesulfonate (PFOS)	06/07/2023	7.17	1.64	--	NG/L	60.00		

Site ID : 093-94

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	2905.35	--	--	NG/L	50.00		
Perfluorobutanesulfonate (PFBS)	06/07/2023	21.7	1.62	--	NG/L	50.00		
Perfluoroheptanesulfonate (PFHpS)	06/07/2023	38.1	1.74	--	NG/L	50.00		
Perfluoroheptanoic acid (PFHpA)	06/07/2023	5.05	1.83	--	NG/L	50.00		
Perfluorohexanesulfonate (PFHxS)	06/07/2023	559	8.36	--	NG/L	50.00	D	
Perfluorohexanoic acid (PFHxA)	06/07/2023	21.3	1.83	--	NG/L	50.00		
Perfluorooctanesulfonate (PFOS)	06/07/2023	2160	25.5	--	NG/L	50.00	D	
Perfluorooctanoic acid (PFOA)	06/07/2023	47.1	1.83	--	NG/L	50.00		
Perfluoropentanesulfonate (PFPeS)	06/07/2023	48	1.72	--	NG/L	50.00		
Perfluoropentanoic acid (PFPeA)	06/07/2023	5.1	1.83	--	NG/L	50.00		

Site ID : 093-95

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/07/2023	99.363	--	--	NG/L	65.00		
Perfluoroheptanesulfonate (PFHpS)	06/07/2023	0.658	1.76	--	NG/L	65.00	J	
Perfluorohexanesulfonate (PFHxS)	06/07/2023	10.5	1.68	--	NG/L	65.00		
Perfluorohexanoic acid (PFHxA)	06/07/2023	1.74	1.84	--	NG/L	65.00	J	
Perfluorooctanesulfonate (PFOS)	06/07/2023	83.4	1.71	--	NG/L	65.00		
Perfluorooctanoic acid (PFOA)	06/07/2023	1.21	1.84	--	NG/L	65.00	J	
Perfluoropentanesulfonate (PFPeS)	06/07/2023	0.805	1.73	--	NG/L	65.00	J	
Perfluoropentanoic acid (PFPeA)	06/07/2023	1.05	1.84	--	NG/L	65.00	J	

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 073-34 (CF-RW-A)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	97.755	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	1.4	--	--	UG/L	0.00		
Chloroform	04/06/2023	1.4	0.5	--	UG/L	0.00		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	04/06/2023	7.76	3.49	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/06/2023	7.76	1.67	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	1.41	1.83	--	NG/L	0.00	J	
Perfluorononanoic acid (PFNA)	04/06/2023	2.34	1.83	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/06/2023	76.5	1.83	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/06/2023	1.09	1.83	--	NG/L	0.00	J	
Perfluorotridecanoic acid (PFTrDA)	04/06/2023	0.895	1.83	--	NG/L	0.00	J	
537 TPFAS	05/11/2023	422.895	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	1.7	--	--	UG/L	0.00		
1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	05/11/2023	1.23	3.54	--	NG/L	0.00	J	
Chloroform	05/11/2023	1.7	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/11/2023	6.18	1.64	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/11/2023	3.06	3.69	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/11/2023	7.14	1.84	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/11/2023	2.61	1.75	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/11/2023	7.57	1.84	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/11/2023	83.6	1.68	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	20.6	1.84	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/11/2023	0.724	1.84	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	05/11/2023	0.951	1.84	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	05/11/2023	255	9.22	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	05/11/2023	8.13	1.84	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/11/2023	8.1	1.73	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/11/2023	18	1.84	--	NG/L	0.00		
537 TPFAS	06/14/2023	359.07	--	--	NG/L	0.00		
8260 TVOC	06/14/2023	1.1	--	--	UG/L	0.00		
Chloroform	06/14/2023	1.1	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/14/2023	6.98	1.58	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/14/2023	3	3.56	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/14/2023	6.45	1.78	--	NG/L	0.00		

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 073-34 (CF-RW-A)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluoroheptanesulfonate (PFHpS)	06/14/2023	2.82	1.69	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/14/2023	6.81	1.78	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/14/2023	84.4	1.62	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/14/2023	18.3	1.78	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/14/2023	0.754	1.78	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/14/2023	0.696	1.78	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/14/2023	195	8.89	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	06/14/2023	6.71	1.78	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/14/2023	8.75	1.67	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/14/2023	18.4	1.78	--	NG/L	0.00		

Site ID : 073-35 (CF-RW-B)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	411.11	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0.32	--	--	UG/L	0.00		
Chloroform	04/06/2023	0.32	0.5	--	UG/L	0.00	J	
Fluorotelomer sulfonate 6:2 (6:2 FTS)	04/06/2023	2.5	3.4	--	NG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/06/2023	7.07	1.59	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/06/2023	2.85	3.58	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/06/2023	6.06	1.79	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/06/2023	2.75	1.7	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/06/2023	8.02	1.79	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/06/2023	91.2	1.63	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	24.5	1.79	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/06/2023	1.15	1.79	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	04/06/2023	0.9	1.79	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	04/06/2023	227	8.94	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	04/06/2023	6.81	1.79	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	10.6	1.68	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/06/2023	19.7	1.79	--	NG/L	0.00		
537 TPFAS	05/11/2023	84.197	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	0.43	--	--	UG/L	0.00		
Chloroform	05/11/2023	0.43	0.5	--	UG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/11/2023	0.849	1.94	--	NG/L	0.00	J	

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 073-35 (CF-RW-B)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanesulfonate (PFHxS)	05/11/2023	6.82	1.77	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	1.13	1.94	--	NG/L	0.00	J	
Perfluorononanoic acid (PFNA)	05/11/2023	2.07	1.94	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/11/2023	71.5	1.94	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/11/2023	0.984	1.94	--	NG/L	0.00	J	
Perfluorotridecanoic acid (PFTrDA)	05/11/2023	0.844	1.94	--	NG/L	0.00	J	
537 TPFAS	06/14/2023	84.197	--	--	NG/L	0.00		
8260 TVOC	06/14/2023	0.3	--	--	UG/L	0.00		
Chloroform	06/14/2023	0.3	0.5	--	UG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/14/2023	0.724	1.71	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/14/2023	7.6	1.55	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/14/2023	1.28	1.71	--	NG/L	0.00	J	
Perfluorononanoic acid (PFNA)	06/14/2023	1.77	1.71	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/14/2023	71.1	1.71	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/14/2023	1.12	1.71	--	NG/L	0.00	J	
Perfluorotridecanoic acid (PFTrDA)	06/14/2023	0.603	1.71	--	NG/L	0.00	J	

Site ID : 083-45 (CF-RW-C)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	1.52	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0.25	--	--	UG/L	0.00		
1,4-Dioxane	04/06/2023	0.43	0.21	--	UG/L	0.00		
Chloroform	04/06/2023	0.25	0.5	--	UG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	04/06/2023	1.52	1.85	--	NG/L	0.00	J	
1,4-Dioxane	04/12/2023	0.51	0.2	--	UG/L	0.00		
537 TPFAS	05/22/2023	5.356	--	--	NG/L	0.00		
8260 TVOC	05/22/2023	0.4	--	--	UG/L	0.00		
1,1-Dichloroethane	05/22/2023	0.23	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	05/22/2023	0.17	0.5	--	UG/L	0.00	J	
1,4-Dioxane	05/22/2023	0.87	0.2	--	UG/L	0.00	B	
Perfluorobutyric acid (PFBA)	05/22/2023	0.692	1.72	--	NG/L	0.00	J	
Perfluorohexanoic acid (PFHxA)	05/22/2023	0.694	1.72	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	05/22/2023	2.76	1.72	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/22/2023	1.21	1.72	--	NG/L	0.00	J	

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 083-45 (CF-RW-C)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	06/14/2023	3.307	--	--	NG/L	0.00		
8260 TVOC	06/14/2023	0.42	--	--	UG/L	0.00		
1,1-Dichloroethane	06/14/2023	0.24	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	06/14/2023	0.18	0.5	--	UG/L	0.00	J	
1,4-Dioxane	06/14/2023	1	0.2	--	UG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/14/2023	0.847	1.77	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/14/2023	2.46	1.94	--	NG/L	0.00		

Site ID : 083-46 (CF-RW-D)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	237.002	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0.23	--	--	UG/L	0.00		
Chloroform	04/06/2023	0.23	0.5	--	UG/L	0.00	J	
Fluorotelomer sulfonate 6:2 (6:2 FTS)	04/06/2023	3.46	3.29	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/06/2023	0.924	1.54	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/06/2023	1.43	1.73	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	04/06/2023	1.49	1.65	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	04/06/2023	1.6	1.73	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	04/06/2023	27.8	1.58	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	3.72	1.73	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/06/2023	3.28	1.73	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/06/2023	188	8.66	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	04/06/2023	2.83	1.73	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	0.858	1.63	--	NG/L	0.00	J	
Perfluoropentanoic acid (PFPeA)	04/06/2023	1.61	1.73	--	NG/L	0.00	J	
537 TPFAS	05/11/2023	198.794	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	0.31	--	--	UG/L	0.00		
Chloroform	05/11/2023	0.31	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/11/2023	0.707	1.51	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/11/2023	1.2	1.7	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	05/11/2023	0.797	1.62	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	05/11/2023	1.01	1.7	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	05/11/2023	18.9	1.55	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	2.66	1.7	--	NG/L	0.00		

