Groundwater Remediation Systems

Quarterly Operations Report

April 1, 2022 through June 30, 2022

Brookhaven National Laboratory Upton, Long Island, New York

Prepared by:

Brookhaven National Laboratory
Environmental Protection Division

Upton, N.Y. 11973

Prepared for:

U.S. Department of Energy
Brookhaven Site Office

September 2022

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2nd Quarter Groundwater Remediation System Operations Report
April 1, 2022 through June 30, 2022
Brookhaven National Laboratory
Upton, Long Island, New York

Table of Contents

Section 1

System Operations Overview 2nd Quarter 2022

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/Cum)***
Operable Unit I						
South Boundary	Pump and Treat (AS)	VOC	2	Operate- 16 Standby- 9	Closure Approved 9/19	0 369
Operable Unit III						
South Boundary	Pump and Treat (AS)	VOC	8	25	99%PP	1.1 3,073
HFBR Pump and Recharge	Pump and Recirculate	Tritium	4	Operate- 9 Standby- 16	Closure Approved 3/19	NA 180
Industrial Park	Recirculation/ In-Well (AS/Carbon)/ Pump and Treat (Carbon)	VOC VOC	7 2	Operate- 16 Standby- 7 Operate- 4 Standby-3	Standby Standby	0 1066 0 10
Building 96	Recirculation Well (AS/Carbon)	VOC	4	Operate- 18 Standby- 3	100% PP	0.1 146
Middle Road	Pump and Treat (AS)	VOC	7	21	99%	4.0 1344
Western South Boundary	Pump and Treat (AS)	VOC	6	20	99%	3.7 190
North Street	Pump and Treat (Carbon)	VOC	2	Operate – 11 Standby - 7	Closure Approved 3/20	NA 342
North Street East	Pump and Treat (Carbon)	VOC/EDB	4	Operate – 12 Standby - 6	99%	0.23 47
LIPA/Airport	Pump and Treat (Carbon)	VOC	10	18	100%	1.5 498
Industrial Park East	Pump and Treat (Carbon)	VOC	2	Operate- 5 Standby- 4	Dismantled 2013	NA 38
Chemical Holes	Pump and Treat (IE)	Sr-90	3	Operate - 15 Standby- 4	Standby	NA
BGRR/WCF	Pump and Treat (IE)	Sr-90	9	17	100% PP	NA
Freon	Pump and Treat (AS)	Freon-11	1	Operate – 4 Standby – 4	Closure Approved 9/19	0 106
Operable Unit VI						
EDB	Pump and Treat (Carbon)	EDB	2	18	91%	NA*

AS = air stripping
IE = ion exchange
EDB = ethylene dibromide
NA = not applicable
PP = system is pulse pumping
* EDB has only been detected in the influent at trace levels, just above standard, therefore no removal is reported.

Section 2

Q2-2022 Operations Summary
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 Petition for Closure of the OU I South Boundary Groundwater Treatment System was approved by the regulators in September 2019.
Note: Current Landfill monitoring well data is included in the attached data tables since this is one of the sources of the OU I/RA V plume.

Start Date: January 1997

Table 2-1
OU I South Boundary Pump & Treat System
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.

Figure 2-1
OU I South Boundary Pump & Treat System
Cumulative Mass Removal VOCs vs. Time

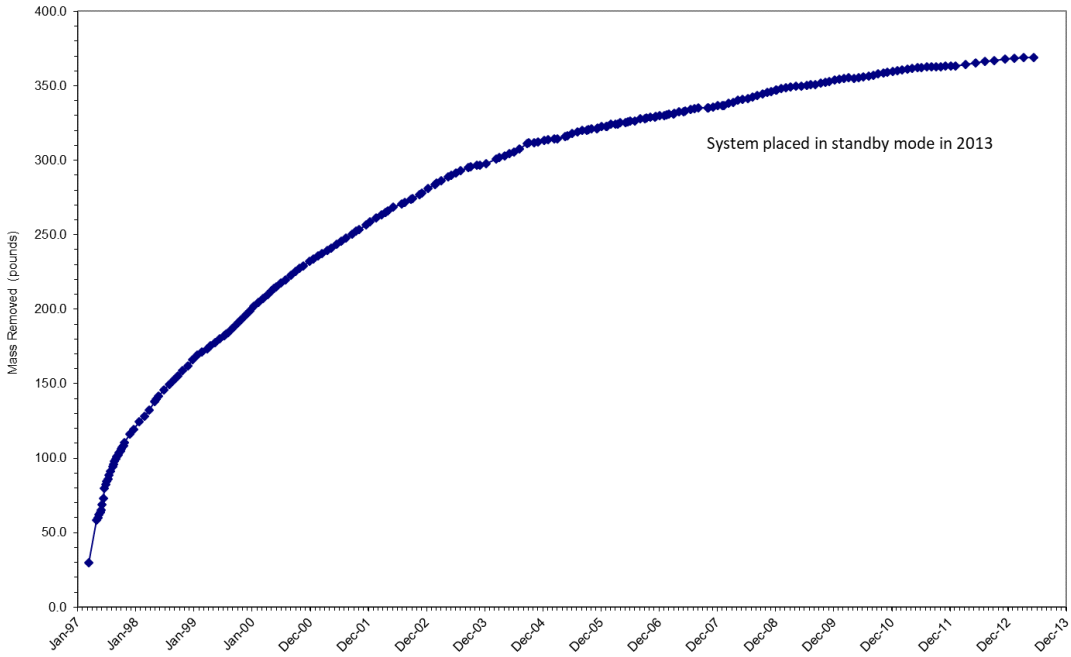


Figure 2-2
OU I South Boundary Pump & Treat System
Influent TVOC Concentrations vs. Time

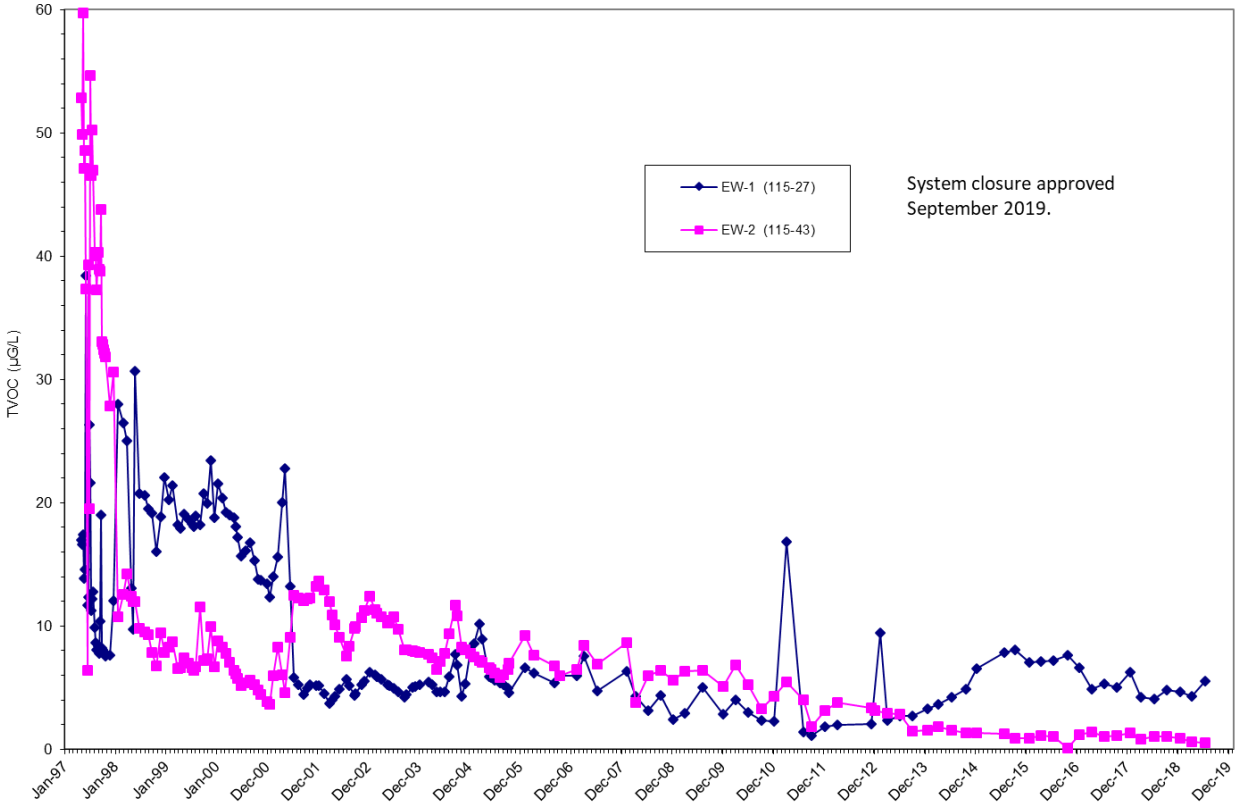


Table 2-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2022

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

[1] The system is closed.

System Operations

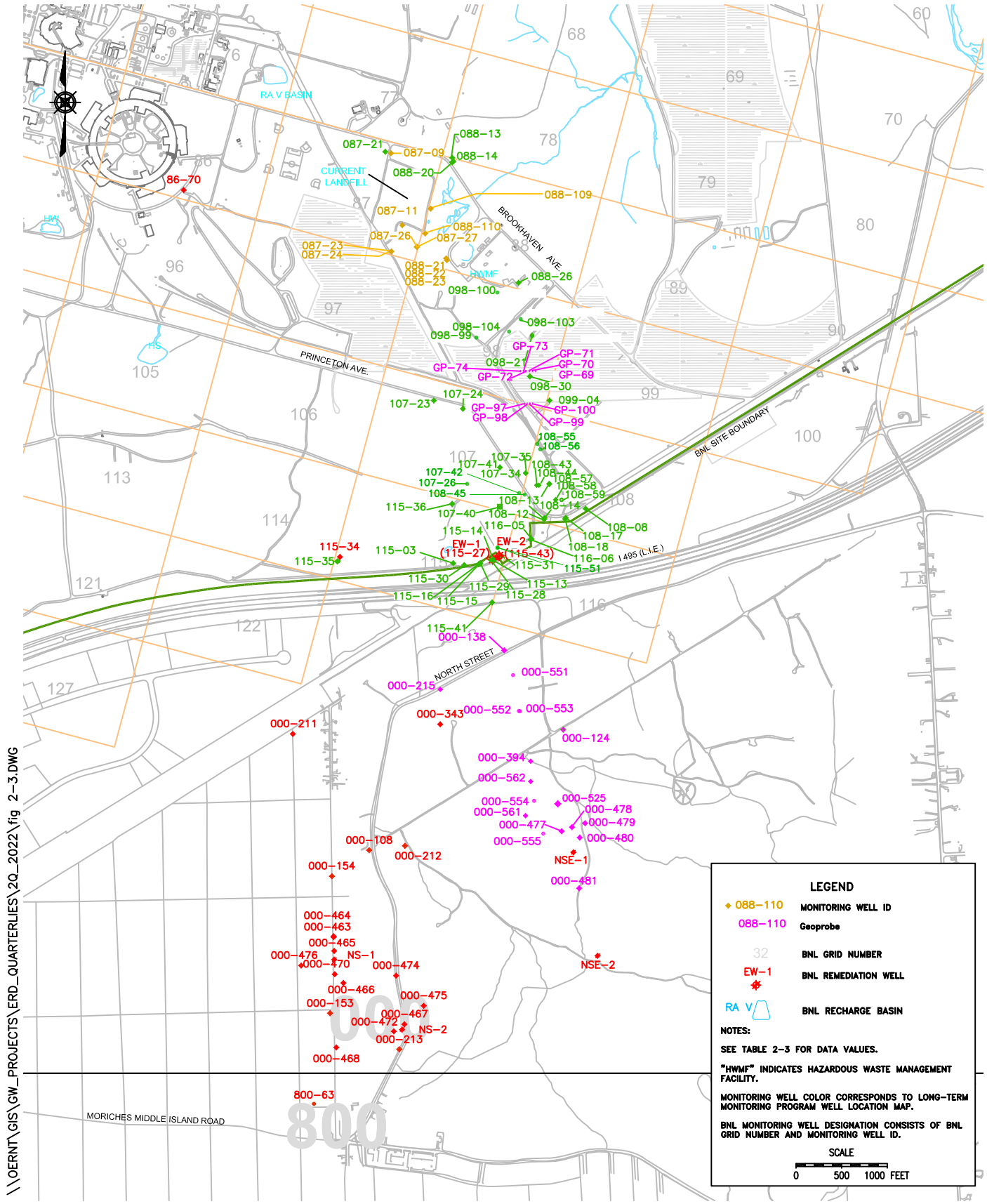
April through June 2022:

The system remained closed.

As a follow-up to temporary wells installed in 2018 and four that were collected in the first quarter 2022, six additional temporary wells were installed in the second quarter of 2022 as part of an effort to track the migration of Sr-90 from the former HWMF. The maximum Sr-90 concentration in the 10 temporary wells was 95 pCi/L in GP-71. The temporary well locations are shown on **Figure 2-4** and the data are presented and discussed in detail in the 2021 Groundwater Status Report.

Planned Operational Changes

- Maintain the VOC post-closure groundwater monitoring program of an annual sample collection from post-closure wells: 107-40, 107-41, 115-13, 115-16, and 115-51. Maintain quarterly sampling of Current Landfill well 088-109 and sentinel well 098-99.



\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2022\fig 2-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I SOUTH BOUNDARY/NORTH STREET/NORTH STREET EAST MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	08/08/11	NA
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/06/22	–

FIGURE NO.: 2-3

CURRENT LANDFILL

109

27

21

BROOKHAVEN AVE.

88

FORMER HWMF

26

21

89

98

GP-71

GP-74 GP-73 GP-72 GP-70 GP-69

30

99

PRINCETON AVE.

GP-98 GP-99 GP-100

GP-97

04

24

10

55

56

107

34

BNL SITE BOUNDARY

43

35

44

26

42

45

40

08

13

12

14

17

18

51

05

14

06

3

29 EW-1 EW-2

31

115

30

16

15

28

13

I 495 (L.I.E.)

42 41

116

SCALE

0 200 400 FEET

G:\GIS\Gw_projects\ERD_Quarterlies\2Q_2022\Fig 2-4 _GPs.dwg

LEGEND

26	MONITORING WELL ID
8	Sr-90 ISOCONCENTRATION pCi/L (DASHED WHERE INFERRED)
108	BNL GRID NUMBER
EW-1	BNL REMEDIATION WELL
GP-67	TEMPORARY WELL ID COMPLETE ID IS OUI-SR-90-GP67. ALL TEMP WELL IDS HAVE BEEN ABBREVIATED.
	SOLAR FARM PANELS
Sr-90	STRONTIUM-90

NOTES:

"HWMF" INDICATES FORMER HAZARDOUS WASTE MANAGEMENT FACILITY.

MONITORING WELL COLOR CORRESPONDS TO LONG-TERM MONITORING PROGRAM WELL LOCATION MAP.

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

BROOKHAVEN NATIONAL LABORATORY

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I SOUTH BOUNDARY
Sr-90 TEMPORARY WELLS
Secound Quarter 2022 Operations Report

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	10/8/17	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	09/07/22	–

FIGURE NO.: 2-4

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 087-09

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/10/2022	35	1.45	--	MG/L	29.00		
Barium	05/10/2022	19.5	1	--	UG/L	29.00	B	
Cadmium	05/10/2022	1.38	1	--	UG/L	29.00	B	
Calcium	05/10/2022	13400	50	--	UG/L	29.00		
Chloride	05/10/2022	27.9	0.335	--	MG/L	29.00		
Chromium	05/10/2022	8.23	1	--	UG/L	29.00	B	
Magnesium	05/10/2022	4670	110	--	UG/L	29.00	B	
Nickel	05/10/2022	8.48	1.5	--	UG/L	29.00	B	
Nitrate (as N)	05/10/2022	1.29	0.033	--	MG/L	29.00		
Nitrite + Nitrate-N	05/10/2022	1.48	0.17	--	MG/L	29.00		
Nitrogen	05/10/2022	1.48	0.17	--	MG/L	29.00		
Potassium	05/10/2022	1330	50	--	UG/L	29.00	B	
Sodium	05/10/2022	21100	100	--	UG/L	29.00		
Sulfate	05/10/2022	13.1	0.133	--	MG/L	29.00		
TDS	05/10/2022	134	3.4	--	MG/L	29.00		
Zinc	05/10/2022	4.38	3.3	--	UG/L	29.00	B	

Site ID : 087-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2022	4.53	--	--	UG/L	16.00		
Alkalinity (as CaCO3)	05/11/2022	217	1.45	--	MG/L	16.00		
Aluminum	05/11/2022	157	68	--	UG/L	16.00	B	
Ammonia (as N)	05/11/2022	3.97	0.085	--	MG/L	16.00		
Arsenic	05/11/2022	8.04	2	--	UG/L	16.00		
Barium	05/11/2022	39.5	1	--	UG/L	16.00	B	
Benzene	05/11/2022	1.76	0.5	--	UG/L	16.00		
Calcium	05/11/2022	24800	50	--	UG/L	16.00		
Chloride	05/11/2022	18.1	0.335	--	MG/L	16.00		
Chlorobenzene	05/11/2022	0.73	0.5	--	UG/L	16.00	J	
Chloroethane	05/11/2022	1.7	0.5	--	UG/L	16.00		
Iron	05/11/2022	88000	30	--	UG/L	16.00		
Magnesium	05/11/2022	5320	110	--	UG/L	16.00		
Manganese	05/11/2022	1740	2	--	UG/L	16.00		
Nickel	05/11/2022	5.97	1.5	--	UG/L	16.00	B	

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 087-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Nitrite + Nitrate-N	05/11/2022	0.0358	0.017	--	MG/L	16.00	J	
Nitrogen	05/11/2022	3.99	0.033	--	MG/L	16.00		
p-Dichlorobenzene	05/11/2022	0.34	0.5	--	UG/L	16.00	J	
Potassium	05/11/2022	5970	50	--	UG/L	16.00		
Sodium	05/11/2022	10000	100	--	UG/L	16.00		
Sulfate	05/11/2022	0.941	0.133	--	MG/L	16.00		
TDS	05/11/2022	216	3.4	--	MG/L	16.00		
Total Kjeldahl Nitrogen	05/11/2022	3.95	0.033	--	MG/L	16.00		
TSS	05/11/2022	13.9	1.02	--	MG/L	16.00		
Vanadium	05/11/2022	4.49	1	--	UG/L	16.00	B	
Zinc	05/11/2022	5.24	3.3	--	UG/L	16.00	B	

Site ID : 087-23

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2022	1.64	--	--	UG/L	32.50		
Alkalinity (as CaCO3)	05/11/2022	85.4	1.45	--	MG/L	32.50		
Ammonia (as N)	05/11/2022	0.478	0.017	--	MG/L	32.50		
Arsenic	05/11/2022	9.6	2	--	UG/L	32.50		
Barium	05/11/2022	28.7	1	--	UG/L	32.50	B	
Benzene	05/11/2022	0.55	0.5	--	UG/L	32.50	J	
Cadmium	05/11/2022	1.32	1	--	UG/L	32.50	B	
Calcium	05/11/2022	5750	50	--	UG/L	32.50		
Chloride	05/11/2022	6.35	0.067	--	MG/L	32.50		
Chlorobenzene	05/11/2022	0.53	0.5	--	UG/L	32.50	J	
Chloroethane	05/11/2022	0.56	0.5	--	UG/L	32.50	J	
Cobalt	05/11/2022	12.7	1	--	UG/L	32.50	B	
Iron	05/11/2022	44100	30	--	UG/L	32.50		
Magnesium	05/11/2022	1380	110	--	UG/L	32.50	B	
Manganese	05/11/2022	3130	2	--	UG/L	32.50		
Nickel	05/11/2022	5.69	1.5	--	UG/L	32.50	B	
Nitrite + Nitrate-N	05/11/2022	0.041	0.017	--	MG/L	32.50	J	
Nitrogen	05/11/2022	0.63	0.033	--	MG/L	32.50		
Potassium	05/11/2022	1110	50	--	UG/L	32.50	B	
Sodium	05/11/2022	4920	100	--	UG/L	32.50	B	

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 087-23

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Sulfate	05/11/2022	4.55	0.133	--	MG/L	32.50		
TDS	05/11/2022	84.3	3.4	--	MG/L	32.50		
Total Kjeldahl Nitrogen	05/11/2022	0.589	0.033	--	MG/L	32.50		
TSS	05/11/2022	7.09	1.04	--	MG/L	32.50		
Vanadium	05/11/2022	1.52	1	--	UG/L	32.50	B	
Zinc	05/11/2022	5.26	3.3	--	UG/L	32.50	B	

Site ID : 087-24

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/11/2022	28.4	1.45	--	MG/L	75.00		
Barium	05/11/2022	19.3	1	--	UG/L	75.00	B	
Cadmium	05/11/2022	1.25	1	--	UG/L	75.00	B	
Calcium	05/11/2022	10200	50	--	UG/L	75.00		
Chloride	05/11/2022	48.1	0.67	--	MG/L	75.00		
Magnesium	05/11/2022	5960	110	--	UG/L	75.00		
Nickel	05/11/2022	4.52	1.5	--	UG/L	75.00	B	
Nitrate (as N)	05/11/2022	0.445	0.033	--	MG/L	75.00		
Nitrite + Nitrate-N	05/11/2022	0.454	0.085	--	MG/L	75.00		
Nitrogen	05/11/2022	0.886	0.085	--	MG/L	75.00		
Potassium	05/11/2022	1570	50	--	UG/L	75.00	B	
Sodium	05/11/2022	30100	100	--	UG/L	75.00		
Sulfate	05/11/2022	10.2	0.133	--	MG/L	75.00		
TDS	05/11/2022	130	3.4	--	MG/L	75.00		
Total Kjeldahl Nitrogen	05/11/2022	0.432	0.033	--	MG/L	75.00		
TSS	05/11/2022	1.51	1.08	--	MG/L	75.00	J	

Site ID : 087-26

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/10/2022	2.35	--	--	UG/L	75.00		
Alkalinity (as CaCO3)	05/10/2022	25.2	1.45	--	MG/L	75.00		
Barium	05/10/2022	50.7	1	--	UG/L	75.00	B	
Cadmium	05/10/2022	1.19	1	--	UG/L	75.00	B	
Calcium	05/10/2022	11700	50	--	UG/L	75.00		
Chloride	05/10/2022	67.5	0.67	--	MG/L	75.00		
Chloroform	05/10/2022	2.35	0.5	--	UG/L	75.00		

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 087-26

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Iron	05/10/2022	64.2	30	--	UG/L	75.00	B	
Magnesium	05/10/2022	6800	110	--	UG/L	75.00		
Nitrate (as N)	05/10/2022	0.47	0.033	--	MG/L	75.00		
Nitrite + Nitrate-N	05/10/2022	0.492	0.085	--	MG/L	75.00		
Nitrogen	05/10/2022	0.492	0.085	--	MG/L	75.00		
Potassium	05/10/2022	2090	50	--	UG/L	75.00	B	
Sodium	05/10/2022	37300	100	--	UG/L	75.00		
Sulfate	05/10/2022	8.51	0.133	--	MG/L	75.00		
TDS	05/10/2022	180	3.4	--	MG/L	75.00		

Site ID : 087-27

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/10/2022	1.79	--	--	UG/L	12.50		
Alkalinity (as CaCO3)	05/10/2022	108	1.45	--	MG/L	12.50		
Ammonia (as N)	05/10/2022	1.21	0.017	--	MG/L	12.50		
Arsenic	05/10/2022	4.23	2	--	UG/L	12.50	B	
Barium	05/10/2022	21.6	1	--	UG/L	12.50	B	
Benzene	05/10/2022	0.41	0.5	--	UG/L	12.50	J	
Cadmium	05/10/2022	1.2	1	--	UG/L	12.50	B	
Calcium	05/10/2022	19200	50	--	UG/L	12.50		
Chloride	05/10/2022	14.7	0.134	--	MG/L	12.50		
Chloroethane	05/10/2022	0.42	0.5	--	UG/L	12.50	J	
Chloroform	05/10/2022	0.96	0.5	--	UG/L	12.50	J	
Cobalt	05/10/2022	5.84	1	--	UG/L	12.50	B	
Iron	05/10/2022	45000	30	--	UG/L	12.50		
Magnesium	05/10/2022	6720	110	--	UG/L	12.50		
Manganese	05/10/2022	1400	2	--	UG/L	12.50		
Nitrite + Nitrate-N	05/10/2022	0.0676	0.017	--	MG/L	12.50		
Nitrogen	05/10/2022	1.12	0.033	--	MG/L	12.50		
Potassium	05/10/2022	2380	50	--	UG/L	12.50	B	
Sodium	05/10/2022	9730	100	--	UG/L	12.50		
Sulfate	05/10/2022	6.89	0.133	--	MG/L	12.50		
TDS	05/10/2022	143	3.4	--	MG/L	12.50		
Total Kjeldahl Nitrogen	05/10/2022	1.05	0.033	--	MG/L	12.50		

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 087-27

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
TSS	05/10/2022	8.04	1.02	--	MG/L	12.50		
Vanadium	05/10/2022	2.08	1	--	UG/L	12.50	B	

Site ID : 088-109

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/10/2022	20.2	1.45	--	MG/L	13.50		
Barium	05/10/2022	22.5	1	--	UG/L	13.50	B	
Cadmium	05/10/2022	1.43	1	--	UG/L	13.50	B	
Calcium	05/10/2022	8560	50	--	UG/L	13.50		
Chloride	05/10/2022	14.8	0.134	--	MG/L	13.50		
Cobalt	05/10/2022	1.28	1	--	UG/L	13.50	B	
Iron	05/10/2022	4320	30	--	UG/L	13.50		
Magnesium	05/10/2022	3680	110	--	UG/L	13.50	B	
Manganese	05/10/2022	402	2	--	UG/L	13.50		
Nitrite + Nitrate-N	05/10/2022	0.018	0.017	--	MG/L	13.50	J	
Potassium	05/10/2022	932	50	--	UG/L	13.50	B	
Sodium	05/10/2022	10900	100	--	UG/L	13.50		
Sulfate	05/10/2022	16.6	0.133	--	MG/L	13.50		
TDS	05/10/2022	74.3	3.4	--	MG/L	13.50		
TSS	05/10/2022	4	1.14	--	MG/L	13.50	J	
Zinc	05/10/2022	3.86	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	05/10/2022	6.42	--	--	UG/L	17.50		
1,1-Dichloroethane	05/10/2022	0.67	0.5	--	UG/L	17.50	J	
Alkalinity (as CaCO3)	05/10/2022	174	1.45	--	MG/L	17.50		
Ammonia (as N)	05/10/2022	1.61	0.017	--	MG/L	17.50		
Arsenic	05/10/2022	8.67	2	--	UG/L	17.50		
Barium	05/10/2022	42.3	1	--	UG/L	17.50	B	
Benzene	05/10/2022	0.92	0.5	--	UG/L	17.50	J	
Calcium	05/10/2022	27100	50	--	UG/L	17.50		
Chloride	05/10/2022	22.8	0.335	--	MG/L	17.50		
Chloroethane	05/10/2022	4.83	0.5	--	UG/L	17.50		
Cobalt	05/10/2022	7.52	1	--	UG/L	17.50	B	

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 088-110

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Copper	05/10/2022	4.03	3	--	UG/L	17.50	B	
Iron	05/10/2022	91000	30	--	UG/L	17.50		
Magnesium	05/10/2022	7640	110	--	UG/L	17.50		
Manganese	05/10/2022	3340	2	--	UG/L	17.50		
Nitrite + Nitrate-N	05/10/2022	0.177	0.017	--	MG/L	17.50		
Nitrogen	05/10/2022	1.5	0.033	--	MG/L	17.50		
Potassium	05/10/2022	3760	50	--	UG/L	17.50	B	
Sodium	05/10/2022	17800	100	--	UG/L	17.50		
Sulfate	05/10/2022	9.9	0.133	--	MG/L	17.50		
TDS	05/10/2022	240	3.4	--	MG/L	17.50		
Total Kjeldahl Nitrogen	05/10/2022	1.32	0.033	--	MG/L	17.50		
TSS	05/10/2022	16.4	1.04	--	MG/L	17.50		
Vanadium	05/10/2022	3.51	1	--	UG/L	17.50	B	
Zinc	05/10/2022	7.8	3.3	--	UG/L	17.50	B	

Site ID : 088-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/11/2022	29.2	1.45	--	MG/L	12.50		
Ammonia (as N)	05/11/2022	0.0271	0.017	--	MG/L	12.50	J	
Antimony	05/11/2022	5.74	3.5	--	UG/L	12.50	B	
Barium	05/11/2022	30.7	1	--	UG/L	12.50	B	
Cadmium	05/11/2022	1.28	1	--	UG/L	12.50	B	
Calcium	05/11/2022	8180	50	--	UG/L	12.50		
Chloride	05/11/2022	117	1.34	--	MG/L	12.50		
Iron	05/11/2022	48.8	30	--	UG/L	12.50	B	
Magnesium	05/11/2022	4350	110	--	UG/L	12.50	B	
Manganese	05/11/2022	9.69	2	--	UG/L	12.50	B	
Nickel	05/11/2022	4.96	1.5	--	UG/L	12.50	B	
Nitrate (as N)	05/11/2022	1.43	0.66	--	MG/L	12.50	J	
Nitrite + Nitrate-N	05/11/2022	0.137	0.017	--	MG/L	12.50		
Nitrogen	05/11/2022	0.441	0.033	--	MG/L	12.50		
Potassium	05/11/2022	1440	50	--	UG/L	12.50	B	
Sodium	05/11/2022	83100	100	--	UG/L	12.50		
Sulfate	05/11/2022	3.93	0.133	--	MG/L	12.50		

Table 2-3
OU I RA V South Boundary - Current Landfill Monitoring Well Data - Current Landfill
'Hits Only' April through June 2022

Site ID : 088-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
TDS	05/11/2022	230	3.4	--	MG/L	12.50		
Total Kjeldahl Nitrogen	05/11/2022	0.304	0.033	--	MG/L	12.50		

Site ID : 098-99

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2022	2.42	--	--	UG/L	44.50		
1,1-Dichloroethane	05/11/2022	2.42	0.5	--	UG/L	44.50		

Table 2-3
OU I RA V South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 088-109

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Alkalinity (as CaCO3)	05/10/2022	20.2	1.45	--	MG/L	13.50		
Barium	05/10/2022	22.5	1	--	UG/L	13.50	B	
Cadmium	05/10/2022	1.43	1	--	UG/L	13.50	B	
Calcium	05/10/2022	8560	50	--	UG/L	13.50		
Chloride	05/10/2022	14.8	0.134	--	MG/L	13.50		
Cobalt	05/10/2022	1.28	1	--	UG/L	13.50	B	
Iron	05/10/2022	4320	30	--	UG/L	13.50		
Magnesium	05/10/2022	3680	110	--	UG/L	13.50	B	
Manganese	05/10/2022	402	2	--	UG/L	13.50		
Nitrite + Nitrate-N	05/10/2022	0.018	0.017	--	MG/L	13.50	J	
Potassium	05/10/2022	932	50	--	UG/L	13.50	B	
Sodium	05/10/2022	10900	100	--	UG/L	13.50		
Sulfate	05/10/2022	16.6	0.133	--	MG/L	13.50		
TDS	05/10/2022	74.3	3.4	--	MG/L	13.50		
TSS	05/10/2022	4	1.14	--	MG/L	13.50	J	
Zinc	05/10/2022	3.86	3.3	--	UG/L	13.50	B	

Site ID : 098-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	06/27/2022	1.15	0.794	0.515	PCI/L	28.80		N2

Site ID : 098-30

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	06/27/2022	35.9	1.35	1.56	PCI/L	37.80		

Site ID : 098-99

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/11/2022	2.42	--	--	UG/L	44.50		
1,1-Dichloroethane	05/11/2022	2.42	0.5	--	UG/L	44.50		

Site ID : 107-35

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	06/27/2022	6.26	1.13	0.825	PCI/L	65.00		

Site ID : 108-57

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	06/24/2022	5.74	0.798	0.73	PCI/L	70.00		

Site ID : 108-58

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	06/24/2022	5.05	0.79	0.754	PCI/L	70.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 3

Q2-2022 Operations Summary
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
OU III South Boundary
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	81
May " "	0	0	0	0	0	0	0	134
June " "	0	0	0	0	0	0	0	135
Actual (Avg. over Qtr)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**117**

* Extraction wells placed in standby mode: EW-12 (2003), EW-8 (2006), EW-6 (2007), EW-7 (2007), EW-3, EW-5 (2015) and EW-4 (2021).

Figure 3-1
OU III South Boundary
Cumulative Mass Removal of VOC's vs. Time

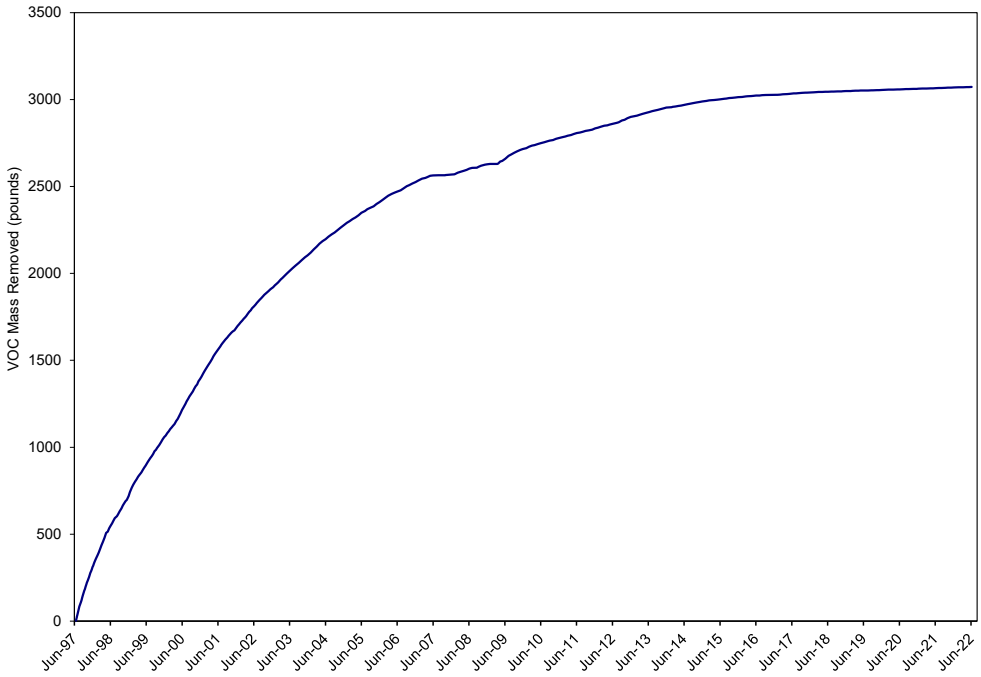


Figure 3-2
OU III South Boundary
Influent TVOC Concentration vs. Time

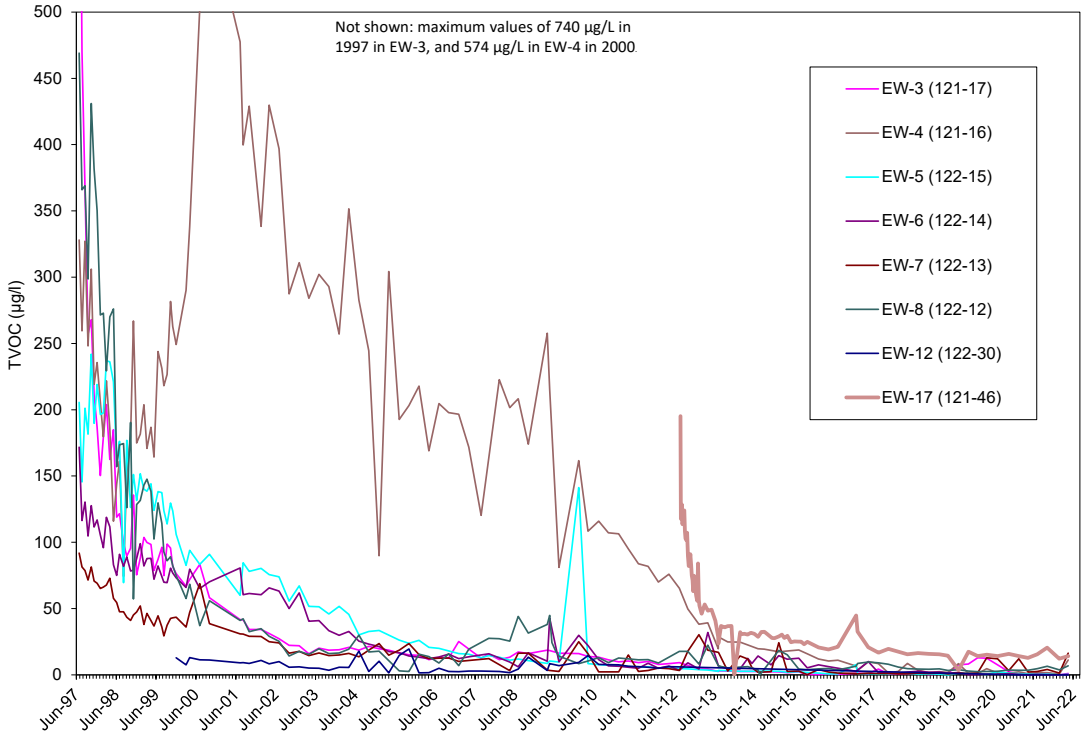


Table 3-2
OU III South Boundary Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 through June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	Monitor	1,540,026[1]	GPD	Continuous
pH (range)	6.5 - 8.5	7.4– 7.7[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 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.

