

**GOWANUS CANAL SUPERFUND SITE
RTA1 REMEDIAL CONSTRUCTION
Water Quality Monitoring Weekly Data Summary**

PERIOD: October 11 – October 14, 2022

Date of Report: October 18, 2022

Report Contents

- Scope of Monitoring
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Prepared by

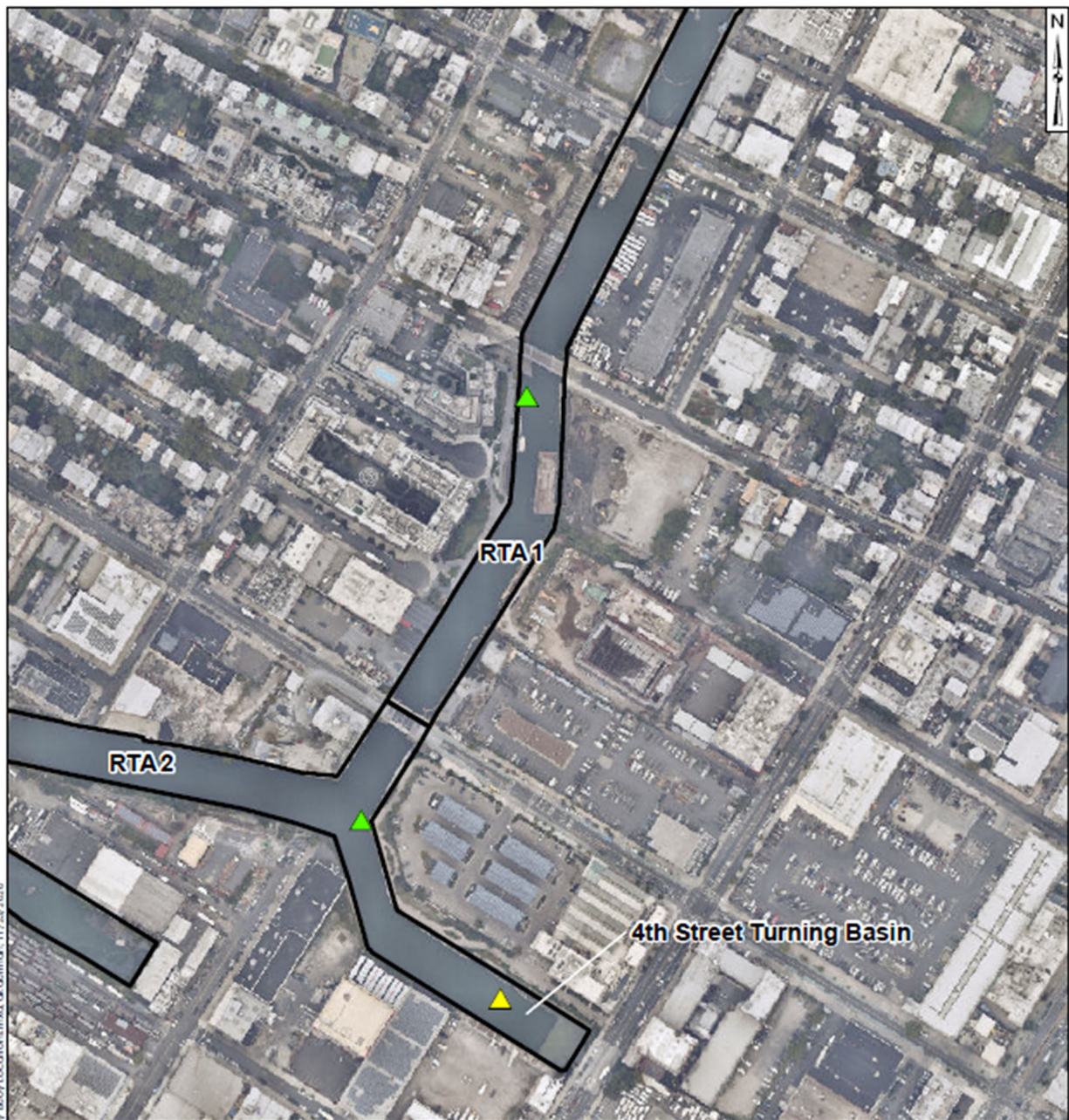
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1. SCOPE OF MONITORING