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 083-46 (CF-RW-D)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorononanoic acid (PFNA)	05/11/2023	2.42	1.7	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/11/2023	168	1.7	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/11/2023	1.96	1.7	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/11/2023	1.14	1.7	--	NG/L	0.00	J	
537 TPFAS	06/15/2023	167.246	--	--	NG/L	0.00		
8260 TVOC	06/15/2023	0.22	--	--	UG/L	0.00		
Chloroform	06/15/2023	0.22	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/15/2023	0.674	1.53	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/15/2023	1.61	1.72	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/15/2023	0.715	1.63	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/15/2023	0.659	1.72	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/15/2023	17.8	1.56	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/15/2023	2.01	1.72	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/15/2023	1.62	1.72	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/15/2023	139	1.72	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/15/2023	1.6	1.72	--	NG/L	0.00	J	
Perfluoropentanesulfonate (PFPeS)	06/15/2023	0.593	1.62	--	NG/L	0.00	J	
Perfluoropentanoic acid (PFPeA)	06/15/2023	0.965	1.72	--	NG/L	0.00	J	

Site ID : 084-102 (CF-RW-E)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	662.24	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	1	--	--	UG/L	0.00		
1,4-Dioxane	04/06/2023	0.23	0.2	--	UG/L	0.00		
Chloroform	04/06/2023	1	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/06/2023	6.51	1.6	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/06/2023	5.57	3.59	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	04/06/2023	3.76	1.8	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/06/2023	5.9	1.71	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/06/2023	5.01	1.8	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/06/2023	143	1.63	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	19.3	1.8	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/06/2023	64	1.8	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	04/06/2023	1.54	1.8	--	NG/L	0.00	J	

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 084-102 (CF-RW-E)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorooctanesulfonate (PFOS)	04/06/2023	361	8.98	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	04/06/2023	25.2	1.8	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	12	1.69	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/06/2023	9.45	1.8	--	NG/L	0.00		
1,4-Dioxane	04/12/2023	0.27	0.2	--	UG/L	0.00		
1,4-Dioxane	04/22/2023	0.27	0.2	--	UG/L	0.00		
537 TPFAS	05/11/2023	632.35	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	1.3	--	--	UG/L	0.00		
1,4-Dioxane	05/11/2023	0.3	0.2	--	UG/L	0.00		
Chloroform	05/11/2023	1.3	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/11/2023	5.89	1.58	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/11/2023	4.69	3.56	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	05/11/2023	4.12	1.78	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/11/2023	6.1	1.69	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/11/2023	4.93	1.78	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/11/2023	145	1.62	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	17.1	1.78	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/11/2023	47.8	1.78	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	05/11/2023	1.28	1.78	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	05/11/2023	355	8.9	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	05/11/2023	21	1.78	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/11/2023	11.3	1.67	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/11/2023	8.14	1.78	--	NG/L	0.00		
537 TPFAS	06/15/2023	893.89	--	--	NG/L	0.00		
8260 TVOC	06/15/2023	0.9	--	--	UG/L	0.00		
1,4-Dioxane	06/15/2023	0.23	0.2	--	UG/L	0.00		
Chloroform	06/15/2023	0.9	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/15/2023	5.94	1.6	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/15/2023	5.66	3.59	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	06/15/2023	4.04	1.79	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/15/2023	5.8	1.7	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/15/2023	4.28	1.79	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/15/2023	133	1.63	--	NG/L	0.00		

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 084-102 (CF-RW-E)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanoic acid (PFHxA)	06/15/2023	16.1	1.79	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/15/2023	39.9	1.79	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	06/15/2023	1.24	1.79	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/15/2023	637	8.97	--	NG/L	0.00	D	
Perfluorooctanoic acid (PFOA)	06/15/2023	21.6	1.79	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/15/2023	10.1	1.69	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/15/2023	9.23	1.79	--	NG/L	0.00		

Site ID : 102-32 (CF-RW-F)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	42.93	--	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/06/2023	16	3.64	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	1.72	4	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	04/06/2023	23.5	4	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	1.71	3.76	--	NG/L	0.00	J	
537 TPFAS	05/11/2023	99.952	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	0.36	--	--	UG/L	0.00		
Chloroform	05/11/2023	0.36	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/11/2023	1.81	1.64	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/11/2023	1.64	3.68	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	05/11/2023	0.981	1.75	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	05/11/2023	36.9	1.67	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	2.83	1.84	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/11/2023	48.7	1.84	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/11/2023	2.29	1.84	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/11/2023	3.87	1.73	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/11/2023	0.931	1.84	--	NG/L	0.00	J	

Site ID : 102-33 (CF-RW-G)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	28.666	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0.44	--	--	UG/L	0.00		
Chloroform	04/06/2023	0.44	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/06/2023	3.71	1.53	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	04/06/2023	1.29	1.72	--	NG/L	0.00	J	

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 102-33 (CF-RW-G)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanesulfonate (PFHxS)	04/06/2023	4.91	1.57	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	1.84	1.72	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/06/2023	13.7	1.72	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/06/2023	1.45	1.72	--	NG/L	0.00	J	
Perfluoropentanesulfonate (PFPeS)	04/06/2023	0.676	1.62	--	NG/L	0.00	J	
Perfluoropentanoic acid (PFPeA)	04/06/2023	1.09	1.72	--	NG/L	0.00	J	
537 TPFAS	05/11/2023	25.228	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	0.57	--	--	UG/L	0.00		
Chloroform	05/11/2023	0.57	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/11/2023	3.42	1.58	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	05/11/2023	0.943	1.78	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	05/11/2023	4.67	1.62	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	1.44	1.78	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	05/11/2023	11.9	1.78	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/11/2023	1.3	1.78	--	NG/L	0.00	J	
Perfluoropentanesulfonate (PFPeS)	05/11/2023	0.644	1.67	--	NG/L	0.00	J	
Perfluoropentanoic acid (PFPeA)	05/11/2023	0.911	1.78	--	NG/L	0.00	J	
537 TPFAS	06/15/2023	24.608	--	--	NG/L	0.00		
8260 TVOC	06/15/2023	0.44	--	--	UG/L	0.00		
Chloroform	06/15/2023	0.44	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/15/2023	2.93	1.52	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	06/15/2023	1.08	1.71	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/15/2023	4.69	1.56	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/15/2023	1.37	1.71	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	06/15/2023	12.3	1.71	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/15/2023	1.38	1.71	--	NG/L	0.00	J	
Perfluoropentanoic acid (PFPeA)	06/15/2023	0.858	1.71	--	NG/L	0.00	J	

Site ID : 102-34 (CF-RW-H)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	157.54	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0.34	--	--	UG/L	0.00		
1,4-Dioxane	04/06/2023	0.7	0.21	--	UG/L	0.00		
Chloroform	04/06/2023	0.34	0.5	--	UG/L	0.00	J	

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 102-34 (CF-RW-H)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorobutanesulfonate (PFBS)	04/06/2023	2.43	1.55	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/06/2023	1.7	3.48	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/06/2023	2.06	1.74	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/06/2023	1.04	1.65	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	04/06/2023	1.07	1.74	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	04/06/2023	29.1	1.58	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	6.63	1.74	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/06/2023	4.02	1.74	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/06/2023	101	1.74	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/06/2023	3.38	1.74	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	2.6	1.63	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/06/2023	2.51	1.74	--	NG/L	0.00		
1,4-Dioxane	04/12/2023	2.8	0.2	--	UG/L	0.00		
1,4-Dioxane	04/22/2023	0.8	0.21	--	UG/L	0.00		
1,4-Dioxane	04/29/2023	0.79	0.2	--	UG/L	0.00		
1,4-Dioxane	05/05/2023	0.8	0.2	--	UG/L	0.00		
537 TPFAS	05/11/2023	137.613	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	0.43	--	--	UG/L	0.00		
1,4-Dioxane	05/11/2023	0.95	0.2	--	UG/L	0.00		
Chloroform	05/11/2023	0.43	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/11/2023	1.89	1.59	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/11/2023	1.45	3.57	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/11/2023	1.93	1.79	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/11/2023	0.963	1.7	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	05/11/2023	1.12	1.79	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	05/11/2023	25.2	1.63	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	5.42	1.79	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/11/2023	3.31	1.79	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/11/2023	87.9	1.79	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/11/2023	3.51	1.79	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/11/2023	2.27	1.68	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/11/2023	2.65	1.79	--	NG/L	0.00		
1,4-Dioxane	05/18/2023	0.79	0.2	--	UG/L	0.00		

