

WEEKLY PROGRESS REPORT – TRC SOLUTIONS

**Gowanus Canal Turning Basin 4 Dredging and Capping Pilot Study
Brooklyn, New York**

Project number: 283126

Period: August 27 to 31, 2018

Date of Report: September 6, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust



On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Water Treatment and Monitoring

- No discharge of treated water during week.

Turbidity Monitoring

- Exceedance of water quality monitoring visual action criterion observed on 08/30/18. Immediate corrective actions employed. Further details provided in attached report.

Capping Activities

- Commence hydraulic capping of remainder of Turning Basin 4. First treatment layer (i.e., oleophilic clay/sand) placed along southern bulkhead. Thickness to be measured by catch pans, core collection, and hydrographic survey.
- Complete installation of sand buttress to provide additional support for sheet piling at the Whole Foods property.
- Place oleophilic clay/sand mixture and gravel between sheet piling and existing bulkhead adjacent to Whole Foods.

Citizens Site Activities

- Continue decontaminating and demobilizing equipment.

Quality Assurance and Control – Geosyntec

- Exceedance of the visual action level criterion and numerical rolling average trigger level criterion on the afternoon of August 30. Further details provided in attached report.
- Measurements for 8/27/18:
 - Daily average for ambient buoy – 3.1 NTU
 - Daily average for sentinel buoy – 3.9 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 5.6 NTU at 13:15.
- Measurements for 8/28/18:
 - Daily average for ambient buoy – 3.2 NTU
 - Daily average for sentinel buoy – 3.9 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 3.1 NTU at 11:00.
- Measurements for 8/29/18:
 - Daily average for ambient buoy – 3.7 NTU
 - Daily average for sentinel buoy – 3.1 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 3.2 NTU at 13:30.
- Measurements for 8/30/18:
 - Daily average for ambient buoy – 3.2 NTU
 - Daily average for sentinel buoy – 10.7 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 25.5 NTU at 16:45.



- Measurements for 8/31/18:
 - Daily average for ambient buoy – 3.2 NTU
 - Daily average for sentinel buoy – 4.0 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 4.9 NTU at 16:45.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM₁₀) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter (µg/m³) or 1,000 parts per billion (ppb), respectively.
- Maximum weekly measurements of PM₁₀ in µg/m³
 - Station 1 – 57 µg/m³ recorded on 08/28/18
 - Station 2 – 37 µg/m³ recorded on 08/28/18
 - Station 3 – 136 µg/m³ recorded on 08/28/18
 - Station 4 – 24 µg/m³ recorded on 08/27/18
 - Station 5 – 61 µg/m³ recorded on 08/28/18
 - Station 6 – 66 µg/m³ recorded on 08/28/18
 - Station 7 – <1 µg/m³ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
 - Station 1 – 33 ppb recorded on 08/27, 08/28, and 08/29/18
 - Station 2 – 3 ppb recorded on 08/27/18
 - Station 3 – 70 ppb recorded on 08/28/18
 - Station 4 – 41 ppb recorded on 08/27/18
 - Station 5 – 144 ppb recorded on 08/28/18
 - Station 6 – 116 ppb recorded on 08/27/18
 - Station 7 – 110 ppb recorded on 08/28/18
- All real-time readings of formaldehyde, hydrogen sulfide, or ammonia less than instrument reporting limit.
- 23-hour samples collected at ST-1 collected on 08/27 through 08/28 and ST-2 collected on 08/29 through 08/30. Laboratory turnaround time is 10 business days.

Noise and Vibration Monitoring – Wilson Ihrig

- Operated and maintained two (2) noise monitors: NM-1 (north side of canal on Whole Foods promenade) and NM-2 (south side of canal on southeast corner of 386 3rd Avenue).
- No exceedance of the hourly Leq noise limit of 80 dBA.
- Greatest hourly Leq noise measurements
 - Northern monitor (NM-1) – 72 dBA during 1000-1100 on 08/29/18
 - Southern monitor (NM-2) – 71.4 dBA during 1100-1200 on 08/30/18

Cultural Natural Resource Monitoring – Archeology and Historic Resource Services (AHRS)

- No activities conducted during week.