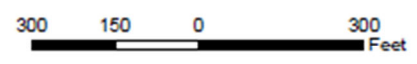
The following report summarizes water quality monitoring data collected during the week of October 11, 2022. In accordance with the Water Quality Monitoring Plan for In-waterway Construction Activities (WQMP) one turbidity buoy was deployed to monitor turbidity at the start of dredging between 3rd Street Bridge and the head of the canal. One turbidity buoy was deployed just south of the 3rd Street Bridge outside of the air curtain and traditional turbidity curtain. This buoy is referred to as the 3rd Street Sentinel Buoy and is currently undergoing maintenance. A second turbidity buoy is usually deployed just south of the Union Street Bridge and referred to as the Union Street Sentinel Buoy, however this buoy was moved at 12:00 PM on September 12, 2022 to replace the 3rd Street Sentinel Buoy, which was removed from the canal for maintenance. This buoy was moved again on September 22, 2022 to a location south of Carroll St Bridge to better monitor dredging activities north of Carroll Street Bridge. This buoy will hereby be referred to as the Carroll Street Sentinel Buoy. The third turbidity buoy was deployed in the Fourth Street Turning Basin in order to monitor background turbidity unaffected by in-water construction activities. This turbidity buoy is referred to as the Ambient Buoy. On July 14, 2022, the Union Street Buoy was removed from the canal for servicing before being re-deployed on July 21, 2022. On January 22, 2021, prior to dredging north of the Union Street Bridge, a fourth turbidity buoy was deployed just south of the Union Street Bridge and was referred to as the Union Street Sentinel Buoy. This fourth turbidity buoy was removed prior to the start of pipe pile installation. On Wednesday, September 22, 2021, the Carroll Street Sentinel Buoy was relocated to the west side of the canal where Degraw Street intersects the canal to monitor cofferdam removal activities conducted in the vicinity of the Flushing Tunnel. This buoy was renamed the Degraw Street Sentinel Buoy during cofferdam removal activities. On October 14, 2021, the Degraw Street Sentinel Buoy was removed from the canal for servicing. On October 20, 2021, the Degraw Street Sentinel Buoy was re-deployed to its position south of the Carroll Street Bridge and was renamed to the Carroll Street Sentinel Buoy. On November 15, 2021, the Carroll Street Sentinel Buoy was moved to the Union Street Bridge and renamed the Union Street Sentinel Buoy. On December 3, 2021, the Union Street Buoy was removed from the canal for servicing and re-deployed at 3rd Street Bridge in preparation for the resumption of ISS operations. On December 8, 2021, a third sentinel buoy was deployed just south of the Carroll Street Bridge. On April 21, 2022, the buoy deployed at the Carroll Street Bridge was relocated to the Union Street Bridge. Each turbidity buoy was equipped with a YSI EXO3 water quality meter with optical turbidity sensor. The buoys were field calibrated and programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a File Transfer Portal (FTP) site via telemetry. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4.



\\Reservoir\Gowanus\RTA\03_CED\mid\Canal\W\k\Turbidity_BuoyLocations.mxd of 11/23/2020

Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

B&B Engineers & Geologists
of new york, p.c.

an affiliate of Geosyntec Consultants

Kennesaw, GA

September 2022

Figure

1

2. REPORT OF EXCEEDANCES

No exceedances to trigger or action criteria were observed during the reporting period.

- **Trigger criterion** – Any of the following:
 - The rolling average of the relevant sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 20 NTU excluding any eliminated outlier measurements and in-waterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
 - Either an oil sheen or a turbidity plume is visually observed at the relevant sentinel buoy and in-waterway construction activities are readily identified as the source.
- **Action criterion** – Any of the following:
 - The rolling average of the turbidity measurements of the sentinel buoy outside of RTA1 over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements and in-waterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
 - Either an oil sheen or a turbidity plume is visually observed outside of RTA1 and any deployed engineering controls and in-waterway construction activities are readily identified as the source.

An outlier is defined as a reading that is outside the range of 50 to 200 percent of the average of the three previous readings. In addition, to be considered an outlier, the subsequent reading must return to a range of 75 to 133 percent of the average of the three readings preceding the outlier.

2.1 Response to Criteria Exceedances

The trigger level criterion serves to provide early notification to the contractor of construction activities that may lead to an exceedance of the action level criterion. In the event of an exceedance to the trigger criterion, the contractor will not be stopped, and the contractor will be directed to investigate the source of the exceedance and evaluate Best Management Practices (BMPs). In the event of an exceedance to the action level criterion, in-waterway construction activities may be slowed or temporarily suspended as necessary while the contractor investigates the source of the exceedance and appropriate mitigation and corrective measures are determined. A more detailed description of responses to exceedances of the trigger and action level criteria is provided in Section 4.2 of the WQMP.