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 102-34 (CF-RW-H)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,4-Dioxane	05/22/2023	0.82	0.2	--	UG/L	0.00	B	
1,4-Dioxane	06/01/2023	0.85	0.2	--	UG/L	0.00		
537 TPFAS	06/15/2023	126.067	--	--	NG/L	0.00		
8260 TVOC	06/15/2023	0.28	--	--	UG/L	0.00		
Chloroform	06/15/2023	0.28	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/15/2023	1.78	1.55	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/15/2023	1.31	3.48	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/15/2023	1.87	1.74	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/15/2023	0.906	1.65	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/15/2023	0.781	1.74	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/15/2023	23.3	1.58	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/15/2023	4.59	1.74	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/15/2023	3.12	1.74	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/15/2023	81.5	1.74	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/15/2023	2.89	1.74	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/15/2023	1.81	1.64	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/15/2023	2.21	1.74	--	NG/L	0.00		

Site ID : 102-35 (CF-RW-I)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	156.25	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/06/2023	2.78	1.6	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/06/2023	2.96	3.59	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/06/2023	1.21	1.79	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	04/06/2023	1.77	1.71	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/06/2023	1.1	1.79	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	04/06/2023	52.7	1.63	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	4.66	1.79	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/06/2023	78.2	1.79	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/06/2023	3.48	1.79	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	6.04	1.69	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/06/2023	1.35	1.79	--	NG/L	0.00	J	
537 TPFAS	05/11/2023	105.902	--	--	NG/L	0.00		
8260 TVOC	05/11/2023	0.39	--	--	UG/L	0.00		

Table 21-4
Current Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 102-35 (CF-RW-I)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	05/11/2023	0.39	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/11/2023	2.08	1.61	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/11/2023	1.95	3.61	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/11/2023	1.01	1.8	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	05/11/2023	1.08	1.71	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	05/11/2023	38.6	1.64	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/11/2023	2.9	1.8	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/11/2023	50.2	1.8	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/11/2023	2.97	1.8	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/11/2023	4.15	1.7	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/11/2023	0.962	1.8	--	NG/L	0.00	J	
537 TPFAS	06/15/2023	81.918	--	--	NG/L	0.00		
8260 TVOC	06/15/2023	0.26	--	--	UG/L	0.00		
1,4-Dioxane	06/15/2023	0.76	0.2	--	UG/L	0.00		
Chloroform	06/15/2023	0.26	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/15/2023	1.52	1.63	--	NG/L	0.00	J	
Perfluorobutylsulfonamide (FBSA)	06/15/2023	1.38	3.67	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/15/2023	0.968	1.84	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/15/2023	0.916	1.74	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/15/2023	0.744	1.84	--	NG/L	0.00	J	
Perfluorohexanesulfonate (PFHxS)	06/15/2023	31.1	1.67	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/15/2023	2.18	1.84	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/15/2023	38.1	1.84	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/15/2023	2.05	1.84	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/15/2023	2.96	1.73	--	NG/L	0.00		

Table 21-5
Current Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 084-99 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	213.08	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0.53	--	--	UG/L	0.00		
1,4-Dioxane	04/06/2023	0.17	0.2	--	UG/L	0.00	J	
Chloroform	04/06/2023	0.53	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/06/2023	2.69	1.62	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/06/2023	1.66	3.63	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/06/2023	1.76	1.82	--	NG/L	0.00	J	
Perfluoroheptanesulfonate (PFHpS)	04/06/2023	1.79	1.73	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/06/2023	2.16	1.82	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/06/2023	43.1	1.65	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/06/2023	6.71	1.82	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/06/2023	10.1	1.82	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/06/2023	130	1.82	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/06/2023	5.61	1.82	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/06/2023	3.62	1.71	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/06/2023	3.88	1.82	--	NG/L	0.00		
537 TPFAS	04/22/2023	263.79	--	--	NG/L	0.00		
8260 TVOC	04/22/2023	0.59	--	--	UG/L	0.00		
Chloroform	04/22/2023	0.59	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/22/2023	2.74	1.74	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/22/2023	2.33	3.92	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/22/2023	2.19	1.96	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/22/2023	2.09	1.86	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/22/2023	2.53	1.96	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/22/2023	50.8	1.78	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/22/2023	8.25	1.96	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/22/2023	11.3	1.96	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/22/2023	164	1.96	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/22/2023	7.58	1.96	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/22/2023	4.93	1.84	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/22/2023	5.05	1.96	--	NG/L	0.00		
537 TPFAS	05/05/2023	273.09	--	--	NG/L	0.00		
8260 TVOC	05/05/2023	0.63	--	--	UG/L	0.00		

Table 21-5
Current Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 084-99 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,4-Dioxane	05/05/2023	0.17	0.2	--	UG/L	0.00	J	
Chloroform	05/05/2023	0.63	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/05/2023	3.46	1.62	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/05/2023	2.34	3.64	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/05/2023	2.44	1.82	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/05/2023	2.15	1.73	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/05/2023	2.49	1.82	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/05/2023	52.1	1.66	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/05/2023	7.92	1.82	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/05/2023	10.1	1.82	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/05/2023	173	1.82	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/05/2023	7.33	1.82	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/05/2023	4.75	1.71	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/05/2023	5.01	1.82	--	NG/L	0.00		
537 TPFAS	05/18/2023	236.82	--	--	NG/L	0.00		
8260 TVOC	05/18/2023	0.78	--	--	UG/L	0.00		
Chloroform	05/18/2023	0.78	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/18/2023	2.95	1.55	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/18/2023	1.97	3.49	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/18/2023	2.22	1.75	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/18/2023	1.64	1.66	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	05/18/2023	2.13	1.75	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/18/2023	51.4	1.59	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/18/2023	7.94	1.75	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/18/2023	8.27	1.75	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/18/2023	144	1.75	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/18/2023	5.71	1.75	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/18/2023	4.05	1.64	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/18/2023	4.54	1.75	--	NG/L	0.00		
537 TPFAS	06/09/2023	248.02	--	--	NG/L	0.00		
8260 TVOC	06/09/2023	0.66	--	--	UG/L	0.00		
1,4-Dioxane	06/09/2023	0.15	0.2	--	UG/L	0.00	J	
Chloroform	06/09/2023	0.66	0.5	--	UG/L	0.00		

Table 21-5
Current Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 084-99 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorobutanesulfonate (PFBS)	06/09/2023	3.08	1.56	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/09/2023	1.71	3.5	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/09/2023	2.31	1.75	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/09/2023	2.08	1.66	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/09/2023	2.11	1.75	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/09/2023	49.2	1.59	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/09/2023	6.41	1.75	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/09/2023	8.11	1.75	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/09/2023	158	1.75	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/09/2023	6.07	1.75	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/09/2023	4.5	1.64	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/09/2023	4.44	1.75	--	NG/L	0.00		
537 TPFAS	06/20/2023	210.46	--	--	NG/L	0.00		
8260 TVOC	06/20/2023	0.58	--	--	UG/L	0.00		
Chloroform	06/20/2023	0.58	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/20/2023	2.9	1.45	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/20/2023	1.67	3.27	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/20/2023	2.2	1.63	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/20/2023	1.4	1.55	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	06/20/2023	1.71	1.63	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/20/2023	44.8	1.49	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/20/2023	6.87	1.63	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/20/2023	6.68	1.63	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/20/2023	129	1.63	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/20/2023	5.29	1.63	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/20/2023	3.9	1.54	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/20/2023	4.04	1.63	--	NG/L	0.00		

Table 21-6
Current Firehouse PFAS Effluent Data
'Hits Only' April through June 2023

Site ID : 084-101 (Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/06/2023	2.33	--	--	NG/L	0.00		
8260 TVOC	04/06/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	04/06/2023	0.18	0.2	--	UG/L	0.00	J	
Fluorotelomer sulfonate 6:2 (6:2 FTS)	04/06/2023	2.33	3.29	--	NG/L	0.00	J	
537 TPFAS	04/22/2023	0	--	--	NG/L	0.00		
8260 TVOC	04/22/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	04/22/2023	0.2	0.2	--	UG/L	0.00	U	
537 TPFAS	05/05/2023	0	--	--	NG/L	0.00		
8260 TVOC	05/05/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	05/05/2023	0.16	0.2	--	UG/L	0.00	J	
537 TPFAS	05/18/2023	0	--	--	NG/L	0.00		
8260 TVOC	05/18/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	05/18/2023	0.2	0.2	--	UG/L	0.00	U	
537 TPFAS	06/09/2023	0	--	--	NG/L	0.00		
8260 TVOC	06/09/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	06/09/2023	0.22	0.2	--	UG/L	0.00		
537 TPFAS	06/20/2023	0	--	--	NG/L	0.00		
8260 TVOC	06/20/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	06/20/2023	0.2	0.2	--	UG/L	0.00	U	

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.