Two-Week Look Ahead:

Sevenson:

- Treatment and discharge of water accumulated during decontamination operations.
- Perform optical monitoring of bulkheads and surrounding structures with autonomous total survey stations. Along with weekly optical surveys conducted by subcontractor.
- Continue hydraulic capping of remainder of Turning Basin 4.
- Cleaning of rip rap adjacent to Whole Foods.

Geosyntec – Perform construction quality assurance responsibilities, including collection of water samples from dredge water treatment system.

TRC CAMP Monitoring – Perform community air monitoring.

Wilson Ihrig – Perform noise monitoring,

AHRS – Prepare inventory and final report for EPA review.

Key Milestones

- Completion of hydraulic capping demonstration area on 08/23/18 (pending loss on ignition sampling results).

Attachments:

1. Geosyntec In-Canal Water Quality Monitoring Weekly Data Summary
2. TRC Weekly CAMP Report
3. Wilson Ihrig Weekly Noise and Vibration Monitoring Report
4. AHRS Weekly Report (no activities during week)
5. Water Treatment System Monitoring Analytical Laboratory Data (no activities during week)
6. Cumulative Dredged Material Chart (no activities during week)



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 001	Date 8-27-2018
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Description
Hydrographic survey boat in operation.



Photo No. 002	Date 8-27-2018
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Description
Releasing the pipeline from the southern bulkhead following hydrographic survey.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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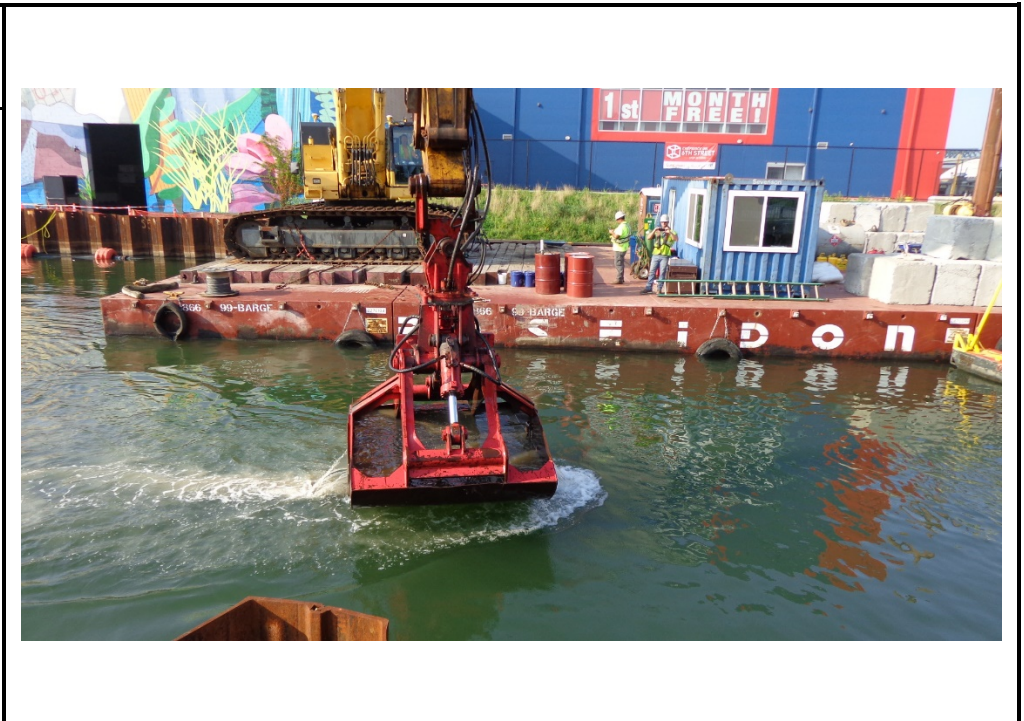
Photo No. 003	Date 8-28-2018
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Description
Moving the excavator barge into position to add sand to the buttress adjacent to Whole Foods.