No exceedances to trigger or action criteria were observed during the reporting period.

3. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 6 PM from October 11 – October 14, 2022. No exceedances of the numerical trigger or action level criteria were met during the reporting period. No construction activities occurred in the Canal on October 10, 2022. Maintenance activities on the 3rd Street Sentinel Buoy remain ongoing as of Friday, October 14, 2022.

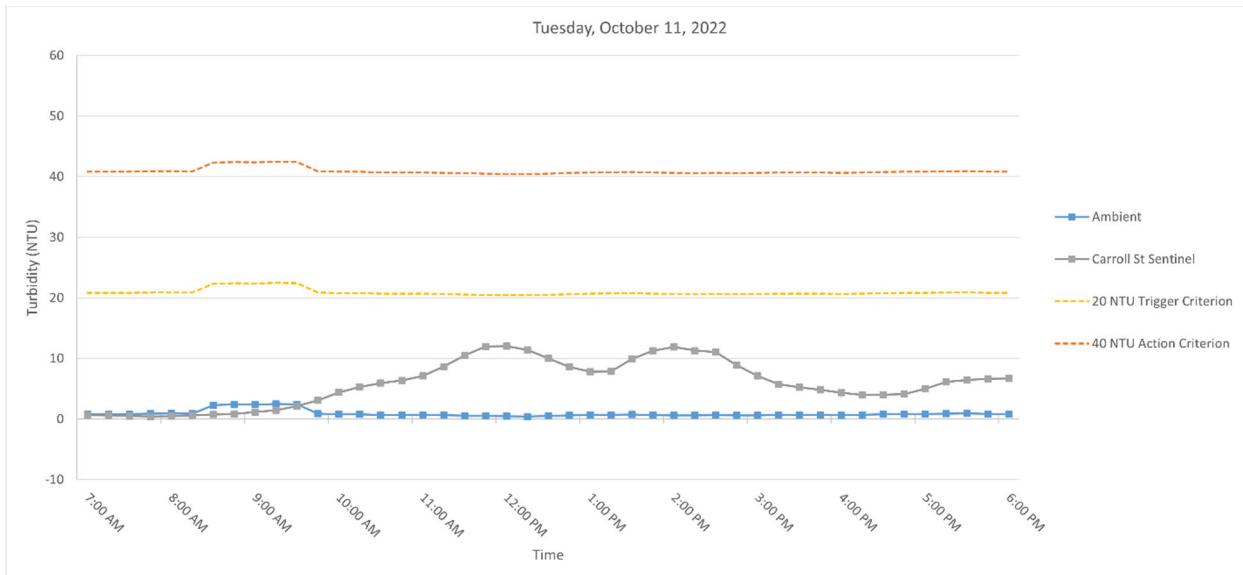
Table 1 below provides a summary of the turbidity data for the reporting period.

Date	Average Rolling Average Difference (NTU)		Maximum Rolling Average Difference (NTU)	
	3rd St - Ambient	Carroll St - Ambient	3rd St - Ambient	Carroll St - Ambient
Monday, October 10, 2022	N/A	N/A	N/A	N/A
Tuesday, October 11, 2022	N/A	4.99	N/A	11.55
Wednesday, October 12, 2022	N/A	4.55	N/A	9.69
Thursday, October 13, 2022	N/A	3.72	N/A	12.25
Friday, October 14, 2022	N/A	0.76	N/A	3.32

Table 1. Daily average and maximum differences between the rolling average turbidity readings from RTA1 sentinel buoys and the ambient buoy between 7 AM and 6 PM.