OU X Former Firehouse PFAS Pump & Treat System

Process: Groundwater extraction with liquid phase granular activated carbon (GAC) treatment for per- and polyfluoroalkyl substances (PFAS), with discharge to recharge basins.

Goal: Final cleanup goals will be determined following the completion of the forthcoming Remedial Investigation/Feasibility Study and documented in the future OU X Record of Decision (ROD).

Start Date: January 2023

Table 22-1
Pumping Rates (gpm)

Extraction Well	RW-A	RW-B	RW-C
Site Id #	085-414	096-132	105-79
Screen Interval (ft bls)	44-64	83-103	104-124
Desired Flow Rate (gpm)	**50**	**75**	**100**
April (Avg gpm)	49	76	102
May " "	51	74	98
June " "	51	73	99
Actual (Avg. over Qtr.)	**50**	**74**	**100**

OU X Former Firehouse PFAS Pump & Treat System

Figure 22-1
Cumulative Pounds of PFAS Removed

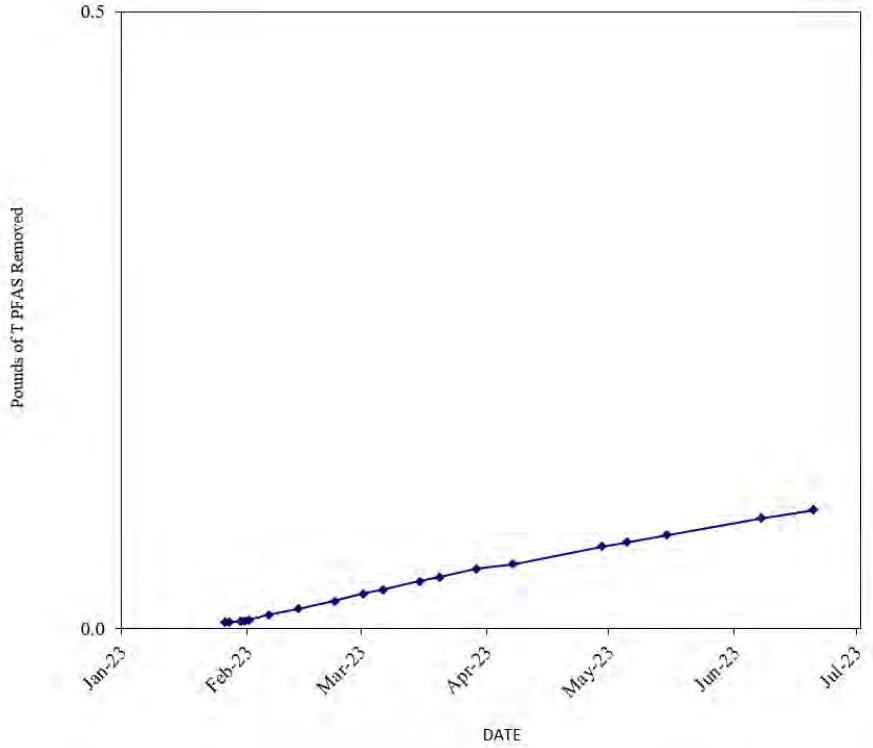
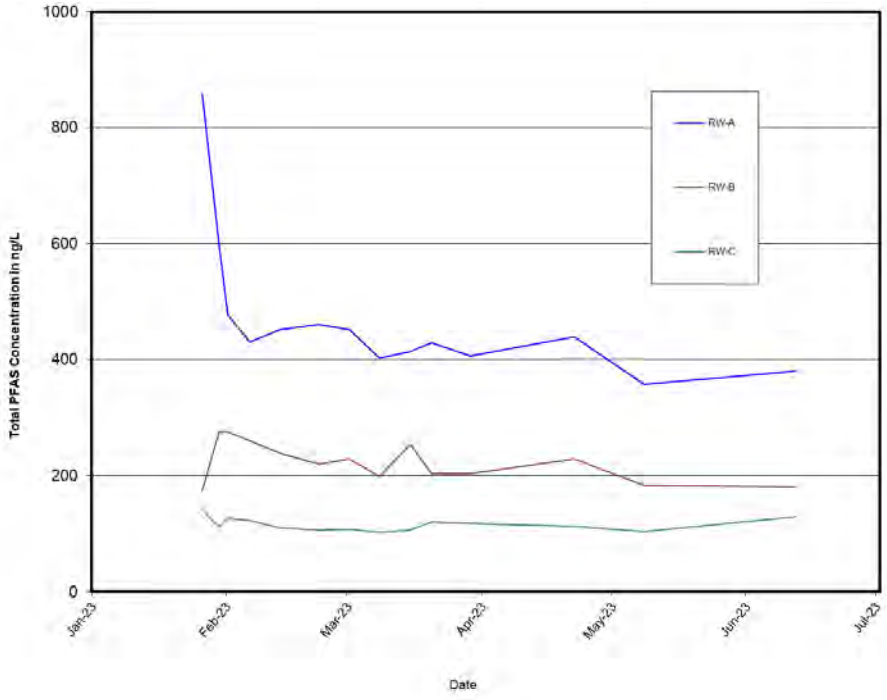


Figure 22-2
Extraction Well Total PFAS Concentration vs. Time



OU X Former Firehouse PFAS Pump & Treat System

Table 22-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2023

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**750**	**227**	**GPM**	**Continuous**
pH (range)	**5.0 – 8.5**	**5.8– 6.2***	**SU**	**Monthly**
Perfluoroocanesulfonic acid (PFOS)	**2.7**	**<1.94**	**ng/L**	**Monthly[1]**
Perfluorooctanoic acid (PFOA)	**6.7**	**<1.94**	**µg/L**	**Monthly[1]**
1,4-Dioxane	**0.35**	**0.17J**	**µg/L**	**Monthly[1]**
Chloroform	**7.0**	**<0.5**	**µg/L**	**Monthly[1]**
Methylene Chloride	**5.0**	**<0.5**	**µg/L**	**Monthly[1]**

[1] The minimum measurement frequency shall be monthly following a period of 8 consecutive weekly sampling events showing no exceedances of the stated discharge limitations.
* Minimum to maximum value for pH during this operational period.
J = The analyte was detected above the Method Detection Limit but below the Reporting Limit, the result is estimated.
< = The analyte was not detected above the Method Detection Limit.

Monitoring Activities

The Former Firehouse monitoring well data show the highest total PFAS concentration (12,708.2 ng/L) in monitoring well 075-811, immediately downgradient of the Former Firehouse. The total PFAS concentration in monitoring wells 075-809 and 075-810, were 1,501.9 ng/L and 3,379.8 ng/L, respectively. The Former Firehouse monitoring well network is shown on **Figure 22-3**. The 'Hits Only' second quarter 2023 data are summarized in **Table 22-3**.

System Operations

April 2023:

The system ran normally for the month. The system treated approximately 10.1 million gallons of water.