Photo No. 004	Date 8-8-2018
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Description
Placing sand into the buttress low areas.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 005	Date 8-29-2018
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Description
Placing sand/OC mix in area between the original bulkhead and the installed sheet pile wall adjacent to Whole Foods.



Photo No. 006	Date 8-29-2018
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Description
Rock placed to finish grade of elevation 7.0' between the original bulkhead and the installed sheet pile wall adjacent to Whole Foods.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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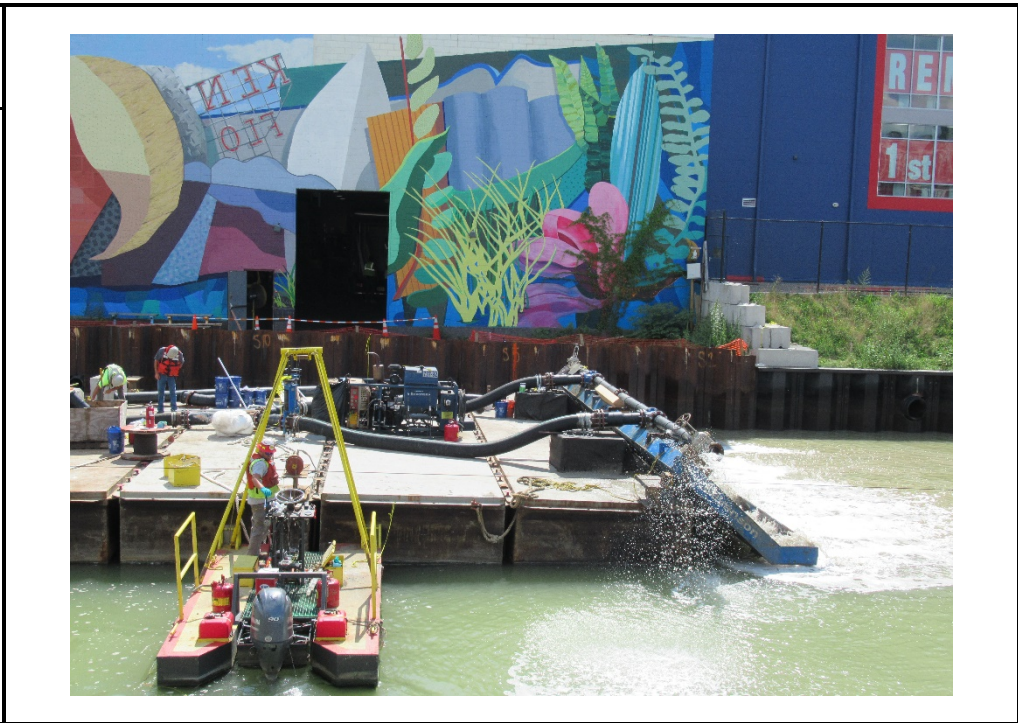
Photo No. 007	Date 8-30-2018
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Description
OC and sand entering batch tank.



Photo No. 008	Date 8-30-2018
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Description
Hydraulic placement of OC/sand adjacent to southern bulkhead.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 009	Date 8-24-2018
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Description
Loading sand into feed hopper.



Photo No. 010	Date 8-31-2018
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Description
Intake water treatment system.