System Operations

April 2022:

The system was shut off for one week in early April for a blower replacement on one of the air stripper towers. The remainder of the month the system operated normally. Extraction well EW-17 was in full-time operation. Wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8 and EW-12 remained in standby mode. The effluent sample was taken from OU III South Boundary air stripping tower. The system treated approximately 3.5 million gallons of water.

May 2022:

The system operated normally for the month. Extraction well EW-17 was in full-time operation. Wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8 and EW-12 remained in standby mode. The effluent sample was taken from OU III South Boundary air stripping tower. The system treated

approximately 5.8 million gallons of water.

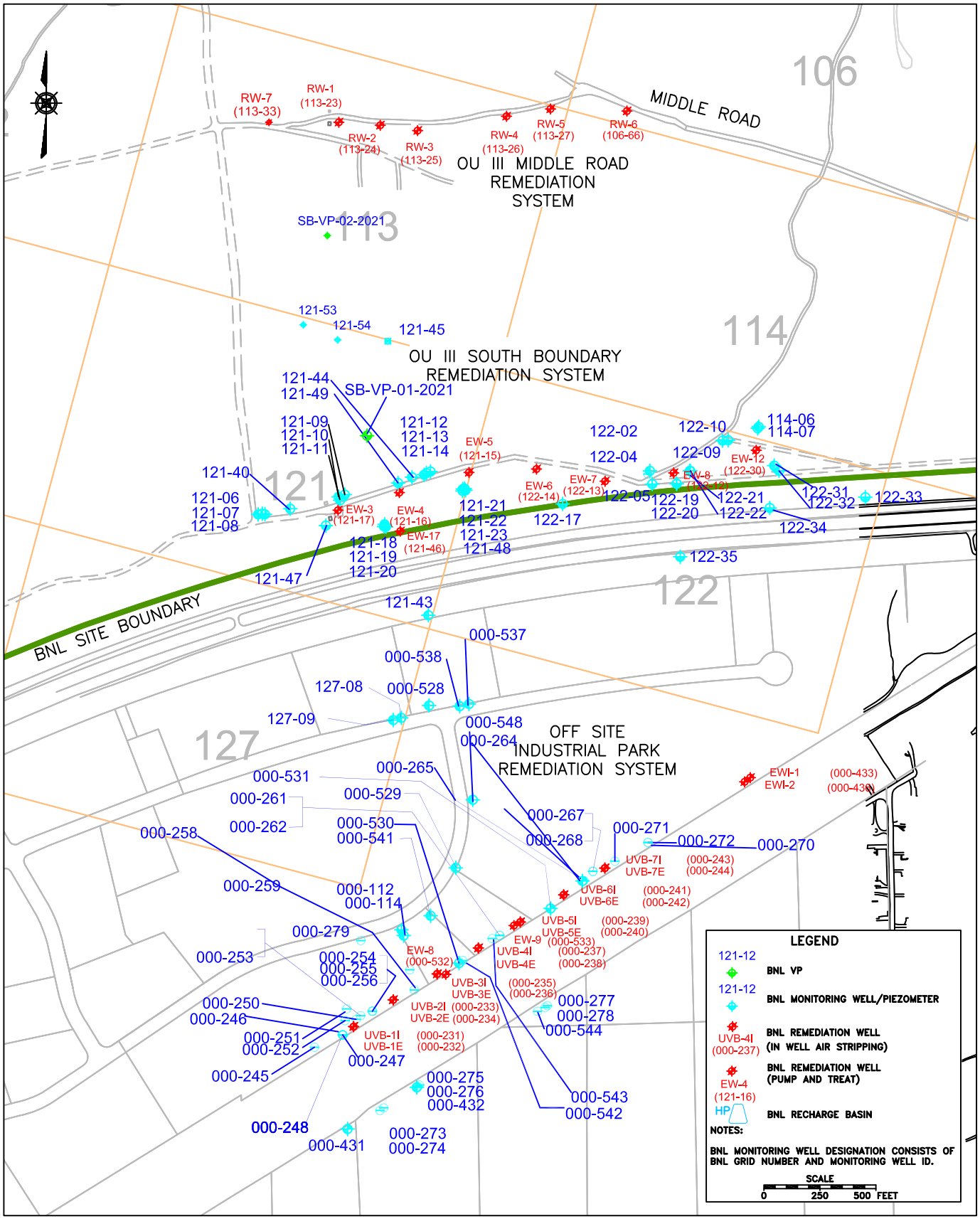
June 2022:

The system operated normally for the month. Extraction well EW-17 was in full time operation. Wells EW-3, EW-4, EW-5, EW-6, EW-7, EW-8 and EW-12 remained in standby mode. The effluent sample was taken from OU III South Boundary air stripping tower. The system treated approximately 5.8 million gallons of water.

The system treated approximately 15.1 million gallons of water during the second quarter of 2022.

Planned Operational Changes

- Maintain 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. 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, and EW-8 and adjacent monitoring wells were less than 50 µg/L.
- Continue to operate 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, located upgradient of and at the same depth as EW-17, have remained below 50 µg/L for the last three quarters with a maximum concentration of 19 µg/L in the second quarter 2022.
- Perform groundwater modeling simulations to help evaluate the best location, extraction rates, and number of extraction wells to optimize the system and achieve cleanup goals.



\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2022\FIG 3-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE: OU III SOUTH BOUNDARY/INDUSTRIAL PARK/INDUSTRIAL PARK EAST MONITORING WELL NETWORKS
SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
JEB	–	09/12/14	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	09/07/22	–

FIGURE NO.: 3–3

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 121-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/02/2022	2.88	--	--	UG/L	185.00		
1,1,1-Trichloroethane	05/02/2022	0.53	0.5	--	UG/L	185.00		
1,1-Dichloroethylene	05/02/2022	0.59	0.5	--	UG/L	185.00		
1,2-Dichloroethane	05/02/2022	0.17	0.5	--	UG/L	185.00	J	
Chloroform	05/02/2022	0.27	0.5	--	UG/L	185.00	J	
Tetrachloroethylene	05/02/2022	0.22	0.5	--	UG/L	185.00	J	
Trichloroethylene	05/02/2022	1.1	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	05/03/2022	2.3	--	--	UG/L	165.00		
Chloroform	05/03/2022	0.48	0.5	--	UG/L	165.00	J	
Methyl tert-butyl ether	05/03/2022	1.5	0.5	--	UG/L	165.00		
Tetrachloroethylene	05/03/2022	0.32	0.5	--	UG/L	165.00	J	

Site ID : 121-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2022	23.36	--	--	UG/L	205.00		
1,1,1-Trichloroethane	05/03/2022	0.72	0.5	--	UG/L	205.00		
1,1-Dichloroethane	05/03/2022	0.26	0.5	--	UG/L	205.00	J	
1,1-Dichloroethylene	05/03/2022	0.67	0.5	--	UG/L	205.00		
Carbon tetrachloride	05/03/2022	2.1	0.5	--	UG/L	205.00		
Chloroform	05/03/2022	0.75	0.5	--	UG/L	205.00		
Tetrachloroethylene	05/03/2022	18	0.5	--	UG/L	205.00		
Trichloroethylene	05/03/2022	0.86	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	05/03/2022	0.94	--	--	UG/L	195.00		
Chloroform	05/03/2022	0.33	0.5	--	UG/L	195.00	J	
Tetrachloroethylene	05/03/2022	0.61	0.5	--	UG/L	195.00		

Site ID : 121-43

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2022	1.29	--	--	UG/L	195.00		
Chloroform	05/12/2022	0.31	0.5	--	UG/L	195.00	J	
Tetrachloroethylene	05/12/2022	0.98	0.5	--	UG/L	195.00		

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 121-45

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/27/2022	6.04	--	--	UG/L	199.50		
1,1,1-Trichloroethane	04/27/2022	0.22	0.5	--	UG/L	199.50	J	
Chloroform	04/27/2022	0.44	0.5	--	UG/L	199.50	J	
Tetrachloroethylene	04/27/2022	4.9	0.5	--	UG/L	199.50		
Trichloroethylene	04/27/2022	0.48	0.5	--	UG/L	199.50	J	

Site ID : 121-47

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2022	11.56	--	--	UG/L	229.00		
1,1,1-Trichloroethane	05/03/2022	2.7	0.5	--	UG/L	229.00		
1,1-Dichloroethane	05/03/2022	1.2	0.5	--	UG/L	229.00		
1,1-Dichloroethylene	05/03/2022	4.1	0.5	--	UG/L	229.00		
1,2-Dichloroethane	05/03/2022	0.17	0.5	--	UG/L	229.00	J	
Carbon tetrachloride	05/03/2022	0.26	0.5	--	UG/L	229.00	J	
Chloroform	05/03/2022	1.5	0.5	--	UG/L	229.00		
Dichlorodifluoromethane	05/03/2022	0.36	0.5	--	UG/L	229.00	J	
Tetrachloroethylene	05/03/2022	0.27	0.5	--	UG/L	229.00	J	
Trichloroethylene	05/03/2022	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	05/03/2022	16.51	--	--	UG/L	228.00		
1,1,1-Trichloroethane	05/03/2022	4	0.5	--	UG/L	228.00		
1,1-Dichloroethylene	05/03/2022	4	0.5	--	UG/L	228.00		
1,2-Dichloroethane	05/03/2022	0.22	0.5	--	UG/L	228.00	J	
Carbon tetrachloride	05/03/2022	2	0.5	--	UG/L	228.00		
Chloroform	05/03/2022	0.84	0.5	--	UG/L	228.00		
cis-1,2-Dichloroethylene	05/03/2022	0.75	0.5	--	UG/L	228.00		
Tetrachloroethylene	05/03/2022	1.8	0.5	--	UG/L	228.00		
Trichloroethylene	05/03/2022	2.9	0.5	--	UG/L	228.00		

Site ID : 121-49

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/03/2022	19.41	--	--	UG/L	215.00		
Carbon tetrachloride	05/03/2022	0.64	0.5	--	UG/L	215.00		
Chloroform	05/03/2022	0.42	0.5	--	UG/L	215.00	J	

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 121-49

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	05/03/2022	18	0.5	--	UG/L	215.00		
Trichloroethylene	05/03/2022	0.35	0.5	--	UG/L	215.00	J	

Site ID : 121-53

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2022	148.37	--	--	UG/L	229.00		
1,1,1-Trichloroethane	05/04/2022	2.2	0.5	--	UG/L	229.00		
1,1,2,2-Tetrachloroethane	05/04/2022	0.18	0.5	--	UG/L	229.00	J	
1,1-Dichloroethane	05/04/2022	0.58	0.5	--	UG/L	229.00		
1,1-Dichloroethylene	05/04/2022	2.4	0.5	--	UG/L	229.00		
Carbon tetrachloride	05/04/2022	18	0.5	--	UG/L	229.00		
Chloroform	05/04/2022	1.8	0.5	--	UG/L	229.00		
Dichlorodifluoromethane	05/04/2022	0.51	0.5	--	UG/L	229.00		
Tetrachloroethylene	05/04/2022	120	2.5	--	UG/L	229.00	D	
Trichloroethylene	05/04/2022	2.7	0.5	--	UG/L	229.00		

Site ID : 121-54

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2022	90.5	--	--	UG/L	220.00		
1,1,1-Trichloroethane	05/04/2022	0.53	0.5	--	UG/L	220.00		
1,1-Dichloroethylene	05/04/2022	0.48	0.5	--	UG/L	220.00	J	
Carbon tetrachloride	05/04/2022	15	0.5	--	UG/L	220.00		
Chloroform	05/04/2022	0.66	0.5	--	UG/L	220.00		
Tetrachloroethylene	05/04/2022	73	2	--	UG/L	220.00	D	
Trichloroethylene	05/04/2022	0.83	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	05/04/2022	19.27	--	--	UG/L	271.50		
1,1,1-Trichloroethane	05/04/2022	0.72	0.5	--	UG/L	271.50		
1,1-Dichloroethylene	05/04/2022	0.28	0.5	--	UG/L	271.50	J	
Chloroform	05/04/2022	0.37	0.5	--	UG/L	271.50	J	
cis-1,2-Dichloroethylene	05/04/2022	14	0.5	--	UG/L	271.50		
Tetrachloroethylene	05/04/2022	2.4	0.5	--	UG/L	271.50		
Trichloroethylene	05/04/2022	1.5	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	05/04/2022	6.79	--	--	UG/L	210.00		

Table 3-3
OU III South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 122-17

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/04/2022	0.24	0.5	--	UG/L	210.00	J	
Carbon tetrachloride	05/04/2022	1.7	0.5	--	UG/L	210.00		
Chloroform	05/04/2022	0.83	0.5	--	UG/L	210.00		
cis-1,2-Dichloroethylene	05/04/2022	0.34	0.5	--	UG/L	210.00	J	
Dichlorodifluoromethane	05/04/2022	0.18	0.5	--	UG/L	210.00	J	
Tetrachloroethylene	05/04/2022	2	0.5	--	UG/L	210.00		
Trichloroethylene	05/04/2022	1.5	0.5	--	UG/L	210.00		

Table 3-4
OU III South Boundary Extraction Well Data
'Hits Only' April through June 2022

Site ID : 121-15 (EW-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	0.43	--	--	UG/L	0.00		
Chloroform	04/18/2022	0.43	0.5	--	UG/L	0.00	J	

Site ID : 121-16 (EW-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	11.2	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	1.7	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.35	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	2.9	0.5	--	UG/L	0.00		
Carbon tetrachloride	04/18/2022	0.68	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.77	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/18/2022	0.74	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	3.5	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.56	0.5	--	UG/L	0.00		

Site ID : 121-17 (EW-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	1.03	--	--	UG/L	0.00		
Chloroform	04/18/2022	0.33	0.5	--	UG/L	0.00	J	
Methyl tert-butyl ether	04/18/2022	0.49	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/18/2022	0.21	0.5	--	UG/L	0.00	J	

Site ID : 121-46 (EW-17)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	14.19	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.4	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	0.4	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/18/2022	2.3	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.66	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	10	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.43	0.5	--	UG/L	0.00	J	

Site ID : 122-12 (EW-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	6.81	--	--	UG/L	0.00		
Chloroform	04/18/2022	0.21	0.5	--	UG/L	0.00	J	
cis-1,2-Dichloroethylene	04/18/2022	1.7	0.5	--	UG/L	0.00		

Table 3-4
OU III South Boundary Extraction Well Data
'Hits Only' April through June 2022

Site ID : 122-12 (EW-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Methylene chloride	04/18/2022	0.98	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	3.3	0.5	--	UG/L	0.00		
Toluene	04/18/2022	0.29	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/18/2022	0.33	0.5	--	UG/L	0.00	J	

Site ID : 122-13 (EW-7)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	16.31	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	3.2	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.49	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	5.7	0.5	--	UG/L	0.00		
Carbon tetrachloride	04/18/2022	0.76	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.91	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/18/2022	1	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	3.5	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.75	0.5	--	UG/L	0.00		

Site ID : 122-14 (EW-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	0.28	--	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	0.28	0.5	--	UG/L	0.00	J	

Table 3-5
OU III South Boundary Influent Data
'Hits Only' April through June 2022

Site ID : 121-41 (System Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	15.2	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.4	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	0.39	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/18/2022	2.3	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.64	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	11	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.47	0.5	--	UG/L	0.00	J	
8260 TVOC	05/09/2022	14.14	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/09/2022	0.4	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	05/09/2022	0.42	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	05/09/2022	2.2	0.5	--	UG/L	0.00		
Chloroform	05/09/2022	0.69	0.5	--	UG/L	0.00		
Tetrachloroethylene	05/09/2022	10	0.5	--	UG/L	0.00		
Trichloroethylene	05/09/2022	0.43	0.5	--	UG/L	0.00	J	
8260 TVOC	06/06/2022	13.95	--	--	UG/L	0.00		
1,1-Dichloroethylene	06/06/2022	0.21	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	06/06/2022	2	0.5	--	UG/L	0.00		
Chloroform	06/06/2022	0.57	0.5	--	UG/L	0.00		
Tetrachloroethylene	06/06/2022	11	0.5	--	UG/L	0.00		
Trichloroethylene	06/06/2022	0.17	0.5	--	UG/L	0.00	J	

Table 3-6
OU III South Boundary Effluent Data
'Hits Only' April through June 2022

Site ID : 095-126 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	0	--	--	UG/L	0.00		
8260 TVOC	05/09/2022	0	--	--	UG/L	0.00		
8260 TVOC	06/06/2022	0	--	--	UG/L	0.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 4

Q2-2022 Operations Summary
OU III Middle Road 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: October 23, 2001

Table 4-1
OU III Middle Road
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*	125
April (Avg monthly gpm)	0	89	84	0	0	0	87
May " " "	0	139	137	0	0	0	146
June " " "	0	140	49	0	0	0	146
Actual (Avg. over Qtr.)	**0**	**123**	**90**	**0**	**0**	**0**	**126**

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

Figure 4-1
OU III Middle Road
Cumulative Mass Removal of VOC's vs. Time

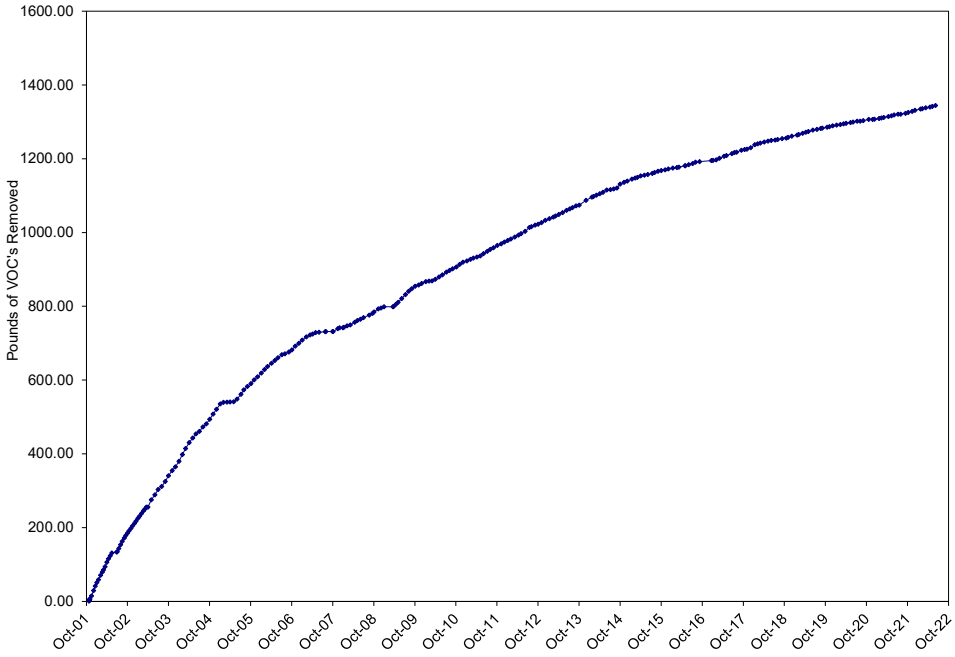


Figure 4-2
OU III Middle Road
Influent TVOC Concentrations vs. Time

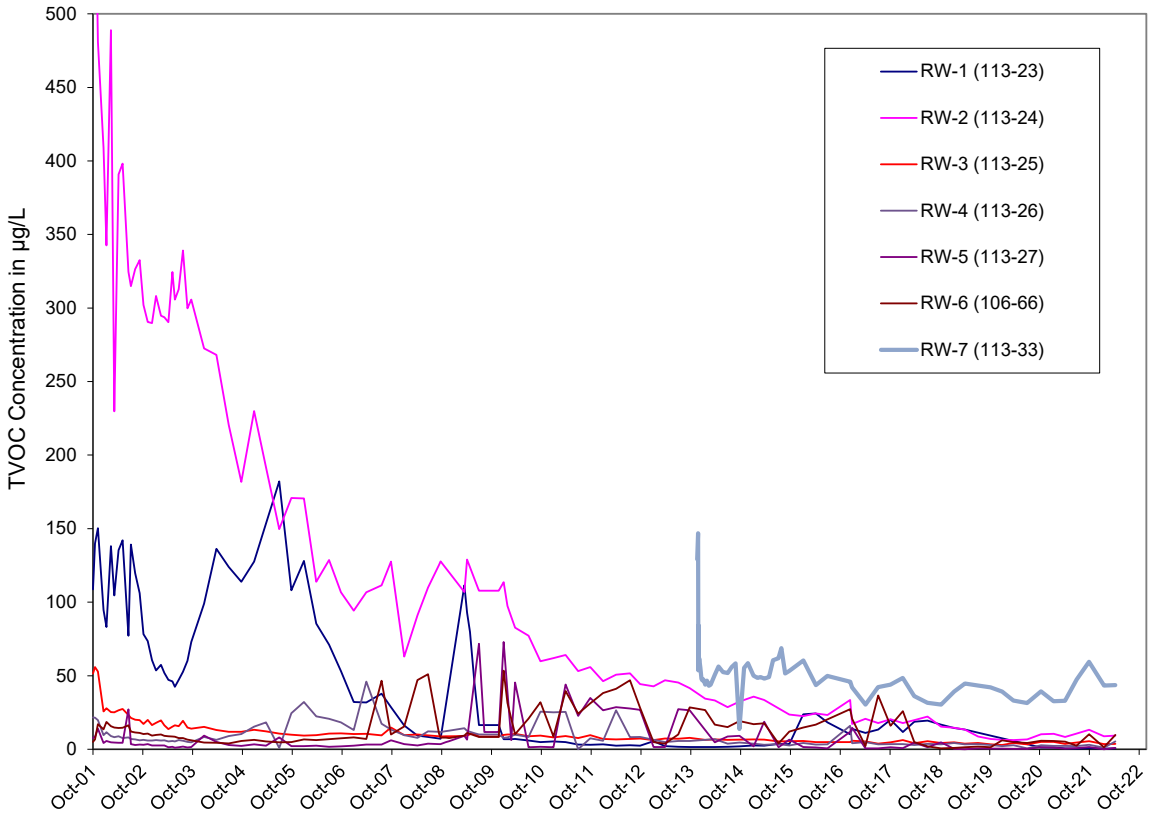


Table 4-2
OU III Middle Road Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1, 2022 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	Monitor	1,540,026[1]	GPD	Continuo
pH (range)	6.5 - 8.5	7.4– 7.7[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.

System Operations

April 2022:

The system was shut off for one week in early April for a blower replacement on one of the air stripper towers. The remainder of the month the system operated normally. 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. The effluent sample was taken from OU III South Boundary air stripping tower. The system treated approximately 11.2 million gallons of water.

May 2022:

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. The effluent sample was taken from OU III South Boundary air stripping tower. The system treated approximately 18.2 million gallons of water.

June 2022:

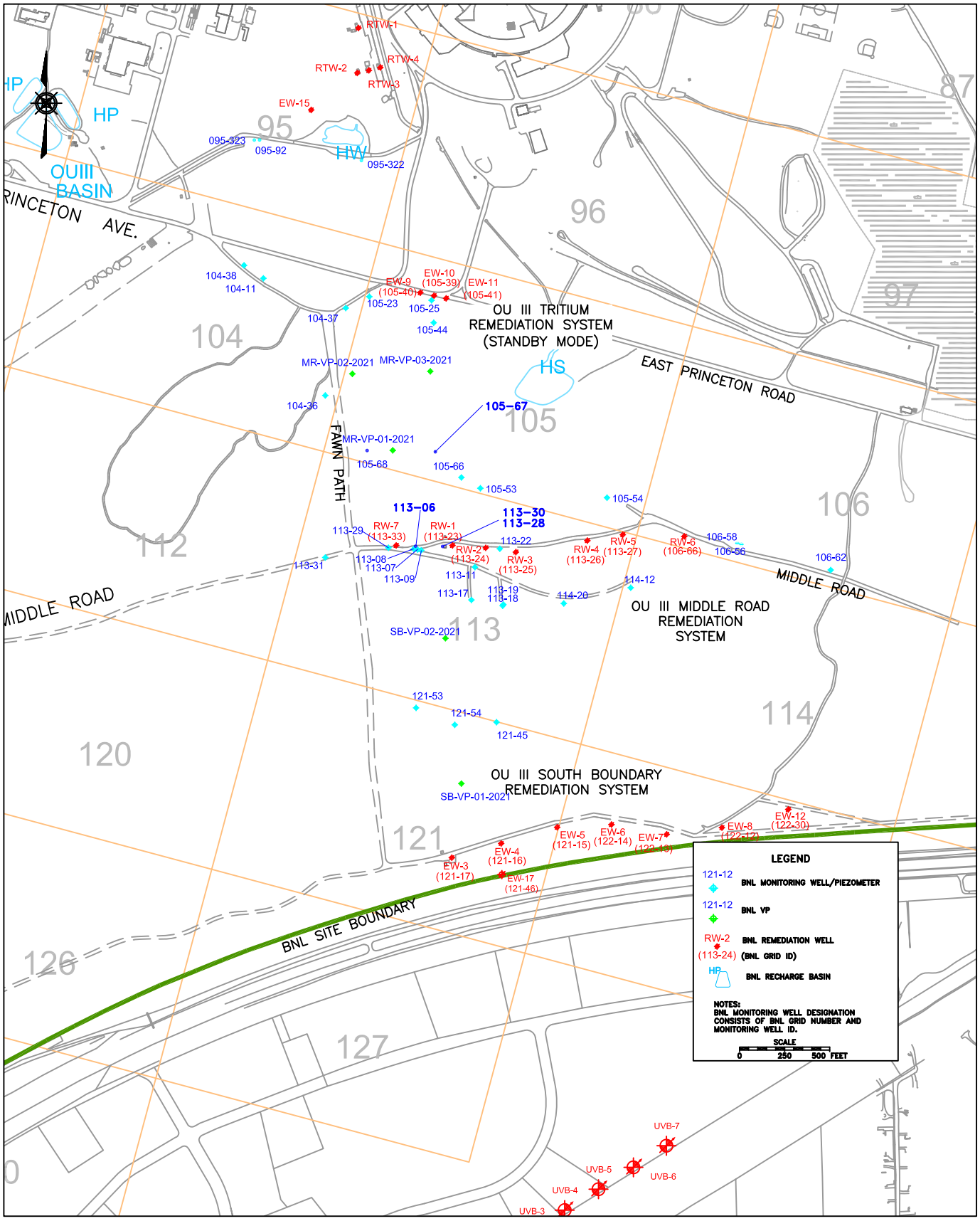
The system operated normally for the month except for RW-3 being down for pump repair toward the end of the month. Extraction wells RW-2 and RW-7 were in full-time operation. Wells RW-1, RW- 4, RW-5 and RW-6 remained in standby mode. The effluent sample was taken from OU III South Boundary air stripping tower. The system treated approximately 14.5 million gallons of water.

The system treated approximately 44 million gallons of water during the second quarter of 2022.

Planned Operational Changes

- Continue operation of extraction wells RW-2, RW-3 and RW-7, and 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.

- Perform groundwater modeling simulations to help evaluate the best location, extraction rates, and number of extraction wells to optimize the system and achieve cleanup goals.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III MIDDLE ROAD MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS
REPORT

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
JEB	–	02/08/07	–
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/07/22	–

FIGURE NO.: 4–3

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 095-322

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/29/2022	38.39	--	--	UG/L	180.00		
1,1,1-Trichloroethane	04/29/2022	3.5	0.5	--	UG/L	180.00		
1,1-Dichloroethane	04/29/2022	0.65	0.5	--	UG/L	180.00		
1,1-Dichloroethylene	04/29/2022	6.9	0.5	--	UG/L	180.00		
Chloroform	04/29/2022	0.74	0.5	--	UG/L	180.00		
Tetrachloroethylene	04/29/2022	18	0.5	--	UG/L	180.00		
Trichloroethylene	04/29/2022	8.6	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	04/29/2022	20.85	--	--	UG/L	205.00		
1,1,1-Trichloroethane	04/29/2022	2.1	0.5	--	UG/L	205.00		
1,1,2,2-Tetrachloroethane	04/29/2022	1.4	0.5	--	UG/L	205.00		
1,1-Dichloroethylene	04/29/2022	1.1	0.5	--	UG/L	205.00		
Chloroform	04/29/2022	0.65	0.5	--	UG/L	205.00		
Tetrachloroethylene	04/29/2022	11	0.5	--	UG/L	205.00		
Trichloroethylene	04/29/2022	4.6	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	04/29/2022	0.63	--	--	UG/L	121.00		
Chloroform	04/29/2022	0.34	0.5	--	UG/L	121.00	J	
Toluene	04/29/2022	0.29	0.5	--	UG/L	121.00	J	

Site ID : 104-37

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/22/2022	105.26	--	--	UG/L	209.00		
1,1,1-Trichloroethane	04/22/2022	2.3	0.5	--	UG/L	209.00		
1,1,2,2-Tetrachloroethane	04/22/2022	1.3	0.5	--	UG/L	209.00		
1,1,2-Trichloroethane	04/22/2022	0.7	0.5	--	UG/L	209.00		
1,1-Dichloroethylene	04/22/2022	3.5	0.5	--	UG/L	209.00		
Carbon tetrachloride	04/22/2022	3.1	0.5	--	UG/L	209.00		
Chloroform	04/22/2022	0.86	0.5	--	UG/L	209.00		
Tetrachloroethylene	04/22/2022	89	2.5	--	UG/L	209.00	D	
Trichloroethylene	04/22/2022	4.5	0.5	--	UG/L	209.00		

Site ID : 105-23

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/22/2022	15.87	--	--	UG/L	180.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 105-23

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	04/22/2022	0.24	0.5	--	UG/L	180.00	J	
1,1-Dichloroethylene	04/22/2022	0.34	0.5	--	UG/L	180.00	J	
Carbon tetrachloride	04/22/2022	0.57	0.5	--	UG/L	180.00		
Chloroform	04/22/2022	0.38	0.5	--	UG/L	180.00	J	
Tetrachloroethylene	04/22/2022	14	0.5	--	UG/L	180.00		
Trichloroethylene	04/22/2022	0.34	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	04/26/2022	0.98	--	--	UG/L	147.50		
Chloroform	04/26/2022	0.58	0.5	--	UG/L	147.50		
Tetrachloroethylene	04/26/2022	0.4	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	06/07/2022	1.38	--	--	UG/L	152.50		
Chloroform	06/07/2022	0.4	0.5	--	UG/L	152.50	J	
Tetrachloroethylene	06/07/2022	0.98	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	04/28/2022	0.83	--	--	UG/L	175.00		
Chloroform	04/28/2022	0.39	0.5	--	UG/L	175.00	J	
Tetrachloroethylene	04/28/2022	0.44	0.5	--	UG/L	175.00	J	

Site ID : 105-66

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2022	167.52	--	--	UG/L	184.00		
1,1,1-Trichloroethane	04/28/2022	1.4	0.5	--	UG/L	184.00		
1,1,2,2-Tetrachloroethane	04/28/2022	0.53	0.5	--	UG/L	184.00		
1,1-Dichloroethane	04/28/2022	0.26	0.5	--	UG/L	184.00	J	
1,1-Dichloroethylene	04/28/2022	1.1	0.5	--	UG/L	184.00		
Carbon tetrachloride	04/28/2022	7.7	0.5	--	UG/L	184.00		
Chloroform	04/28/2022	0.9	0.5	--	UG/L	184.00		
Methyl tert-butyl ether	04/28/2022	0.23	0.5	--	UG/L	184.00	J	
Tetrachloroethylene	04/28/2022	150	5	--	UG/L	184.00	D	
Trichloroethylene	04/28/2022	5.4	0.5	--	UG/L	184.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 105-67

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2022	71.22	--	--	UG/L	185.00		
1,1,1-Trichloroethane	04/28/2022	4.3	0.5	--	UG/L	185.00		
1,1,2,2-Tetrachloroethane	04/28/2022	0.64	0.5	--	UG/L	185.00		
1,1-Dichloroethane	04/28/2022	0.25	0.5	--	UG/L	185.00	J	
1,1-Dichloroethylene	04/28/2022	3.7	0.5	--	UG/L	185.00		
Chloroform	04/28/2022	0.53	0.5	--	UG/L	185.00		
Methyl tert-butyl ether	04/28/2022	0.3	0.5	--	UG/L	185.00	J	
Tetrachloroethylene	04/28/2022	60	2	--	UG/L	185.00	D	
Trichloroethylene	04/28/2022	1.5	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	04/28/2022	157.1	--	--	UG/L	205.00		
1,1,1-Trichloroethane	04/28/2022	0.84	0.5	--	UG/L	205.00		
1,1,2,2-Tetrachloroethane	04/28/2022	2.9	0.5	--	UG/L	205.00		
1,1-Dichloroethylene	04/28/2022	0.66	0.5	--	UG/L	205.00		
Carbon tetrachloride	04/28/2022	9.4	0.5	--	UG/L	205.00		
Chloroform	04/28/2022	1.3	0.5	--	UG/L	205.00		
Tetrachloroethylene	04/28/2022	130	5	--	UG/L	205.00	D	
Trichloroethylene	04/28/2022	12	0.5	--	UG/L	205.00		

Site ID : 106-56

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/26/2022	0.71	--	--	UG/L	165.00		
Chloroform	04/26/2022	0.71	0.5	--	UG/L	165.00		

Site ID : 106-58

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/26/2022	1.54	--	--	UG/L	205.00		
Chloroform	04/26/2022	0.44	0.5	--	UG/L	205.00	J	
Tetrachloroethylene	04/26/2022	1.1	0.5	--	UG/L	205.00		