OU X Former Firehouse PFAS Pump & Treat System

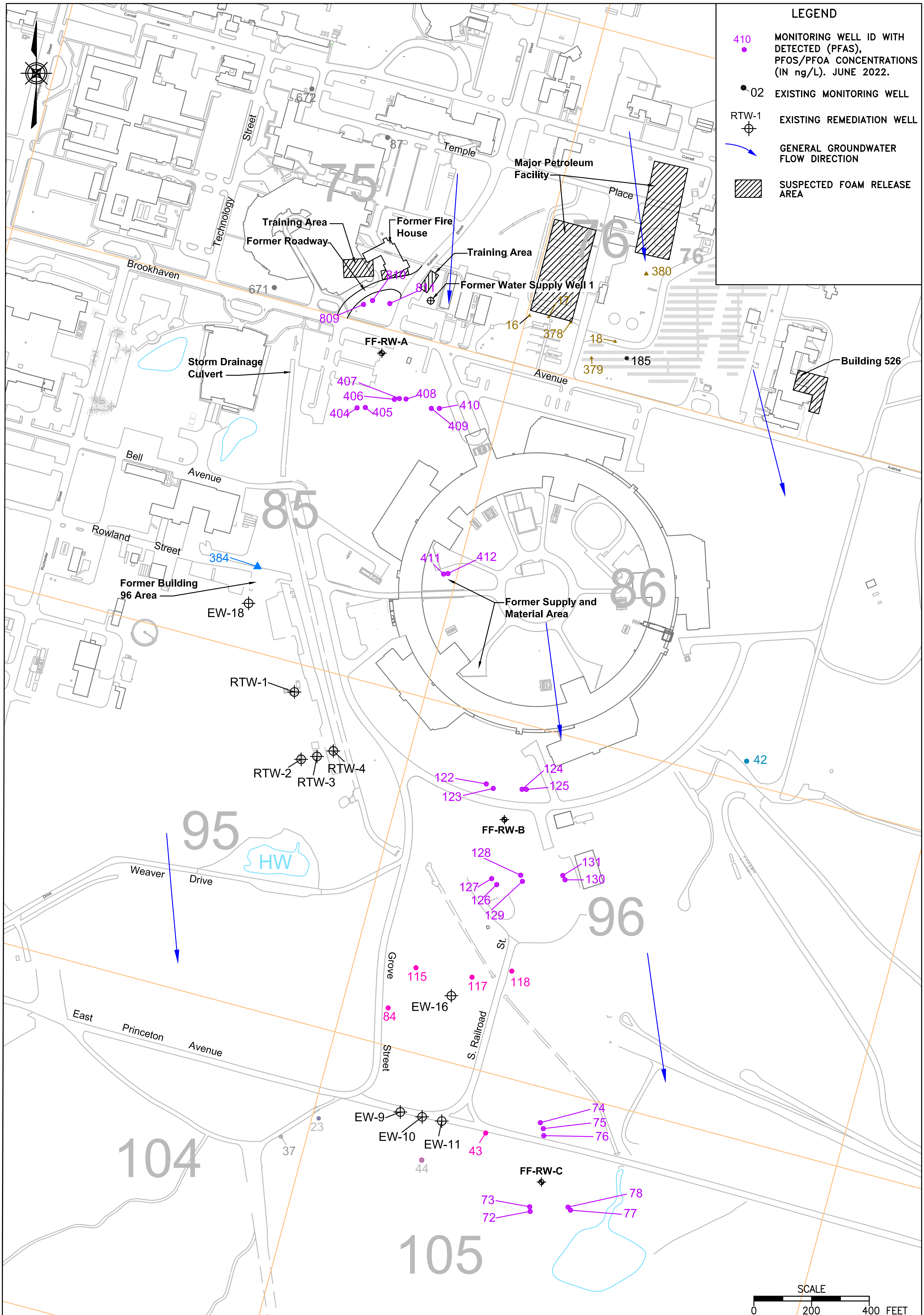
May 2023:
The system ran normally for the month. The system treated approximately 9.9 million gallons of water.

June 2023:
The system ran normally for the month. The system treated approximately 9.9 million gallons of water.

The system treated approximately 29.9 million gallons of water during the second quarter of 2023.The treatment system 'Hits Only' data, including individual extraction wells, influent, and effluent is summarized in **Table 22-4** through **22-6**.

Planned Operational Changes

- Maintain full time operation of the treatment system.
- Discontinue monthly sampling for VOCs using EPA Method 8260LL on extraction wells FF-RW-A through FF-RW-C.
- Starting in August 2023, the analytical method for treatment system PFAS was transitioned from EPA Method 537.1 to EPA Method 1633.



LEGEND
410 MONITORING WELL ID WITH DETECTED (PFAS), PFOS/PFOA CONCENTRATIONS (IN ng/L). JUNE 2022.
02 EXISTING MONITORING WELL
RTW-1 EXISTING REMEDIATION WELL
GENERAL GROUNDWATER FLOW DIRECTION
SUSPECTED FOAM RELEASE AREA
Training Area
Former Roadway
Former Fire House
Training Area
Former Water Supply Well 1
Major Petroleum Facility
Storm Drainage Culvert
Building 526
Former Supply and Material Area
Former Building 96 Area
FF-RW-A
FF-RW-B
FF-RW-C
EW-18
RTW-1
RTW-2
RTW-3
RTW-4
EW-16
EW-9
EW-10
EW-11
809
810
811
404
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380
16
17
18
185
378
379
671
672
87
23
37
75
76
85
86
95
96
104
105
HW
Cornell
Avenue
Street
Temple
Place
Technology
Street
Brookhaven
Avenue
Bell
Avenue
Rowland
Street
Rochester
Weaver
Drive
East
Princeton
Avenue
Grove
Street
S. Railroad
St.
SCALE
0
200
400 FEET
G: \GIS\Gw_projects\ERD_Quarterlies\2Q_2023 draft\Fig 22-3.dwg

Brookhaven National Laboratory

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

FORMER FIREHOUSE PERMANENT MONITORING WELLS

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2023 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	05/19/23	–
CHKD:	APPD:	REV.:	NOTES:
LDS		08/17/23	–

FIGURE NO.: 22–3

Table 22-3
Former Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 075-809

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/05/2023	1501.9	--	--	NG/L	37.50		
Perfluorobutanesulfonate (PFBS)	06/05/2023	3.71	1.53	--	NG/L	37.50		
Perfluorobutyric acid (PFBA)	06/05/2023	11.6	6.9	--	NG/L	37.50		
Perfluoroheptanesulfonate (PFHpS)	06/05/2023	22.4	1.64	--	NG/L	37.50		
Perfluoroheptanoic acid (PFHpA)	06/05/2023	11.9	1.73	--	NG/L	37.50		
Perfluorohexanesulfonate (PFHxS)	06/05/2023	393	15.8	--	NG/L	37.50	D	
Perfluorohexanoic acid (PFHxA)	06/05/2023	37.3	1.73	--	NG/L	37.50		
Perfluorononanoic acid (PFNA)	06/05/2023	1.97	1.73	--	NG/L	37.50		
Perfluorooctane sulfonamide (PFOSAm)	06/05/2023	3.42	1.73	--	NG/L	37.50		
Perfluorooctanesulfonate (PFOS)	06/05/2023	923	16	--	NG/L	37.50	D	
Perfluorooctanoic acid (PFOA)	06/05/2023	68.8	1.73	--	NG/L	37.50		
Perfluoropentanesulfonate (PFPeS)	06/05/2023	13.5	1.62	--	NG/L	37.50		
Perfluoropentanoic acid (PFPeA)	06/05/2023	11.3	1.73	--	NG/L	37.50		

Site ID : 075-810

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/05/2023	3379.78	--	--	NG/L	37.50		
Perfluorobutanesulfonate (PFBS)	06/05/2023	20.6	15.3	--	NG/L	37.50	D	
Perfluorobutyric acid (PFBA)	06/05/2023	19.7	6.92	--	NG/L	37.50		
Perfluoroheptanesulfonate (PFHpS)	06/05/2023	86.7	1.65	--	NG/L	37.50		
Perfluoroheptanoic acid (PFHpA)	06/05/2023	15.1	1.73	--	NG/L	37.50		
Perfluorohexanesulfonate (PFHxS)	06/05/2023	1120	15.8	--	NG/L	37.50	D	
Perfluorohexanoic acid (PFHxA)	06/05/2023	122	1.73	--	NG/L	37.50		
Perfluorononanoic acid (PFNA)	06/05/2023	6.03	1.73	--	NG/L	37.50		
Perfluorooctane sulfonamide (PFOSAm)	06/05/2023	6.45	1.73	--	NG/L	37.50		
Perfluorooctanesulfonate (PFOS)	06/05/2023	1790	32.1	--	NG/L	37.50	D	
Perfluorooctanoic acid (PFOA)	06/05/2023	129	1.73	--	NG/L	37.50		
Perfluoropentanesulfonate (PFPeS)	06/05/2023	37.7	1.63	--	NG/L	37.50		
Perfluoropentanoic acid (PFPeA)	06/05/2023	26.5	1.73	--	NG/L	37.50		

Site ID : 075-811

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/05/2023	12708.199	--	--	NG/L	37.50		
N-Methylperfluorooctane sulfonamide (NMeFOSAA)	06/05/2023	0.899	1.78	--	NG/L	37.50	J	
Perfluorobutanesulfonate (PFBS)	06/05/2023	54.3	1.58	--	NG/L	37.50		

Table 22-3
Former Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 075-811

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorobutyric acid (PFBA)	06/05/2023	49.6	7.13	--	NG/L	37.50		
Perfluoroheptanesulfonate (PFHpS)	06/05/2023	70.6	1.7	--	NG/L	37.50		
Perfluoroheptanoic acid (PFHpA)	06/05/2023	84.9	1.78	--	NG/L	37.50		
Perfluorohexanesulfonate (PFHxS)	06/05/2023	6210	229	--	NG/L	37.50	D	
Perfluorohexanoic acid (PFHxA)	06/05/2023	2080	50	--	NG/L	37.50		
Perfluorononanoic acid (PFNA)	06/05/2023	12.9	1.78	--	NG/L	37.50		
Perfluorooctane sulfonamide (PFOSAm)	06/05/2023	1290	50	--	NG/L	37.50		
Perfluorooctanesulfonate (PFOS)	06/05/2023	1950	46.4	--	NG/L	37.50		
Perfluorooctanoic acid (PFOA)	06/05/2023	582	50	--	NG/L	37.50		
Perfluoropentanesulfonate (PFPeS)	06/05/2023	109	1.68	--	NG/L	37.50		
Perfluoropentanoic acid (PFPeA)	06/05/2023	214	1.78	--	NG/L	37.50		