3.1 Tuesday, October 11, 2022

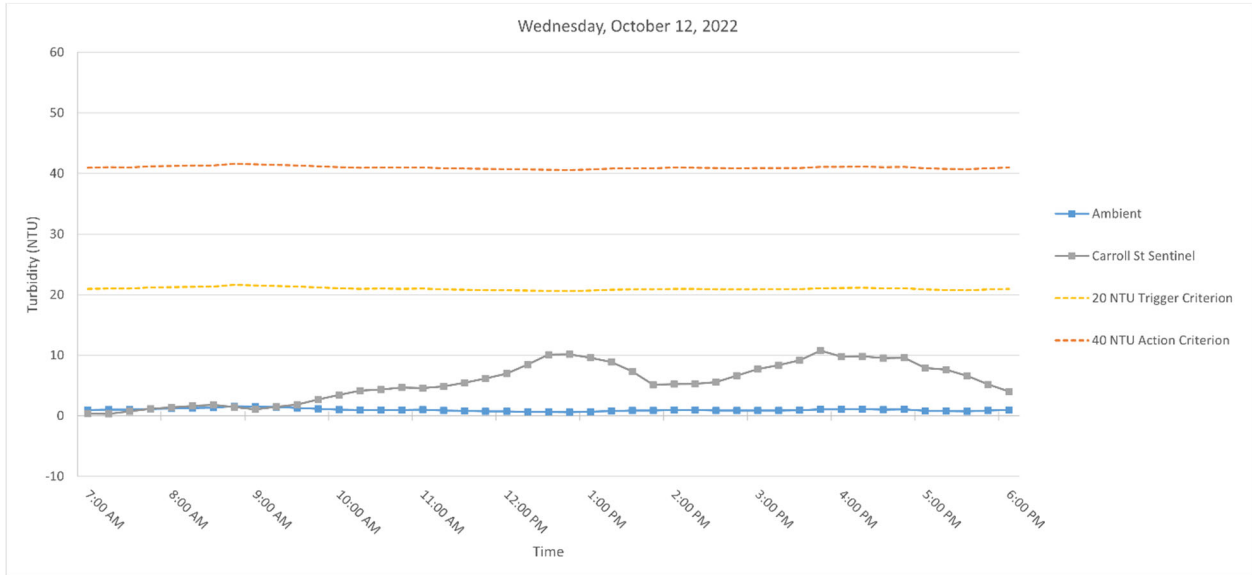
Figure 3. Hourly rolling average turbidity readings on Tuesday, October 11, 2022, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected. The 3rd Street Sentinel Buoy was out of service.

3.2 Wednesday, October 12, 2022

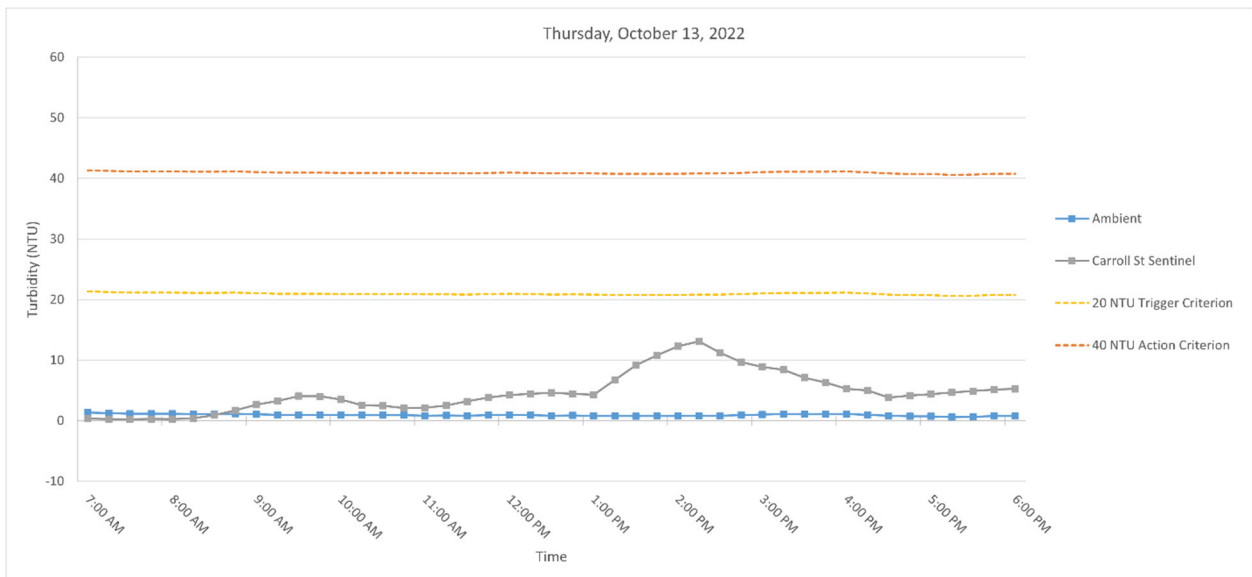
Figure 4. Hourly rolling average turbidity readings on Wednesday, October 12, 2022, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected. The 3rd Street Sentinel Buoy was out of service.