Site ID : 106-62

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/26/2022	1	--	--	UG/L	72.00		
Chloroform	04/26/2022	1	0.5	--	UG/L	72.00		
Strontium-90	04/26/2022	1.87	0.814	0.576	PCI/L	72.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 113-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/25/2022	2.1	--	--	UG/L	142.00		
Tetrachloroethylene	04/25/2022	2.1	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	04/25/2022	76.17	--	--	UG/L	222.00		
1,1,1-Trichloroethane	04/25/2022	1.7	0.5	--	UG/L	222.00		
1,1,2,2-Tetrachloroethane	04/25/2022	0.46	0.5	--	UG/L	222.00	J	
1,1-Dichloroethane	04/25/2022	0.26	0.5	--	UG/L	222.00	J	
1,1-Dichloroethylene	04/25/2022	1.8	0.5	--	UG/L	222.00		
Carbon tetrachloride	04/25/2022	0.54	0.5	--	UG/L	222.00		
Chloroform	04/25/2022	0.81	0.5	--	UG/L	222.00		
Methyl tert-butyl ether	04/25/2022	0.2	0.5	--	UG/L	222.00	J	
Tetrachloroethylene	04/25/2022	66	2.5	--	UG/L	222.00	D	
Trichloroethylene	04/25/2022	4.4	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	04/26/2022	3.38	--	--	UG/L	201.00		
Chloroform	04/26/2022	0.58	0.5	--	UG/L	201.00		
Tetrachloroethylene	04/26/2022	2.8	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	04/26/2022	16.01	--	--	UG/L	177.00		
Carbon tetrachloride	04/26/2022	0.32	0.5	--	UG/L	177.00	J	
Chloroform	04/26/2022	1.2	0.5	--	UG/L	177.00		
Tetrachloroethylene	04/26/2022	14	0.5	--	UG/L	177.00		
Trichloroethylene	04/26/2022	0.49	0.5	--	UG/L	177.00	J	

Site ID : 113-19

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/26/2022	28.22	--	--	UG/L	230.00		
1,1,1-Trichloroethane	04/26/2022	9.1	0.5	--	UG/L	230.00		
1,1-Dichloroethane	04/26/2022	1.2	0.5	--	UG/L	230.00		
1,1-Dichloroethylene	04/26/2022	5.5	0.5	--	UG/L	230.00		
Carbon tetrachloride	04/26/2022	6.4	0.5	--	UG/L	230.00		

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 113-19

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	04/26/2022	0.88	0.5	--	UG/L	230.00		
cis-1,2-Dichloroethylene	04/26/2022	0.44	0.5	--	UG/L	230.00	J	
Trichloroethylene	04/26/2022	4.7	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	04/28/2022	11.91	--	--	UG/L	240.00		
1,1,1-Trichloroethane	04/28/2022	0.54	0.5	--	UG/L	240.00		
1,1-Dichloroethylene	04/28/2022	0.19	0.5	--	UG/L	240.00	J	
Carbon tetrachloride	04/28/2022	10	0.5	--	UG/L	240.00		
Chloroform	04/28/2022	0.79	0.5	--	UG/L	240.00		
Trichloroethylene	04/28/2022	0.39	0.5	--	UG/L	240.00	J	

Site ID : 113-30

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/27/2022	8.83	--	--	UG/L	190.00		
Carbon tetrachloride	04/27/2022	1.7	0.5	--	UG/L	190.00		
Chloroform	04/27/2022	0.73	0.5	--	UG/L	190.00		
Tetrachloroethylene	04/27/2022	6.4	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	04/25/2022	2.57	--	--	UG/L	190.00		
1,1,1-Trichloroethane	04/25/2022	1.5	0.5	--	UG/L	190.00		
1,1-Dichloroethylene	04/25/2022	0.51	0.5	--	UG/L	190.00		
Chloroform	04/25/2022	0.25	0.5	--	UG/L	190.00	J	
Trichloroethylene	04/25/2022	0.31	0.5	--	UG/L	190.00	J	

Site ID : 114-12

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/28/2022	0.87	--	--	UG/L	155.00		
Chloroform	04/28/2022	0.87	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	04/27/2022	6.04	--	--	UG/L	199.50		
1,1,1-Trichloroethane	04/27/2022	0.22	0.5	--	UG/L	199.50	J	
Chloroform	04/27/2022	0.44	0.5	--	UG/L	199.50	J	

Table 4-3
OU III Middle Road Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 121-45

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	04/27/2022	4.9	0.5	--	UG/L	199.50		
Trichloroethylene	04/27/2022	0.48	0.5	--	UG/L	199.50	J	

Site ID : 121-53

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/04/2022	148.37	--	--	UG/L	229.00		
1,1,1-Trichloroethane	05/04/2022	2.2	0.5	--	UG/L	229.00		
1,1,2,2-Tetrachloroethane	05/04/2022	0.18	0.5	--	UG/L	229.00	J	
1,1-Dichloroethane	05/04/2022	0.58	0.5	--	UG/L	229.00		
1,1-Dichloroethylene	05/04/2022	2.4	0.5	--	UG/L	229.00		
Carbon tetrachloride	05/04/2022	18	0.5	--	UG/L	229.00		
Chloroform	05/04/2022	1.8	0.5	--	UG/L	229.00		
Dichlorodifluoromethane	05/04/2022	0.51	0.5	--	UG/L	229.00		
Tetrachloroethylene	05/04/2022	120	2.5	--	UG/L	229.00	D	
Trichloroethylene	05/04/2022	2.7	0.5	--	UG/L	229.00		

Table 4-4
OU III Middle Road Extraction Well Data
'Hits Only' April through June 2022

Site ID : 106-66 (RW-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	9.73	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	1.1	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.25	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	1.1	0.5	--	UG/L	0.00		
Carbon tetrachloride	04/18/2022	0.64	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.51	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/18/2022	0.33	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/18/2022	5.2	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.6	0.5	--	UG/L	0.00		

Site ID : 113-23 (RW-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	0.53	--	--	UG/L	0.00		
Chloroform	04/18/2022	0.37	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/18/2022	0.16	0.5	--	UG/L	0.00	J	

Site ID : 113-24 (RW-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	9.24	--	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	0.16	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/18/2022	0.68	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.51	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	7.4	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.49	0.5	--	UG/L	0.00	J	

Site ID : 113-25 (RW-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	3.67	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	1.7	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.4	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	0.67	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.9	0.5	--	UG/L	0.00		

Site ID : 113-26 (RW-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	5.39	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.48	0.5	--	UG/L	0.00	J	

Table 4-4
OU III Middle Road Extraction Well Data
'Hits Only' April through June 2022

Site ID : 113-26 (RW-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Carbon tetrachloride	04/18/2022	0.49	0.5	--	UG/L	0.00	J	
Chloroform	04/18/2022	0.57	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	3.2	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.65	0.5	--	UG/L	0.00		

Site ID : 113-27 (RW-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	0.89	--	--	UG/L	0.00		
Chloroform	04/18/2022	0.89	0.5	--	UG/L	0.00		

Site ID : 113-33 (RW-7)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	43.62	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.85	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	0.5	0.5	--	UG/L	0.00		
Carbon tetrachloride	04/18/2022	5.8	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.62	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/18/2022	35	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.85	0.5	--	UG/L	0.00		

Table 4-5
OU III Middle Road Influent Data
'Hits Only' April through June 2022

Site ID : 113-34 (Combo Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
524.2 TVOC	04/18/2022	16.14	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.69	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	0.39	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/18/2022	2	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.44	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/18/2022	12	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.62	0.5	--	UG/L	0.00		
8260 TVOC	05/09/2022	18.15	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/09/2022	0.79	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	05/09/2022	0.22	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	05/09/2022	2	0.5	--	UG/L	0.00		
Chloroform	05/09/2022	0.47	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	05/09/2022	14	0.5	--	UG/L	0.00		
Trichloroethylene	05/09/2022	0.67	0.5	--	UG/L	0.00		
8260 TVOC	06/06/2022	18.28	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/06/2022	0.52	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	06/06/2022	0.21	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	06/06/2022	1.7	0.5	--	UG/L	0.00		
Chloroform	06/06/2022	0.41	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	06/06/2022	15	0.5	--	UG/L	0.00		
Trichloroethylene	06/06/2022	0.44	0.5	--	UG/L	0.00	J	

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 5

Q2-2022 Operations Summary
OU III Industrial Park In-Well Air Stripping System

Process: Groundwater extraction and in-well air stripping treatment, with discharge in 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
OU III Industrial Park
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

Note:
*Wells UVB-1 to UVB-7 were placed in stand-by mode February 2017.
Wells EW-8 and EW-9 started full-time operation 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.

Figure 5-1
OU III Industrial Park
Cumulative Mass Removal of VOCs vs. Time

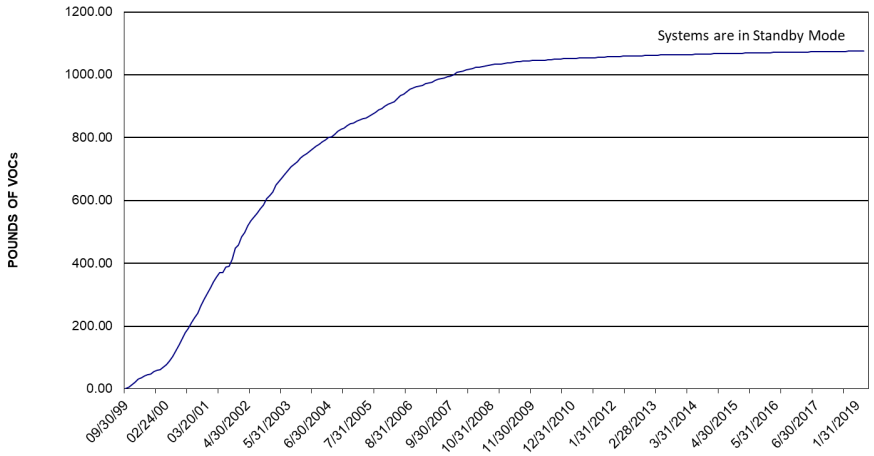
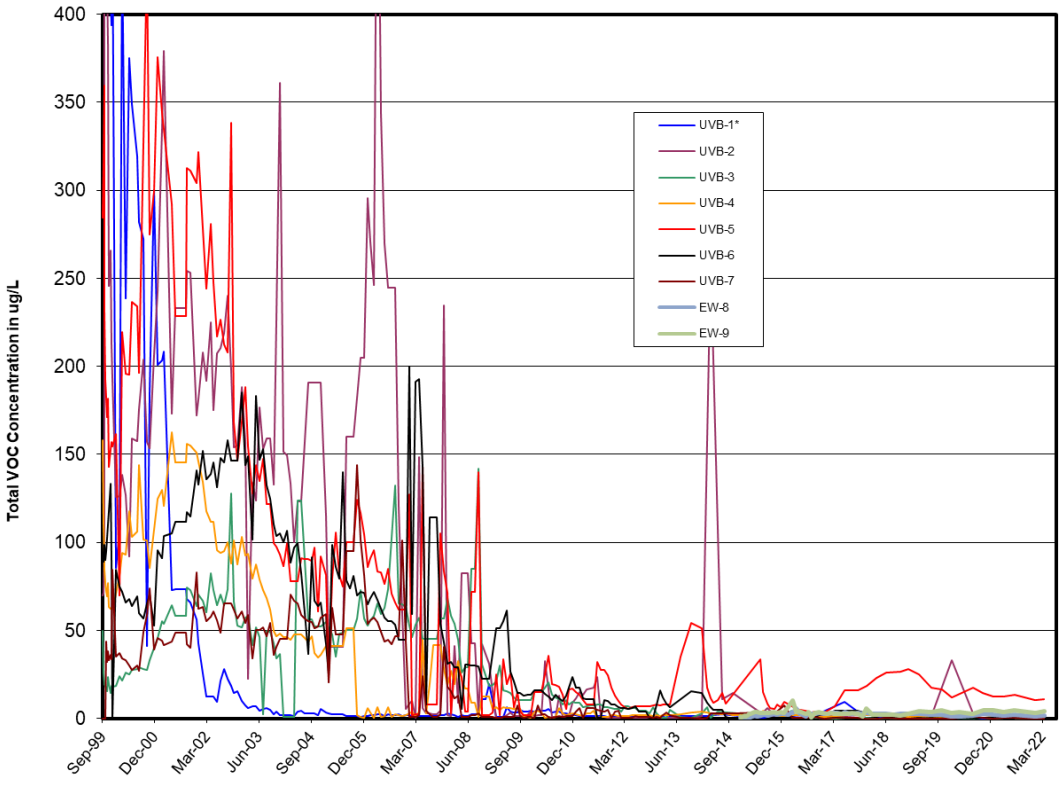


Figure 5-2
OU III Industrial Park
Influent TVOC Concentrations vs. Time



*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.

Table 5-2
OU III Industrial Park Effluent Water Quality for EW-8 and EW-9
SPDES Equivalency Permit Concentrations April 1 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	Monitor	N/A	GPM	Continuous
pH (range)	5.0 - 8.5	N/A	SU	Weekly
Carbon Tetrachloride	5	N/A	ug/L	Monthly[1]
Chloroform	7	N/A	ug/L	Monthly[1]
1,2-Dichloroethane	0.6	N/A	ug/L	Monthly[1]
1,1-Dichloroethylene	5	N/A	ug/L	Monthly[1]
Tetrachloroethylene	5	N/A	ug/L	Monthly[1]
Trichloroethene	5	N/A	ug/L	Monthly[1]
1,1,1-Trichloroethane	5	N/A	ug/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 since the system was placed in standby mode in July 2019.

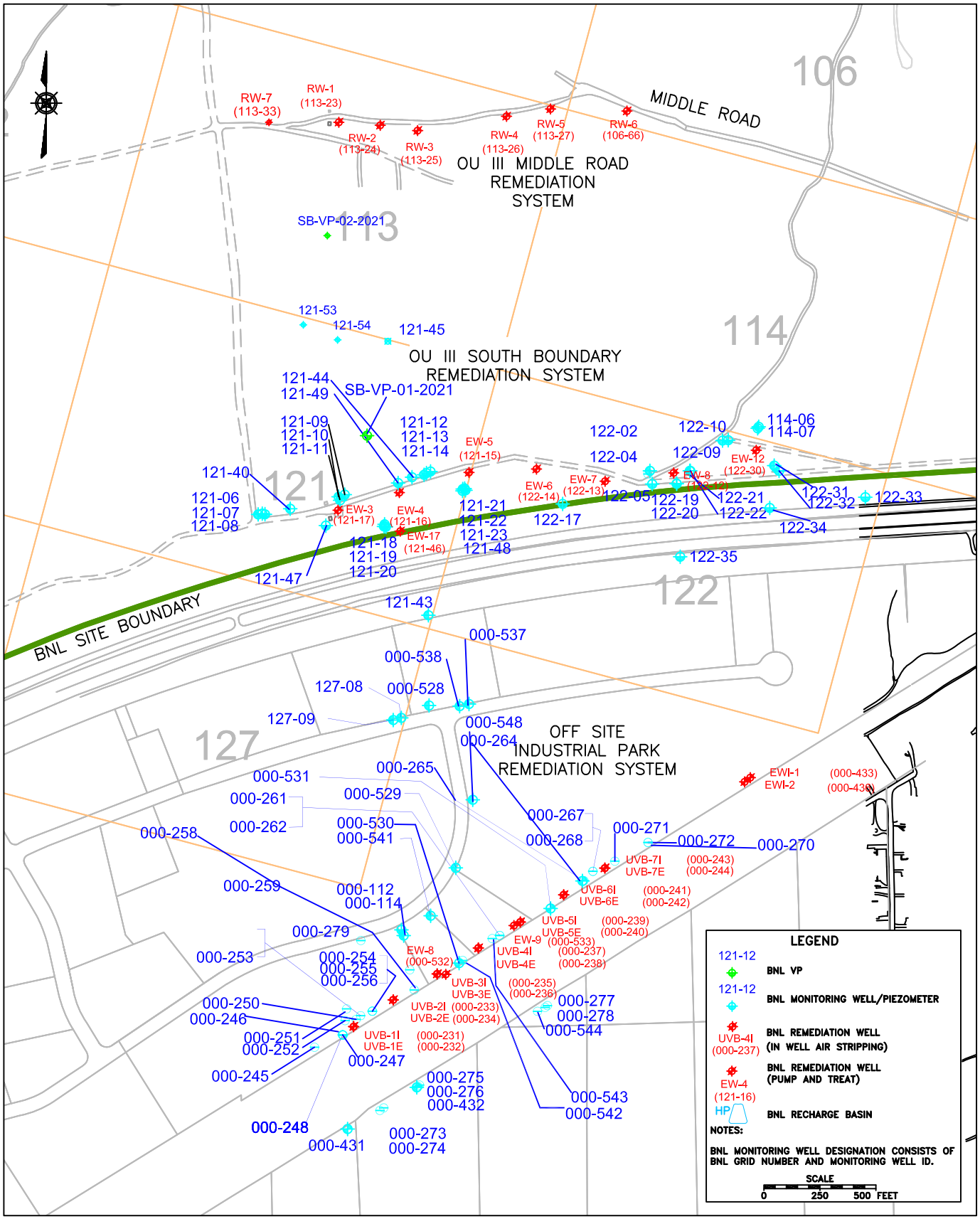
System Operation

April through June 2022:

Extraction wells UVB-1 through UVB-7, EW-8 and EW-9 remained in stand-by mode.

Planned Operational Changes

- Maintain the seven UVB wells, and EW-8 and EW-9 in standby. If TVOC concentrations exceed the 50 µg/L capture goal adjacent to any of the wells they 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 adjacent core monitoring wells were below 50 µg/L.



\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2022\FIG 5-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE: OU III SOUTH BOUNDARY/INDUSTRIAL PARK/INDUSTRIAL PARK EAST MONITORING WELL NETWORKS
SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
JEB	–	09/12/14	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	09/07/22	–

FIGURE NO.: 5–3

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-112

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/17/2022	1.15	--	--	UG/L	180.00		
Chloroform	05/17/2022	0.94	0.5	--	UG/L	180.00		
Tetrachloroethylene	05/17/2022	0.21	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	05/17/2022	4.35	--	--	UG/L	264.00		
Carbon tetrachloride	05/17/2022	2.4	0.5	--	UG/L	264.00		
Chloroform	05/17/2022	0.9	0.5	--	UG/L	264.00		
Tetrachloroethylene	05/17/2022	0.74	0.5	--	UG/L	264.00		
Trichloroethylene	05/17/2022	0.31	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	05/18/2022	2.28	--	--	UG/L	225.50		
Chloroform	05/18/2022	1.4	0.5	--	UG/L	225.50		
Tetrachloroethylene	05/18/2022	0.88	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	05/17/2022	1.74	--	--	UG/L	222.50		
Chloroform	05/17/2022	1.2	0.5	--	UG/L	222.50		
Tetrachloroethylene	05/17/2022	0.54	0.5	--	UG/L	222.50		

Site ID : 000-259

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/17/2022	9.62	--	--	UG/L	202.50		
1,1,1-Trichloroethane	05/17/2022	0.64	0.5	--	UG/L	202.50		
1,1-Dichloroethylene	05/17/2022	0.39	0.5	--	UG/L	202.50	J	
Carbon tetrachloride	05/17/2022	1.2	0.5	--	UG/L	202.50		
Chloroform	05/17/2022	0.43	0.5	--	UG/L	202.50	J	
Tetrachloroethylene	05/17/2022	6.3	0.5	--	UG/L	202.50		
Trichloroethylene	05/17/2022	0.66	0.5	--	UG/L	202.50		

Site ID : 000-262

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/17/2022	7.15	--	--	UG/L	182.50		
1,1,1-Trichloroethane	05/17/2022	0.79	0.5	--	UG/L	182.50		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-262

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1-Dichloroethylene	05/17/2022	0.4	0.5	--	UG/L	182.50	J	
Carbon tetrachloride	05/17/2022	0.86	0.5	--	UG/L	182.50		
Chloroform	05/17/2022	0.5	0.5	--	UG/L	182.50		
cis-1,2-Dichloroethylene	05/17/2022	1.1	0.5	--	UG/L	182.50		
Tetrachloroethylene	05/17/2022	2.4	0.5	--	UG/L	182.50		
Trichloroethylene	05/17/2022	1.1	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	05/18/2022	1.65	--	--	UG/L	215.50		
1,1,1-Trichloroethane	05/18/2022	0.29	0.5	--	UG/L	215.50	J	
Chloroform	05/18/2022	0.24	0.5	--	UG/L	215.50	J	
Tetrachloroethylene	05/18/2022	0.82	0.5	--	UG/L	215.50		
Trichloroethylene	05/18/2022	0.3	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	05/23/2022	0.36	--	--	UG/L	215.50		
Chloroform	05/23/2022	0.36	0.5	--	UG/L	215.50	J	

Site ID : 000-273

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/20/2022	0.9	--	--	UG/L	185.00		
Chloroform	05/20/2022	0.9	0.5	--	UG/L	185.00		

Site ID : 000-274

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/20/2022	0.61	--	--	UG/L	242.00		
Chloroform	05/20/2022	0.61	0.5	--	UG/L	242.00		

Site ID : 000-275

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2022	0.83	--	--	UG/L	134.00		
Chloroform	05/19/2022	0.83	0.5	--	UG/L	134.00		

Site ID : 000-276

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2022	0.85	--	--	UG/L	164.00		
Chloroform	05/19/2022	0.85	0.5	--	UG/L	164.00		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-277

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/18/2022	1.97	--	--	UG/L	147.00		
Benzene	05/18/2022	0.38	0.5	--	UG/L	147.00	J	
Chloroform	05/18/2022	0.16	0.5	--	UG/L	147.00	J	
m/p xylene	05/18/2022	0.37	1	--	UG/L	147.00	J	
Toluene	05/18/2022	0.69	0.5	--	UG/L	147.00		
Xylene (total)	05/18/2022	0.37	1.5	--	UG/L	147.00	J	

Site ID : 000-278

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2022	4.51	--	--	UG/L	194.00		
1,1,1-Trichloroethane	05/19/2022	1.2	0.5	--	UG/L	194.00		
1,1-Dichloroethylene	05/19/2022	0.47	0.5	--	UG/L	194.00	J	
Carbon tetrachloride	05/19/2022	0.18	0.5	--	UG/L	194.00	J	
Chloroform	05/19/2022	0.4	0.5	--	UG/L	194.00	J	
Tetrachloroethylene	05/19/2022	1.4	0.5	--	UG/L	194.00		
Trichloroethylene	05/19/2022	0.86	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	05/16/2022	2.32	--	--	UG/L	193.00		
Carbon tetrachloride	05/16/2022	0.28	0.5	--	UG/L	193.00	J	
Chloroform	05/16/2022	1.3	0.5	--	UG/L	193.00		
Tetrachloroethylene	05/16/2022	0.74	0.5	--	UG/L	193.00		

Site ID : 000-431

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/20/2022	1.3	--	--	UG/L	265.00		
Chloroform	05/20/2022	1.3	0.5	--	UG/L	265.00		

Site ID : 000-432

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2022	0.72	--	--	UG/L	230.00		
Chloroform	05/19/2022	0.29	0.5	--	UG/L	230.00	J	
Methyl tert-butyl ether	05/19/2022	0.43	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	05/17/2022	4.26	--	--	UG/L	220.00		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-528

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/17/2022	0.27	0.5	--	UG/L	220.00	J	
Chloroform	05/17/2022	0.42	0.5	--	UG/L	220.00	J	
cis-1,2-Dichloroethylene	05/17/2022	0.38	0.5	--	UG/L	220.00	J	
Dichlorodifluoromethane	05/17/2022	0.19	0.5	--	UG/L	220.00	J	
Tetrachloroethylene	05/17/2022	3	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	05/23/2022	23.6	--	--	UG/L	215.00		
1,1,1-Trichloroethane	05/23/2022	5.9	0.5	--	UG/L	215.00		
1,1-Dichloroethane	05/23/2022	0.27	0.5	--	UG/L	215.00	J	
1,1-Dichloroethylene	05/23/2022	3.5	0.5	--	UG/L	215.00		
Carbon tetrachloride	05/23/2022	1.7	0.5	--	UG/L	215.00		
Chloroform	05/23/2022	0.63	0.5	--	UG/L	215.00		
Tetrachloroethylene	05/23/2022	8.9	0.5	--	UG/L	215.00		
Trichloroethylene	05/23/2022	2.7	0.5	--	UG/L	215.00		

Site ID : 000-530

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/17/2022	29.51	--	--	UG/L	210.00		
1,1,1-Trichloroethane	05/17/2022	16	0.5	--	UG/L	210.00		
1,1-Dichloroethane	05/17/2022	0.99	0.5	--	UG/L	210.00		
1,1-Dichloroethylene	05/17/2022	10	0.5	--	UG/L	210.00		
Chloroform	05/17/2022	0.5	0.5	--	UG/L	210.00		
cis-1,2-Dichloroethylene	05/17/2022	0.15	0.5	--	UG/L	210.00	J	
Methyl tert-butyl ether	05/17/2022	0.17	0.5	--	UG/L	210.00	J	
Trichloroethylene	05/17/2022	1.7	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	05/17/2022	29.26	--	--	UG/L	205.00		
1,1,1-Trichloroethane	05/17/2022	2.3	0.5	--	UG/L	205.00		
1,1-Dichloroethylene	05/17/2022	2.5	0.5	--	UG/L	205.00		
1,2-Dichloroethane	05/17/2022	0.15	0.5	--	UG/L	205.00	J	
Carbon tetrachloride	05/17/2022	13	0.5	--	UG/L	205.00		
Chloroform	05/17/2022	1.6	0.5	--	UG/L	205.00		

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-531

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
cis-1,2-Dichloroethylene	05/17/2022	0.31	0.5	--	UG/L	205.00	J	
Tetrachloroethylene	05/17/2022	1	0.5	--	UG/L	205.00		
Trichloroethylene	05/17/2022	8.4	0.5	--	UG/L	205.00		

Site ID : 000-537

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/18/2022	56.97	--	--	UG/L	245.00		
1,1,1-Trichloroethane	05/18/2022	8.5	0.5	--	UG/L	245.00		
1,1-Dichloroethane	05/18/2022	0.22	0.5	--	UG/L	245.00	J	
1,1-Dichloroethylene	05/18/2022	3.4	0.5	--	UG/L	245.00		
Carbon tetrachloride	05/18/2022	1.5	0.5	--	UG/L	245.00		
Chloroform	05/18/2022	0.95	0.5	--	UG/L	245.00		
cis-1,2-Dichloroethylene	05/18/2022	0.8	0.5	--	UG/L	245.00		
Tetrachloroethylene	05/18/2022	34	0.5	--	UG/L	245.00		
Trichloroethylene	05/18/2022	7.6	0.5	--	UG/L	245.00		

Site ID : 000-538

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/18/2022	23.35	--	--	UG/L	215.00		
1,1,1-Trichloroethane	05/18/2022	4.5	0.5	--	UG/L	215.00		
1,1-Dichloroethylene	05/18/2022	2.1	0.5	--	UG/L	215.00		
Carbon tetrachloride	05/18/2022	0.82	0.5	--	UG/L	215.00		
Chloroform	05/18/2022	0.6	0.5	--	UG/L	215.00		
cis-1,2-Dichloroethylene	05/18/2022	0.73	0.5	--	UG/L	215.00		
Tetrachloroethylene	05/18/2022	9.7	0.5	--	UG/L	215.00		
Trichloroethylene	05/18/2022	4.9	0.5	--	UG/L	215.00		

Site ID : 000-541

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/18/2022	47.04	--	--	UG/L	235.00		
1,1,1-Trichloroethane	05/18/2022	2.6	0.5	--	UG/L	235.00		
1,1-Dichloroethane	05/18/2022	0.3	0.5	--	UG/L	235.00	J	
1,1-Dichloroethylene	05/18/2022	2	0.5	--	UG/L	235.00		
Carbon tetrachloride	05/18/2022	18	0.5	--	UG/L	235.00		
Chloroform	05/18/2022	4.5	0.5	--	UG/L	235.00		
cis-1,2-Dichloroethylene	05/18/2022	0.24	0.5	--	UG/L	235.00	J	

Table 5-3
OU III Industrial Park Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-541

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	05/18/2022	8.4	0.5	--	UG/L	235.00		
Trichloroethylene	05/18/2022	11	0.5	--	UG/L	235.00		

Site ID : 000-544

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/19/2022	21.05	--	--	UG/L	230.00		
1,1,1-Trichloroethane	05/19/2022	9.4	0.5	--	UG/L	230.00		
1,1-Dichloroethylene	05/19/2022	6.5	0.5	--	UG/L	230.00		
Carbon tetrachloride	05/19/2022	3.8	0.5	--	UG/L	230.00		
Chloroform	05/19/2022	0.73	0.5	--	UG/L	230.00		
Trichloroethylene	05/19/2022	0.62	0.5	--	UG/L	230.00		

Site ID : 127-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/16/2022	30.28	--	--	UG/L	240.00		
1,1,1-Trichloroethane	05/16/2022	0.78	0.5	--	UG/L	240.00		
Carbon tetrachloride	05/16/2022	6.4	0.5	--	UG/L	240.00		
Chloroform	05/16/2022	1.3	0.5	--	UG/L	240.00		
Tetrachloroethylene	05/16/2022	20	0.5	--	UG/L	240.00		
Trichloroethylene	05/16/2022	1.8	0.5	--	UG/L	240.00		

Site ID : 127-09

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/16/2022	2.31	--	--	UG/L	225.00		
Carbon tetrachloride	05/16/2022	0.71	0.5	--	UG/L	225.00		
Chloroform	05/16/2022	1.6	0.5	--	UG/L	225.00		

Table 5-4
OU III Industrial Park Extraction Well Data
'Hits Only' April through June 2022

Site ID : 000-532 (EW-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2022	1.59	--	--	UG/L	253.00		
1,1,1-Trichloroethane	04/13/2022	0.37	0.5	--	UG/L	253.00	J	
1,1-Dichloroethane	04/13/2022	0.26	0.5	--	UG/L	253.00	J	
1,1-Dichloroethylene	04/13/2022	0.24	0.5	--	UG/L	253.00	J	
Tetrachloroethylene	04/13/2022	0.72	0.5	--	UG/L	253.00		

Site ID : 000-533 (EW-9)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2022	4.01	--	--	UG/L	243.00		
1,1,1-Trichloroethane	04/13/2022	0.62	0.5	--	UG/L	243.00		
1,1-Dichloroethane	04/13/2022	1.1	0.5	--	UG/L	243.00		
1,1-Dichloroethylene	04/13/2022	1.7	0.5	--	UG/L	243.00		
Methyl tert-butyl ether	04/13/2022	0.36	0.5	--	UG/L	243.00	J	
Trichloroethylene	04/13/2022	0.23	0.5	--	UG/L	243.00	J	

Table 5-5
OU III Industrial Park Influent Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2022	0.22	--	--	UG/L	230.00		
Hexachlorobutadiene	04/13/2022	0.22	0.5	--	UG/L	230.00	J	

Site ID : 000-235 (UVB-3 Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2022	0	--	--	UG/L	204.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2022	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	04/13/2022	10.99	--	--	UG/L	190.00		
1,1,1-Trichloroethane	04/13/2022	0.81	0.5	--	UG/L	190.00		
1,1-Dichloroethylene	04/13/2022	0.58	0.5	--	UG/L	190.00		
Carbon tetrachloride	04/13/2022	3.2	0.5	--	UG/L	190.00		
Chloroform	04/13/2022	0.63	0.5	--	UG/L	190.00		
cis-1,2-Dichloroethylene	04/13/2022	0.67	0.5	--	UG/L	190.00		
Tetrachloroethylene	04/13/2022	1.6	0.5	--	UG/L	190.00		
Trichloroethylene	04/13/2022	3.5	0.5	--	UG/L	190.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/13/2022	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	04/13/2022	0	--	--	UG/L	215.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 6

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 for 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.

Section 7
Q2-2022 Operations Summary
OU III Building 96 Pump and Treat System

Process: Three (3) re-circulation wells each connected to an individual shallow tray air-stripping unit and one (1) well with a shallow tray air-stripping unit, with discharge to a drainage culvert and Recharge Basin HS.

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

Start Date: January 2001

Table 7-1
OU III Building 96
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	58	0	0	0
May	0	0	0	0
June	58	0	0	0
Actual (Avg. over Qtr.)	**39**	**0**	**0**	**0**

Note: RTW-1 was restarted in 2008 with discharge to 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, RTW-1 pumping rate was increased from 30 gpm to 60 gpm. In May 2022, RTW-1 began pulsed pumping.

Figure 7-1
OU III Building 96
Cumulative Mass Removal of VOC's vs. Time

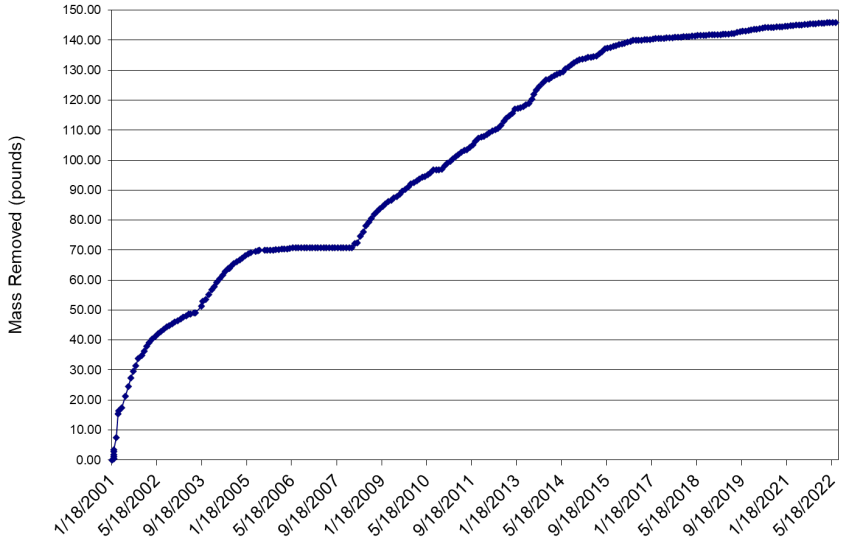


Figure 7-2
OU III Building 96
Influent TVOC Concentrations vs. Time

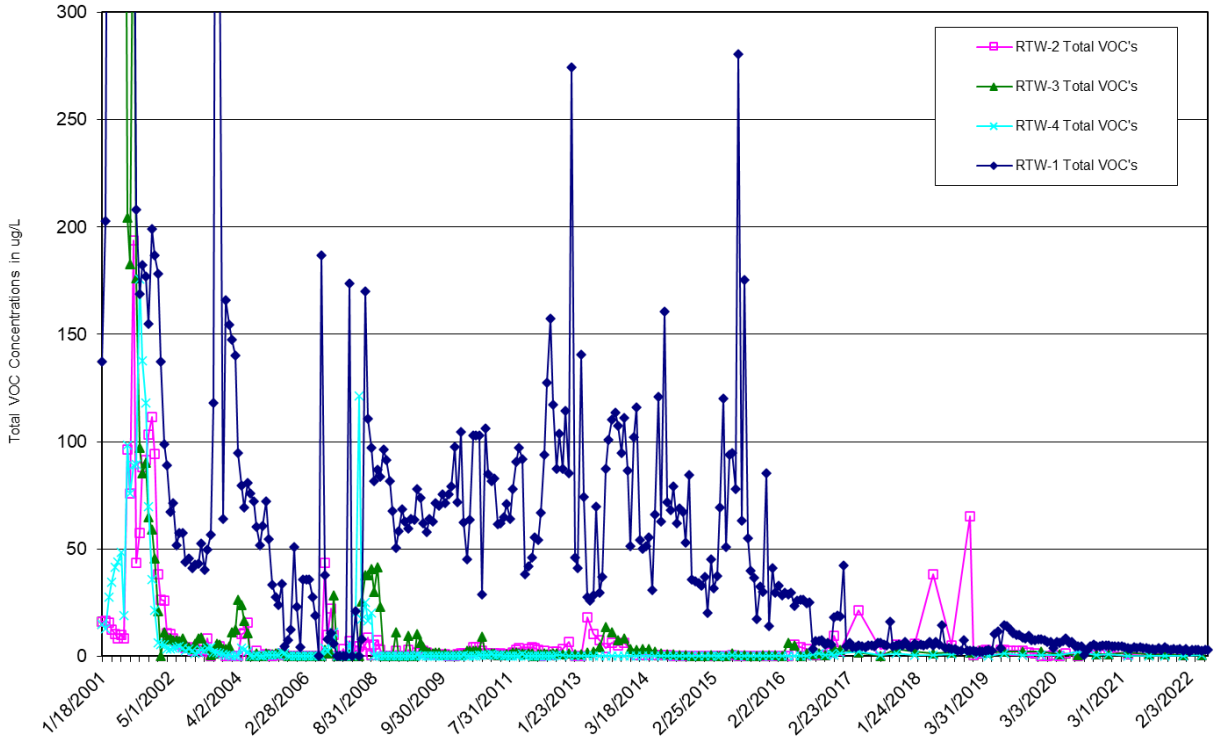


Table 7-2
Effluent Water Quality for RTW-1
SPDES Equivalency Permit Concentrations April 1, 2022– June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency*
Flow	**120**	**58**	**GPM**	**Continuous**
pH (range)	**5.0 - 8.5**	**6.8 – 8.0**	**SU**	**Weekly**
Tetrachloroethylene	**5.0**	**<0.5**	**ug/L**	**Monthly**
1,1,1-Trichloroethane	**5.0**	**<0.5**	**ug/L**	**Monthly**
Thallium	**Monitor**	**<2.0**	**ug/L**	**Monthly**
Trichlorofluoromethane	**5.0**	**<0.5**	**ug/L**	**Monthly**
Methyl Bromide	**5.0**	**<0.5**	**ug/L**	**Monthly**
Methyl Chloride	**5.0**	**<0.5**	**ug/L**	**Monthly**
Methylene Chloride	**5.0**	**<0.5**	**ug/L**	**Monthly**

ND = Not detected.
* The required effluent sampling frequency is monthly following a period of 24 consecutive weekly with no exceedances. Weekly for pH.
Note: Starting in June 2019, the flow from Bldg. 96 RTW-1 was increased to 60 gallons per minute and the water is being treated at the Building 452 Freon-11 treatment system due to the larger capacity of that system. Beginning with the July 2019 Discharge Monitoring Report (DMR), the RTW-1 discharge is formally reported under the Freon-11 Equivalency Permit. The data are also provided here for informational purposes. In January 2022, a SPDES renewal request was submitted to NYSDEC for review and approval.