Site ID : 085-350

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/03/2023	4.39	--	--	UG/L	34.50		
1,1,1-Trichloroethane	04/03/2023	0.19	0.5	--	UG/L	34.50	J	
Tetrachloroethylene	04/03/2023	4.2	0.5	--	UG/L	34.50		

Site ID : 085-404

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/05/2023	88.064	--	--	NG/L	37.50		
Perfluorobutanesulfonate (PFBS)	06/05/2023	1.72	1.55	--	NG/L	37.50		
Perfluorobutyric acid (PFBA)	06/05/2023	6.33	7	--	NG/L	37.50	J	
Perfluoroheptanesulfonate (PFHpS)	06/05/2023	1.42	1.67	--	NG/L	37.50	J	
Perfluoroheptanoic acid (PFHpA)	06/05/2023	2.98	1.75	--	NG/L	37.50		
Perfluorohexanesulfonate (PFHxS)	06/05/2023	21.8	1.6	--	NG/L	37.50		
Perfluorohexanoic acid (PFHxA)	06/05/2023	6.38	1.75	--	NG/L	37.50		
Perfluorononanoic acid (PFNA)	06/05/2023	1.79	1.75	--	NG/L	37.50		
Perfluorooctanesulfonate (PFOS)	06/05/2023	26	1.62	--	NG/L	37.50		
Perfluorooctanoic acid (PFOA)	06/05/2023	12.8	1.75	--	NG/L	37.50		
Perfluoropentanesulfonate (PFPeS)	06/05/2023	0.974	1.65	--	NG/L	37.50	J	
Perfluoropentanoic acid (PFPeA)	06/05/2023	5.87	1.75	--	NG/L	37.50		

Site ID : 085-405

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/05/2023	55.335	--	--	NG/L	55.00		

Table 22-3
Former Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 085-405

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorobutanesulfonate (PFBS)	06/05/2023	2.64	1.57	--	NG/L	55.00		
Perfluorobutyric acid (PFBA)	06/05/2023	9.33	7.08	--	NG/L	55.00		
Perfluoroheptanoic acid (PFHpA)	06/05/2023	2.24	1.77	--	NG/L	55.00		
Perfluorohexanesulfonate (PFHxS)	06/05/2023	9.96	1.62	--	NG/L	55.00		
Perfluorohexanoic acid (PFHxA)	06/05/2023	4.64	1.77	--	NG/L	55.00		
Perfluorononanoic acid (PFNA)	06/05/2023	0.852	1.77	--	NG/L	55.00	J	
Perfluorooctanesulfonate (PFOS)	06/05/2023	14.5	1.64	--	NG/L	55.00		
Perfluorooctanoic acid (PFOA)	06/05/2023	7.2	1.77	--	NG/L	55.00		
Perfluoropentanesulfonate (PFPeS)	06/05/2023	0.903	1.67	--	NG/L	55.00	J	
Perfluoropentanoic acid (PFPeA)	06/05/2023	3.07	1.77	--	NG/L	55.00		

Site ID : 085-406

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	05/26/2023	1318.61	--	--	NG/L	35.00		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	05/26/2023	6.02	6.74	--	NG/L	35.00	J	
Perfluorobutanesulfonate (PFBS)	05/26/2023	6.74	1.57	--	NG/L	35.00		
Perfluorobutyric acid (PFBA)	05/26/2023	16.5	7.1	--	NG/L	35.00		
Perfluoroheptanesulfonate (PFHpS)	05/26/2023	18.8	1.69	--	NG/L	35.00		
Perfluoroheptanoic acid (PFHpA)	05/26/2023	10.8	1.77	--	NG/L	35.00		
Perfluorohexanesulfonate (PFHxS)	05/26/2023	357	8.11	--	NG/L	35.00	D	
Perfluorohexanoic acid (PFHxA)	05/26/2023	63.7	1.77	--	NG/L	35.00		
Perfluorononanoic acid (PFNA)	05/26/2023	2.52	1.77	--	NG/L	35.00		
Perfluorooctane sulfonamide (PFOSAm)	05/26/2023	4.93	1.77	--	NG/L	35.00		
Perfluorooctanesulfonate (PFOS)	05/26/2023	735	8.23	--	NG/L	35.00	D	
Perfluorooctanoic acid (PFOA)	05/26/2023	64.9	1.77	--	NG/L	35.00		
Perfluoropentanesulfonate (PFPeS)	05/26/2023	10.2	1.67	--	NG/L	35.00		
Perfluoropentanoic acid (PFPeA)	05/26/2023	21.5	1.77	--	NG/L	35.00		

Site ID : 085-407

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	05/26/2023	857.12	--	--	NG/L	55.00		
Perfluorobutanesulfonate (PFBS)	05/26/2023	3.91	1.63	--	NG/L	55.00		
Perfluorobutyric acid (PFBA)	05/26/2023	10.2	7.35	--	NG/L	55.00		
Perfluoroheptanesulfonate (PFHpS)	05/26/2023	4.77	1.75	--	NG/L	55.00		
Perfluoroheptanoic acid (PFHpA)	05/26/2023	18.2	1.84	--	NG/L	55.00		

Table 22-3
Former Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 085-407

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorohexanesulfonate (PFHxS)	05/26/2023	306	8.4	--	NG/L	55.00	D	
Perfluorohexanoic acid (PFHxA)	05/26/2023	162	1.84	--	NG/L	55.00		
Perfluorononanoic acid (PFNA)	05/26/2023	1.76	1.84	--	NG/L	55.00	J	
Perfluorooctane sulfonamide (PFOSAm)	05/26/2023	22.7	1.84	--	NG/L	55.00		
Perfluorooctanesulfonate (PFOS)	05/26/2023	201	1.71	--	NG/L	55.00		
Perfluorooctanoic acid (PFOA)	05/26/2023	101	1.84	--	NG/L	55.00		
Perfluoropentanesulfonate (PFPeS)	05/26/2023	5.08	1.73	--	NG/L	55.00		
Perfluoropentanoic acid (PFPeA)	05/26/2023	20.5	1.84	--	NG/L	55.00		

Site ID : 085-408

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	05/30/2023	409.93	--	--	NG/L	65.00		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	05/30/2023	6.6	6.76	--	NG/L	65.00	J	
Perfluorobutanesulfonate (PFBS)	05/30/2023	2.56	1.58	--	NG/L	65.00		
Perfluorobutyric acid (PFBA)	05/30/2023	7.16	7.12	--	NG/L	65.00		
Perfluoroheptanesulfonate (PFHpS)	05/30/2023	2.19	1.7	--	NG/L	65.00		
Perfluoroheptanoic acid (PFHpA)	05/30/2023	6.79	1.78	--	NG/L	65.00		
Perfluorohexanesulfonate (PFHxS)	05/30/2023	98.8	1.63	--	NG/L	65.00		
Perfluorohexanoic acid (PFHxA)	05/30/2023	54	1.78	--	NG/L	65.00		
Perfluorononanoic acid (PFNA)	05/30/2023	1.31	1.78	--	NG/L	65.00	J	
Perfluorooctane sulfonamide (PFOSAm)	05/30/2023	73.8	1.78	--	NG/L	65.00		
Perfluorooctanesulfonate (PFOS)	05/30/2023	88.8	1.65	--	NG/L	65.00		
Perfluorooctanoic acid (PFOA)	05/30/2023	56.6	1.78	--	NG/L	65.00		
Perfluoropentanesulfonate (PFPeS)	05/30/2023	2.53	1.67	--	NG/L	65.00		
Perfluoropentanoic acid (PFPeA)	05/30/2023	8.79	1.78	--	NG/L	65.00		

Site ID : 085-409

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	05/30/2023	30.89	--	--	NG/L	37.50		
Perfluorobutanesulfonate (PFBS)	05/30/2023	1.45	1.59	--	NG/L	37.50	J	
Perfluorobutyric acid (PFBA)	05/30/2023	3.9	7.17	--	NG/L	37.50	J	
Perfluoroheptanoic acid (PFHpA)	05/30/2023	1.66	1.79	--	NG/L	37.50	J	
Perfluorohexanesulfonate (PFHxS)	05/30/2023	10.2	1.64	--	NG/L	37.50		
Perfluorohexanoic acid (PFHxA)	05/30/2023	2.33	1.79	--	NG/L	37.50		
Perfluorooctanesulfonate (PFOS)	05/30/2023	4.04	1.66	--	NG/L	37.50		

Table 22-3
Former Firehouse PFAS Monitoring Well Data
'Hits Only' April through June 2023