GEOSYNTEC IN-CANAL WATER QUALITY MONITORING WEEKLY DATA SUMMARY



GOWANUS CANAL SUPERFUND SITE DREDGING AND CAPPING PILOT STUDY Water Quality Monitoring Weekly Data Summary

Week of August 27th, 2018

Report Contents

- Scope of Monitoring
- Turbidity Buoy Data
- Handheld Measurements
- Summary of Visual Observations
 - Report of Exceedances

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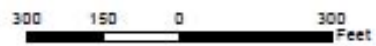
1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of August 27th, 2018. Two turbidity buoys were deployed to monitor turbidity during the pilot study. One turbidity buoy was deployed just outside of the 4th Street Turning Basin and is referred to as the sentinel buoy. A second turbidity buoy was deployed further upstream in RTA1 in order to monitor background turbidity unaffected by on-water construction activities. This turbidity buoy is referred to as the ambient buoy. A map indicating the approximate locations of the turbidity buoys is provided in Figure 1. Each turbidity buoy was equipped with a YSI 600 OMS water quality meter with optical turbidity sensor. The buoys were programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a FTP site via telemetry. This report provides the turbidity data collected every 15 minutes from both the ambient and sentinel buoys during each day between 7 AM and 5 PM during the week of August 27th. Average and maximum turbidity are also presented. Visual observations of turbidity and sheen are summarized in Section 4. The data provided in this summary report have not yet been validated and should be considered preliminary. An exceedance of the visual action criterion occurred on the afternoon of August 30 as a result of suspended capping material escaping the turning basin. Further detail regarding this exceedance is provided in Section 4 and Section 5.



Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group | Geosyntec consultants | Beech and Benaparte engineering p.c. an affiliate of Geosyntec Consultants

Ewing, NJ

October 2017

Figure

1

2. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from August 27th to August 31st, 2018. Background data prior to the start of dredging is provided in Appendix A. An exceedance to the numerical rolling average trigger criterion was observed on the afternoon of August 30 due to suspended capping material escaping the turning basin. This occurrence also resulted in an exceedance to the visual action criterion. Further information is provided in Section 4 and Section 5.

2.1 Monday, August 27th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
8/27/2018 7:00	0.4	1.7	Y	8/27/2018 12:15	3.2	5.4	Y
8/27/2018 7:15	1.5	0.6	N	8/27/2018 12:30	3.9	4.6	Y
8/27/2018 7:30	1.1	0.4	N	8/27/2018 12:45	2.8	4.2	Y
8/27/2018 7:45	1.5	6.9	Y	8/27/2018 13:00	3.3	8.1	Y
8/27/2018 8:00	1.5	1.7	Y	8/27/2018 13:15	1.9	7.5	Y
8/27/2018 8:15	1.6	1.3	N	8/27/2018 13:30	2.5	5.3	Y
8/27/2018 8:30	1.5	2.2	Y	8/27/2018 13:45	3.5	6.3	Y
8/27/2018 8:45	1.3	1.2	N	8/27/2018 14:00	3.0	4.9	Y
8/27/2018 9:00	2.0	0.9	N	8/27/2018 14:15	2.7	5.7	Y
8/27/2018 9:15	1.6	1.2	N	8/27/2018 14:30	4.1	4.5	Y
8/27/2018 9:30	0.9	1.9	Y	8/27/2018 14:45	5.4	3.8	N
8/27/2018 9:45	3.2	2.8	N	8/27/2018 15:00	4.0	3.9	N
8/27/2018 10:00	1.9	2.0	Y	8/27/2018 15:15	3.9	3.5	N
8/27/2018 10:15	3.6	3.9	Y	8/27/2018 15:30	4.0	4.3	Y
8/27/2018 10:30	3.1	4.2	Y	8/27/2018 15:45	4.3	4.7	Y
8/27/2018 10:45	4.1	4.4	Y	8/27/2018 16:00	6.5	5.1	N
8/27/2018 11:00	3.7	5.5	Y	8/27/2018 16:15	4.1	3.2	N
8/27/2018 11:15	5.8	4.8	N	8/27/2018 16:30	4.6	4.2	N
8/27/2018 11:30	4.8	6.3	Y	8/27/2018 16:45	3.0	4.0	Y
8/27/2018 11:45	4.3	6.1	Y	8/27/2018 17:00	3.9	3.6	N
8/27/2018 12:00	3.5	4.9	Y				
Average	3.1	3.9	Y				
Maximum	6.5	8.1	Y				

Notes:

Sentinel turbidity meter readings are unrepresentatively high due to biofouling of the meter.