System Operations

April 2022:

Extraction well RTW-1 ran normally for the month. The system treated approximately 2.5 million gallons of water.

May 2022:

RTW-1 TVOC concentrations have remained below the 50 µg/L system capture goal since 2015 and PCE remained below the standard of 5.0 µg/L since June of 2020. As recommended in the 2021 Groundwater Status Report, starting in May, extraction well RTW-1 was placed in a pulsed pumping mode and operated every other month.

June 2022:

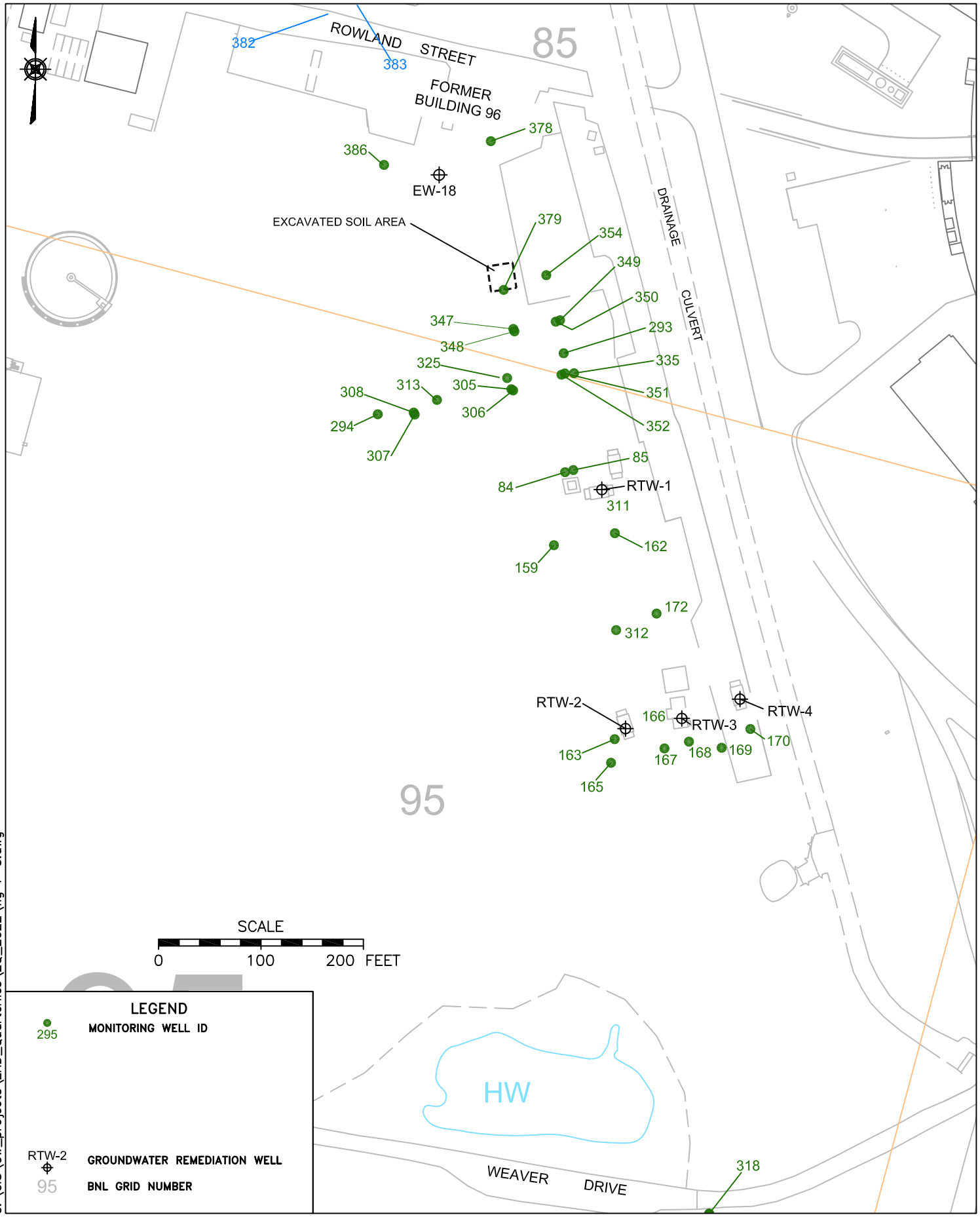
Extraction well RTW-1 ran normally for the month. The system treated approximately 2.5 million gallons of water.

The system treated approximately 5 million gallons of water during the second quarter of 2022.

During the second quarter of 2022, the highest PCE concentration in the Building 96 monitoring wells was 76 µg/L in well 085-379. The maximum PCE detection in extraction well RTW-1 in the second quarter was 2.6 µg/L. Trichlorofluoromethane (Freon-11) was not detected in the second quarter in RTW-1.

Planned Operational Changes

- Maintain extraction well RTW-1 in a pulsed pumping mode and operate every other month. Continue to be monitor for any rebound of concentrations over the system capture goal. During the second quarter, only well 085-379 exceeded the 50 µg/L capture goal. This well is approximately 200 feet upgradient of RTW-1. Well 095-84, located immediately upgradient of RTW-1 had TCE concentrations of 34 µg/L.
- As per a recommendation in the 2021 CERCLA Five-Year Review Report, continue to closely monitor TVOC 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 2022, the maximum TVOC concentration was 0.62 µg/L in extraction well RTW-3. Extraction wells RTW-2, RTW-3 or RTW-4 did not exceed a TVOC concentration of 50 µg/L.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III BUILDING 96 MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	06/15/18	–
CHKD:	APPD:	REV.:	NOTES:
LDS	--	09/07/22	–

FIGURE NO.: 7-3

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 085-293

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2022	0.73	--	--	UG/L	50.00		
Chloroform	04/07/2022	0.73	0.5	--	UG/L	50.00		

Site ID : 085-335

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2022	19.38	--	--	UG/L	35.00		
1,1,1-Trichloroethane	04/07/2022	0.17	0.5	--	UG/L	35.00	J	
Naphthalene	04/07/2022	0.21	0.5	--	UG/L	35.00	J	
Tetrachloroethylene	04/07/2022	19	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	04/07/2022	5.9	--	--	UG/L	23.50		
Tetrachloroethylene	04/07/2022	5.9	0.5	--	UG/L	23.50		

Site ID : 085-348

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2022	17.71	--	--	UG/L	34.50		
Chloroform	04/07/2022	0.38	0.5	--	UG/L	34.50	J	
cis-1,2-Dichloroethylene	04/07/2022	0.33	0.5	--	UG/L	34.50	J	
Tetrachloroethylene	04/07/2022	17	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	04/07/2022	5.06	--	--	UG/L	24.50		
1,1,1-Trichloroethane	04/07/2022	0.16	0.5	--	UG/L	24.50	J	
Tetrachloroethylene	04/07/2022	4.9	0.5	--	UG/L	24.50		

Site ID : 085-350

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2022	6	--	--	UG/L	34.50		
Tetrachloroethylene	04/07/2022	6	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	04/06/2022	2.9	--	--	UG/L	24.50		
Tetrachloroethylene	04/06/2022	2.9	0.5	--	UG/L	24.50		

Site ID : 085-352

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	15	--	--	UG/L	34.50		

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 085-352

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	04/06/2022	15	0.5	--	UG/L	34.50		

Site ID : 085-354

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2022	10.42	--	--	UG/L	24.50		
Benzene	04/07/2022	0.39	0.5	--	UG/L	24.50	J	
Tetrachloroethylene	04/07/2022	9.4	0.5	--	UG/L	24.50		
Toluene	04/07/2022	0.63	0.5	--	UG/L	24.50		

Site ID : 085-379

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/07/2022	76.52	--	--	UG/L	26.00		
1,1,1-Trichloroethane	04/07/2022	0.34	0.5	--	UG/L	26.00	J	
Tetrachloroethylene	04/07/2022	76	2	--	UG/L	26.00	D	
Trichloroethylene	04/07/2022	0.18	0.5	--	UG/L	26.00	J	

Site ID : 095-159

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	3	--	--	UG/L	50.00		
Tetrachloroethylene	04/06/2022	3	0.5	--	UG/L	50.00		

Site ID : 095-162

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	0.78	--	--	UG/L	50.00		
Chloroform	04/06/2022	0.78	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	04/05/2022	11	--	--	UG/L	50.00		
Tetrachloroethylene	04/05/2022	11	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	04/05/2022	1.65	--	--	UG/L	50.00		
Chloroform	04/05/2022	1.3	0.5	--	UG/L	50.00		
Tetrachloroethylene	04/05/2022	0.35	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	04/05/2022	0.89	--	--	UG/L	50.00		

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 095-168

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	04/05/2022	0.69	0.5	--	UG/L	50.00		
Tetrachloroethylene	04/05/2022	0.2	0.5	--	UG/L	50.00	J	

Site ID : 095-169

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/05/2022	0.24	--	--	UG/L	50.00		
Chloroform	04/05/2022	0.24	0.5	--	UG/L	50.00	J	

Site ID : 095-170

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/05/2022	0.2	--	--	UG/L	50.00		
Chloroform	04/05/2022	0.2	0.5	--	UG/L	50.00	J	

Site ID : 095-172

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	0.88	--	--	UG/L	50.00		
Chloroform	04/06/2022	0.88	0.5	--	UG/L	50.00		

Site ID : 095-294

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2022	3.7	--	--	UG/L	30.00		
Tetrachloroethylene	04/08/2022	3.7	0.5	--	UG/L	30.00		

Site ID : 095-305

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2022	3.8	--	--	UG/L	22.50		
Tetrachloroethylene	04/08/2022	3.8	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	04/08/2022	24.55	--	--	UG/L	34.50		
cis-1,2-Dichloroethylene	04/08/2022	0.55	0.5	--	UG/L	34.50		
Tetrachloroethylene	04/08/2022	24	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	04/11/2022	4.8	--	--	UG/L	32.50		
Tetrachloroethylene	04/11/2022	1.9	0.5	--	UG/L	32.50		
Tetrachloroethylene	04/11/2022	2.9	0.5	--	UG/L	32.50		

Site ID : 095-312

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	0.56	--	--	UG/L	50.00		

Table 7-3
OU III Building 96 Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 095-312

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	04/06/2022	0.56	0.5	--	UG/L	50.00		

Site ID : 095-313

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2022	3.6	--	--	UG/L	52.50		
Tetrachloroethylene	04/08/2022	3.6	0.5	--	UG/L	52.50		

Site ID : 095-318

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/12/2022	1.6	--	--	UG/L	65.00		
Chloroform	04/12/2022	0.5	0.5	--	UG/L	65.00		
Tetrachloroethylene	04/12/2022	1.1	0.5	--	UG/L	65.00		

Site ID : 095-325

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2022	15.89	--	--	UG/L	45.00		
Chloroform	04/08/2022	0.51	0.5	--	UG/L	45.00		
cis-1,2-Dichloroethylene	04/08/2022	0.38	0.5	--	UG/L	45.00	J	
Tetrachloroethylene	04/08/2022	15	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	04/11/2022	34	--	--	UG/L	35.00		
Tetrachloroethylene	04/11/2022	34	0.5	--	UG/L	35.00		

Site ID : 095-85

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	1.3	--	--	UG/L	95.00		
Chloroform	04/11/2022	1.3	0.5	--	UG/L	95.00		

Table 7-5
OU III Building 96 Influent Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2022	2.5	--	--	UG/L	0.00		
Tetrachloroethylene	04/04/2022	2.5	0.5	--	UG/L	0.00		
8260 TVOC	04/19/2022	3.07	--	--	UG/L	0.00		
Chloroform	04/19/2022	0.57	0.5	--	UG/L	0.00		
Tetrachloroethylene	04/19/2022	2.5	0.5	--	UG/L	0.00		
8260 TVOC	06/03/2022	3.01	--	--	UG/L	0.00		
Chloroform	06/03/2022	0.41	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	06/03/2022	2.6	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	04/04/2022	0.45	--	--	UG/L	0.00		
Tetrachloroethylene	04/04/2022	0.45	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	04/04/2022	0.62	--	--	UG/L	0.00		
m/p xylene	04/04/2022	0.17	1	--	UG/L	0.00	J	
Tetrachloroethylene	04/04/2022	0.28	0.5	--	UG/L	0.00	J	
Xylene (total)	04/04/2022	0.17	1.5	--	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	04/04/2022	0.6	--	--	UG/L	0.00		
Ethylbenzene	04/04/2022	0.32	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/04/2022	0.28	0.5	--	UG/L	0.00	J	

Table 7-6
OU III Building 96 Effluent Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/04/2022	0	--	--	UG/L	0.00		
8260 TVOC	04/19/2022	0	--	--	UG/L	0.00		
8260 TVOC	06/03/2022	0	--	--	UG/L	0.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 8

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 I Air Sparge/Soil Vapor Extraction System is concluded.

Section 9

Q2-2022 Operations Summary
OU VI Ethylene Dibromide Pump & Treat System

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

Goal: Reach the ethylene dibromide 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
OU VI Ethylene Dibromide Pump and Treat System
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	102	217
May	168	179
June	160	183
Actual (Avg. over Qtr.)	**143**	**193**

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

Note: Due to the low concentrations of ethylene dibromide in the extraction wells, presentation of a mass removal graph is not appropriate.

Figure 9-2
OU VI Ethylene Dibromide
Influent EDB Concentration vs. Time

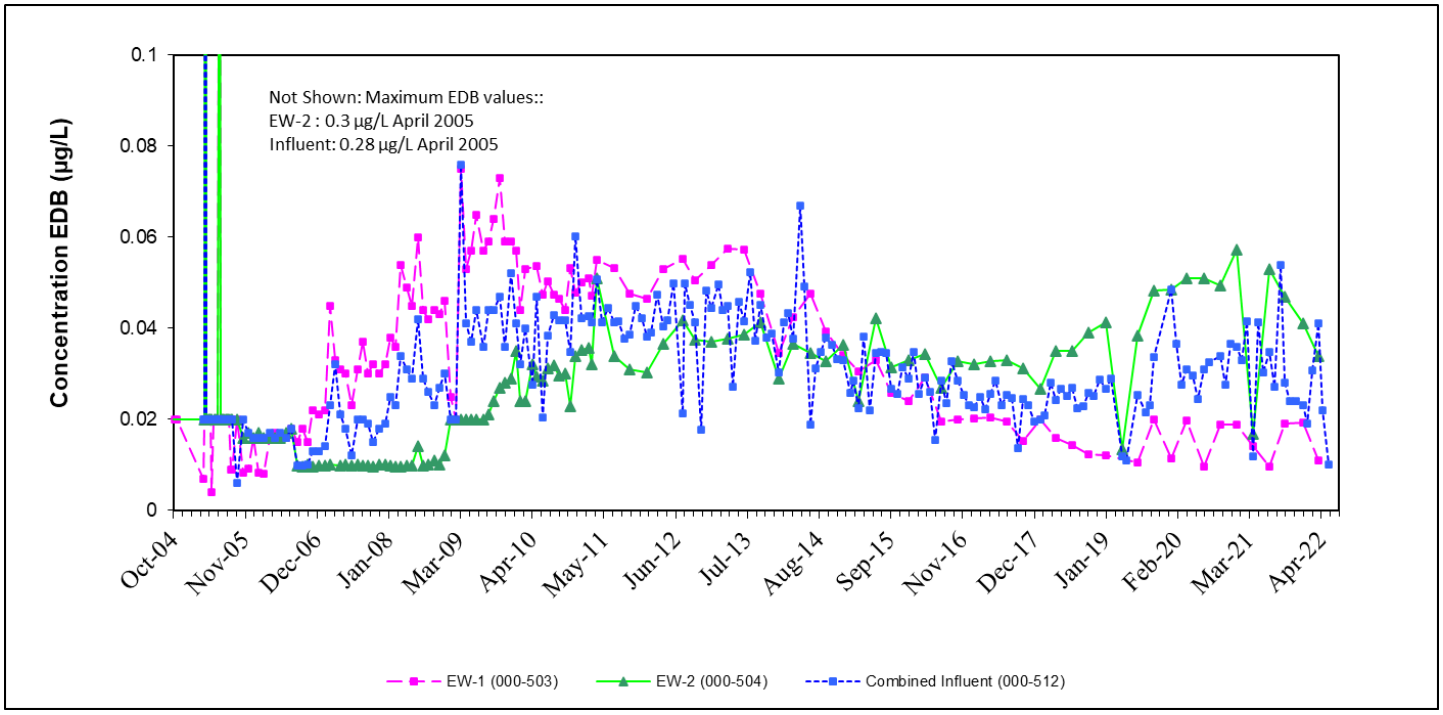


Table 9-2
OU VI Ethylene Dibromide Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1, 2022 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	450	345	GPM	Continuous
pH	5.0 - 8.5	6.6-7.5	SU	Weekly
Ethylene Dibromide	.03	<0.02	ug/L	Monthly**
Chloroform	7.0	0.92	ug/L	Monthly**
1,1-Dichloroethene	5.0	<0.5	ug/L	Monthly**
1,1,1-Trichloroethane	5.0	<0.5	ug/L	Monthly**
Methyl Chloride	5.0	<0.5	ug/L	Monthly**
Methylene Chloride	5.0	<0.5	ug/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.**

System Operations Summary

April 2022:

Well EW-1 was off from April 6th to April 15th to replace a broken flow meter. The system treated approximately 13.5 million gallons of water.

May 2022:

The system ran normally for the month. The system treated approximately 14.5 million gallons of water.

June 2022:

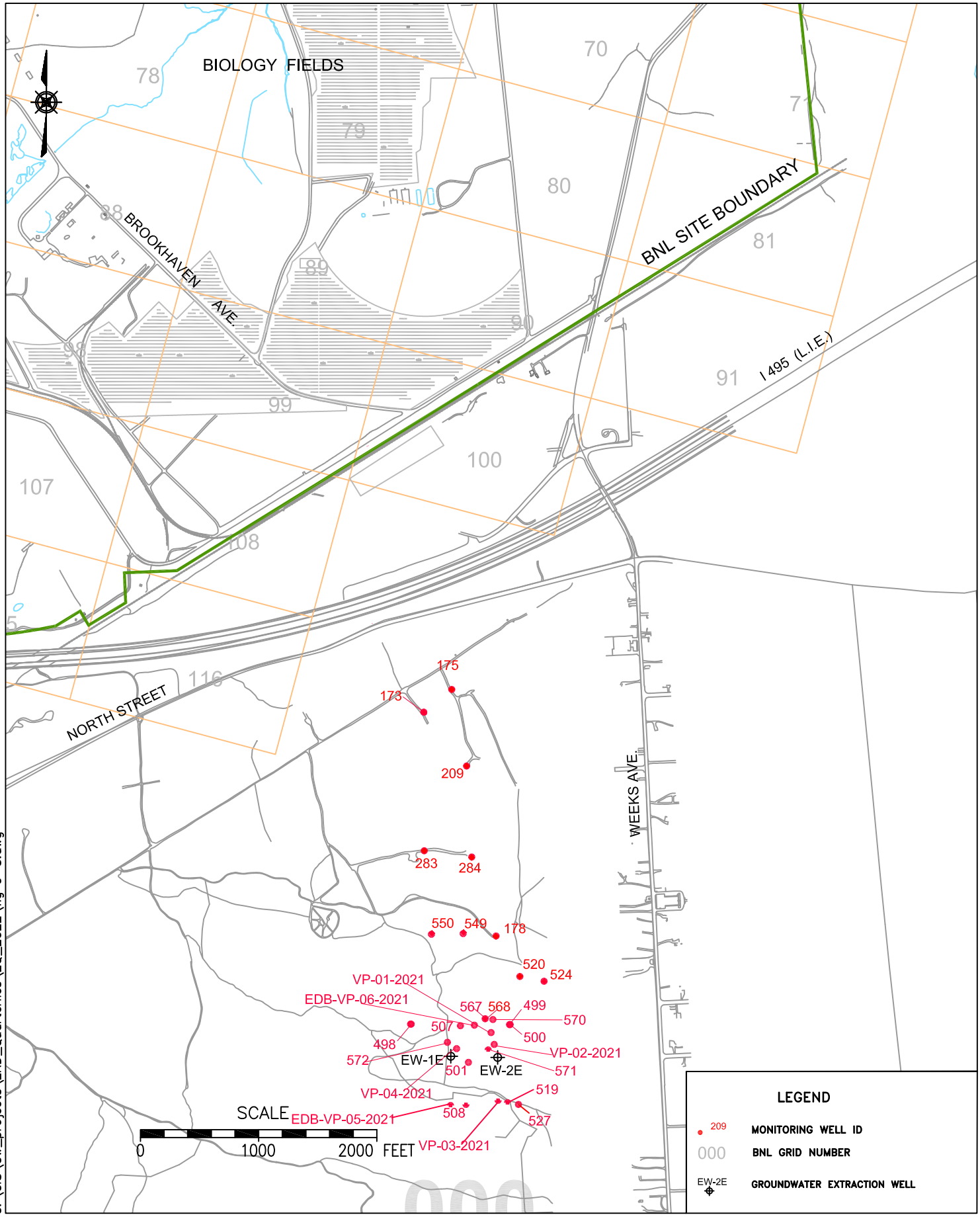
The system ran normally for the month. The system treated approximately 14.5 million gallons of water.

The system treated approximately 42.5 million gallons of water during the second quarter of 2022.

The regional groundwater flow model was updated to reflect the current hydrogeologic conditions for the EDB plume that the Gardiners Clay unit is not present beneath the southern portion of this plume as was previously understood. Capture analysis was performed to evaluate modifications to the current remediation system necessary for capture of the deeper portion of the plume.

Planned Operational Changes

- Maintain full time operation of the treatment system and continue quarterly sampling of the extraction wells.
- Based on the data collected from the deeper vertical profile wells, the monitoring wells and the capture and cleanup timeframe assessment, the following is recommended:
    - Complete solute transport modeling to evaluate system modifications needed to comply with the ROD cleanup goal of meeting the DWS by 2030.
    - Following the modeling, prepare a system design modification for submittal to the regulators.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU VI EDB

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	09/26/05	–
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/07/22	–
FIGURE NO.:			
9–3			

Table 9-3
OU VI Ethylene Dibromide Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-178

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/23/2022	0.19	0.011	--	UG/L	133.00		

Site ID : 000-283

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/23/2022	0.029	0.011	--	UG/L	107.00		

Site ID : 000-284

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/23/2022	0.034	0.011	--	UG/L	107.00		

Site ID : 000-500

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/22/2022	0.14	0.011	--	UG/L	135.00		

Site ID : 000-507

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/23/2022	0.01	0.01	--	UG/L	125.00		

Site ID : 000-520

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/22/2022	0.36	0.01	--	UG/L	140.00		

Site ID : 000-549

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/23/2022	0.32	0.011	--	UG/L	145.00		

Site ID : 000-550

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/23/2022	0.23	0.011	--	UG/L	130.00		

Table 9-4
OU VI Ethylene Dibromide Extraction Well Data
'Hits Only' April through June 2022

Site ID : 000-503 (EW-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	1.1	--	--	UG/L	0.00		
Chloroform	04/06/2022	1.1	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	04/06/2022	0.88	--	--	UG/L	0.00		
Chloroform	04/06/2022	0.88	0.5	--	UG/L	0.00		
EDB	04/06/2022	0.034	0.01	--	UG/L	0.00		

Table 9-5
OU VI Ethylene Dibromide Influent Data
'Hits Only' April through June 2022

Site ID : 000-512 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	0.96	--	--	UG/L	0.00		
Chloroform	04/06/2022	0.96	0.5	--	UG/L	0.00		
EDB	04/06/2022	0.041	0.011	--	UG/L	0.00		
8260 TVOC	05/02/2022	0.98	--	--	UG/L	0.00		
Chloroform	05/02/2022	0.98	0.5	--	UG/L	0.00		
EDB	05/02/2022	0.022	0.01	--	UG/L	0.00		
8260 TVOC	06/01/2022	1.2	--	--	UG/L	0.00		
Chloroform	06/01/2022	1.2	0.5	--	UG/L	0.00		

Table 9-6
OU VI Ethylene Dibromide Effluent Data
'Hits Only' April through June 2022

Site ID : 000-510 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	0.44	--	--	UG/L	0.00		
Chloroform	04/06/2022	0.44	0.5	--	UG/L	0.00	J	
EDB	04/06/2022	0.01	0.01	--	UG/L	0.00	U	
EDB	04/06/2022	0.5	0.5	--	UG/L	0.00	U	
8260 TVOC	05/02/2022	0.8	--	--	UG/L	0.00		
Chloroform	05/02/2022	0.8	0.5	--	UG/L	0.00		
EDB	05/02/2022	0.01	0.01	--	UG/L	0.00	U	
EDB	05/02/2022	0.5	0.5	--	UG/L	0.00	U	
8260 TVOC	06/01/2022	0.92	--	--	UG/L	0.00		
Chloroform	06/01/2022	0.92	0.5	--	UG/L	0.00		
EDB	06/01/2022	0.011	0.011	--	UG/L	0.00	U	
EDB	06/01/2022	0.5	0.5	--	UG/L	0.00	U	

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 10

Q-2 2022 Quarterly Operations Summary
OU III HFBR Tritium Pump and 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 of the Petition for Closure in August 2018 and March 2019, respectively.

Start Date: May 1997

Table 10-1
OU III HFBR Pump and Recharge System
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.

Figure 10-1
OU III HFBR Pump & Treat System
Extraction Wells Tritium Concentrations vs. Time

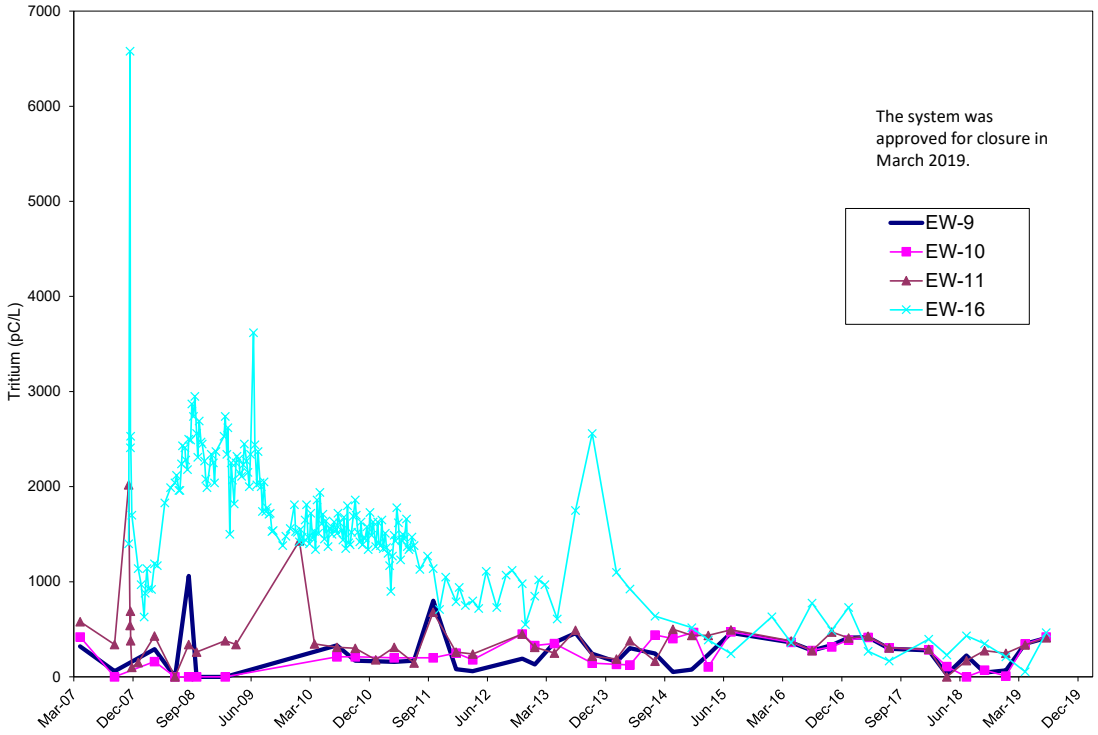


Table 10-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1, 2022 – June 30, 2022

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	ug/L	2/Month
Chloroform	7.0	NA	ug/L	2/Month
1,1-Dichloroethane	5.0	NA	ug/L	2/Month

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
1,2-Dichloroethane	**0.6**	**NA**	**ug/L**	**2/Month**
1,1-Dichloroethene	**5.0**	**NA**	**ug/L**	**2/Month**
Cis-1,2-Dichloroethylene	**5.0**	**NA**	**ug/L**	**2/Month**
trans-1,2-Dichloroethylene	**5.0**	**NA**	**ug/L**	**2/Month**
Methyl Chloride	**5.0**	**NA**	**ug/L**	**2/Month**
Methylene Chloride	**5.0**	**NA**	**ug/L**	**2/Month**
Methyl Bromide	**5.0**	**NA**	**ug/L**	**2/Month**
Tetrachloroethylene	**5.0**	**NA**	**ug/L**	**2/Month**
1,1,1-Trichloroethane	**5.0**	**NA**	**ug/L**	**2/Month**
Trichloroethylene	**5.0**	**NA**	**ug/L**	**2/Month**

NA = Not applicable. The system is closed.

Monitoring Activities

The current monitoring well network is depicted on **Figure 10-1**. The first quarter monitoring well analytical results are shown on **Table 10-3**. The highest tritium concentration immediately downgradient of the HFBR in the second quarter of 2022 was 1,603 pCi/L in well 075-805. Sampling of the extraction wells for this system was discontinued in July 2019.

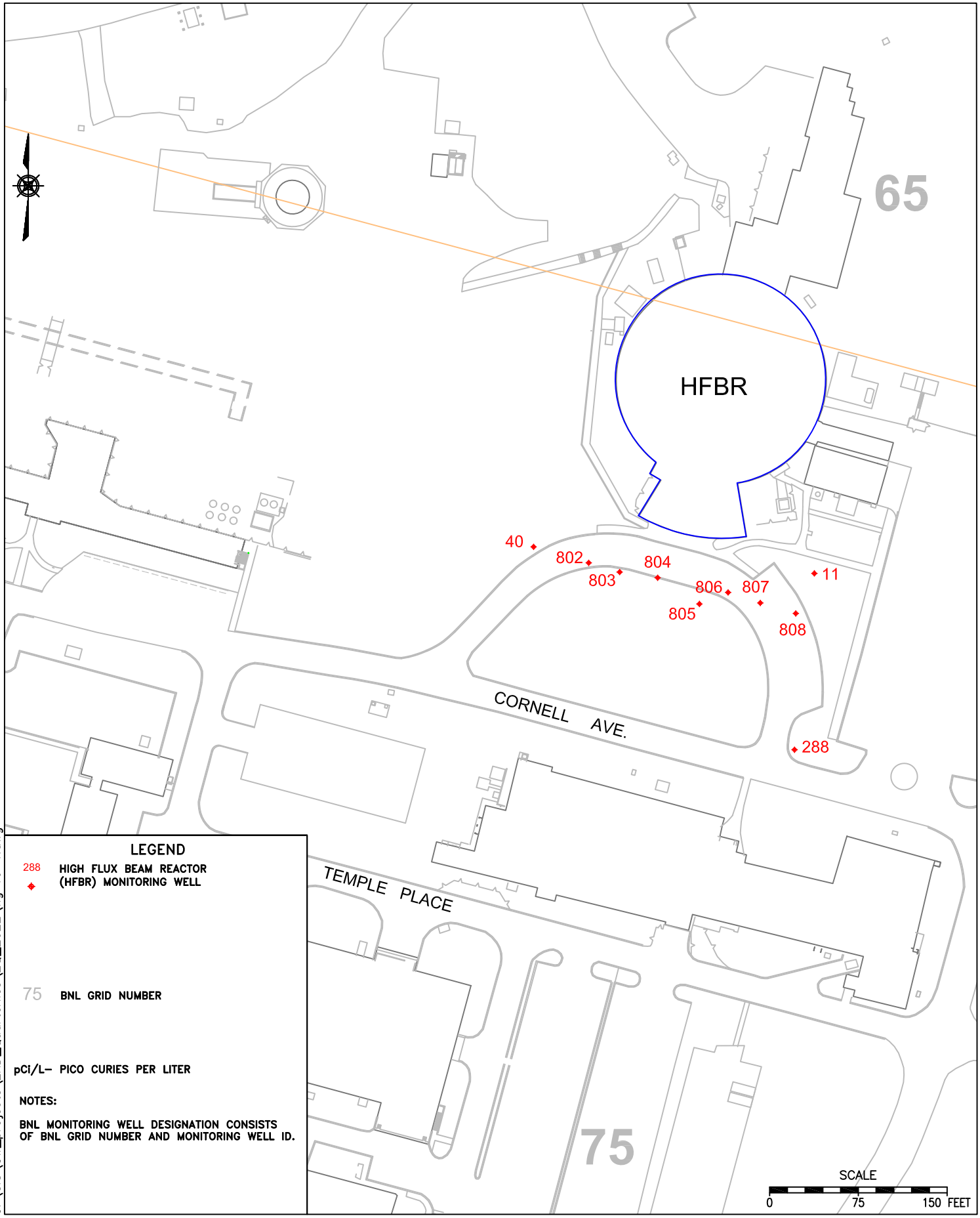
System Operations

April through June 2022:

The system remained closed.