3.3 Thursday, October 13, 2022

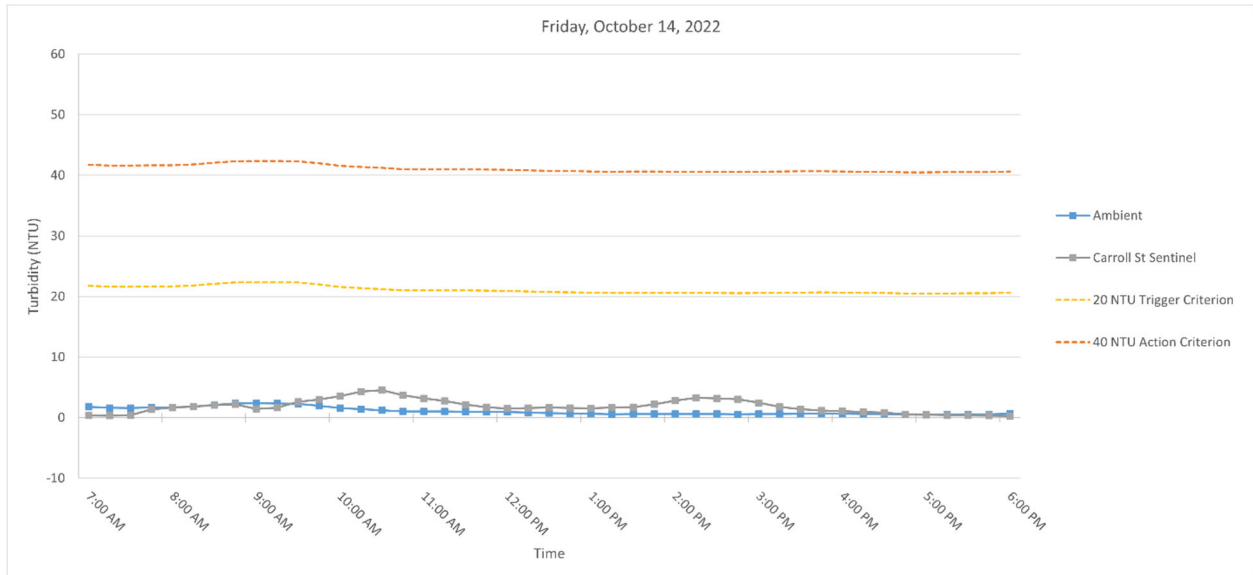
Figure 5. Hourly rolling average turbidity readings on Thursday, October 13, 2022, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected. The 3rd Street Sentinel Buoy was out of service.

3.4 Friday, October 14, 2022

Figure 6. Hourly rolling average turbidity readings on Friday, October 14, 2022, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected. The 3rd Street Sentinel Buoy was out of service.

SUMMARY OF VISUAL OBSERVATIONS

Sheen was observed above background conditions during work operations. These sheens were contained within RTA1 by the air curtain deployed south of the 3rd Street Bridge. Absorbent booms were also deployed south of dredging activities to contain sheens north of the Carroll Street Bridge.