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.2 Tuesday, August 28th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
8/28/2018 7:00	1.6	0.5	N	8/28/2018 12:15	3.4	6.3	Y
8/28/2018 7:15	2.4	0.9	N	8/28/2018 12:30	4.5	5.3	Y
8/28/2018 7:30	1.4	1.0	N	8/28/2018 12:45	3.6	5.3	Y
8/28/2018 7:45	2.1	1.3	N	8/28/2018 13:00	3.4	6.3	Y
8/28/2018 8:00	1.5	2.5	Y	8/28/2018 13:15	3.0	4.8	Y
8/28/2018 8:15	1.8	2.8	Y	8/28/2018 13:30	3.3	5.5	Y
8/28/2018 8:30	1.8	2.0	Y	8/28/2018 13:45	3.0	5.5	Y
8/28/2018 8:45	2.1	2.2	Y	8/28/2018 14:00	2.4	3.9	Y
8/28/2018 9:00	2.0	2.8	Y	8/28/2018 14:15	2.6	3.5	Y
8/28/2018 9:15	1.6	2.7	Y	8/28/2018 14:30	2.1	3.2	Y
8/28/2018 9:30	2.0	1.8	N	8/28/2018 14:45	3.7	4.3	Y
8/28/2018 9:45	3.3	2.8	N	8/28/2018 15:00	3.4	4.6	Y
8/28/2018 10:00	1.0	2.4	Y	8/28/2018 15:15	3.7	2.6	N
8/28/2018 10:15	3.5	3.7	Y	8/28/2018 15:30	4.9	3.9	N
8/28/2018 10:30	4.0	3.0	N	8/28/2018 15:45	5.3	4.9	N
8/28/2018 10:45	2.5	5.4	Y	8/28/2018 16:00	4.6	4.1	N
8/28/2018 11:00	3.3	6.4	Y	8/28/2018 16:15	5.5	4.2	N
8/28/2018 11:15	4.0	5.7	Y	8/28/2018 16:30	6.0	4.1	N
8/28/2018 11:30	4.8	5.2	Y	8/28/2018 16:45	5.7	4.6	N
8/28/2018 11:45	2.9	5.5	Y	8/28/2018 17:00	5.2	4.9	N
8/28/2018 12:00	3.4	6.3	Y				

Average	3.2	3.9	Y
Maximum	6.0	6.4	Y

Notes:

Sentinel turbidity meter readings are unrepresentatively high due to biofouling of the meter.