Planned Operational Changes

- Continue to monitor the source area with the ten wells located immediately downgradient of the HFBR. Maintain the quarterly sampling frequency.
- Maintain the downgradient monitoring wells and extraction wells until a determination is made on their utilization related to PFAS and 1,4-dioxane.
- The carbon vessels and related equipment is being repurposed for the operation of the new groundwater treatment system that will treat Per- and Poly fluoroalkyl substances downgradient of the Former Firehouse.



LEGEND

288 HIGH FLUX BEAM REACTOR (HFBR) MONITORING WELL

75 BNL GRID NUMBER

pCi/L– PICO CURIES PER LITER

NOTES:

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

G:\GIS\Gw_projects\ERD_Quarterlies\2Q_2022\fig 10-1.dwg

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III HFBR AOC 29

SECOUND QUARTER 2021 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	06/14/16	–
CHKD:	APPD:	REV.:	NOTES:
LDS	–	09/07/22	–

FIGURE NO.: 10–1

Table 10-3
OU III HFBR Tritium Plume Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 075-804

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/01/2022	853.685	367.813	236.629	PCI/L	51.40		

Site ID : 075-805

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/04/2022	1602.62	369.907	256.364	PCI/L	51.00		

Site ID : 075-806

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/04/2022	1194.67	367.662	245.137	PCI/L	50.50		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 11

Q2-2022 Operations Summary
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
OU III Western South Boundary Pump & Treat System
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)	60	0	66	80	58	61
May " "	103	0	103	117	94	100
June " "	115	0	0	114	97	104
Actual (Avg. over Qtr.)	**93**	**0**	**56**	**104**	**83**	**83**

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

Figure 11-1
OU III Western South Boundary Pump & Treat System
Cumulative Mass Removal of VOCs vs. Time

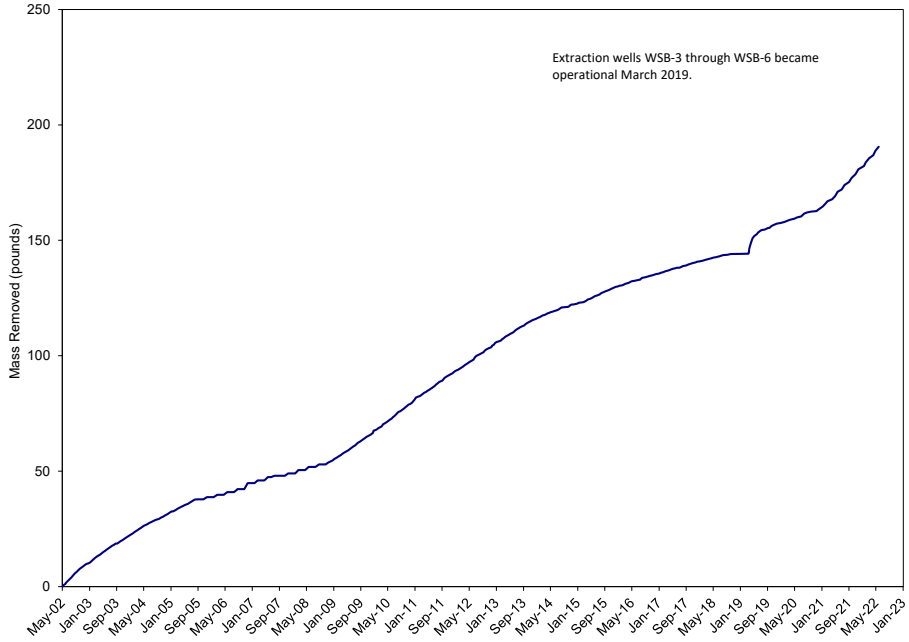


Figure 11-2
OU III Western South Boundary Pump & Treat System
Influent TVOC Concentrations vs. Time

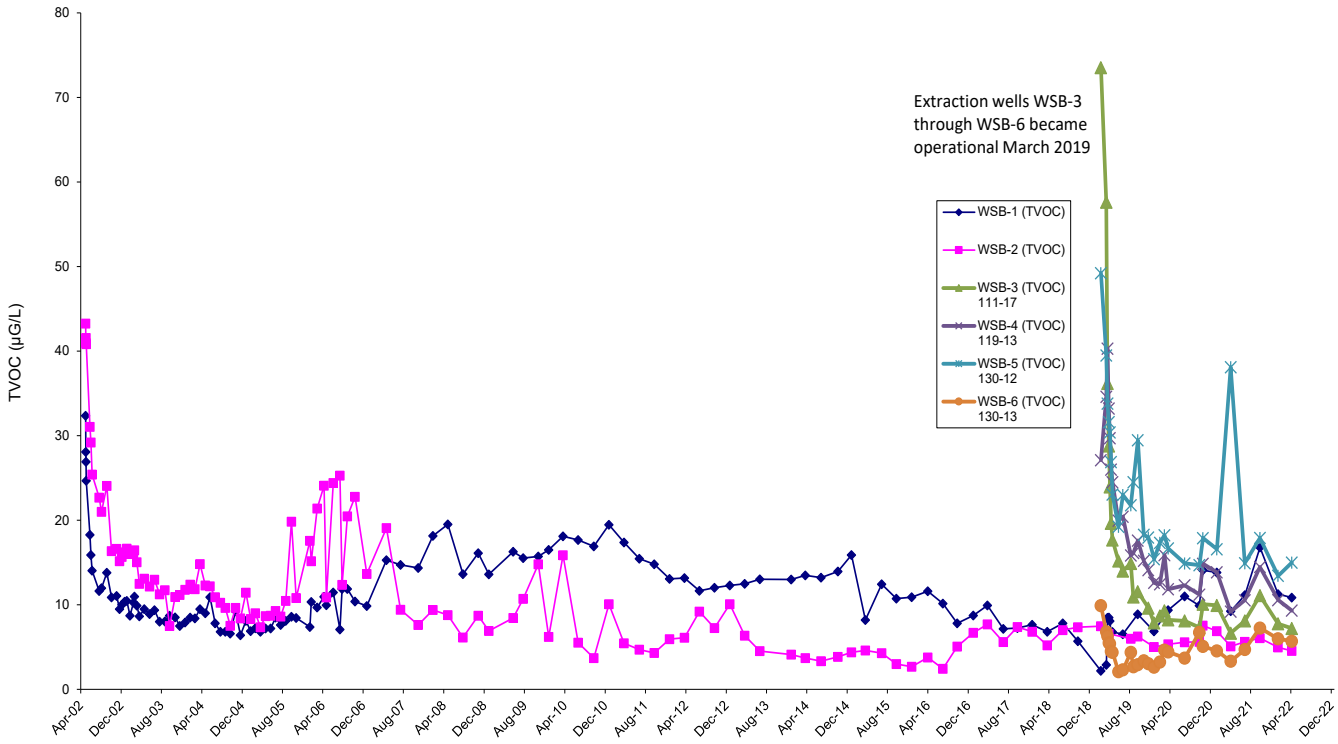


Table 11-2
OUIII Western South Boundary Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1, 2022 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	Monitor	1,540,026[1]	GPD	Continuous
pH (range)	6.5 - 8.5	7.4– 7.7[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 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.
Note: 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 DMR.

System Operations

April 2022:

The system was shut off for one week in early April for a blower replacement on one of the air stripper towers. The remainder of the month 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 taken from OU III South Boundary air stripping tower. The system treated approximately 14 million gallons of water.

May 2022:

Extraction well WSB-1, WSB-3, WSB-4, WSB-5 and WSB-6 ran normally. Extraction well WSB-2 was in standby mode. The system treated approximately 22 million gallons of water.

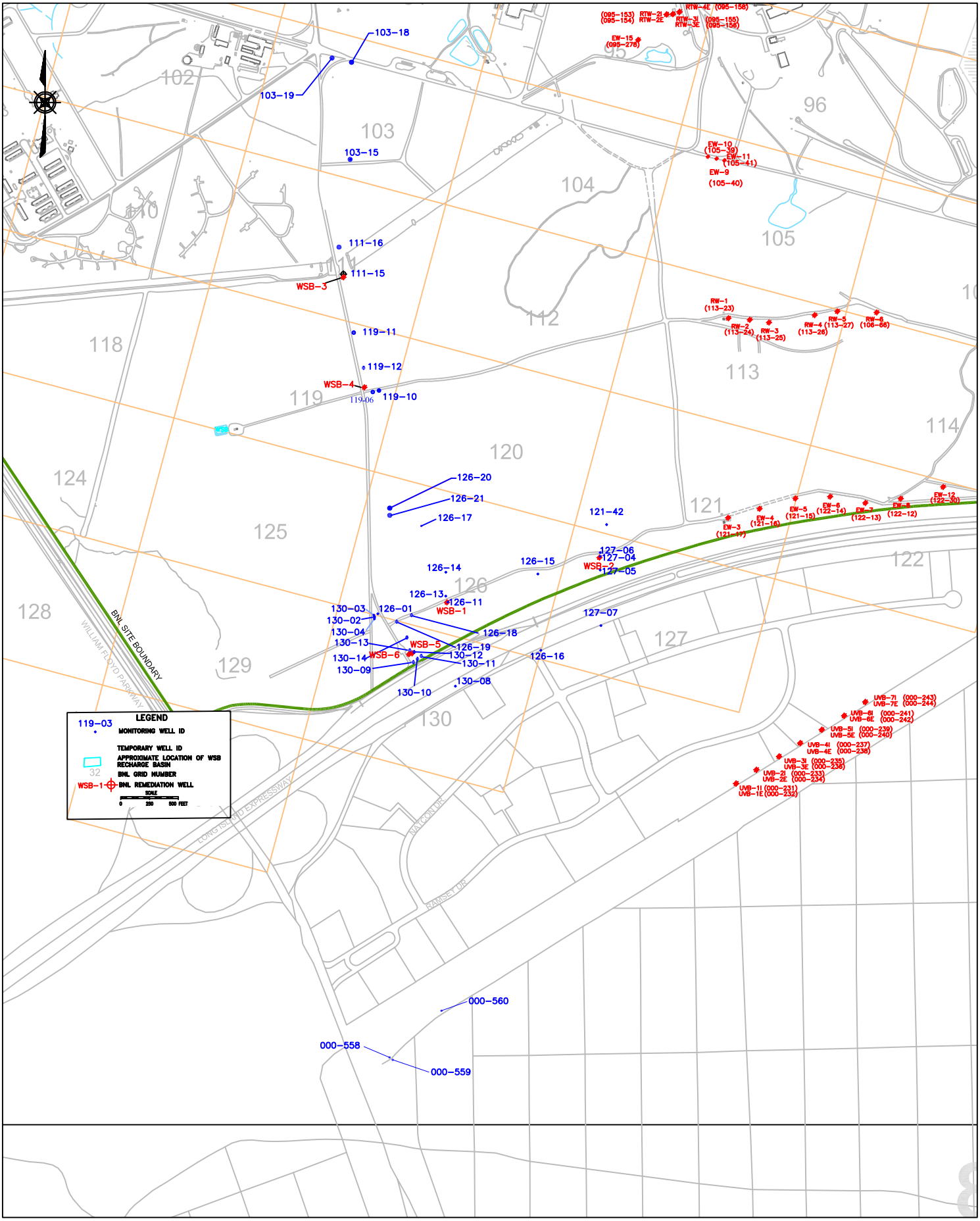
June 2022:

Extraction well WSB-1, WSB-4, WSB-5 and WSB-6 ran normally. Extraction well WSB-2 was in standby mode and WSB-3 was down for pump repairs. The system treated approximately 18 million gallons of water.

The system treated approximately 54 million gallons of water during the second quarter of 2022.

Planned Operational Changes

- Continue full-time operation of extraction well WSB-1 based on elevated concentrations persisting in well 126-14. If TVOC concentrations drop below 20 µg/L in this monitoring well, begin pulsed pumping well of WSB-1. In the second quarter of 2022, the TVOC concentration in this well was 14 µg/L. TVOC concentrations will continue to be monitored through the fourth quarter to see if the results remain below 20 µg/L.
- Continue full time operation of extraction wells WSB-3 through WSB-6.
- Based on the TVOC concentrations 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 core monitoring wells, extraction well WSB-2 may be put into full time operation. During the second quarter, WSB-2 and adjacent monitoring wells were below the TVOC capture goal of 20 µg/L.



\\OERNT\GIS\GW_PROJECTS\ERD QUARTERLIES\2Q_2022\FIG 11-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

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

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	09/26/05	–
CHKD:	APPD:	REV.:	NOTES:
LDS	--	09/07/22	–

FIGURE NO.: 11-3

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-558

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/13/2022	20.8	--	--	UG/L	165.00		
1,1,1-Trichloroethane	05/13/2022	3.1	0.5	--	UG/L	165.00		
1,1-Dichloroethane	05/13/2022	1.1	0.5	--	UG/L	165.00		
1,1-Dichloroethylene	05/13/2022	4.7	0.5	--	UG/L	165.00		
Chloroform	05/13/2022	4.5	0.5	--	UG/L	165.00		
Dichlorodifluoromethane	05/13/2022	3.2	0.5	--	UG/L	165.00		
Trichloroethylene	05/13/2022	4.2	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	05/13/2022	2.1	--	--	UG/L	215.00		
Dichlorodifluoromethane	05/13/2022	2.1	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	05/13/2022	14.98	--	--	UG/L	159.50		
1,1,1-Trichloroethane	05/13/2022	1.9	0.5	--	UG/L	159.50		
1,1-Dichloroethane	05/13/2022	0.68	0.5	--	UG/L	159.50		
1,1-Dichloroethylene	05/13/2022	2.9	0.5	--	UG/L	159.50		
Chloroform	05/13/2022	1.8	0.5	--	UG/L	159.50		
Dichlorodifluoromethane	05/13/2022	5	0.5	--	UG/L	159.50		
Trichloroethylene	05/13/2022	2.7	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	05/09/2022	34.7	--	--	UG/L	200.00		
1,1-Dichloroethane	05/09/2022	4.9	0.5	--	UG/L	200.00		
1,1-Dichloroethylene	05/09/2022	6.5	0.5	--	UG/L	200.00		
Dichlorodifluoromethane	05/09/2022	18	0.5	--	UG/L	200.00		
Trichloroethylene	05/09/2022	5.3	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	06/21/2022	9.58	--	--	UG/L	170.00		
1,1-Dichloroethane	06/21/2022	1.3	0.5	--	UG/L	170.00		
1,1-Dichloroethylene	06/21/2022	2	0.5	--	UG/L	170.00		
Dichlorodifluoromethane	06/21/2022	3.2	0.5	--	UG/L	170.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 103-18

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tetrachloroethylene	06/21/2022	0.18	0.5	--	UG/L	170.00	J	
Trichloroethylene	06/21/2022	2.9	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	06/21/2022	6.3	--	--	UG/L	170.00		
1,1-Dichloroethane	06/21/2022	1.2	0.5	--	UG/L	170.00		
1,1-Dichloroethylene	06/21/2022	1.4	0.5	--	UG/L	170.00		
Dichlorodifluoromethane	06/21/2022	1.2	0.5	--	UG/L	170.00		
Trichloroethylene	06/21/2022	2.5	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	05/09/2022	0.41	--	--	UG/L	175.00		
Chloroform	05/09/2022	0.41	0.5	--	UG/L	175.00	J	

Site ID : 111-16

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/09/2022	5.07	--	--	UG/L	173.00		
1,1,1-Trichloroethane	05/09/2022	0.45	0.5	--	UG/L	173.00	J	
1,1-Dichloroethane	05/09/2022	0.83	0.5	--	UG/L	173.00		
1,1-Dichloroethylene	05/09/2022	1.8	0.5	--	UG/L	173.00		
Chloroform	05/09/2022	0.68	0.5	--	UG/L	173.00		
Dichlorodifluoromethane	05/09/2022	0.33	0.5	--	UG/L	173.00	J	
Tetrachloroethylene	05/09/2022	0.21	0.5	--	UG/L	173.00	J	
Trichloroethylene	05/09/2022	0.77	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	06/02/2022	7.3	--	--	UG/L	200.00		
1,1-Dichloroethane	06/02/2022	2.3	0.5	--	UG/L	200.00		
1,1-Dichloroethylene	06/02/2022	1.3	0.5	--	UG/L	200.00		
Dichlorodifluoromethane	06/02/2022	2.4	0.5	--	UG/L	200.00		
Trichloroethylene	06/02/2022	1.3	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	05/16/2022	71.5	--	--	UG/L	180.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 119-11

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/16/2022	9.6	0.5	--	UG/L	180.00		
1,1-Dichloroethane	05/16/2022	7.9	0.5	--	UG/L	180.00		
1,1-Dichloroethylene	05/16/2022	47	0.5	--	UG/L	180.00		
1,2-Dichloroethane	05/16/2022	0.42	0.5	--	UG/L	180.00	J	
Chloroform	05/16/2022	0.18	0.5	--	UG/L	180.00	J	
Dichlorodifluoromethane	05/16/2022	2.1	0.5	--	UG/L	180.00		
Trichloroethylene	05/16/2022	4.3	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	05/16/2022	9.73	--	--	UG/L	179.00		
1,1,1-Trichloroethane	05/16/2022	4	0.5	--	UG/L	179.00		
1,1-Dichloroethane	05/16/2022	0.22	0.5	--	UG/L	179.00	J	
1,1-Dichloroethylene	05/16/2022	2.5	0.5	--	UG/L	179.00		
1,2-Dichloroethane	05/16/2022	0.14	0.5	--	UG/L	179.00	J	
Chloroform	05/16/2022	0.47	0.5	--	UG/L	179.00	J	
Trichloroethylene	05/16/2022	2.4	0.5	--	UG/L	179.00		

Site ID : 126-14

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/13/2022	14.4	--	--	UG/L	155.00		
1,1,1-Trichloroethane	06/13/2022	7.1	0.5	--	UG/L	155.00		
1,1-Dichloroethylene	06/13/2022	5.4	0.5	--	UG/L	155.00		
1,2-Dichloroethane	06/13/2022	0.2	0.5	--	UG/L	155.00	J	
Trichloroethylene	06/13/2022	1.7	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	06/13/2022	4.69	--	--	UG/L	155.00		
1,1,1-Trichloroethane	06/13/2022	0.2	0.5	--	UG/L	155.00	J	
1,1-Dichloroethylene	06/13/2022	0.27	0.5	--	UG/L	155.00	J	
Chloroform	06/13/2022	0.22	0.5	--	UG/L	155.00	J	
Dichlorodifluoromethane	06/13/2022	4	0.5	--	UG/L	155.00		

Site ID : 126-16

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2022	16.6	--	--	UG/L	135.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 126-16

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	05/12/2022	2.3	0.5	--	UG/L	135.00		
1,1-Dichloroethane	05/12/2022	1	0.5	--	UG/L	135.00		
1,1-Dichloroethylene	05/12/2022	4	0.5	--	UG/L	135.00		
Chloroform	05/12/2022	3.2	0.5	--	UG/L	135.00		
Dichlorodifluoromethane	05/12/2022	3	0.5	--	UG/L	135.00		
Trichloroethylene	05/12/2022	3.1	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	06/13/2022	1.97	--	--	UG/L	165.00		
1,1,1-Trichloroethane	06/13/2022	0.51	0.5	--	UG/L	165.00		
1,1-Dichloroethylene	06/13/2022	0.76	0.5	--	UG/L	165.00		
1,2-Dichloroethane	06/13/2022	0.2	0.5	--	UG/L	165.00	J	
Tetrachloroethylene	06/13/2022	0.17	0.5	--	UG/L	165.00	J	
Toluene	06/13/2022	0.33	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	06/14/2022	14.9	--	--	UG/L	195.00		
1,1,1-Trichloroethane	06/14/2022	1.9	0.5	--	UG/L	195.00		
1,1-Dichloroethane	06/14/2022	2.5	0.5	--	UG/L	195.00		
1,1-Dichloroethylene	06/14/2022	4.1	0.5	--	UG/L	195.00		
Chloroform	06/14/2022	1	0.5	--	UG/L	195.00		
Dichlorodifluoromethane	06/14/2022	5.4	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	06/15/2022	8.32	--	--	UG/L	140.00		
1,1,1-Trichloroethane	06/15/2022	3.3	0.5	--	UG/L	140.00		
1,1-Dichloroethylene	06/15/2022	3.6	0.5	--	UG/L	140.00		
1,2-Dichloroethane	06/15/2022	0.23	0.5	--	UG/L	140.00	J	
Chloroform	06/15/2022	0.26	0.5	--	UG/L	140.00	J	
Tetrachloroethylene	06/15/2022	0.38	0.5	--	UG/L	140.00	J	
Trichloroethylene	06/15/2022	0.55	0.5	--	UG/L	140.00		

Site ID : 126-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/15/2022	0.75	--	--	UG/L	205.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 126-21

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	06/15/2022	0.2	0.5	--	UG/L	205.00	J	
1,1-Dichloroethylene	06/15/2022	0.34	0.5	--	UG/L	205.00	J	
Chloroform	06/15/2022	0.21	0.5	--	UG/L	205.00	J	

Site ID : 127-04

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/14/2022	1.18	--	--	UG/L	155.00		
Tetrachloroethylene	06/14/2022	0.26	0.5	--	UG/L	155.00	J	
Trichloroethylene	06/14/2022	0.92	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	06/14/2022	1.06	--	--	UG/L	155.00		
Tetrachloroethylene	06/14/2022	0.27	0.5	--	UG/L	155.00	J	
Toluene	06/14/2022	0.19	0.5	--	UG/L	155.00	J	
Trichloroethylene	06/14/2022	0.6	0.5	--	UG/L	155.00		

Site ID : 127-07

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/12/2022	4.15	--	--	UG/L	151.00		
1,1,1-Trichloroethane	05/12/2022	0.59	0.5	--	UG/L	151.00		
1,1-Dichloroethane	05/12/2022	0.41	0.5	--	UG/L	151.00	J	
1,1-Dichloroethylene	05/12/2022	1	0.5	--	UG/L	151.00		
Chloroform	05/12/2022	0.71	0.5	--	UG/L	151.00		
Dichlorodifluoromethane	05/12/2022	1	0.5	--	UG/L	151.00		
Trichloroethylene	05/12/2022	0.44	0.5	--	UG/L	151.00	J	

Site ID : 130-02

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/15/2022	1.6	--	--	UG/L	115.00		
Chloroform	06/15/2022	1.6	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	06/21/2022	13.54	--	--	UG/L	165.00		
1,1,1-Trichloroethane	06/21/2022	3.4	0.5	--	UG/L	165.00		
1,1-Dichloroethane	06/21/2022	0.33	0.5	--	UG/L	165.00	J	
1,1-Dichloroethylene	06/21/2022	5.3	0.5	--	UG/L	165.00		

Table 11-3
OU III Western South Boundary Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 130-03

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	06/21/2022	2.2	0.5	--	UG/L	165.00		
Dichlorodifluoromethane	06/21/2022	0.19	0.5	--	UG/L	165.00	J	
Tetrachloroethylene	06/21/2022	0.64	0.5	--	UG/L	165.00		
Trichloroethylene	06/21/2022	1.3	0.5	--	UG/L	165.00		
Trichlorofluoromethane	06/21/2022	0.18	0.5	--	UG/L	165.00	J	

Site ID : 130-08

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/16/2022	2.76	--	--	UG/L	150.00		
Chloroform	05/16/2022	1.9	0.5	--	UG/L	150.00		
Tetrachloroethylene	05/16/2022	0.58	0.5	--	UG/L	150.00		
Trichloroethylene	05/16/2022	0.28	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	05/16/2022	1.9	--	--	UG/L	140.00		
Chloroform	05/16/2022	1.9	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	05/12/2022	1.8	--	--	UG/L	155.00		
Chloroform	05/12/2022	1.8	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	05/12/2022	2.44	--	--	UG/L	200.00		
1,1,1-Trichloroethane	05/12/2022	0.46	0.5	--	UG/L	200.00	J	
1,1-Dichloroethylene	05/12/2022	0.68	0.5	--	UG/L	200.00		
Chloroform	05/12/2022	1.3	0.5	--	UG/L	200.00		

Site ID : 130-14

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/21/2022	18.73	--	--	UG/L	208.00		
1,1-Dichloroethane	06/21/2022	1.1	0.5	--	UG/L	208.00		
1,1-Dichloroethylene	06/21/2022	0.63	0.5	--	UG/L	208.00		
Dichlorodifluoromethane	06/21/2022	17	0.5	--	UG/L	208.00		

Table 11-4
OU III Western South Boundary Extraction Well Data
'Hits Only' April through June 2022

Site ID : 111-17 (WSB-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	7.21	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.74	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.81	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	3.9	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	1.2	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.56	0.5	--	UG/L	0.00		

Site ID : 119-13 (WSB-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	9.31	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	2.2	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.58	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	5	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.27	0.5	--	UG/L	0.00	J	
Dichlorodifluoromethane	04/18/2022	0.62	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.64	0.5	--	UG/L	0.00		

Site ID : 126-12 (WSB-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	10.85	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	3.5	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	5.9	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.73	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.72	0.5	--	UG/L	0.00		

Site ID : 127-05 (WSB-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	4.56	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.77	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.25	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	0.87	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.67	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	2	0.5	--	UG/L	0.00		

Site ID : 130-12 (WSB-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	14.99	--	--	UG/L	0.00		

Table 11-4
OU III Western South Boundary Extraction Well Data
'Hits Only' April through June 2022

Site ID : 130-12 (WSB-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,1,1-Trichloroethane	04/18/2022	4.6	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.39	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/18/2022	6.4	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	1.5	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/18/2022	1	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	1.1	0.5	--	UG/L	0.00		

Site ID : 130-13 (WSB-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	5.7	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	0.41	0.5	--	UG/L	0.00	J	
1,1-Dichloroethane	04/18/2022	0.69	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	1.1	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/18/2022	3.5	0.5	--	UG/L	0.00		

Table 11-5
OU III Western South Boundary Influent Data
'Hits Only' April through June 2022

Site ID : 121-55 (System Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	10.89	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/18/2022	2.7	0.5	--	UG/L	0.00		
1,1-Dichloroethane	04/18/2022	0.5	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	04/18/2022	5.1	0.5	--	UG/L	0.00		
Chloroform	04/18/2022	0.82	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	04/18/2022	1.1	0.5	--	UG/L	0.00		
Trichloroethylene	04/18/2022	0.67	0.5	--	UG/L	0.00		
8260 TVOC	05/09/2022	10.59	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/09/2022	2.7	0.5	--	UG/L	0.00		
1,1-Dichloroethane	05/09/2022	0.51	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	05/09/2022	4.6	0.5	--	UG/L	0.00		
Chloroform	05/09/2022	0.85	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	05/09/2022	1.3	0.5	--	UG/L	0.00		
Trichloroethylene	05/09/2022	0.63	0.5	--	UG/L	0.00		
8260 TVOC	06/06/2022	10.81	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/06/2022	3	0.5	--	UG/L	0.00		
1,1-Dichloroethylene	06/06/2022	5.5	0.5	--	UG/L	0.00		
Chloroform	06/06/2022	0.72	0.5	--	UG/L	0.00		
Dichlorodifluoromethane	06/06/2022	1.2	0.5	--	UG/L	0.00		
Trichloroethylene	06/06/2022	0.39	0.5	--	UG/L	0.00	J	

Table 11-6
OU III Western South Boundary Effluent Data
'Hits Only' April through June 2022

Site ID : 095-126 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/18/2022	0	--	--	UG/L	0.00		
8260 TVOC	05/09/2022	0	--	--	UG/L	0.00		
8260 TVOC	06/06/2022	0	--	--	UG/L	0.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 12
Q2-2022 Operations Summary
OU III Strontium-90 Chemical Holes Treatment System

Process: Groundwater extraction and treatment via zeolite resin (Clinoptilolite) for the removal of 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
OU III Sr-90 Chemical Holes
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.

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

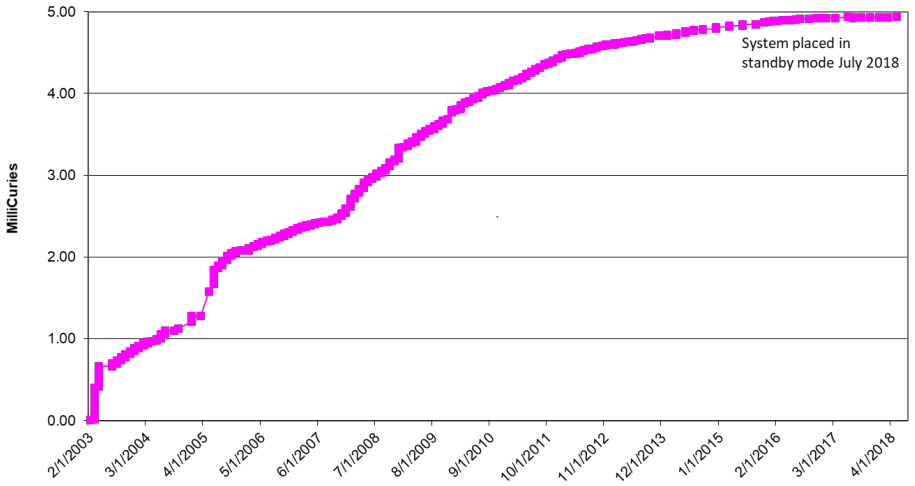


Figure 12-2
Chemical Holes Influent Strontium-90 Concentrations

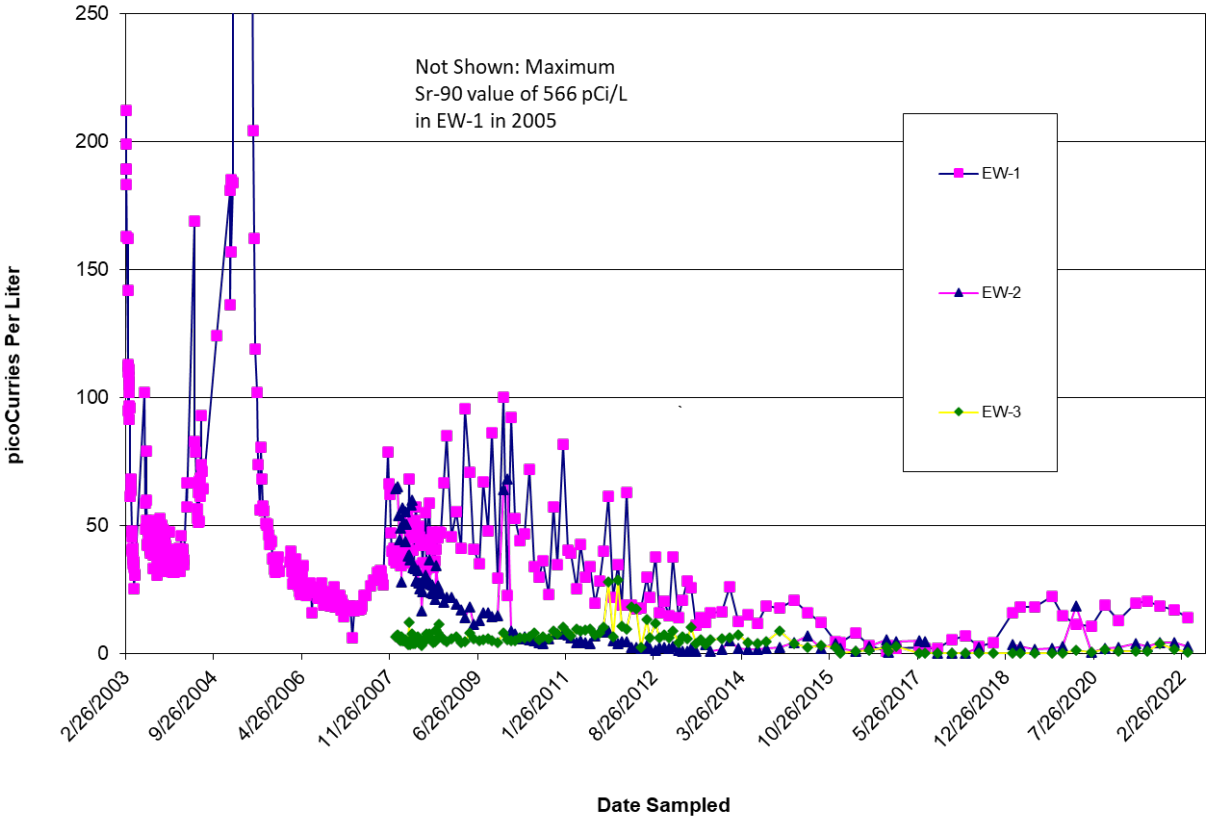


Table 12-2
OU III Sr-90 Chemical Holes Treatment System Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	**NA**	**GPM**	**Continuous**
pH (range)	**5.0 - 8.5**	**NA**	**SU**	**Monthly**
Sr-90	**8**	**NA**	**pCi/L**	**Monthly**

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

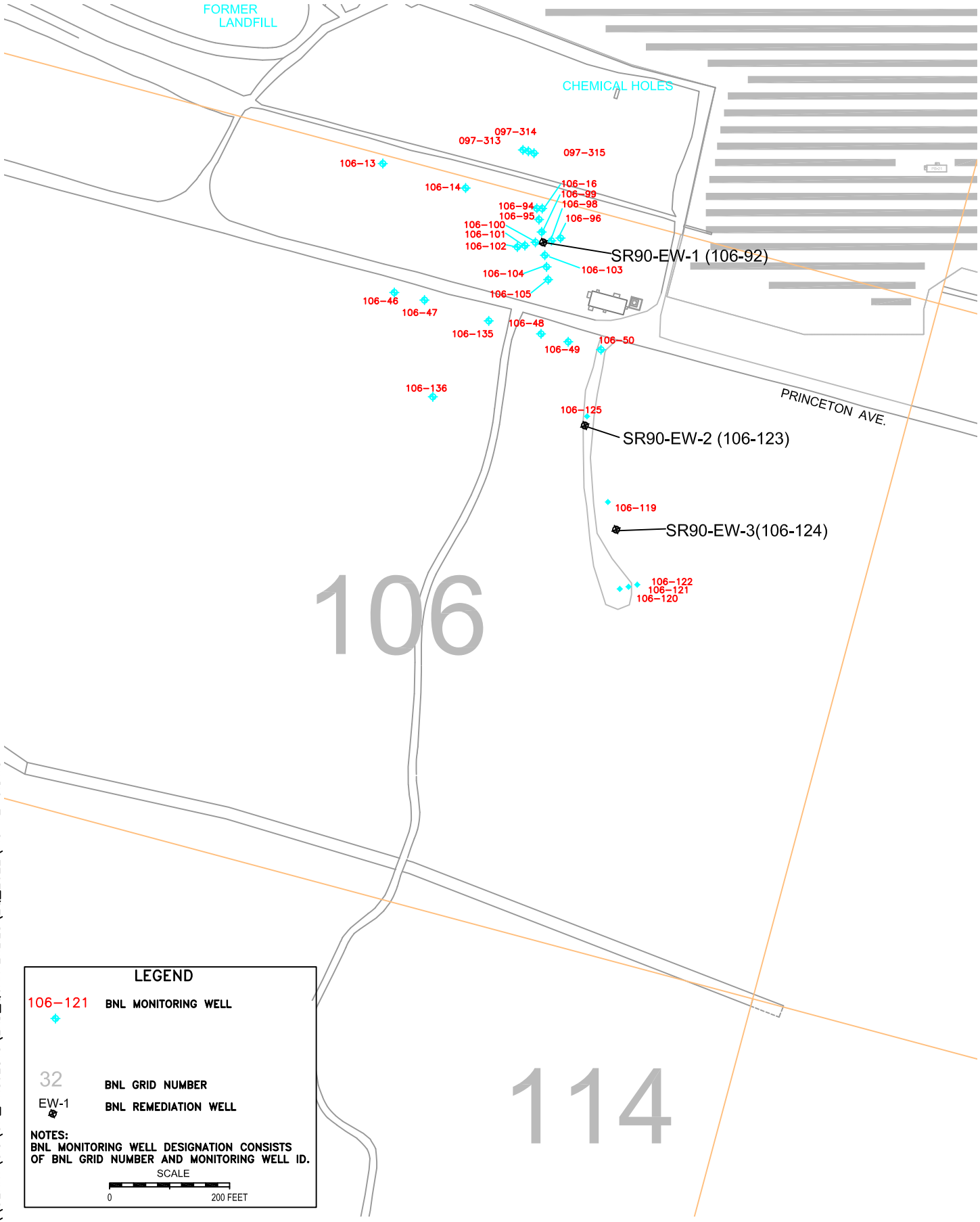
Systems Operations

April through June 2022:

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. During the second quarter, Sr-90 concentrations in extraction well EW-2 and EW-3 were 2.83 pCi/L and non-detect, respectively. Extraction well EW-1 had Sr-90 concentration of 14 pCi/L. The monitoring wells were not scheduled to be sampled during the second quarter.
- If Sr-90 concentrations in the monitoring and extraction wells do not show any significant rebound, then a Petition for Closure of the treatment system may be prepared.