APPENDIX A
Turbidity Data Tables

Tuesday, October 11, 2022

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	1.04	--	0.28	0.83	--	0.65	--	-0.18
7:15:00	1.17	--	0.3	0.81	--	0.59	--	-0.22
7:30:00	0.76	--	0.59	0.81	--	0.48	--	-0.33
7:45:00	0.9	--	0.32	0.89	--	0.42	--	-0.47
8:00:00	0.77	--	0.83	0.93	--	0.46	--	-0.46
8:15:00	0.77	--	0.93	0.87	--	0.59	--	-0.28
8:30:00	8.33	--	0.97	2.31	--	0.73	--	-1.58
8:45:00	1.24	--	1.11	2.40	--	0.83	--	-1.57
9:00:00	0.72	--	1.85	2.37	--	1.14	--	-1.23
9:15:00	1.23	--	2.44	2.46	--	1.46	--	-1.00
9:30:00	0.5	--	4.38	2.40	--	2.15	--	-0.25
9:45:00	0.66	--	5.69	0.87	--	3.09	--	2.22
10:00:00	0.86	--	7.5	0.79	--	4.37	--	3.58
10:15:00	0.73	--	6.47	0.80	--	5.30	--	4.50
10:30:00	0.56	--	5.65	0.66	--	5.94	--	5.28
10:45:00	0.64	--	6.47	0.69	--	6.36	--	5.67
11:00:00	0.63	--	9.5	0.68	--	7.12	--	6.43
11:15:00	0.59	--	15.1	0.63	--	8.64	--	8.01
11:30:00	0.38	--	15.62	0.56	--	10.47	--	9.91
11:45:00	0.29	--	13.28	0.51	--	11.99	--	11.49
12:00:00	0.37	--	6.53	0.45	--	12.01	--	11.55
12:15:00	0.52	--	6.48	0.43	--	11.40	--	10.97
12:30:00	0.98	--	8.04	0.51	--	9.99	--	9.48
12:45:00	0.88	--	8.59	0.61	--	8.58	--	7.98
13:00:00	0.73	--	9.47	0.70	--	7.82	--	7.13
13:15:00	0.43	--	6.77	0.71	--	7.87	--	7.16
13:30:00	0.78	--	16.77	0.76	--	9.93	--	9.17
13:45:00	0.5	--	14.81	0.66	--	11.28	--	10.62
14:00:00	0.64	--	11.57	0.62	--	11.88	--	11.26
14:15:00	--	--	6.57	0.59	--	11.30	--	10.71
14:30:00	0.58	--	5.38	0.63	--	11.02	--	10.40
14:45:00	0.67	--	6.11	0.60	--	8.89	--	8.29
15:00:00	0.57	--	5.99	0.62	--	7.12	--	6.51
15:15:00	0.89	--	4.69	0.68	--	5.75	--	5.07
15:30:00	0.6	--	3.92	0.66	--	5.22	--	4.56
15:45:00	0.67	--	3.41	0.68	--	4.82	--	4.14
16:00:00	0.39	--	3.67	0.62	--	4.34	--	3.71
16:15:00	0.86	--	4.21	0.68	--	3.98	--	3.30
16:30:00	1.31	--	4.98	0.77	--	4.04	--	3.27
16:45:00	0.87	--	4.18	0.82	--	4.09	--	3.27
17:00:00	0.73	--	7.86	0.83	--	4.98	--	4.15
17:15:00	0.65	--	9.48	0.88	--	6.14	--	5.26
17:30:00	1.01	--	5.69	0.91	--	6.44	--	5.52
17:45:00	0.86	--	5.88	0.82	--	6.62	--	5.79
18:00:00	--	--	4.5	0.81	--	6.68	--	5.87

Wednesday, October 12, 2022

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	0.97	--	0.3	0.97	--	0.38	--	-0.59
7:15:00	1.3	--	0.01	1.03	--	0.32	--	-0.70
7:30:00	0.93	--	2.95	1.00	--	0.75	--	-0.25
7:45:00	1.61	--	2.27	1.18	--	1.14	--	-0.03
8:00:00	1.34	--	--	1.23	--	1.38	--	0.15
8:15:00	1.39	--	1.27	1.31	--	1.63	--	0.31
8:30:00	1.39	--	0.83	1.33	--	1.83	--	0.50
8:45:00	2.28	--	1.36	1.60	--	1.43	--	-0.17
9:00:00	1.27	--	0.78	1.53	--	1.06	--	-0.47
9:15:00	0.79	--	3.18	1.42	--	1.48	--	0.06
9:30:00	0.85	--	3.22	1.32	--	1.87	--	0.56
9:45:00	0.72	--	5.07	1.18	--	2.72	--	1.54
10:00:00	1.57	--	5.04	1.04	--	3.46	--	2.42
10:15:00	0.89	--	4.35	0.96	--	4.17	--	3.21
10:30:00	0.93	--	4.07	0.99	--	4.35	--	3.36
10:45:00	0.79	--	4.86	0.98	--	4.68	--	3.70
11:00:00	0.92	--	4.49	1.02	--	4.56	--	3.54
11:15:00	0.79	--	6.64	0.86	--	4.88	--	4.02
11:30:00	0.74	--	7.22	0.83	--	5.46	--	4.62
11:45:00	0.48	--	7.69	0.74	--	6.18	--	5.44
12:00:00	0.69	--	8.8	0.72	--	6.97	--	6.24
12:15:00	0.64	--	11.86	0.67	--	8.44	--	7.77
12:30:00	--	--	14.93	0.64	--	10.10	--	9.46
12:45:00	0.55	--	7.36	0.59	--	10.13	--	9.54
13:00:00	0.87	--	5.02	0.69	--	9.59	--	8.91
13:15:00	1.17	--	5.22	0.81	--	8.88	--	8.07
13:30:00	0.94	--	4.17	0.88	--	7.34	--	6.46
13:45:00	--	--	3.82	0.88	--	5.12	--	4.24
14:00:00	0.96	--	7.98	0.99	--	5.24	--	4.26
14:15:00	0.78	--	5.18	0.96	--	5.27	--	4.31
14:30:00	0.86	--	6.59	0.89	--	5.55	--	4.66
14:45:00	0.84	--	9.7	0.86	--	6.65	--	5.79
15:00:00	1.02	--	9.08	0.89	--	7.71	--	6.81
15:15:00	1.01	--	11.32	0.90	--	8.37	--	7.47
15:30:00	0.89	--	--	0.92	--	9.17	--	8.25
15:45:00	1.63	--	12.98	1.08	--	10.77	--	9.69
16:00:00	0.89	--	5.77	1.09	--	9.79	--	8.70
16:15:00	1.26	--	9.14	1.14	--	9.80	--	8.67
16:30:00	0.53	--	10.34	1.04	--	9.56	--	8.52
16:45:00	--	--	9.65	1.08	--	9.58	--	8.50
17:00:00	0.73	--	4.72	0.85	--	7.92	--	7.07
17:15:00	0.64	--	4.25	0.79	--	7.62	--	6.83
17:30:00	1.03	--	4.03	0.73	--	6.60	--	5.87
17:45:00	1.12	--	3.35	0.88	--	5.20	--	4.32
18:00:00	1.39	--	3.7	0.98	--	4.01	--	3.03