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.3 Wednesday, August 29th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
8/29/2018 7:00	1.8	1.4	N	8/29/2018 12:15	5.5	3.9	N
8/29/2018 7:15	2.5	0.8	N	8/29/2018 12:30	7.0	4.6	N
8/29/2018 7:30	1.4	1.9	Y	8/29/2018 12:45	4.8	3.9	N
8/29/2018 7:45	2.3	3.7	Y	8/29/2018 13:00	3.8	3.8	N
8/29/2018 8:00	1.3	1.9	Y	8/29/2018 13:15	6.0	3.7	N
8/29/2018 8:15	1.7	2.4	Y	8/29/2018 13:30	3.3	6.5	Y
8/29/2018 8:30	2.0	2.4	Y	8/29/2018 13:45	6.3	5.5	N
8/29/2018 8:45	2.4	2.0	N	8/29/2018 14:00	3.7	5.8	Y
8/29/2018 9:00	2.2	1.7	N	8/29/2018 14:15	3.4	4.6	Y
8/29/2018 9:15	3.0	2.5	N	8/29/2018 14:30	2.9	3.5	Y
8/29/2018 9:30	2.6	2.7	Y	8/29/2018 14:45	3.0	3.5	Y
8/29/2018 9:45	2.3	2.2	N	8/29/2018 15:00	2.9	3.1	Y
8/29/2018 10:00	2.6	3.1	Y	8/29/2018 15:15	5.9	2.7	N
8/29/2018 10:15	2.0	2.7	Y	8/29/2018 15:30	4.7	2.8	N
8/29/2018 10:30	1.8	2.0	Y	8/29/2018 15:45	5.4	3.7	N
8/29/2018 10:45	5.0	1.1	N	8/29/2018 16:00	5.0	2.3	N
8/29/2018 11:00	1.5	1.9	Y	8/29/2018 16:15	5.5	3.0	N
8/29/2018 11:15	4.6	2.8	N	8/29/2018 16:30	4.5	3.9	N
8/29/2018 11:30	4.2	2.0	N	8/29/2018 16:45	5.5	5.9	Y
8/29/2018 11:45	3.3	3.4	Y	8/29/2018 17:00	6.3	2.8	N
8/29/2018 12:00	4.1	3.3	N				

Average	3.7	3.1	N
Maximum	7.0	6.5	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.4 Thursday, August 30th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
8/30/2018 7:00	2.1	1.3	N	8/30/2018 12:15	3.2	6.0	Y
8/30/2018 7:15	1.8	1.5	N	8/30/2018 12:30	4.1	6.1	Y
8/30/2018 7:30	2.6	2.3	N	8/30/2018 12:45	2.2	7.2	Y
8/30/2018 7:45	2.5	16.2	Y	8/30/2018 13:00	4.5	6.7	Y
8/30/2018 8:00	2.6	20.6	Y	8/30/2018 13:15	4.8	11.4	Y
8/30/2018 8:15	2.1	2.6	Y	8/30/2018 13:30	3.8	17.6	Y
8/30/2018 8:30	3.0	3.1	Y	8/30/2018 13:45	4.5	17.9	Y
8/30/2018 8:45	2.6	2.8	Y	8/30/2018 14:00	4.8	20.0	Y
8/30/2018 9:00	3.5	3.3	N	8/30/2018 14:15	3.5	19.7	Y
8/30/2018 9:15	2.1	2.4	Y	8/30/2018 14:30	3.4	20.0	Y
8/30/2018 9:30	2.9	2.4	N	8/30/2018 14:45	4.4	22.2	Y
8/30/2018 9:45	3.4	3.0	N	8/30/2018 15:00	3.4	22.5	--
8/30/2018 10:00	3.2	2.7	N	8/30/2018 15:15	2.9	21.2	Y
8/30/2018 10:15	3.7	2.6	N	8/30/2018 15:30	2.5	18.6	--
8/30/2018 10:30	3.3	3.0	N	8/30/2018 15:45	2.5	13.2	--
8/30/2018 10:45	4.2	2.5	N	8/30/2018 16:00	2.5	20.7	--
8/30/2018 11:00	2.6	2.3	N	8/30/2018 16:15	3.8	22.4	Y
8/30/2018 11:15	3.0	3.7	Y	8/30/2018 16:30	3.8	24.1	Y
8/30/2018 11:30	3.2	3.5	Y	8/30/2018 16:45	3.4	28.9	Y
8/30/2018 11:45	1.8	4.6	Y	8/30/2018 17:00	4.9	23.5	Y
8/30/2018 12:00	3.8	4.1	Y				
Average	3.2	10.7	Y				
Maximum	4.9	28.9	Y				

Notes:

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.5 Friday, August 31st, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
8/31/2018 7:00	0.7	2.5	Y	8/31/2018 12:15	1.5	2.6	Y
8/31/2018 7:15	2.6	1.5	N	8/31/2018 12:30	0.6	3.1	Y
8/31/2018 7:30	9.1	2.8	N	8/31/2018 12:45	2.2	2.8	Y
8/31/2018 7:45	2.4	2.5	Y	8/31/2018 13:00	2.7	5.0	Y
8/31/2018 8:00	3.1	2.1	N	8/31/2018 13:15	2.7	4.7	Y
8/31/2018 8:15	2.1	1.7	N	8/31/2018 13:30	3.6	5.5	Y
8/31/2018 8:30	2.9	2.5	N	8/31/2018 13:45	3.6	5.3	Y
8/31/2018 8:45	6.2	2.5	N	8/31/2018 14:00	4.0	5.5	Y
8/31/2018 9:00	3.6	3.3	N	8/31/2018 14:15	4.0	4.9	Y
8/31/2018 9:15	3.1	3.4	Y	8/31/2018 14:30	4.3	4.8	Y
8/31/2018 9:30	3.9	3.8	N	8/31/2018 14:45	4.4	5.4	Y
8/31/2018 9:45	3.5	6.6	Y	8/31/2018 15:00	3.9	4.7	Y
8/31/2018 10:00	3.3	3.7	Y	8/31/2018 15:15	3.2	5.3	Y
8/31/2018 10:15	3.7	3.5	N	8/31/2018 15:30	2.3	4.5	Y
8/31/2018 10:30	4.0	4.1	Y	8/31/2018 15:45	1.6	4.7	Y
8/31/2018 10:45	4.5	3.8	N	8/31/2018 16:00	2.5	5.3	Y
8/31/2018 11:00	4.5	3.9	N	8/31/2018 16:15	3.6	4.1	Y
8/31/2018 11:15	1.5	2.5	Y	8/31/2018 16:30	2.8	5.0	Y
8/31/2018 11:30	2.7	3.6	Y	8/31/2018 16:45	2.2	7.1	Y
8/31/2018 11:45	1.3	4.2	Y	8/31/2018 17:00	3.4	5.7	Y
8/31/2018 12:00	3.2	4.8	Y				

Average	3.2	4.0	Y
Maximum	9.1	7.1	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

3. HANDHELD MEASUREMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

At 16:35 on August 30 water quality monitoring staff observed suspended capping material migrating from TB4 into the main channel of the Canal. This occurred during hydraulic capping with sand and organoclay. Based on visual observations the suspended capping material migrated as far north as the 3rd Street Bridge and as far downstream as canal station MC2600. This observation resulted in an exceedance to the visual action level criterion.

5. REPORT OF EXCEEDANCES

An exceedance of the action level criterion occurred on the afternoon of August 30 due to visual observation of suspended capping material escaping the turning basin. There was no precipitation within a 24-hr period of the observation. The tide was ebbing from TB4 to the main channel of the Canal. Construction activities occurring during the exceedance consisted of hydraulic placement of sand and organoclay along the southern portion of the turning basin between the western boundary of the pilot study footprint and approximately Station 525. The air curtain was operating but was not effectively containing the suspended capping material. In response to the exceedance the turbidity curtain was deployed to improve containment of the capping material. The EPA was notified of the exceedance on August 31.

Refer to the Water Quality Monitoring Plan for In-waterway Construction Activities (Geosyntec 2017) for further information regarding the Trigger and Action Criteria. Threshold criteria are summarized as follows:

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




FIGURES

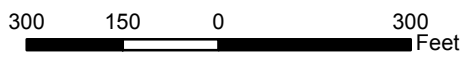


X:\03_GIS\mxd\Canal_Wide_Turbidity_Buoy_Locations.mxd; acarnes; 10/19/2017



Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group Geosyntec consultants Beech and Bonaparte engineering p.c. an affiliate of Geosyntec Consultants