ENVIRONMENTAL PROTECTION DIVISION

TITLE:

CHEMICAL HOLES Sr-90 MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	07/15/08	–
CHKD:	APPD:	REV.:	NOTES:
LDS	--	09/07/22	–

FIGURE NO.: 12-3

Table 12-4
OU III Strontium-90 Chemical Holes Extraction Well Data
'Hits Only' April through June 2022

Site ID : 106-123 (EW-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/04/2022	2.83	0.774	0.62	PCI/L	0.00		

Site ID : 106-92 (EW-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/04/2022	13.9	0.777	1.01	PCI/L	0.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 13

Q2-2022 Operations Summary
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 from the regulators in June and July 2013 that the system met its treatment goals and can now be dismantled. Any 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.

Dismantlement activities have been initiated including 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 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 the wells have been below the AWQS for a minimum of four consecutive sampling events. The data from the four wells are also evaluated as part of the North Street and Magothy monitoring programs. Monitoring 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).

Section 14

Q2-2022 Operations Summary
OU III North Street Pump & Treat System
(System Closed)

Process: Groundwater extraction and liquid phase granular activated carbon 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: June 2004

Table 14-1
OU III North Street Pump & Treat System
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.

Figure 14-1
OU III North Street Pump & Treat System
Cumulative Mass Removal of VOCs vs. Time

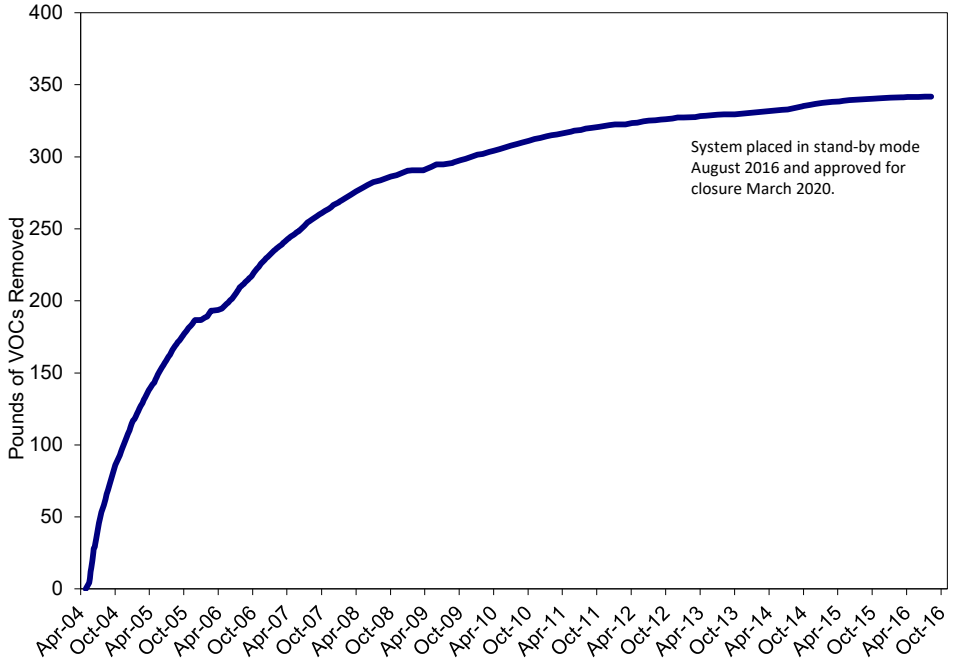


Figure 14-2
OU III North Street Pump & Treat System
Influent TVOC Concentrations vs. Time

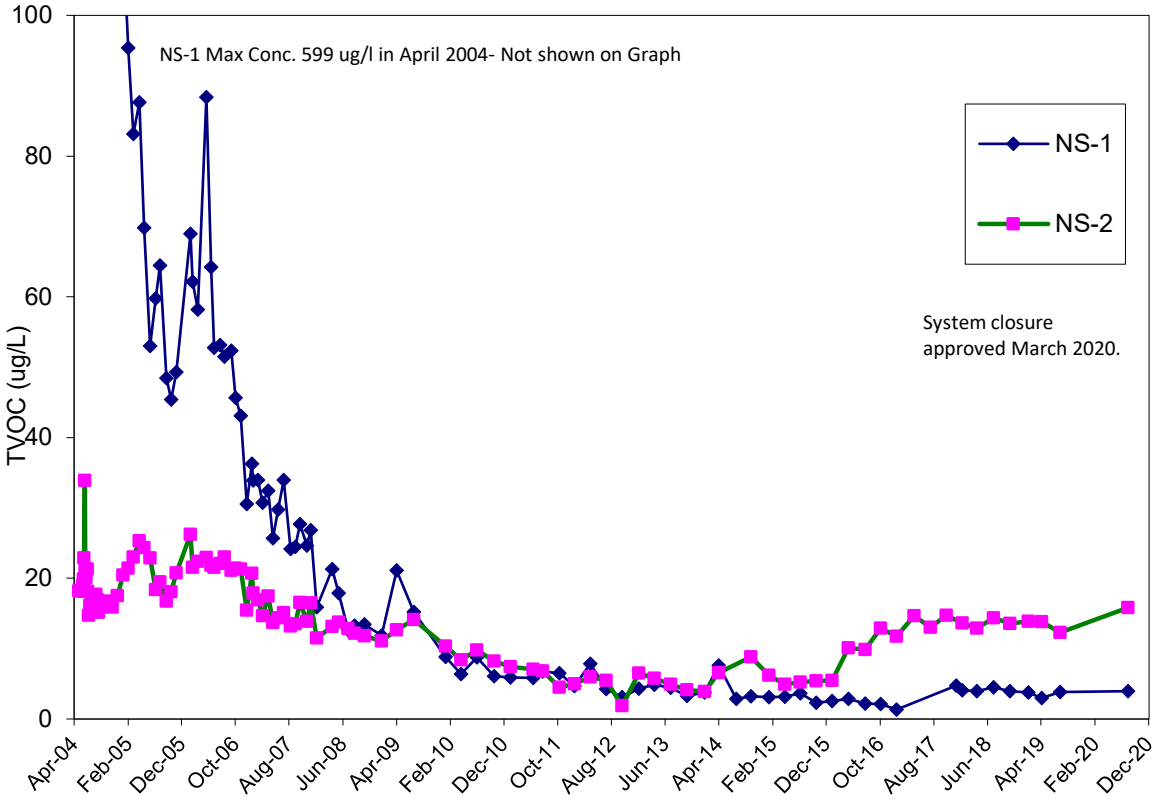


Table 14-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	**Monitor**	NA [1]	**GPD**	**Continuous**
pH (range)	**5.5 - 8.5**	NA [1]	**SU**	**Monthly**
Carbon Tetrachloride	**5**	NA [1]	**µg/L**	**Monthly**
Chloroform	**5**	NA [1]	**µg/L**	**Monthly**
1,1-Dichloroethane	**5**	NA [1]	**µg/L**	**Monthly**
1,2-Dichloroethane	**0.6**	NA [1]	**µg/L**	**Monthly**
1,1-Dichloroethylene	**5**	NA [1]	**µg/L**	**Monthly**
Tetrachloroethylene	**5**	NA [1]	**µg/L**	**Monthly**
Toluene	**5**	NA [1]	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5**	NA [1]	**µg/L**	**Monthly**
Trichloroethylene	**5**	NA [1]	**µg/L**	**Monthly**
Ethylene Dibromide (EDB)	**0.03**	NA [1]	**µg/L**	**Monthly**

[1] The system is closed. [NA=] Not Applicable.

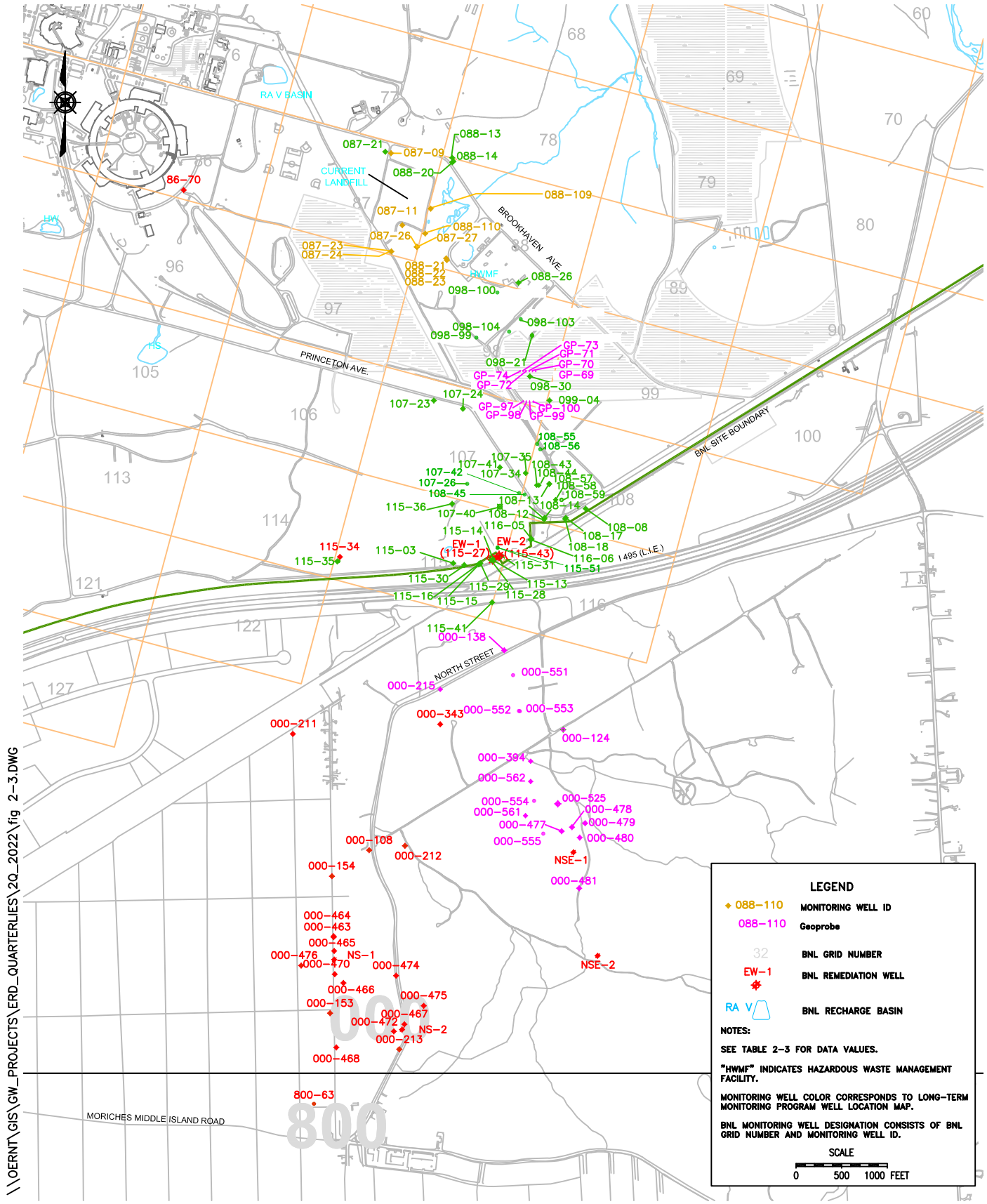
System Operations

April through June 2022:

The system remained 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 future use of these wells and treatment system infrastructure will be determined.



LEGEND

- 088-110 MONITORING WELL ID
- 088-110 Geoprobe
- 32 BNL GRID NUMBER
- EW-1 BNL REMEDIATION WELL
- RA V BNL RECHARGE BASIN

NOTES:

SEE TABLE 2-3 FOR DATA VALUES.

"HWMF" INDICATES HAZARDOUS WASTE MANAGEMENT FACILITY.

MONITORING WELL COLOR CORRESPONDS TO LONG-TERM MONITORING PROGRAM WELL LOCATION MAP.

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

SCALE

0 500 1000 FEET

\\OERNT\GIS\GW_PROJECTS\ERD_QUARTERLIES\2Q_2022\fig 2-3.DWG

ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I SOUTH BOUNDARY/NORTH STREET/NORTH STREET EAST MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	08/08/11	NA
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/07/22	–

FIGURE NO.: 14-3

Section 15

Q2-2022 Operations Summary
OU III North Street East Pump & Treat System

Process: Groundwater extraction and liquid phase granular activated carbon 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
OU III North Street East Pump & Treat System
Pumping Rates (gpm)

Extraction Well	NSE-1	NSE-2	NSE-EDB-3	NSE-EDB-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*	107	94
May	0*	0*	103	104
June	0*	0*	65	70
Actual (Avg. over Qtr.)	0*	0*	92	89

Notes: *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-3 and NSE-EDB-4 began operation in July 2020.

Figure 15-1
OU III North Street East Pump & Treat System
Cumulative Mass Removal of VOCs vs. Time

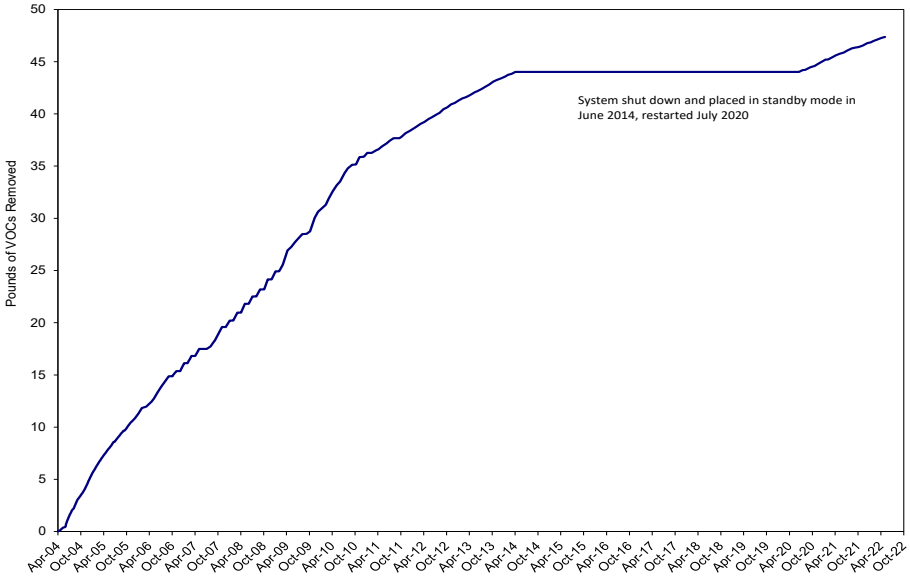


Figure 15-2
OU III North Street East Pump & Treat System
Influent TVOC Concentrations vs. Time

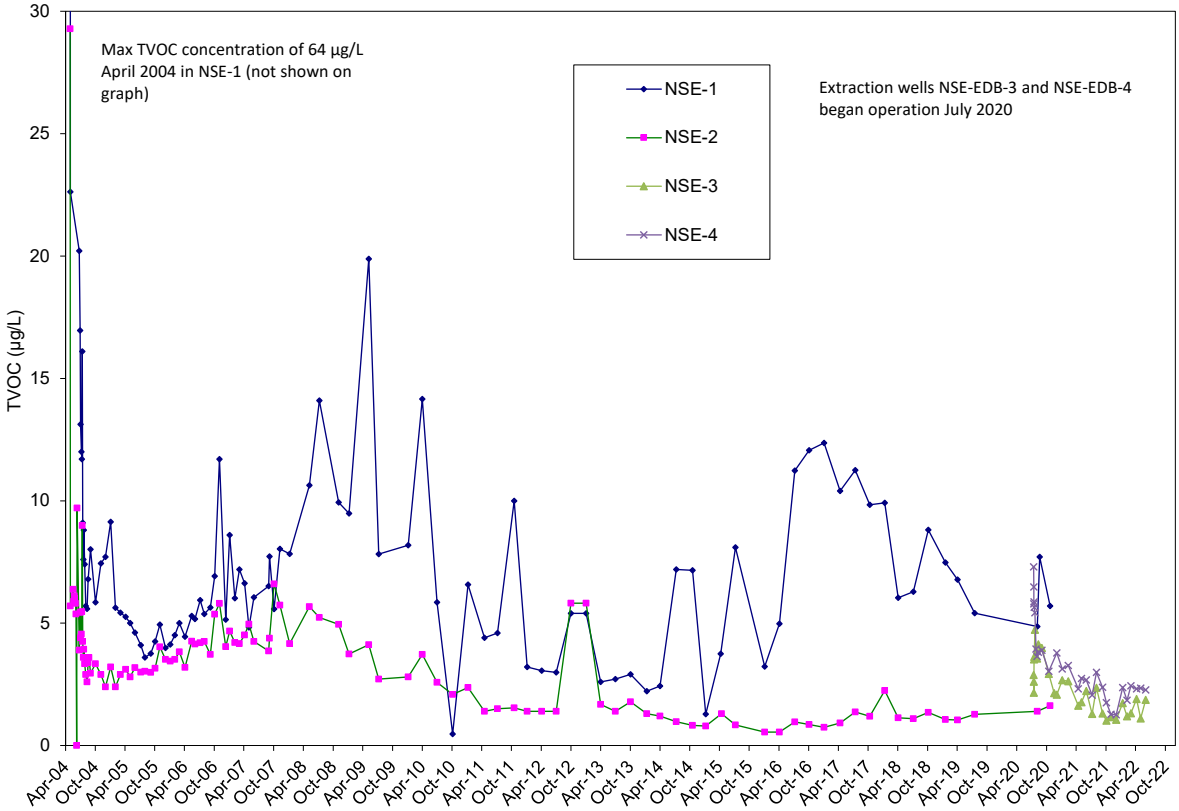


Figure 15-3
OU III North Street East Pump & Treat System
Influent EDB Concentrations vs. Time

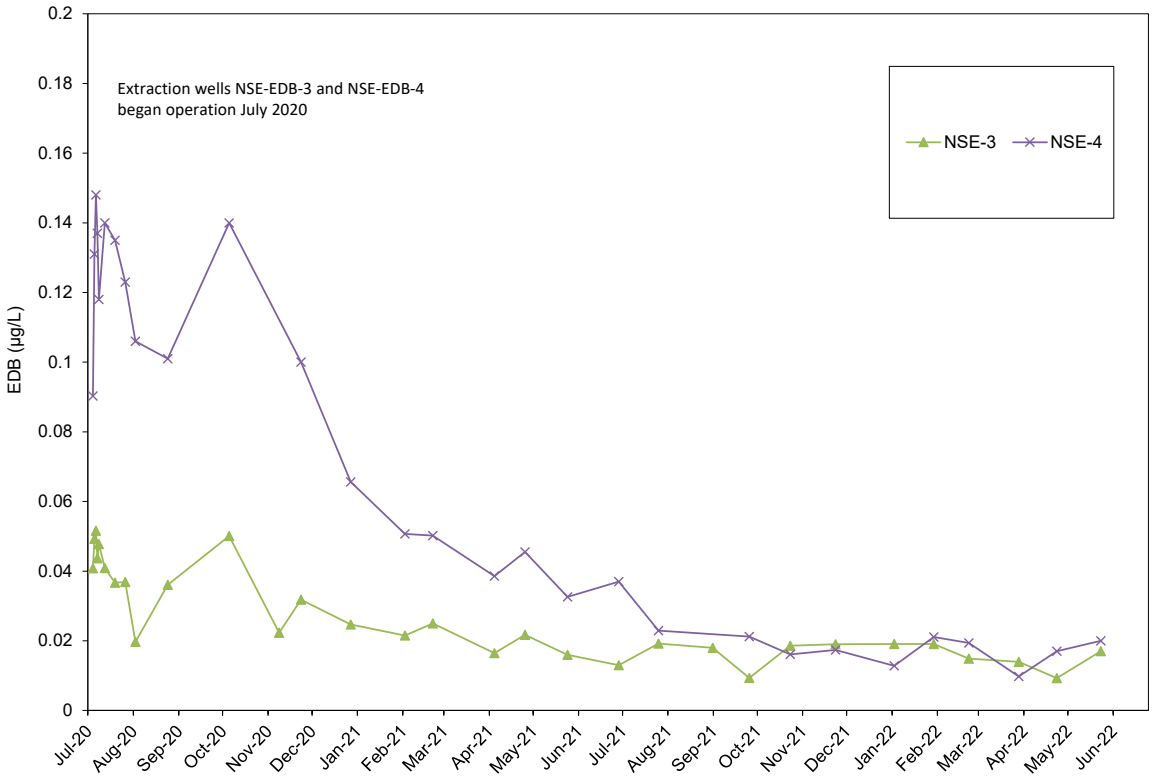


Table 15-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	Monitor	289,355	GPD	Continuous
pH (range)	5.5 - 8.5	6.5-7.0	SU	Monthly
Carbon Tetrachloride	5	<0.5	µg/L	Monthly
Chloroform	5	<0.5	µg/L	Monthly
1,1-Dichloroethane	5	<0.5	µg/L	Monthly
1,2-Dichloroethane	0.6	<0.5	µg/L	Monthly

1,1-Dichloroethylene	**5**	**<0.5**	**µg/L**	**Monthly**
Tetrachloroethylene	**5**	**<0.5**	**µg/L**	**Monthly**
Toluene	**5**	**<0.5**	**µg/L**	**Monthly**
1,1,1-Trichloroethane	**5**	**<0.5**	**µg/L**	**Monthly**
Trichloroethylene	**5**	**<0.5**	**µg/L**	**Monthly**
Ethylene Dibromide (EDB)	**0.03**	**<0.011**	**µg/L**	**Monthly**

System Operations

April 2022:

Extraction wells NSE-EDB-3 and NSE-EDB-4 operated normally for the month. The system treated approximately 9 million gallons of water.

May 2022:

Extraction wells NSE-EDB-3 and NSE-EDB-4 were operational. The system treated approximately 9 million gallons of water.

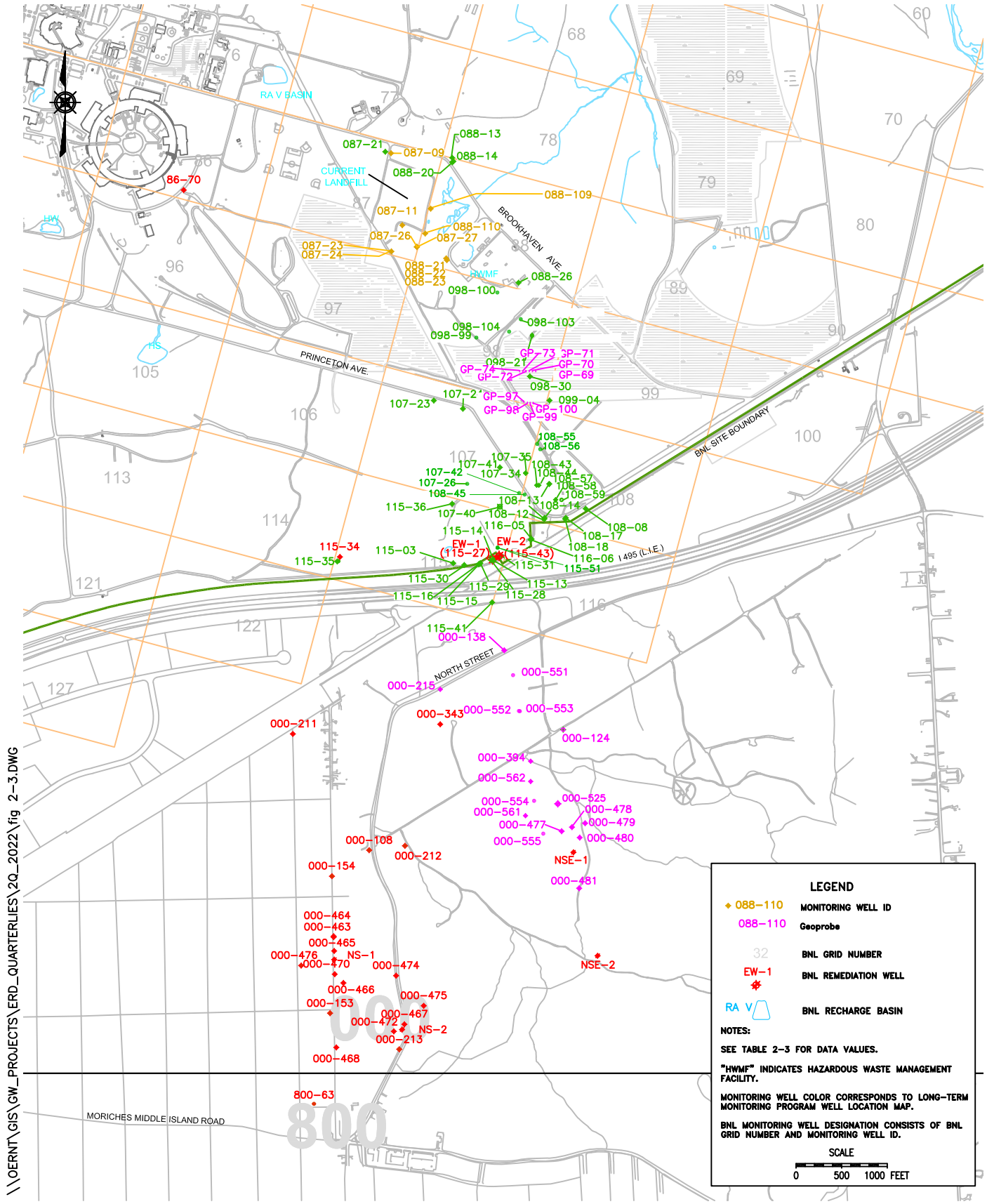
June 2022:

The system was of for mechanical repairs during the first two weeks of June. Extraction wells NSE-EDB-3 and NSE-EDB-4 operated normally for the last half of the month. The system treated approximately 6 million gallons of water.

The system treated approximately 24 million gallons of water during the second quarter of 2022.

Planned Operational Changes

- Continue full time operation of the EDB treatment system and maintain a monthly sampling of extraction wells NSE-EDB-EW-3 and NSE-EDB-EW-4.



LEGEND

- 088-110 MONITORING WELL ID
- 088-110 Geoprobe
- 32 BNL GRID NUMBER
- EW-1 BNL REMEDIATION WELL
- RA V BNL RECHARGE BASIN

NOTES:

SEE TABLE 2-3 FOR DATA VALUES.

"HWMF" INDICATES HAZARDOUS WASTE MANAGEMENT FACILITY.

MONITORING WELL COLOR CORRESPONDS TO LONG-TERM MONITORING PROGRAM WELL LOCATION MAP.

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

SCALE

0 500 1000 FEET

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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU I SOUTH BOUNDARY/NORTH STREET/NORTH STREET EAST MONITORING WELL NETWORK

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	08/08/11	NA
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/07/22	–

FIGURE NO.: 15-3

Table 15-3
OU III North Street East Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-394

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/10/2022	0.062	0.01	--	UG/L	178.00		

Site ID : 000-552

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/09/2022	0.097	0.01	--	UG/L	155.00		

Site ID : 000-554

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/16/2022	0.097	0.01	--	UG/L	195.00		

Site ID : 000-563

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/16/2022	0.021	0.01	--	UG/L	197.00		

Site ID : 000-565

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/17/2022	0.012	0.011	--	UG/L	210.00		

Site ID : 000-566

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
EDB	06/16/2022	0.024	0.01	--	UG/L	210.00		

Table 15-4
OU III North Street East Extraction Well Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	1.9	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/06/2022	0.35	0.5	--	UG/L	0.00	J	
Chloroform	04/06/2022	0.86	0.5	--	UG/L	0.00		
EDB	04/06/2022	0.014	0.011	--	UG/L	0.00		
Tetrachloroethylene	04/06/2022	0.24	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/06/2022	0.45	0.5	--	UG/L	0.00	J	
8260 TVOC	05/02/2022	1.11	--	--	UG/L	0.00		
Chloroform	05/02/2022	0.89	0.5	--	UG/L	0.00		
EDB	05/02/2022	0.0093	0.01	--	UG/L	0.00	J	
Trichloroethylene	05/02/2022	0.22	0.5	--	UG/L	0.00	J	
8260 TVOC	06/01/2022	1.87	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/01/2022	0.3	0.5	--	UG/L	0.00	J	
Chloroform	06/01/2022	0.9	0.5	--	UG/L	0.00		
EDB	06/01/2022	0.017	0.01	--	UG/L	0.00		
Tetrachloroethylene	06/01/2022	0.2	0.5	--	UG/L	0.00	J	
Trichloroethylene	06/01/2022	0.47	0.5	--	UG/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	04/06/2022	2.32	--	--	UG/L	0.00		
Chloroform	04/06/2022	0.85	0.5	--	UG/L	0.00		
EDB	04/06/2022	0.0098	0.01	--	UG/L	0.00	J	
Methyl tert-butyl ether	04/06/2022	0.26	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	04/06/2022	0.81	0.5	--	UG/L	0.00		
Trichloroethylene	04/06/2022	0.4	0.5	--	UG/L	0.00	J	
8260 TVOC	05/02/2022	2.34	--	--	UG/L	0.00		
Chloroform	05/02/2022	0.87	0.5	--	UG/L	0.00		
EDB	05/02/2022	0.017	0.01	--	UG/L	0.00		
Methyl tert-butyl ether	05/02/2022	0.27	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	05/02/2022	0.84	0.5	--	UG/L	0.00		
Trichloroethylene	05/02/2022	0.36	0.5	--	UG/L	0.00	J	
8260 TVOC	06/01/2022	2.27	--	--	UG/L	0.00		
Chloroform	06/01/2022	0.81	0.5	--	UG/L	0.00		
EDB	06/01/2022	0.02	0.01	--	UG/L	0.00		

Table 15-4
OU III North Street East Extraction Well Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Methyl tert-butyl ether	06/01/2022	0.22	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	06/01/2022	0.91	0.5	--	UG/L	0.00		
Trichloroethylene	06/01/2022	0.33	0.5	--	UG/L	0.00	J	

Table 15-5
OU III North Street East Influent Data
'Hits Only' April through June 2022

Site ID : 000-441 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	1.97	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/06/2022	0.24	0.5	--	UG/L	0.00	J	
Chloroform	04/06/2022	0.83	0.5	--	UG/L	0.00		
EDB	04/06/2022	0.0079	0.01	--	UG/L	0.00	J	
Tetrachloroethylene	04/06/2022	0.49	0.5	--	UG/L	0.00	J	
Trichloroethylene	04/06/2022	0.41	0.5	--	UG/L	0.00	J	
8260 TVOC	05/02/2022	2.09	--	--	UG/L	0.00		
Chloroform	05/02/2022	0.9	0.5	--	UG/L	0.00		
EDB	05/02/2022	0.01	0.01	--	UG/L	0.00		
Methyl tert-butyl ether	05/02/2022	0.22	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	05/02/2022	0.56	0.5	--	UG/L	0.00		
Trichloroethylene	05/02/2022	0.41	0.5	--	UG/L	0.00	J	
8260 TVOC	06/01/2022	2.07	--	--	UG/L	0.00		
Chloroform	06/01/2022	0.87	0.5	--	UG/L	0.00		
EDB	06/01/2022	0.021	0.01	--	UG/L	0.00		
Methyl tert-butyl ether	06/01/2022	0.17	0.5	--	UG/L	0.00	J	
Tetrachloroethylene	06/01/2022	0.58	0.5	--	UG/L	0.00		
Trichloroethylene	06/01/2022	0.45	0.5	--	UG/L	0.00	J	

Table 15-6
OU III North Street East Effluent Data
'Hits Only' April through June 2022

Site ID : 000-444 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/06/2022	0.88	--	--	UG/L	0.00		
Chloroform	04/06/2022	0.6	0.5	--	UG/L	0.00		
EDB	04/06/2022	0.011	0.011	--	UG/L	0.00	U	
EDB	04/06/2022	0.5	0.5	--	UG/L	0.00	U	
Methyl tert-butyl ether	04/06/2022	0.28	0.5	--	UG/L	0.00	J	
8260 TVOC	05/02/2022	1.05	--	--	UG/L	0.00		
Chloroform	05/02/2022	0.75	0.5	--	UG/L	0.00		
EDB	05/02/2022	0.01	0.01	--	UG/L	0.00	U	
EDB	05/02/2022	0.5	0.5	--	UG/L	0.00	U	
Methyl tert-butyl ether	05/02/2022	0.3	0.5	--	UG/L	0.00	J	
8260 TVOC	06/01/2022	1.02	--	--	UG/L	0.00		
Chloroform	06/01/2022	0.79	0.5	--	UG/L	0.00		
EDB	06/01/2022	0.01	0.01	--	UG/L	0.00	U	
EDB	06/01/2022	0.5	0.5	--	UG/L	0.00	U	
Methyl tert-butyl ether	06/01/2022	0.23	0.5	--	UG/L	0.00	J	

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 16

Q2-2022 Operations Summary
OU III LIPA/Airport Treatment System

Process: Groundwater extraction and liquid phase granular activated carbon 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	111	0	0	146	0	166
May	0	0	0	0	105	0	0	154	0	157
June	0	0	0	0	98	0	0	46	0	148
Actual (Avg. over QTR.)	**0**	**0**	**0**	**0**	**105**	**0**	**0**	**115**	**0**	**157**

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

Figure 16-1
OU III LIPA/ Airport Treatment System
Cumulative Mass Removal of VOCs vs. Time