Site ID : 085-409

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluorooctanoic acid (PFOA)	05/30/2023	6.69	1.79	--	NG/L	37.50		
Perfluoropentanoic acid (PFPeA)	05/30/2023	0.62	1.79	--	NG/L	37.50	J	

Site ID : 085-410

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1633 TPFAS	06/06/2023	481.374	--	--	NG/L	55.00		
Perfluorobutanesulfonate (PFBS)	06/06/2023	4.7	1.62	--	NG/L	55.00		
Perfluorobutyric acid (PFBA)	06/06/2023	4.69	7.31	--	NG/L	55.00	J	
Perfluoroheptanesulfonate (PFHpS)	06/06/2023	10.6	1.74	--	NG/L	55.00		
Perfluoroheptanoic acid (PFHpA)	06/06/2023	1.57	1.83	--	NG/L	55.00	J	
Perfluorohexanesulfonate (PFHxS)	06/06/2023	38.3	1.67	--	NG/L	55.00		
Perfluorohexanoic acid (PFHxA)	06/06/2023	4.41	1.83	--	NG/L	55.00		
Perfluorononanoic acid (PFNA)	06/06/2023	0.681	1.83	--	NG/L	55.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/06/2023	0.743	1.83	--	NG/L	55.00	J	
Perfluorooctanesulfonate (PFOS)	06/06/2023	403	8.48	--	NG/L	55.00	D	
Perfluorooctanoic acid (PFOA)	06/06/2023	9.02	1.83	--	NG/L	55.00		
Perfluoropentanesulfonate (PFPeS)	06/06/2023	1.5	1.72	--	NG/L	55.00	J	
Perfluoropentanoic acid (PFPeA)	06/06/2023	2.16	1.83	--	NG/L	55.00		

Site ID : 095-170

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2023	0.85	--	--	UG/L	50.00		
Chloroform	04/04/2023	0.85	0.5	--	UG/L	50.00		

Site ID : 105-44

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2023	2.08	--	--	UG/L	152.50		
1,2,3-Trichlorobenzene	05/03/2023	0.18	0.5	--	UG/L	152.50	J	
Chloroform	05/03/2023	0.6	0.5	--	UG/L	152.50		
Tetrachloroethylene	05/03/2023	1.3	0.5	--	UG/L	152.50		

Table 22-4
Former Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 085-414 (FF-RW-A)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/22/2023	438.93	--	--	NG/L	0.00		
Perfluorobutanesulfonate (PFBS)	04/22/2023	3.76	1.64	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/22/2023	2.71	3.68	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/22/2023	10	1.84	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/22/2023	3.54	1.75	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/22/2023	5.97	1.84	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/22/2023	159	1.67	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/22/2023	32.5	1.84	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/22/2023	2.1	1.84	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	04/22/2023	8.53	1.84	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/22/2023	167	1.84	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/22/2023	33.7	1.84	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/22/2023	3.19	1.73	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/22/2023	6.93	1.84	--	NG/L	0.00		
537 TPFAS	05/08/2023	356.9	--	--	NG/L	0.00		
8260 TVOC	05/08/2023	0.19	--	--	UG/L	0.00		
1,4-Dioxane	05/08/2023	0.17	0.2	--	UG/L	0.00	J	
Chloroform	05/08/2023	0.19	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/08/2023	3.77	1.61	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/08/2023	2.24	3.61	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/08/2023	10.8	1.81	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/08/2023	2.77	1.72	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/08/2023	5.65	1.81	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/08/2023	113	1.64	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/08/2023	27.8	1.81	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/08/2023	1.56	1.81	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	05/08/2023	8.24	1.81	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/08/2023	145	1.81	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/08/2023	26.8	1.81	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/08/2023	2.42	1.7	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/08/2023	6.85	1.81	--	NG/L	0.00		
537 TPFAS	06/12/2023	379.96	--	--	NG/L	0.00		
8260 TVOC	06/12/2023	0.17	--	--	UG/L	0.00		

Table 22-4
Former Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 085-414 (FF-RW-A)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	06/12/2023	0.17	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/12/2023	3.77	1.54	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/12/2023	1.93	3.46	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/12/2023	12	1.73	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/12/2023	3	1.64	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/12/2023	4.85	1.73	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/12/2023	131	1.58	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/12/2023	28.5	1.73	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/12/2023	1.5	1.73	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	06/12/2023	10	1.73	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/12/2023	146	1.73	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/12/2023	28.2	1.73	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/12/2023	2.48	1.63	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/12/2023	6.73	1.73	--	NG/L	0.00		

Site ID : 096-132 (FF-RW-B)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/07/2023	228.24	--	--	NG/L	0.00		
8260 TVOC	04/07/2023	0.43	--	--	UG/L	0.00		
Chloroform	04/07/2023	0.43	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/07/2023	3.43	1.59	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/07/2023	1.61	3.58	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/07/2023	8.61	1.79	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/07/2023	2.97	1.7	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/07/2023	3.18	1.79	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/07/2023	80.6	1.63	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/07/2023	14.3	1.79	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/07/2023	0.95	1.79	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	04/07/2023	1.86	1.79	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/07/2023	87.8	1.79	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/07/2023	16.6	1.79	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/07/2023	2.44	1.68	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/07/2023	3.89	1.79	--	NG/L	0.00		
537 TPFAS	05/08/2023	183.12	--	--	NG/L	0.00		

Table 22-4
Former Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 096-132 (FF-RW-B)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/08/2023	0.54	--	--	UG/L	0.00		
1,4-Dioxane	05/08/2023	0.12	0.2	--	UG/L	0.00	J	
Chloroform	05/08/2023	0.54	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/08/2023	2.75	1.55	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/08/2023	1.42	3.49	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/08/2023	7.4	1.74	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/08/2023	2.35	1.66	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/08/2023	2.87	1.74	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/08/2023	61.7	1.59	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/08/2023	11.8	1.74	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/08/2023	1.53	1.74	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	05/08/2023	1.64	1.74	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	05/08/2023	70.6	1.74	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/08/2023	13.9	1.74	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/08/2023	1.83	1.64	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/08/2023	3.33	1.74	--	NG/L	0.00		
537 TPFAS	06/12/2023	180.57	--	--	NG/L	0.00		
8260 TVOC	06/12/2023	0.53	--	--	UG/L	0.00		
1,4-Dioxane	06/12/2023	0.18	0.2	--	UG/L	0.00	J	
Chloroform	06/12/2023	0.53	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	06/12/2023	3.18	1.5	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/12/2023	1.44	3.37	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/12/2023	7.93	1.68	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/12/2023	2.22	1.6	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/12/2023	2.47	1.68	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/12/2023	58.5	1.53	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/12/2023	13.1	1.68	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/12/2023	2.31	1.68	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	06/12/2023	1.78	1.68	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/12/2023	68.8	1.68	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/12/2023	13.7	1.68	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/12/2023	1.66	1.58	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/12/2023	3.48	1.68	--	NG/L	0.00		

Table 22-4
Former Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 105-79 (FF-RW-C)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/07/2023	112.58	--	--	NG/L	0.00		
8260 TVOC	04/07/2023	0.41	--	--	UG/L	0.00		
1,4-Dioxane	04/07/2023	0.18	0.2	--	UG/L	0.00	J	
Chloroform	04/07/2023	0.41	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/07/2023	1.7	1.49	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	04/07/2023	7.4	1.68	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/07/2023	1.46	1.59	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	04/07/2023	2.07	1.68	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/07/2023	39.4	1.53	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/07/2023	6.66	1.68	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/07/2023	2.33	1.68	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/07/2023	35.2	1.68	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/07/2023	10.9	1.68	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/07/2023	1.87	1.58	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/07/2023	3.59	1.68	--	NG/L	0.00		
537 TPFAS	05/08/2023	103.81	--	--	NG/L	0.00		
8260 TVOC	05/08/2023	0.54	--	--	UG/L	0.00		
1,4-Dioxane	05/08/2023	0.19	0.2	--	UG/L	0.00	J	
Chloroform	05/08/2023	0.54	0.5	--	UG/L	0.00		
Perfluorobutanesulfonate (PFBS)	05/08/2023	1.8	1.58	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	05/08/2023	6.29	1.77	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/08/2023	1.55	1.69	--	NG/L	0.00	J	
Perfluoroheptanoic acid (PFHpA)	05/08/2023	2.04	1.77	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/08/2023	36.3	1.61	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/08/2023	6.75	1.77	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/08/2023	1.96	1.77	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/08/2023	32.3	1.77	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/08/2023	9.84	1.77	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/08/2023	1.8	1.67	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/08/2023	3.18	1.77	--	NG/L	0.00		
537 TPFAS	06/12/2023	129.15	--	--	NG/L	0.00		
8260 TVOC	06/12/2023	0.48	--	--	UG/L	0.00		
1,4-Dioxane	06/12/2023	0.22	0.2	--	UG/L	0.00		