Thursday, October 13, 2022

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	1.16	--	0.19	1.33	--	0.34	--	-0.98
7:15:00	1.08	--	0.15	1.23	--	0.27	--	-0.96
7:30:00	0.97	--	0.23	1.16	--	0.23	--	-0.93
7:45:00	1.31	--	0.51	1.15	--	0.29	--	-0.86
8:00:00	1.17	--	0.27	1.14	--	0.27	--	-0.87
8:15:00	0.98	--	0.94	1.10	--	0.42	--	-0.68
8:30:00	--	--	2.67	1.11	--	0.92	--	-0.18
8:45:00	1.11	--	4.12	1.14	--	1.70	--	0.56
9:00:00	0.99	--	5.23	1.06	--	2.65	--	1.58
9:15:00	0.77	--	--	0.96	--	3.24	--	2.28
9:30:00	0.9	--	4.25	0.94	--	4.07	--	3.13
9:45:00	0.98	--	2.54	0.95	--	4.04	--	3.09
10:00:00	--	--	1.89	0.91	--	3.48	--	2.57
10:15:00	1.05	--	1.64	0.93	--	2.58	--	1.66
10:30:00	0.76	--	2.08	0.92	--	2.48	--	1.56
10:45:00	0.83	--	2.23	0.91	--	2.08	--	1.17
11:00:00	0.74	--	2.91	0.85	--	2.15	--	1.31
11:15:00	0.96	--	3.62	0.87	--	2.50	--	1.63
11:30:00	0.84	--	5.11	0.83	--	3.19	--	2.36
11:45:00	1.25	--	5.22	0.92	--	3.82	--	2.89
12:00:00	0.97	--	4.39	0.95	--	4.25	--	3.30
12:15:00	0.49	--	3.85	0.90	--	4.44	--	3.54
12:30:00	0.53	--	4.62	0.82	--	4.64	--	3.82
12:45:00	1.07	--	4.19	0.86	--	4.45	--	3.59
13:00:00	0.93	--	4.46	0.80	--	4.30	--	3.50
13:15:00	0.81	--	16.51	0.77	--	6.73	--	5.96
13:30:00	0.44	--	16.04	0.76	--	9.16	--	8.41
13:45:00	0.64	--	12.9	0.78	--	10.82	--	10.04
14:00:00	1.02	--	11.65	0.77	--	12.31	--	11.54
14:15:00	1.21	--	8.27	0.82	--	13.07	--	12.25
14:30:00	0.82	--	7.24	0.83	--	11.22	--	10.39
14:45:00	0.88	--	8.3	0.91	--	9.67	--	8.76
15:00:00	1.21	--	--	1.03	--	8.87	--	7.84
15:15:00	1.32	--	9.89	1.09	--	8.43	--	7.34
15:30:00	1.22	--	3.05	1.09	--	7.12	--	6.03
15:45:00	0.8	--	3.99	1.09	--	6.31	--	5.22
16:00:00	1.09	--	4.24	1.13	--	5.29	--	4.16
16:15:00	0.51	--	3.79	0.99	--	4.99	--	4.00
16:30:00	0.4	--	4.1	0.80	--	3.83	--	3.03
16:45:00	0.81	--	4.67	0.72	--	4.16	--	3.44
17:00:00	0.78	--	5.07	0.72	--	4.37	--	3.66
17:15:00	0.4	--	5.67	0.58	--	4.66	--	4.08
17:30:00	0.78	--	4.87	0.63	--	4.88	--	4.24
17:45:00	1.09	--	5.43	0.77	--	5.14	--	4.37
18:00:00	0.84	--	5.22	0.78	--	5.25	--	4.47