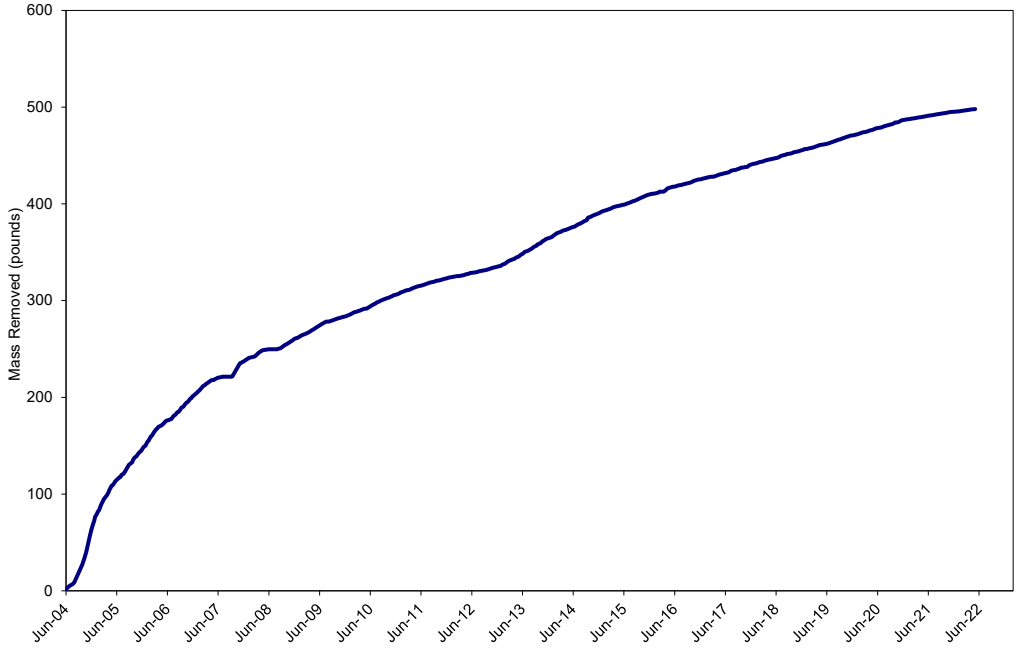


Figure 16-2
OU III LIPA/ Airport Treatment System
Influent TVOC Concentrations vs. Time

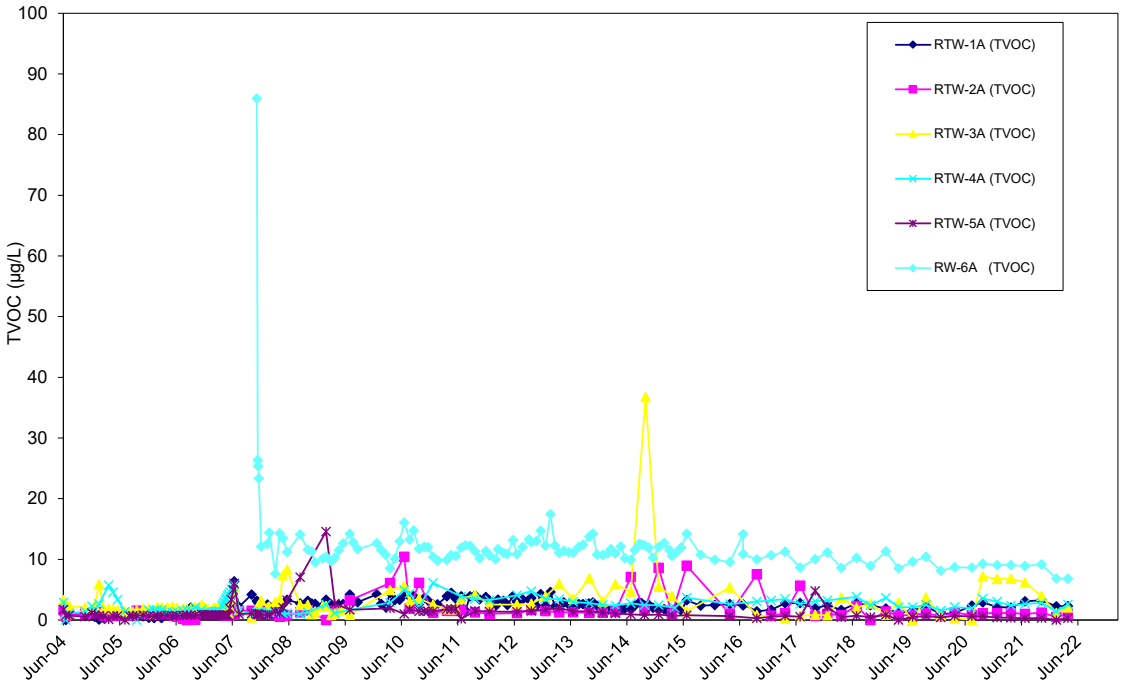


Figure 16-3
OU III LIPA/ Airport Treatment System
Influent TVOC Concentrations vs. Time

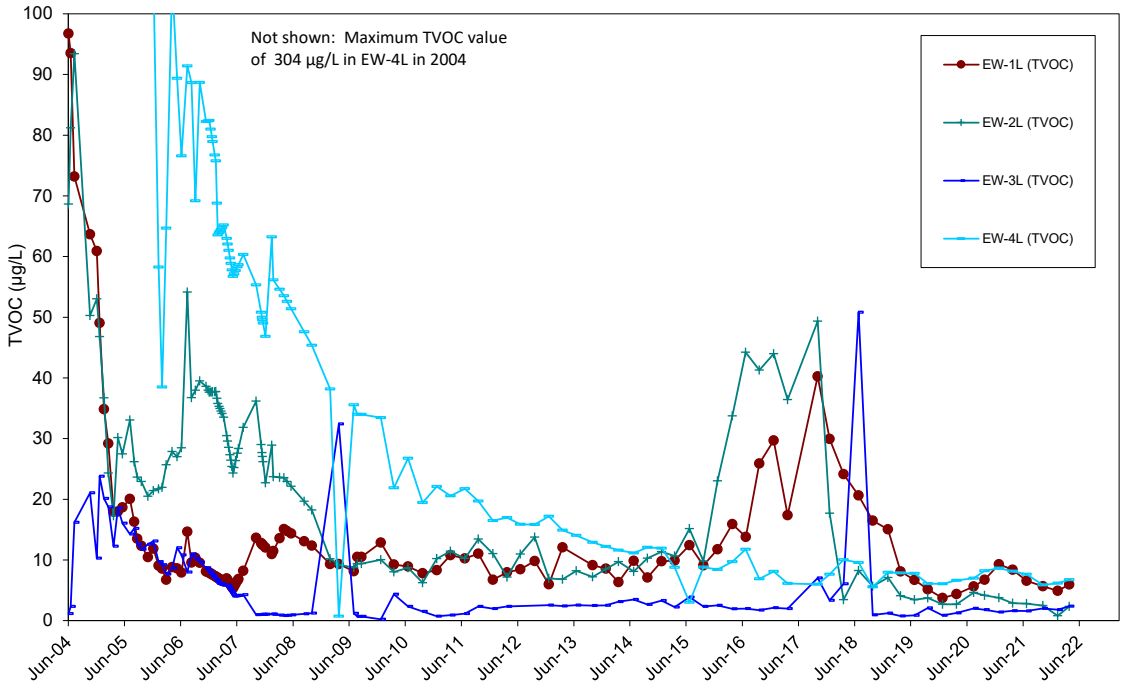


Table 16-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	Monitor	591,913 [1]	GPD	Continuous
pH (range)	5.5 – 7.5	6.3-7.2	SU	Monthly
Carbon Tetrachloride	5	<0.50	µg/L	Monthly
Chloroform	7	<0.50	µg/L	Monthly
1,1-Dichloroethane	5	<0.50	µg/L	Monthly
1,1-Dichloroethylene	5	<0.50	µg/L	Monthly
Methylene Chloride	5	<0.50	µg/L	Monthly
1,1,1-Trichloroethane	5	<0.50	µg/L	Monthly
Trichloroethylene	10	<0.50	µg/L	Monthly

[1] The average flow for the operational period at the influent flow meter.

System Operations

April 2022:

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.

May 2022:

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.

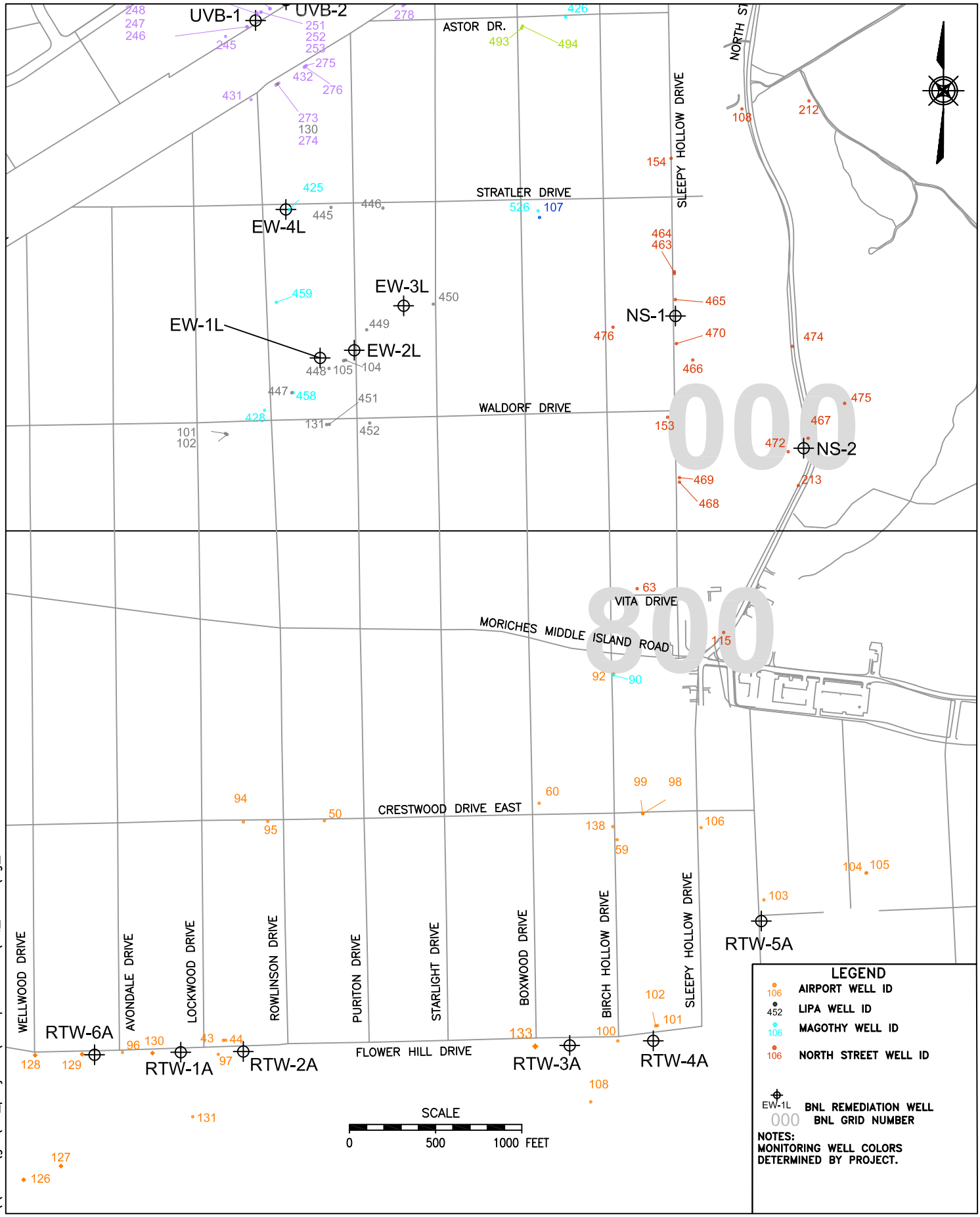
June 2022:

Extraction wells RTW-1A and RW-6A ran normally for the month. Extraction well RTW-4A was off the second half of June for well repairs. The four LIPA extraction wells and Airport extraction wells RTW-2A, RTW-3A, and RTW-5A remained in standby mode. The system treated approximately 13 million gallons of water.

The system treated approximately 49 million gallons of water during the second quarter of 2022.

Planned Operational Changes

- Continue full time operation of Airport extraction wells RTW-1A, RTW-4A and RTW-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 wells that are not operating, the well(s) will be put back into full-time operation. During the second quarter of 2022, 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-1, EW-2, EW-3L and EW-4L in standby mode. These extraction wells may be restarted if TVOC concentrations rebound above the 50 µg/L capture goal in either the plume core monitoring wells or the extraction wells. During the first quarter of 2022, none of the LIPA monitoring wells or extraction wells detected TVOCs above the capture goal of 50 µg/L.
- Increase the sampling frequency for the 17 LIPA monitoring wells to quarterly in the fourth quarter 2022 in an effort to support the decision for a petition for closure.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III AIRPORT/LIPA

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	09/26/05	–
CHKD:	APPD:	REV.:	NOTES:
LDS	––	09/07/22	–

FIGURE NO.: 16–3

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-104

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2022	2.3	--	--	UG/L	205.00		
1,1,1-Trichloroethane	05/25/2022	0.45	0.5	--	UG/L	205.00	J	
1,1-Dichloroethylene	05/25/2022	0.41	0.5	--	UG/L	205.00	J	
1,2-Dichloroethane	05/25/2022	0.15	0.5	--	UG/L	205.00	J	
Chloroform	05/25/2022	0.96	0.5	--	UG/L	205.00		
Trichloroethylene	05/25/2022	0.33	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	05/20/2022	2.09	--	--	UG/L	280.00		
Chloroform	05/20/2022	1.6	0.5	--	UG/L	280.00		
Tetrachloroethylene	05/20/2022	0.49	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	05/24/2022	5.83	--	--	UG/L	225.00		
1,1,1-Trichloroethane	05/24/2022	1.4	0.5	--	UG/L	225.00		
1,1-Dichloroethylene	05/24/2022	1.3	0.5	--	UG/L	225.00		
Carbon tetrachloride	05/24/2022	0.33	0.5	--	UG/L	225.00	J	
Chloroform	05/24/2022	1.5	0.5	--	UG/L	225.00		
Trichloroethylene	05/24/2022	1.3	0.5	--	UG/L	225.00		

Site ID : 000-425

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2022	4.15	--	--	UG/L	315.00		
1,1,1-Trichloroethane	05/25/2022	0.51	0.5	--	UG/L	315.00		
1,1-Dichloroethylene	05/25/2022	0.25	0.5	--	UG/L	315.00	J	
Carbon tetrachloride	05/25/2022	0.34	0.5	--	UG/L	315.00	J	
Chloroform	05/25/2022	0.52	0.5	--	UG/L	315.00		
Tetrachloroethylene	05/25/2022	1.9	0.5	--	UG/L	315.00		
Trichloroethylene	05/25/2022	0.63	0.5	--	UG/L	315.00		

Site ID : 000-447

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2022	1.65	--	--	UG/L	219.00		
1,1,1-Trichloroethane	05/25/2022	0.38	0.5	--	UG/L	219.00	J	
1,1-Dichloroethylene	05/25/2022	0.44	0.5	--	UG/L	219.00	J	

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 000-447

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Chloroform	05/25/2022	0.57	0.5	--	UG/L	219.00		
Trichloroethylene	05/25/2022	0.26	0.5	--	UG/L	219.00	J	

Site ID : 000-448

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2022	5.24	--	--	UG/L	212.00		
1,1,1-Trichloroethane	05/25/2022	1.4	0.5	--	UG/L	212.00		
1,1-Dichloroethylene	05/25/2022	1.7	0.5	--	UG/L	212.00		
1,2-Dichloroethane	05/25/2022	0.24	0.5	--	UG/L	212.00	J	
Chloroform	05/25/2022	1.2	0.5	--	UG/L	212.00		
Trichloroethylene	05/25/2022	0.7	0.5	--	UG/L	212.00		

Site ID : 000-451

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/24/2022	4.62	--	--	UG/L	193.00		
1,1,1-Trichloroethane	05/24/2022	0.85	0.5	--	UG/L	193.00		
1,1-Dichloroethylene	05/24/2022	0.32	0.5	--	UG/L	193.00	J	
Chloroform	05/24/2022	2.5	0.5	--	UG/L	193.00		
Trichloroethylene	05/24/2022	0.95	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	05/24/2022	2.43	--	--	UG/L	219.50		
1,1,1-Trichloroethane	05/24/2022	0.35	0.5	--	UG/L	219.50	J	
Chloroform	05/24/2022	1.3	0.5	--	UG/L	219.50		
Trichloroethylene	05/24/2022	0.78	0.5	--	UG/L	219.50		

Site ID : 800-100

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/02/2022	0.49	--	--	UG/L	214.00		
Chloroform	06/02/2022	0.49	0.5	--	UG/L	214.00	J	

Site ID : 800-101

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/02/2022	43.2	--	--	UG/L	280.00		
1,1,1-Trichloroethane	06/02/2022	3.3	0.5	--	UG/L	280.00		
1,1,2,2-Tetrachloroethane	06/02/2022	5.7	0.5	--	UG/L	280.00		
1,1-Dichloroethylene	06/02/2022	4.5	0.5	--	UG/L	280.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 800-101

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
1,2-Dichloroethane	06/02/2022	0.99	0.5	--	UG/L	280.00		
Carbon tetrachloride	06/02/2022	3.8	0.5	--	UG/L	280.00		
Chloroform	06/02/2022	7.4	0.5	--	UG/L	280.00		
Trichloroethylene	06/02/2022	17	0.5	--	UG/L	280.00		
Trichlorofluoromethane	06/02/2022	0.51	0.5	--	UG/L	280.00		

Site ID : 800-104

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/09/2022	0.38	--	--	UG/L	170.00		
Chloroform	06/09/2022	0.38	0.5	--	UG/L	170.00	J	

Site ID : 800-128

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/31/2022	3.81	--	--	UG/L	180.00		
Benzene	05/31/2022	0.89	0.5	--	UG/L	180.00		
Ethylbenzene	05/31/2022	0.25	0.5	--	UG/L	180.00	J	
m/p xylene	05/31/2022	0.43	1	--	UG/L	180.00	J	
o-Xylene	05/31/2022	0.31	0.5	--	UG/L	180.00	J	
Toluene	05/31/2022	1.5	0.5	--	UG/L	180.00		
Xylene (total)	05/31/2022	0.74	1.5	--	UG/L	180.00	J	

Site ID : 800-129

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/31/2022	0.3	--	--	UG/L	180.00		
Chloroform	05/31/2022	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	06/01/2022	19.84	--	--	UG/L	185.00		
1,1,1-Trichloroethane	06/01/2022	0.18	0.5	--	UG/L	185.00	J	
1,1-Dichloroethylene	06/01/2022	0.22	0.5	--	UG/L	185.00	J	
Carbon tetrachloride	06/01/2022	5.5	0.5	--	UG/L	185.00		
Chloroform	06/01/2022	0.78	0.5	--	UG/L	185.00		
Methyl tert-butyl ether	06/01/2022	0.16	0.5	--	UG/L	185.00	J	
Trichloroethylene	06/01/2022	13	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	05/26/2022	1.04	--	--	UG/L	194.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 800-131

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Carbon tetrachloride	05/26/2022	0.55	0.5	--	UG/L	194.00		
Chloroform	05/26/2022	0.49	0.5	--	UG/L	194.00	J	

Site ID : 800-133

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2022	1.4	--	--	UG/L	225.00		
Chloroform	06/01/2022	1.4	0.5	--	UG/L	225.00		

Site ID : 800-43

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2022	1.3	--	--	UG/L	157.00		
Chloroform	06/01/2022	1.3	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	06/01/2022	6.99	--	--	UG/L	212.00		
Carbon tetrachloride	06/01/2022	6.6	0.5	--	UG/L	212.00		
Chloroform	06/01/2022	0.39	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	05/25/2022	1.29	--	--	UG/L	205.00		
Carbon tetrachloride	05/25/2022	0.51	0.5	--	UG/L	205.00		
Chloroform	05/25/2022	0.78	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	06/01/2022	0.45	--	--	UG/L	208.00		
Chloroform	06/01/2022	0.45	0.5	--	UG/L	208.00	J	

Site ID : 800-90

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2022	4.17	--	--	UG/L	250.00		
Carbon tetrachloride	05/25/2022	0.97	0.5	--	UG/L	250.00		
Chloroform	05/25/2022	1.8	0.5	--	UG/L	250.00		
Trichloroethylene	05/25/2022	1.4	0.5	--	UG/L	250.00		

Site ID : 800-92

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	05/25/2022	3.49	--	--	UG/L	200.00		

Table 16-3
OU III LIPA/Airport Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 800-92

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Carbon tetrachloride	05/25/2022	0.49	0.5	--	UG/L	200.00	J	
Chloroform	05/25/2022	1.6	0.5	--	UG/L	200.00		
Trichloroethylene	05/25/2022	1.4	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	06/07/2022	54.67	--	--	UG/L	185.00		
1,1,1-Trichloroethane	06/07/2022	1.2	0.5	--	UG/L	185.00		
1,1-Dichloroethylene	06/07/2022	1.7	0.5	--	UG/L	185.00		
1,2-Dichloroethane	06/07/2022	0.29	0.5	--	UG/L	185.00	J	
Carbon tetrachloride	06/07/2022	31	0.5	--	UG/L	185.00		
Chloroform	06/07/2022	1.1	0.5	--	UG/L	185.00		
cis-1,2-Dichloroethylene	06/07/2022	0.38	0.5	--	UG/L	185.00	J	
Trichloroethylene	06/07/2022	19	0.5	--	UG/L	185.00		

Site ID : 800-96

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	06/01/2022	38.64	--	--	UG/L	189.00		
1,1,1-Trichloroethane	06/01/2022	0.84	0.5	--	UG/L	189.00		
1,1-Dichloroethylene	06/01/2022	1.1	0.5	--	UG/L	189.00		
Carbon tetrachloride	06/01/2022	16	0.5	--	UG/L	189.00		
Chloroform	06/01/2022	0.5	0.5	--	UG/L	189.00		
cis-1,2-Dichloroethylene	06/01/2022	0.2	0.5	--	UG/L	189.00	J	
Trichloroethylene	06/01/2022	20	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	06/01/2022	4.68	--	--	UG/L	199.00		
Carbon tetrachloride	06/01/2022	4.4	0.5	--	UG/L	199.00		
Chloroform	06/01/2022	0.28	0.5	--	UG/L	199.00	J	

Table 16-4
OU III LIPA/Airport Extraction Well Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	5.97	--	--	UG/L	227.00		
1,1,1-Trichloroethane	04/11/2022	1.9	0.5	--	UG/L	227.00		
1,1-Dichloroethylene	04/11/2022	2	0.5	--	UG/L	227.00		
1,2-Dichloroethane	04/11/2022	0.36	0.5	--	UG/L	227.00	J	
Carbon tetrachloride	04/11/2022	0.24	0.5	--	UG/L	227.00	J	
Chloroform	04/11/2022	0.61	0.5	--	UG/L	227.00		
Trichloroethylene	04/11/2022	0.86	0.5	--	UG/L	227.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	2.33	--	--	UG/L	234.00		
1,1,1-Trichloroethane	04/11/2022	0.6	0.5	--	UG/L	234.00		
1,1-Dichloroethylene	04/11/2022	0.33	0.5	--	UG/L	234.00	J	
1,2-Dichloroethane	04/11/2022	0.19	0.5	--	UG/L	234.00	J	
Chloroform	04/11/2022	0.62	0.5	--	UG/L	234.00		
Trichloroethylene	04/11/2022	0.59	0.5	--	UG/L	234.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	2.39	--	--	UG/L	226.00		
Chloroform	04/11/2022	2.1	0.5	--	UG/L	226.00		
Trichloroethylene	04/11/2022	0.29	0.5	--	UG/L	226.00	J	

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	6.76	--	--	UG/L	314.00		
Carbon tetrachloride	04/11/2022	0.82	0.5	--	UG/L	314.00		
Chloroform	04/11/2022	0.84	0.5	--	UG/L	314.00		
Tetrachloroethylene	04/11/2022	4	0.5	--	UG/L	314.00		
Trichloroethylene	04/11/2022	1.1	0.5	--	UG/L	314.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	2.31	--	--	UG/L	198.00		
Carbon tetrachloride	04/11/2022	1.1	0.5	--	UG/L	198.00		
Chloroform	04/11/2022	0.83	0.5	--	UG/L	198.00		
Trichloroethylene	04/11/2022	0.38	0.5	--	UG/L	198.00	J	

Table 16-4
OU III LIPA/Airport Extraction Well Data
'Hits Only' April through June 2022

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	1.02	--	--	UG/L	198.00		
Carbon tetrachloride	04/11/2022	0.43	0.5	--	UG/L	198.00	J	
Chloroform	04/11/2022	0.59	0.5	--	UG/L	198.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	2.08	--	--	UG/L	220.00		
1,1,1-Trichloroethane	04/11/2022	0.45	0.5	--	UG/L	220.00	J	
Carbon tetrachloride	04/11/2022	0.31	0.5	--	UG/L	220.00	J	
Chloroform	04/11/2022	0.67	0.5	--	UG/L	220.00		
Trichloroethylene	04/11/2022	0.65	0.5	--	UG/L	220.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	2.58	--	--	UG/L	278.00		
1,1,1-Trichloroethane	04/11/2022	0.17	0.5	--	UG/L	278.00	J	
1,1,2,2-Tetrachloroethane	04/11/2022	0.28	0.5	--	UG/L	278.00	J	
Carbon tetrachloride	04/11/2022	0.28	0.5	--	UG/L	278.00	J	
Chloroform	04/11/2022	0.85	0.5	--	UG/L	278.00		
Trichloroethylene	04/11/2022	1	0.5	--	UG/L	278.00		

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	0.28	--	--	UG/L	230.00		
Chloroform	04/11/2022	0.28	0.5	--	UG/L	230.00	J	

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

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	6.79	--	--	UG/L	175.00		
1,1-Dichloroethylene	04/11/2022	0.23	0.5	--	UG/L	175.00	J	
Carbon tetrachloride	04/11/2022	1.7	0.5	--	UG/L	175.00		
Chloroform	04/11/2022	0.76	0.5	--	UG/L	175.00		
Trichloroethylene	04/11/2022	4.1	0.5	--	UG/L	175.00		

Table 16-5
OU III LIPA/Airport Influent Data
'Hits Only' April through June 2022

Site ID : 800-122 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	3.53	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/11/2022	0.24	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	04/11/2022	0.2	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	04/11/2022	0.84	0.5	--	UG/L	0.00		
Chloroform	04/11/2022	0.75	0.5	--	UG/L	0.00		
Trichloroethylene	04/11/2022	1.5	0.5	--	UG/L	0.00		
8260 TVOC	05/04/2022	4.74	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/04/2022	0.17	0.5	--	UG/L	0.00	J	
1,1-Dichloroethylene	05/04/2022	0.18	0.5	--	UG/L	0.00	J	
Carbon tetrachloride	05/04/2022	1.2	0.5	--	UG/L	0.00		
Chloroform	05/04/2022	0.79	0.5	--	UG/L	0.00		
Trichloroethylene	05/04/2022	2.4	0.5	--	UG/L	0.00		
8260 TVOC	06/01/2022	4.3	--	--	UG/L	0.00		
Carbon tetrachloride	06/01/2022	1.1	0.5	--	UG/L	0.00		
Chloroform	06/01/2022	0.7	0.5	--	UG/L	0.00		
Trichloroethylene	06/01/2022	2.5	0.5	--	UG/L	0.00		

Table 16-6
OU III LIPA/Airport Effluent Data
'Hits Only' April through June 2022

Site ID : 800-124 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/11/2022	0.69	--	--	UG/L	0.00		
Chloroform	04/11/2022	0.69	0.5	--	UG/L	0.00		
8260 TVOC	05/04/2022	0.95	--	--	UG/L	0.00		
Chloroform	05/04/2022	0.95	0.5	--	UG/L	0.00		
8260 TVOC	06/01/2022	0.92	--	--	UG/L	0.00		
Chloroform	06/01/2022	0.92	0.5	--	UG/L	0.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 17

Q2-2022 Operations Summary
OU III Strontium-90 BGRR/WCF Treatment System

Process: Groundwater extraction with liquid phase granular activated carbon treatment for volatile organic compounds, followed by clinoptilolite zeolite treatment for the removal of 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
OU III Strontium-90 BGRR/WCF Treatment System
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**	**5**	**5**	**5**	**10**	**10**	**10**	**10**
April (Avg gpm)	5.4	5.4	5.6	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	10
Actual (Avg. over Qtr.)	**5.4**	**5.4**	**1.9**	**0**	**0**	**0**	**0**	**0**	**6.7**

*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 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 May 2022. Well SR-9 was placed in pulsed pumping mode May 2022

Figure 17-1
Strontium-90 BGRR/WCF Treatment System
Cumulative Millicuries Removed

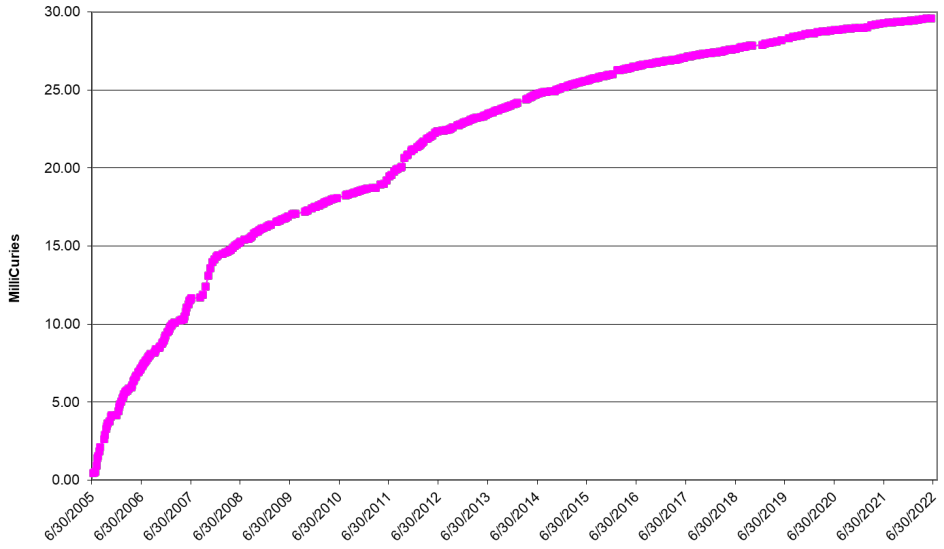


Figure 17-2
Strontium-90 BGRR/WCF Treatment System
Influent Sr-90 Concentrations vs. Time

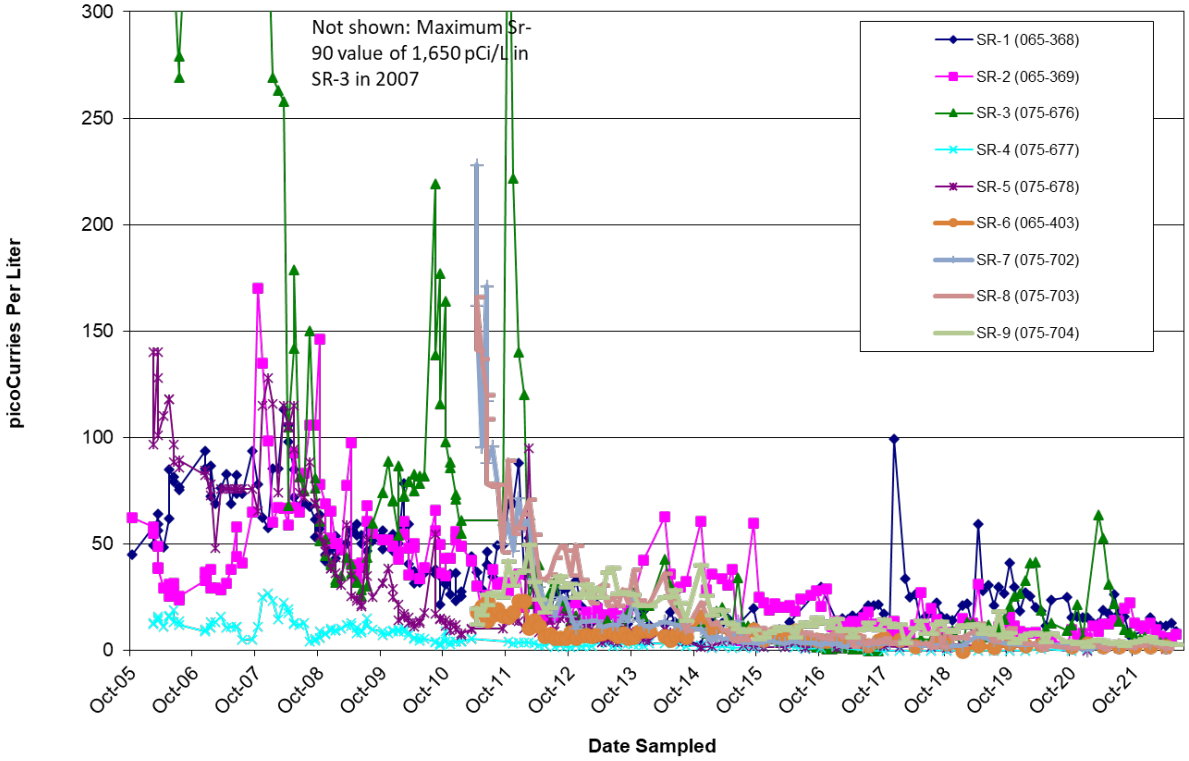


Table 17-2
Strontium-90 BGRR/WCF Treatment System Effluent Water Quality
SPDES Equivalency Permit Concentrations April 1, 2022 – June 30, 2022

Parameter	Permit Limit	Max. Measured Value	Units	Frequency
Flow	75	26	GPM	Continuous
pH (range)	5.5 – 8.5	6.1– 6.5	SU	Weekly
Strontium-90	8.0	2.4	PCi/L	Monthly[1]
Chloroform	7.0	<0.5	ug/L	Monthly[1]
1,1-Dichloroethane	5.0	<0.5	ug/L	Monthly[1]
Ethylbenzene	5.0	<0.5	ug/L	Monthly[1]
Methyl Chloride	5.0	<0.5	ug/L	Monthly[1]
Methylene Chloride	5.0	<0.5	ug/L	Monthly[1]
Toluene	5.0	<0.5	ug/L	Monthly[1]
1,2,3-Trichlorobenzene	5.0	<0.5	ug/L	Monthly[1]
1,1,1-Trichloroethane	5.0	<0.5	ug/L	Monthly[1]
1,2,4-Trimethylbenzene	5.0	<0.5	ug/L	Monthly[1]
Xylene, total	10.0	<0.5	ug/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.
[2] Not detected.

System Operations

April 2022:

The system ran normally for the month. Well SR-8 was off for pulsed-pumping. The system treated approximately 1.1 million gallons of water.

May 2022:

The system ran normally for the month. Wells SR-3 and SR-8 were placed in standby mode May 1st. Well SR-9 started a one month on, one month off pulsed pumping mode May 1st. The system treated approximately 0.5 million gallons of water.