Table 22-4
Former Firehouse PFAS Extraction Well Data
'Hits Only' April through June 2023

Site ID : 105-79 (FF-RW-C)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	06/12/2023	0.48	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/12/2023	2.14	1.61	--	NG/L	0.00		
Perfluorobutyric acid (PFBA)	06/12/2023	7.39	1.81	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/12/2023	1.79	1.72	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/12/2023	2.4	1.81	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/12/2023	52.1	1.65	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/12/2023	6.77	1.81	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/12/2023	2.4	1.81	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/12/2023	37.4	1.81	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/12/2023	10.9	1.81	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/12/2023	2.25	1.7	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/12/2023	3.61	1.81	--	NG/L	0.00		

Table 22-5
Former Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 076-422 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/07/2023	164.26	--	--	NG/L	0.00		
8260 TVOC	04/07/2023	0.45	--	--	UG/L	0.00		
1,4-Dioxane	04/07/2023	0.17	0.2	--	UG/L	0.00	J	
Chloroform	04/07/2023	0.45	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/07/2023	2.79	1.64	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/07/2023	1.23	3.67	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/07/2023	7.94	1.84	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/07/2023	2.01	1.75	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/07/2023	2.97	1.84	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/07/2023	59.8	1.67	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/07/2023	10.3	1.84	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/07/2023	1.72	1.84	--	NG/L	0.00	J	
Perfluorooctane sulfonamide (PFOSAm)	04/07/2023	1.05	1.84	--	NG/L	0.00	J	
Perfluorooctanesulfonate (PFOS)	04/07/2023	54.9	1.84	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/07/2023	13.3	1.84	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/07/2023	2.36	1.73	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/07/2023	3.89	1.84	--	NG/L	0.00		
537 TPFAS	04/29/2023	228.59	--	--	NG/L	0.00		
8260 TVOC	04/29/2023	0.46	--	--	UG/L	0.00		
Chloroform	04/29/2023	0.46	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	04/29/2023	2.43	1.51	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	04/29/2023	1.56	3.39	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	04/29/2023	9.44	1.7	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	04/29/2023	2.61	1.61	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	04/29/2023	2.92	1.7	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	04/29/2023	86.7	1.54	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	04/29/2023	16.1	1.7	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	04/29/2023	1.79	1.7	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	04/29/2023	2.96	1.7	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	04/29/2023	78.2	1.7	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	04/29/2023	17.1	1.7	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	04/29/2023	2.5	1.59	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	04/29/2023	4.28	1.7	--	NG/L	0.00		

Table 22-5
Former Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 076-422 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	05/05/2023	213.75	--	--	NG/L	0.00		
8260 TVOC	05/05/2023	0.44	--	--	UG/L	0.00		
Chloroform	05/05/2023	0.44	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/05/2023	2.36	1.58	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/05/2023	1.55	3.56	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/05/2023	9.24	1.78	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/05/2023	2.14	1.69	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/05/2023	2.91	1.78	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/05/2023	79	1.62	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/05/2023	13.9	1.78	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/05/2023	2.04	1.78	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	05/05/2023	2.7	1.78	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/05/2023	75.6	1.78	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/05/2023	15.2	1.78	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/05/2023	2.37	1.67	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	05/05/2023	4.74	1.78	--	NG/L	0.00		
537 TPFAS	05/15/2023	207.12	--	--	NG/L	0.00		
8260 TVOC	05/15/2023	0.8	--	--	UG/L	0.00		
1,4-Dioxane	05/15/2023	0.16	0.2	--	UG/L	0.00	J	
Chloroform	05/15/2023	0.56	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	05/15/2023	0.24	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	05/15/2023	2.63	1.5	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	05/15/2023	1.59	3.36	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	05/15/2023	8.21	1.68	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	05/15/2023	2.43	1.6	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	05/15/2023	2.8	1.68	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	05/15/2023	68.3	1.53	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	05/15/2023	14	1.68	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	05/15/2023	1.91	1.68	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	05/15/2023	3.02	1.68	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	05/15/2023	79.5	1.68	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	05/15/2023	16.7	1.68	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	05/15/2023	1.82	1.58	--	NG/L	0.00		

Table 22-5
Former Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 076-422 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluoropentanoic acid (PFPeA)	05/15/2023	4.21	1.68	--	NG/L	0.00		
537 TPFAS	06/07/2023	214.82	--	--	NG/L	0.00		
8260 TVOC	06/07/2023	0.48	--	--	UG/L	0.00		
1,4-Dioxane	06/07/2023	0.17	0.2	--	UG/L	0.00	J	
Chloroform	06/07/2023	0.48	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/07/2023	2.57	1.55	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/07/2023	1.45	3.48	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/07/2023	8.64	1.74	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/07/2023	2.27	1.65	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/07/2023	2.82	1.74	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/07/2023	80.2	1.59	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/07/2023	13	1.74	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/07/2023	2.02	1.74	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	06/07/2023	3.22	1.74	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/07/2023	75.6	1.74	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/07/2023	16.5	1.74	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/07/2023	2.22	1.64	--	NG/L	0.00		
Perfluoropentanoic acid (PFPeA)	06/07/2023	4.31	1.74	--	NG/L	0.00		
537 TPFAS	06/20/2023	179.52	--	--	NG/L	0.00		
8260 TVOC	06/20/2023	0.4	--	--	UG/L	0.00		
Chloroform	06/20/2023	0.4	0.5	--	UG/L	0.00	J	
Perfluorobutanesulfonate (PFBS)	06/20/2023	2.38	1.49	--	NG/L	0.00		
Perfluorobutylsulfonamide (FBSA)	06/20/2023	1.39	3.35	--	NG/L	0.00	J	
Perfluorobutyric acid (PFBA)	06/20/2023	6.51	1.68	--	NG/L	0.00		
Perfluoroheptanesulfonate (PFHpS)	06/20/2023	2.02	1.59	--	NG/L	0.00		
Perfluoroheptanoic acid (PFHpA)	06/20/2023	2.73	1.68	--	NG/L	0.00		
Perfluorohexanesulfonate (PFHxS)	06/20/2023	58.7	1.52	--	NG/L	0.00		
Perfluorohexanoic acid (PFHxA)	06/20/2023	12.9	1.68	--	NG/L	0.00		
Perfluorononanoic acid (PFNA)	06/20/2023	1.94	1.68	--	NG/L	0.00		
Perfluorooctane sulfonamide (PFOSAm)	06/20/2023	3.07	1.68	--	NG/L	0.00		
Perfluorooctanesulfonate (PFOS)	06/20/2023	67	1.68	--	NG/L	0.00		
Perfluorooctanoic acid (PFOA)	06/20/2023	15.3	1.68	--	NG/L	0.00		
Perfluoropentanesulfonate (PFPeS)	06/20/2023	1.69	1.58	--	NG/L	0.00		

Table 22-5
Former Firehouse PFAS Influent Data
'Hits Only' April through June 2023

Site ID : 076-422 (Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Perfluoropentanoic acid (PFPeA)	06/20/2023	3.89	1.68	--	NG/L	0.00		

Table 22-6
Former Firehouse PFAS Effluent Data
'Hits Only' April through June 2023

Site ID : 076-424 (Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
537 TPFAS	04/07/2023	0	--	--	NG/L	0.00		
8260 TVOC	04/07/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	04/07/2023	0.15	0.2	--	UG/L	0.00	J	
537 TPFAS	04/29/2023	0	--	--	NG/L	0.00		
8260 TVOC	04/29/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	04/29/2023	0.2	0.2	--	UG/L	0.00	U	
Strontium-90	04/29/2023	0.888	0.578	0.419	PCI/L	0.00		N2
537 TPFAS	05/05/2023	0	--	--	NG/L	0.00		
8260 TVOC	05/05/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	05/05/2023	0.2	0.2	--	UG/L	0.00	U	
537 TPFAS	05/15/2023	0	--	--	NG/L	0.00		
8260 TVOC	05/15/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	05/15/2023	0.2	0.2	--	UG/L	0.00	U	
537 TPFAS	06/07/2023	0	--	--	NG/L	0.00		
8260 TVOC	06/07/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	06/07/2023	0.17	0.2	--	UG/L	0.00	J	
537 TPFAS	06/20/2023	0	--	--	NG/L	0.00		
8260 TVOC	06/20/2023	0	--	--	UG/L	0.00		
1,4-Dioxane	06/20/2023	0.2	0.2	--	UG/L	0.00	U	

Qualifiers :
D = Compound was identified in an analysis at a secondary dilution factor.
E = Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
J = Estimated value.
N2 = Not usable based on the results that are not distinguishable from background. The value is less than or equal to the sum of the MDA and the uncertainty or RDL.
U = Compound not detected.

Organic Compounds :
B = Compound was found in both the sample And associated laboratory blank.

Inorganic Compounds :
B = Result Is between instrument detection limit And contract required reporting limit.