Friday, October 14, 2022

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	1.52	--	0.35	1.77	--	0.38	--	-1.39
7:15:00	1.33	--	0.17	1.61	--	0.31	--	-1.29
7:30:00	1.65	--	0.74	1.60	--	0.42	--	-1.18
7:45:00	1.87	--	5.05	1.68	--	1.36	--	-0.32
8:00:00	1.9	--	2.08	1.65	--	1.68	--	0.02
8:15:00	2.24	--	1.14	1.80	--	1.84	--	0.04
8:30:00	2.75	--	1.19	2.08	--	2.04	--	-0.04
8:45:00	2.86	--	1.41	2.32	--	2.17	--	-0.15
9:00:00	2.14	--	1.49	2.38	--	1.46	--	-0.92
9:15:00	1.75	--	2.9	2.35	--	1.63	--	-0.72
9:30:00	2	--	6.12	2.30	--	2.62	--	0.32
9:45:00	1.11	--	--	1.97	--	2.98	--	1.01
10:00:00	0.93	--	3.62	1.59	--	3.53	--	1.95
10:15:00	1.12	--	4.62	1.38	--	4.32	--	2.93
10:30:00	0.92	--	3.78	1.22	--	4.54	--	3.32
10:45:00	1.04	--	2.7	1.02	--	3.68	--	2.66
11:00:00	1.11	--	1.18	1.02	--	3.18	--	2.16
11:15:00	0.91	--	1.45	1.02	--	2.75	--	1.73
11:30:00	--	--	1.53	1.00	--	2.13	--	1.13
11:45:00	0.74	--	1.73	0.95	--	1.72	--	0.77
12:00:00	0.94	--	1.47	0.93	--	1.47	--	0.55
12:15:00	0.65	--	1.63	0.81	--	1.56	--	0.75
12:30:00	0.56	--	1.9	0.72	--	1.65	--	0.93
12:45:00	0.61	--	1.24	0.70	--	1.59	--	0.89
13:00:00	0.49	--	1.36	0.65	--	1.52	--	0.87
13:15:00	0.56	--	2.3	0.57	--	1.69	--	1.11
13:30:00	0.83	--	1.91	0.61	--	1.74	--	1.13
13:45:00	0.56	--	4.16	0.61	--	2.19	--	1.58
14:00:00	0.48	--	4.36	0.58	--	2.82	--	2.23
14:15:00	0.56	--	3.65	0.60	--	3.28	--	2.68
14:30:00	0.49	--	1.85	0.58	--	3.19	--	2.60
14:45:00	0.67	--	1.25	0.55	--	3.05	--	2.50
15:00:00	0.69	--	1.13	0.58	--	2.45	--	1.87
15:15:00	0.62	--	1.05	0.61	--	1.79	--	1.18
15:30:00	0.79	--	1.67	0.65	--	1.39	--	0.74
15:45:00	0.6	--	0.77	0.67	--	1.17	--	0.50
16:00:00	0.43	--	0.69	0.63	--	1.06	--	0.44
16:15:00	0.54	--	0.52	0.60	--	0.94	--	0.34
16:30:00	0.62	--	0.51	0.60	--	0.83	--	0.24
16:45:00	0.34	--	0.35	0.51	--	0.57	--	0.06
17:00:00	0.41	--	0.34	0.47	--	0.48	--	0.01
17:15:00	0.67	--	0.45	0.52	--	0.43	--	-0.08
17:30:00	0.65	--	0.24	0.54	--	0.38	--	-0.16
17:45:00	0.61	--	0.14	0.54	--	0.30	--	-0.23
18:00:00	0.84	--	0.09	0.64	--	0.25	--	-0.38