June 2022:

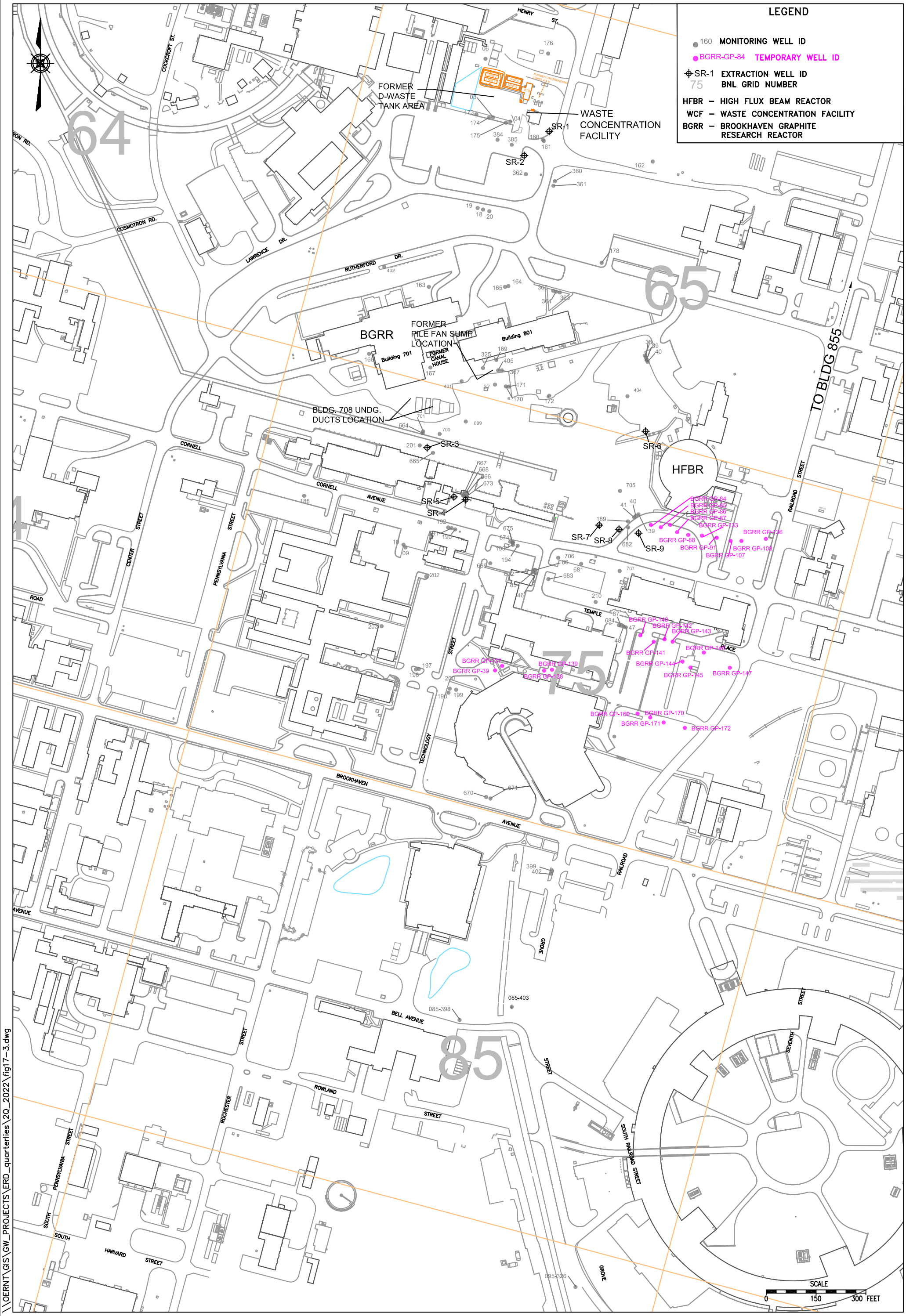
The system ran normally for the month. The system treated approximately 0.9 million gallons of water.

Extraction wells SR-4 through SR-7 were off in stand-by mode for this quarter. Wells SR-3 and SR-8 were placed in standby mode in May. Well SR-9 was off for pulsed pumping in May. The system treated approximately 2.5 million gallons of water during the second quarter of 2022.

In the second quarter, 24 additional temporary wells were installed as part of an effort to track the migration of Sr-90 from the BGRR/WCF. The maximum Sr-90 concentration in the 24 temporary wells was 81 pCi/L in BGRR-GP-139. The temporary well locations are shown on Figure 17-3. The data from 14 of the 24 temporary wells were presented and discussed in greater detail in the 2021 Groundwater Status Report. The data from the remaining 10 temporary wells are presented on Table 17-7. The maximum Sr-90 concentration in the 10 temporary wells was 78 pCi/L in BGRR-GP-91.

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 and SR-8 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 drinking water standard (DWS) since May 2016. Sr-90 concentrations in SR-8 have remained below the DWS since November 2019. The last Sr-90 detection above the DWS for SR-3 or 075-701 was in SR-3 in September 2021.
- Maintain extraction well SR-9 in pulsed pumping mode (one month on and one month off). During the second quarter, Sr-90 concentration in SR-9 did not exceed the DWS.
- Complete the temporary well plume characterization in July along east-west transects immediately south of the HFBR and at Temple Place.



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ENVIRONMENTAL PROTECTION DIVISION

TITLE:

OU III BGRR/WCF

SITEWIDE REMEDIATION SYSTEMS
SECOUND QUARTER 2022 OPERATIONS
REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
JEB	–	03/15/13	
CHKD:	APPD:	REV.:	NOTES:
LDS	--	09/07/22	
FIGURE NO.:		17–3	

Table 17-3
OU III Strontium-90 BGRR/WCF Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 065-160

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/15/2022	0.971	0.782	0.487	PCI/L	44.00		N2

Site ID : 065-175

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/15/2022	44.9	0.79	1.77	PCI/L	40.00		

Site ID : 065-38

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/14/2022	46.8	0.795	1.86	PCI/L	63.00		

Site ID : 065-39

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/14/2022	17.5	0.79	1.03	PCI/L	87.40		

Site ID : 075-47

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/14/2022	0.805	0.792	0.5	PCI/L	41.00		N2

Site ID : 075-48

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/14/2022	4.6	0.791	0.621	PCI/L	68.00		

Site ID : 075-664

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	05/23/2022	1.17	0.481	0.328	PCI/L	66.00		

Site ID : 075-670

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2022	1.17	0.793	0.529	PCI/L	94.00		N2

Site ID : 075-671

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2022	2.21	0.788	0.558	PCI/L	109.00		

Site ID : 075-682

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/18/2022	13.2	0.779	0.785	PCI/L	81.00		

Site ID : 075-699

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/20/2022	0.963	0.787	0.502	PCI/L	85.00		N2

Site ID : 075-701

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	05/23/2022	2.82	0.549	0.398	PCI/L	61.00		

Table 17-3
OU III Strontium-90 BGRR/WCF Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 075-705

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/19/2022	1.07	0.8	0.519	PCI/L	90.00		N2

Site ID : 075-706

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/13/2022	3.5	0.788	0.611	PCI/L	95.00		

Site ID : 075-707

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/13/2022	1.95	0.789	0.655	PCI/L	75.00		

Site ID : 085-398

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/20/2022	3.99	0.797	0.682	PCI/L	130.00		

Site ID : 085-402

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/19/2022	6.21	0.792	0.873	PCI/L	100.00		

Site ID : 085-403

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/20/2022	7.92	0.79	0.743	PCI/L	120.00		

Table 17-4
OU III Strontium-90 BGRR/WCF Extraction Well Data
'Hits Only' April through June 2022

Site ID : 065-368 (SR-1)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	11.4	0.754	1.14	PCI/L	0.00		
Strontium-90	05/09/2022	12.7	0.796	0.99	PCI/L	0.00		
Strontium-90	06/15/2022	9.02	0.572	0.522	PCI/L	0.00		

Site ID : 065-369 (SR-2)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	5.96	0.766	0.766	PCI/L	0.00		
Strontium-90	05/09/2022	6.09	0.777	0.848	PCI/L	0.00		
Strontium-90	06/15/2022	7.81	0.561	0.523	PCI/L	0.00		

Site ID : 065-403 (SR-6)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	1.79	0.797	0.578	PCI/L	0.00		

Site ID : 075-676 (SR-3)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	3.88	0.786	0.721	PCI/L	0.00		

Site ID : 075-677 (SR-4)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	2.05	0.764	0.59	PCI/L	0.00		

Site ID : 075-678 (SR-5)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	0.698	0.597	0.41	PCI/L	0.00	J	N2

Site ID : 075-702 (SR-7)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	1.09	0.791	0.534	PCI/L	0.00		N2

Site ID : 075-703 (SR-8)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	1.1	0.704	0.484	PCI/L	0.00		N2

Site ID : 075-704 (SR-9)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Strontium-90	04/07/2022	3.36	0.762	0.709	PCI/L	0.00		
Strontium-90	06/15/2022	2.89	0.382	0.321	PCI/L	0.00		

Table 17-5
OU III Strontium-90 BGRR/WCF Influent Data
'Hits Only' April through June 2022

Site ID : 066-216 (Combined Influent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2022	0.35	--	--	UG/L	0.00		
1,1,1-Trichloroethane	04/08/2022	0.35	0.5	--	UG/L	0.00	J	
Strontium-90	04/08/2022	5.98	0.779	0.754	PCI/L	0.00		
8260 TVOC	05/11/2022	1.18	--	--	UG/L	0.00		
1,1,1-Trichloroethane	05/11/2022	0.77	0.5	--	UG/L	0.00	J	
1,1-Dichloroethane	05/11/2022	0.41	0.5	--	UG/L	0.00	J	
Strontium-90	05/11/2022	15	0.788	1.09	PCI/L	0.00		
8260 TVOC	06/15/2022	0.62	--	--	UG/L	0.00		
1,1,1-Trichloroethane	06/15/2022	0.62	0.5	--	UG/L	0.00	J	
Strontium-90	06/15/2022	10.2	0.588	0.551	PCI/L	0.00		

Table 17-6
OU III Strontium-90 BGRR/WCF Effluent Data
'Hits Only' April through June 2022

Site ID : 066-219 (System Effluent)

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
8260 TVOC	04/08/2022	0	--	--	UG/L	0.00		
Strontium-90	04/08/2022	0.102	0.791	0.441	PCI/L	0.00	U	
8260 TVOC	05/11/2022	0	--	--	UG/L	0.00		
Strontium-90	05/11/2022	0.0204	0.785	0.439	PCI/L	0.00	U	
8260 TVOC	06/15/2022	0	--	--	UG/L	0.00		
Strontium-90	06/15/2022	2.35	0.634	0.436	PCI/L	0.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Table 17-7
BGRR/WCF Temporary Well Data
"Hits Only" April through June 2022

Site ID : BGRR-GP-107

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/28/2022	2.14	1.08	0.705	PCI/L	62	
Strontium-90	6/28/2022	1.39	0.729	0.483	PCI/L	67	
Strontium-90	6/28/2022	4.18	1.58	1.03	PCI/L	72	
Strontium-90	6/28/2022	5.83	1.58	1.08	PCI/L	77	
Strontium-90	6/28/2022	9.73	1.45	1.14	PCI/L	82	
Strontium-90	6/28/2022	6.73	1.71	1.19	PCI/L	87	
Strontium-90	6/28/2022	21	1.87	1.54	PCI/L	92	
Strontium-90	6/28/2022	26	0.965	1.24	PCI/L	97	
Strontium-90	6/28/2022	39.7	1.57	1.9	PCI/L	102	
Strontium-90	6/27/2022	14.3	2.02	1.52	PCI/L	107	
Strontium-90	6/27/2022	6.32	1.39	1.03	PCI/L	112	
Strontium-90	6/27/2022	3.85	1.88	1.18	PCI/L	117	

Site ID : BGRR-GP-133

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/24/2022	8.52	1.33	0.964	PCI/L	67	
Strontium-90	6/24/2022	6.31	0.735	0.588	PCI/L	72	
Strontium-90	6/24/2022	4.36	0.648	0.498	PCI/L	77	
Strontium-90	6/24/2022	4.02	0.569	0.442	PCI/L	82	
Strontium-90	6/24/2022	19.8	0.861	0.901	PCI/L	87	
Strontium-90	6/24/2022	23.4	0.754	0.91	PCI/L	92	
Strontium-90	6/23/2022	46	0.57	1.11	PCI/L	97	
Strontium-90	6/23/2022	29.6	0.55	0.856	PCI/L	102	
Strontium-90	6/23/2022	13.6	0.71	0.676	PCI/L	107	
Strontium-90	6/23/2022	6.19	0.39	0.412	PCI/L	112	

Site ID : BGRR-GP-140

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	5/26/2022	28.5	0.788	1.51	PCI/L	62	
Strontium-90	5/26/2022	23	0.797	1.28	PCI/L	67	
Strontium-90	5/26/2022	13.2	0.779	1.1	PCI/L	72	
Strontium-90	5/25/2022	4.47	0.778	0.699	PCI/L	77	
Strontium-90	5/25/2022	1.4	0.777	0.544	PCI/L	87	

Table 17-7
BGRR/WCF Temporary Well Data
"Hits Only" April through June 2022

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual

Site ID : BGRR-GP-141

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	5/24/2022	2.83	0.796	0.644	PCI/L	62	
Strontium-90	5/23/2022	41	0.765	1.92	PCI/L	67	
Strontium-90	5/23/2022	20.7	0.778	1.39	PCI/L	72	
Strontium-90	5/23/2022	4.67	0.775	0.779	PCI/L	77	
Strontium-90	5/23/2022	2.52	0.781	0.612	PCI/L	82	

Site ID : BGRR-GP-143

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	5/19/2022	4.55	0.794	0.708	PCI/L	82	
Strontium-90	5/19/2022	14	0.765	1.14	PCI/L	87	
Strontium-90	5/19/2022	26.3	0.798	1.64	PCI/L	92	
Strontium-90	5/19/2022	40.8	0.762	2.05	PCI/L	97	
Strontium-90	5/19/2022	21.7	0.769	1.58	PCI/L	102	
Strontium-90	5/19/2022	8.97	0.741	0.942	PCI/L	107	

Site ID : BGRR-GP-144

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	5/18/2022	1.51	0.773	0.557	PCI/L	67	
Strontium-90	5/17/2022	2.3	0.783	0.656	PCI/L	77	
Strontium-90	5/17/2022	2.96	0.774	0.708	PCI/L	82	
Strontium-90	5/17/2022	7.25	0.784	0.91	PCI/L	87	
Strontium-90	5/17/2022	13.2	0.772	1.17	PCI/L	92	
Strontium-90	5/17/2022	23.5	0.782	1.55	PCI/L	97	
Strontium-90	5/17/2022	26.9	0.757	1.72	PCI/L	102	
Strontium-90	5/17/2022	14.9	0.801	1.28	PCI/L	107	
Strontium-90	5/16/2022	10.9	0.779	1.1	PCI/L	112	
Strontium-90	5/16/2022	1.24	0.745	0.515	PCI/L	117	N2

Site ID : BGRR-GP-84

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/1/2022	8.91	1.95	1.38	PCI/L	67	
Strontium-90	6/1/2022	9.93	1.05	0.902	PCI/L	72	
Strontium-90	6/1/2022	16.2	1.03	1.02	PCI/L	77	
Strontium-90	6/1/2022	6.65	1.52	1.05	PCI/L	82	

Table 17-7
BGRR/WCF Temporary Well Data
"Hits Only" April through June 2022

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	5/31/2022	5.36	0.95	0.731	PCI/L	87	
Strontium-90	5/31/2022	5.19	1.23	0.873	PCI/L	92	
Strontium-90	5/31/2022	2.91	1.81	1.13	PCI/L	97	N2
Strontium-90	5/31/2022	3.3	1.12	0.775	PCI/L	102	
Strontium-90	5/31/2022	2.79	1.7	1.05	PCI/L	107	
Strontium-90	5/31/2022	1.72	1.56	0.958	PCI/L	112	N2
Strontium-90	5/31/2022	3.68	1.39	0.909	PCI/L	117	

Site ID : BGRR-GP-86

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/3/2022	1.38	0.814	0.513	PCI/L	62	
Strontium-90	6/3/2022	3.4	0.8	0.557	PCI/L	67	
Strontium-90	6/3/2022	7.59	0.53	0.525	PCI/L	72	
Strontium-90	6/2/2022	11.2	0.603	0.636	PCI/L	77	
Strontium-90	6/2/2022	21.8	0.893	0.987	PCI/L	82	
Strontium-90	6/2/2022	24.3	0.572	0.848	PCI/L	87	
Strontium-90	6/2/2022	11.3	0.749	0.704	PCI/L	92	
Strontium-90	6/2/2022	3.96	0.659	0.48	PCI/L	97	
Strontium-90	6/2/2022	1.3	0.378	0.267	PCI/L	102	
Strontium-90	6/2/2022	1.58	0.647	0.423	PCI/L	107	
Strontium-90	6/1/2022	2.5	0.626	0.429	PCI/L	117	

Site ID : BGRR-GP-87

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/17/2022	1.28	0.428	0.291	PCI/L	67	
Strontium-90	6/16/2022	5.39	0.34	0.365	PCI/L	72	
Strontium-90	6/16/2022	20	0.435	0.616	PCI/L	77	
Strontium-90	6/16/2022	40.8	0.506	0.98	PCI/L	82	
Strontium-90	6/16/2022	38.7	0.332	0.86	PCI/L	87	
Strontium-90	6/16/2022	25.4	0.808	1	PCI/L	92	
Strontium-90	6/16/2022	5.34	0.736	0.588	PCI/L	97	
Strontium-90	6/16/2022	4.69	0.465	0.424	PCI/L	102	
Strontium-90	6/13/2022	1.67	0.48	0.334	PCI/L	107	

Site ID : BGRR-GP-91

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/22/2022	1.24	0.766	0.491	PCI/L	62	N2
Strontium-90	6/22/2022	1.34	1.22	0.749	PCI/L	67	N2

Table 17-7
BGRR/WCF Temporary Well Data
"Hits Only" April through June 2022

Chemical Name	Sample Date	Value	Detlim	Error	Units	Depth	Qual
Strontium-90	6/22/2022	2.4	1.03	0.678	PCI/L	72	
Strontium-90	6/21/2022	6.12	0.745	0.608	PCI/L	77	
Strontium-90	6/21/2022	4.77	0.974	0.745	PCI/L	82	
Strontium-90	6/21/2022	21.9	0.753	0.954	PCI/L	87	
Strontium-90	6/21/2022	16.6	0.845	0.923	PCI/L	92	
Strontium-90	6/21/2022	9.24	0.824	0.709	PCI/L	97	
Strontium-90	6/21/2022	13.9	1.08	0.961	PCI/L	102	
Strontium-90	6/21/2022	2.88	0.614	0.475	PCI/L	107	
Strontium-90	6/21/2022	1.03	0.833	0.523	PCI/L	112	N2
Strontium-90	6/17/2022	78.3	1.17	1.81	PCI/L	117	

N2 = The reported activity value is less than or equal to the sum of the MDA and the uncertainty. Possible false positive.

Section 18

Q-2 2022 Quarterly Monitoring Summary
g-2 Source Area and Tritium Plume

1.0 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 the 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.

2.0 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 2022 sampling period, the maximum tritium concentration in source area monitoring wells was 6,410 pCi/L in well 054-124 (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.

3.0 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.

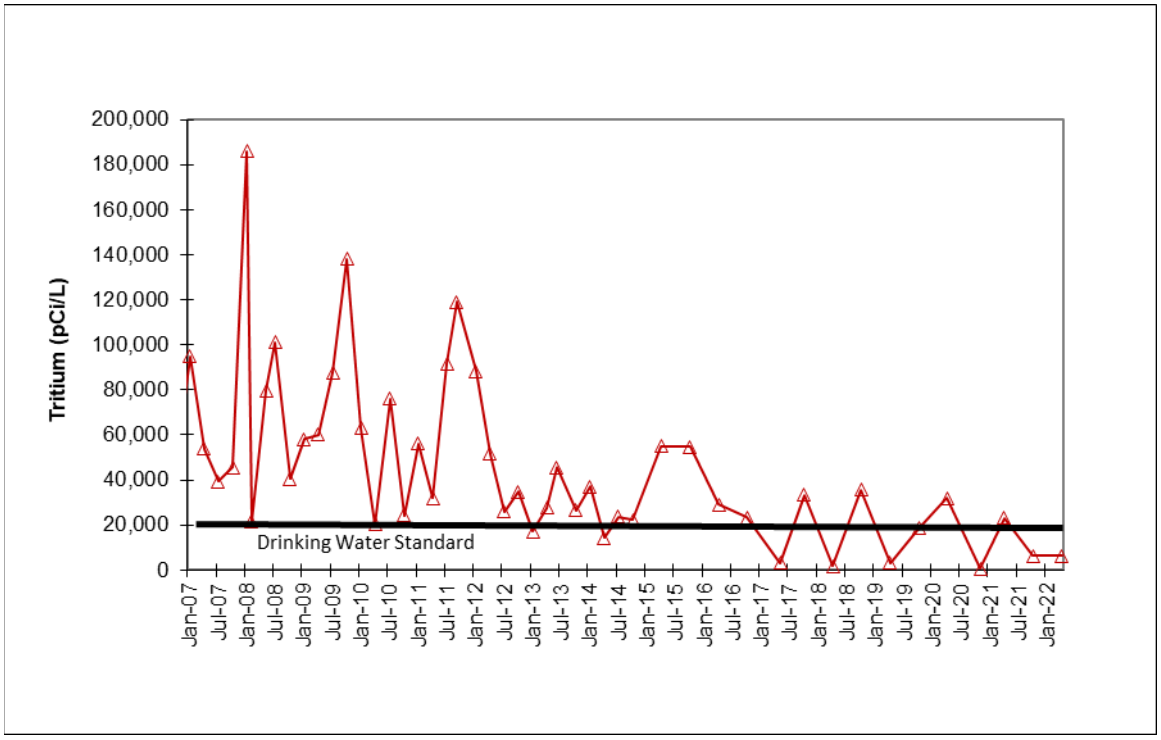


Figure 18-1. Maximum tritium concentrations observed from January 2007 through April 2022 in groundwater downgradient of the g-2 source area.

Table 18-3
g-2 Tritium Plume Monitoring Well Data
'Hits Only' April through June 2022

Site ID : 054-124

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/27/2022	6410	375	819	PCI/L	32.50		

Site ID : 054-126

Chemical	Sample Date	Value	Det. Limit	Error	Units	Depth	Lab Qual	Review Qual
Tritium	04/22/2022	5420	366	724	PCI/L	35.00		

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 = Result Is between instrument detection limit And contract required reporting limit.

Section 19

Q-2 2022 Quarterly Monitoring Summary
BLIP Source Area

1.0 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.

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.

2.0 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 2022 sample period, tritium was not detected in the three downgradient wells. 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.

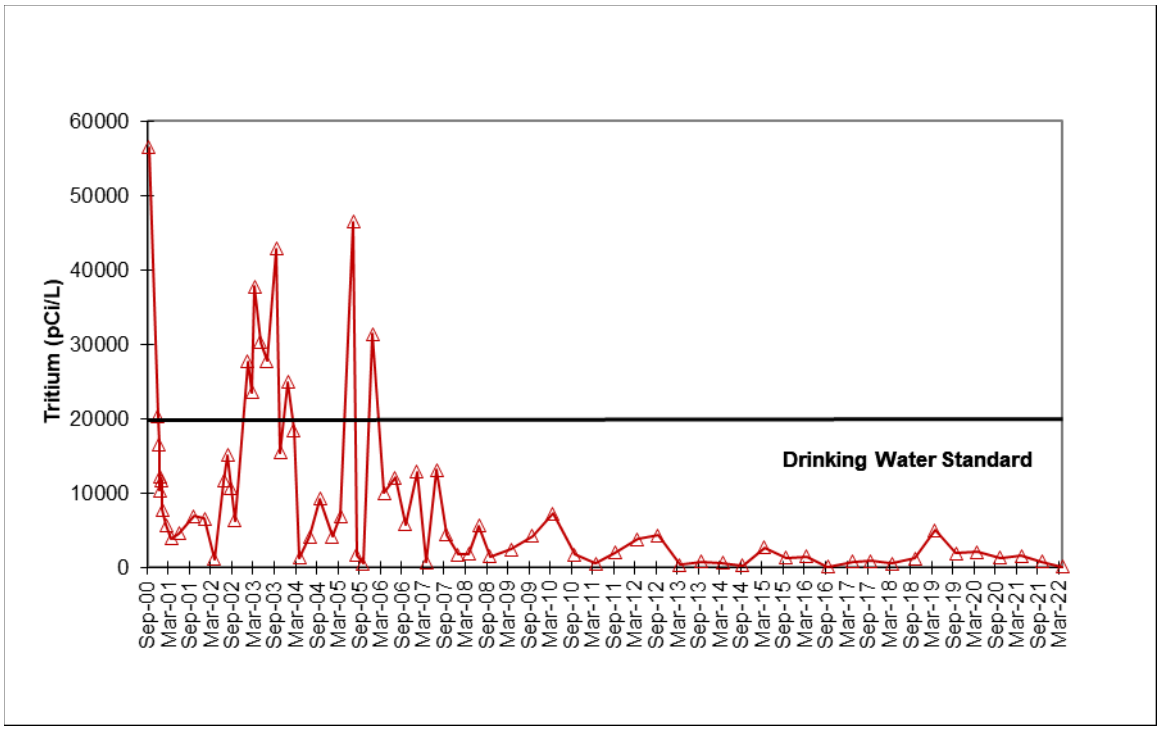


Figure 19-1. Maximum tritium concentrations observed from 2000 through April 2022 in groundwater immediately downgradient of the BLIP Facility.

3.0 Recommendations

The following are recommendations for the BLIP facility:

- 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.

Section 20
Q2-2022 Operations Summary
OU III Building 452 Freon-11 Pump & Treat System
(System Closed)

Process: Groundwater extraction and air stripping treatment, with discharge to a drainage culvert 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 of the Petition for Closure in August and September 2019, respectively.

Start Date: March 2012

Table 20-1
OU III Building 452 Freon-11 Pump & Treat System
Pumping Rate (gpm)

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

* The system was approved for closure in September 2019.

Figure 20-1
OU III Building 452 Freon-11 Pump & Treat System
Cumulative Mass Removal of Trichlorofluoromethane vs. Time

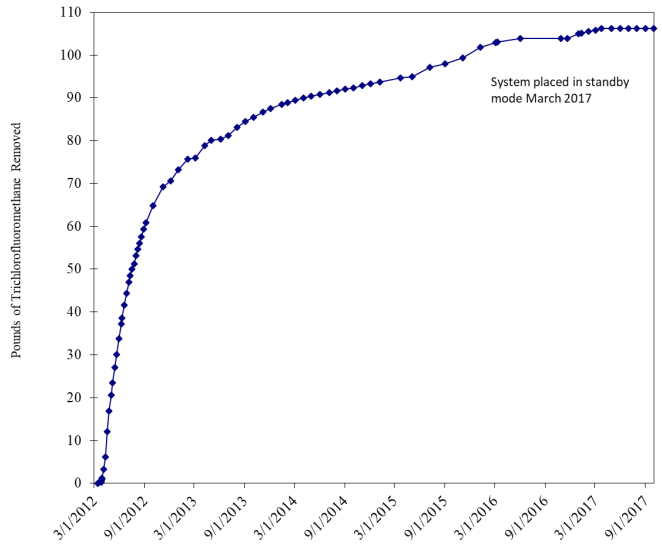


Figure 20-2
OU III Building 452 Freon-11 Pump & Treat System
Influent Trichlorofluoromethane Concentrations vs. Time

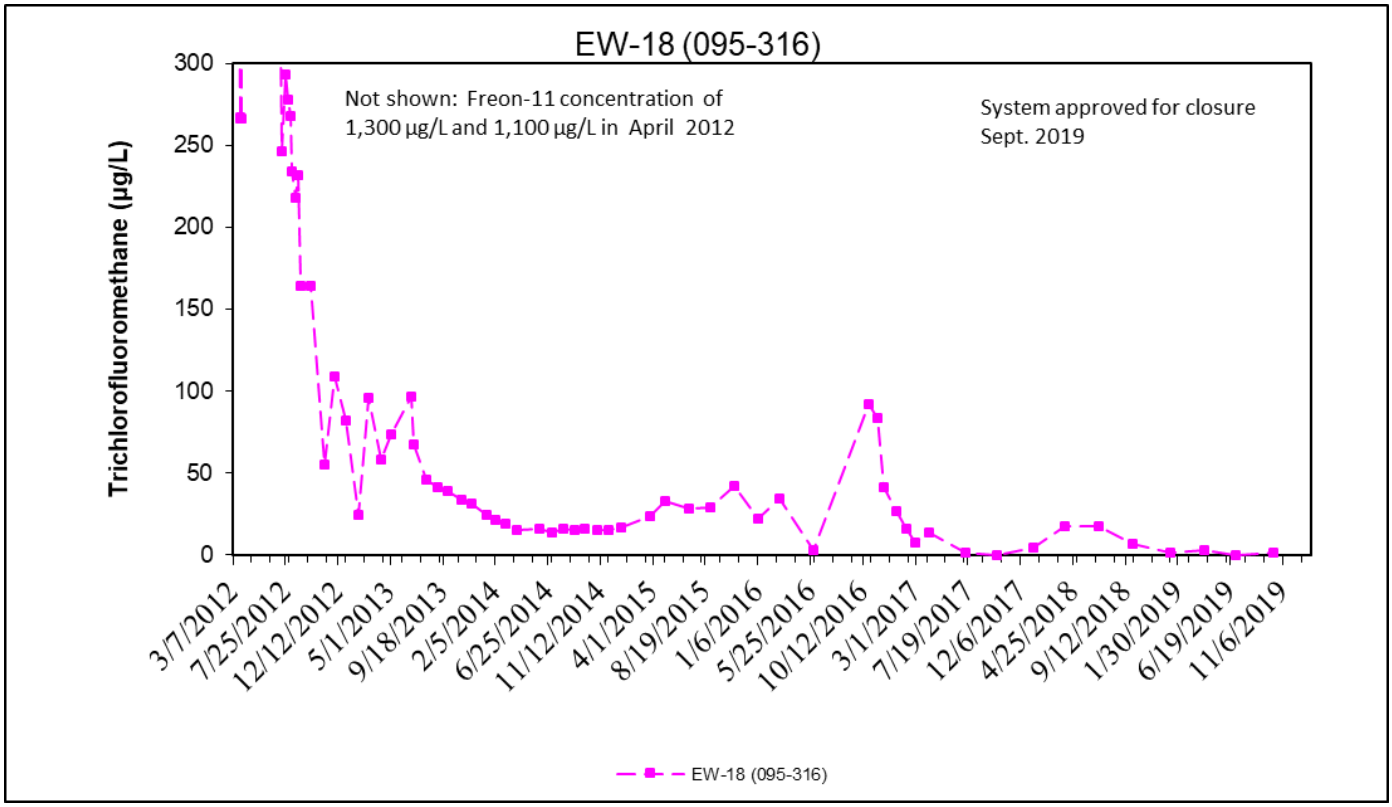


Table 20-2
Effluent Water Quality
SPDES Equivalency Permit Concentrations (System Closed)

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	ug/L	Monthly
Bromodichloromethane	50	NA	ug/L	Monthly
Carbon Tetrachloride	5.0	NA	ug/L	Monthly
Chloroform	7.0	NA	ug/L	Monthly
Dichlorodifluoromethane	5.0	NA	ug/L	Monthly
1,1-Dichloroethylene	5.0	NA	ug/L	Monthly
4-Isopropyltoluene	5.0	NA	ug/L	Monthly
Methyl Chloride	5.0	NA	ug/L	Monthly
Methylene Chloride	5.0	NA	ug/L	Monthly
Tetrachloroethylene	5.0	NA	ug/L	Monthly
Toluene	5.0	NA	ug/L	Monthly
1,2,3-Trichlorobenzene	5.0	NA	ug/L	Monthly
1,1,1-Trichloroethane	5.0	NA	ug/L	Monthly
Trichlorofluoromethane	5.0	NA	ug/L	Monthly
1,2,4-Trimethylbenzene	5.0	NA	ug/L	Monthly
Xylene (meta + para)	10.0	NA	ug/L	Monthly

NA = Not analyzed. The system is closed.

Note: Starting in June 2019, the flow from Bldg. 96 RTW-1 was increased to 60 gallons per minute and the water is being treated at the Building 452 Freon-11 treatment system due to the larger capacity of this system. Beginning with the July 2019 Discharge

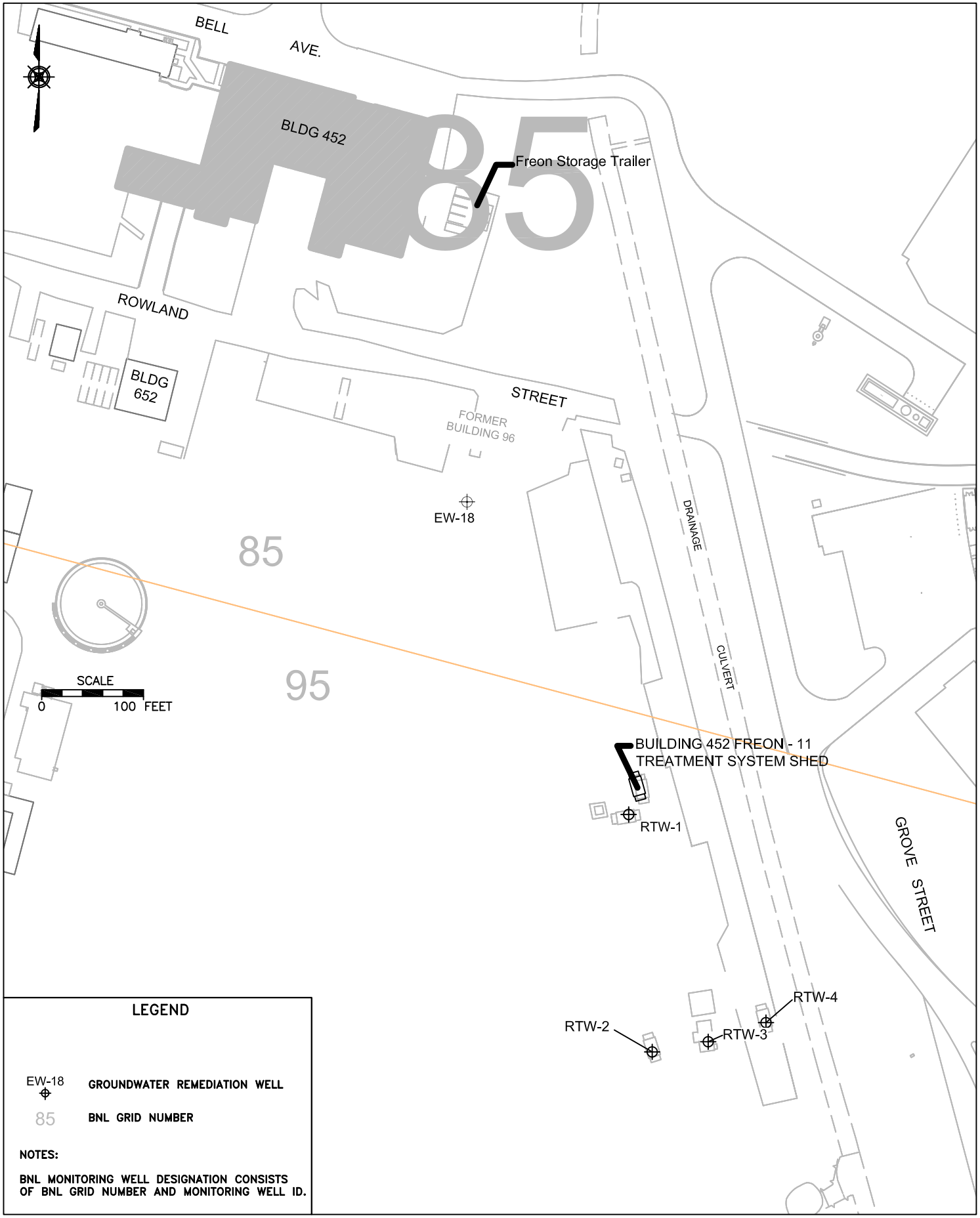
Monitoring Report (DMR), the RTW-1 discharge is formally reported under the Freon-11 Equivalency Permit.

System Operations

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

Planned Operational Changes

- Postpone decisions to abandon extraction well EW-18 and the remaining monitoring wells until the PFAS plume originating from the former firehouse area has been fully characterized and a determination is made on their utilization related to emerging contaminants.
- Maintain full-time operation of the Building 96 treatment well RTW-1. Continue to report the RTW-1 discharge under the Freon-11 equivalency permit discharge monitoring report.



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
SECOUND QUARTER 2022 OPERATIONS REPORT

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	08/24/12	
CHKD:	APPD:	REV.:	NOTES:
LDS	--	09/07/22	--

FIGURE NO.: 20-3