Figure

1

Ewing, NJ

October 2017

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)
10/3/2017 15:00	7.4	2.7	N	10/4/2017 4:30	4.8	7.1	Y	10/4/2017 18:00	6.9	2.7	N
10/3/2017 15:15	6.6	2.4	N	10/4/2017 4:45	5	6.3	Y	10/4/2017 18:15	7.2	2.7	N
10/3/2017 15:30	6.4	2.7	N	10/4/2017 5:00	4.7	6	Y	10/4/2017 18:30	7.8	3.4	N
10/3/2017 15:45	6.9	2	N	10/4/2017 5:15	5.1	6.4	Y	10/4/2017 18:45	8.2	4.4	N
10/3/2017 16:00	6.3	2.1	N	10/4/2017 5:30	5	7.3	Y	10/4/2017 19:00	7.5	3.1	N
10/3/2017 16:15	6.5	2.4	N	10/4/2017 5:45	5.4	7.8	Y	10/4/2017 19:15	8.7	3.6	N
10/3/2017 16:30	7.1	2.9	N	10/4/2017 6:00	5.5	8.3	Y	10/4/2017 19:30	8.7	4.5	N
10/3/2017 16:45	6.1	2.8	N	10/4/2017 6:15	5.2	9	Y	10/4/2017 19:45	9.4	4.1	N
10/3/2017 17:00	7	2.8	N	10/4/2017 6:30	5.8	7.2	Y	10/4/2017 20:00	8.4	4	N
10/3/2017 17:15	7	4.4	N	10/4/2017 6:45	5.4	8.8	Y	10/4/2017 20:15	8.2	4	N
10/3/2017 17:30	7	4.7	N	10/4/2017 7:00	5.5	8	Y	10/4/2017 20:30	9	3.6	N
10/3/2017 17:45	6.3	4	N	10/4/2017 7:15	5.6	7.5	Y	10/4/2017 20:45	8.4	3.5	N
10/3/2017 18:00	6.5	6.9	Y	10/4/2017 7:30	6.9	7.2	Y	10/4/2017 21:00	9.5	4.7	N
10/3/2017 18:15	7.8	6.7	Y	10/4/2017 7:45	6.8	6.1	N	10/4/2017 21:15	10.2	3.9	N
10/3/2017 18:30	7.9	6.5	N	10/4/2017 8:00	6.7	7.4	Y	10/4/2017 21:30	9.5	3.5	N
10/3/2017 18:45	8.5	5.9	N	10/4/2017 8:15	7.3	6.1	N	10/4/2017 21:45	8.9	3.6	N
10/3/2017 19:00	7.9	6	N	10/4/2017 8:30	7.2	4.6	N	10/4/2017 22:00	8.6	2.9	N
10/3/2017 19:15	7.4	6.3	N	10/4/2017 8:45	6.6	9	Y	10/4/2017 22:15	8.7	3.6	N
10/3/2017 19:30	7.4	4.3	N	10/4/2017 9:00	9.2	14.1	Y	10/4/2017 22:30	8.4	6.3	N
10/3/2017 19:45	8.3	4.6	N	10/4/2017 9:15	7.9	4.8	N	10/4/2017 22:45	7.3	3.3	N
10/3/2017 20:00	8.9	5.2	N	10/4/2017 9:30	9.3	4.6	N	10/4/2017 23:00	7.4	3.8	N
10/3/2017 20:15	8.6	4.5	N	10/4/2017 9:45	7.6	5.1	N	10/4/2017 23:15	7.1	4.5	N
10/3/2017 20:30	8	4.9	N	10/4/2017 10:00	8.1	3.9	N	10/4/2017 23:30	7	3.8	N
10/3/2017 20:45	10.6	4.3	N	10/4/2017 10:15	7.8	3.1	N	10/4/2017 23:45	8.3	5.3	N
10/3/2017 21:00	11.1	4.6	N	10/4/2017 10:30	7.3	4.5	N	10/5/2017 0:00	7.7	6.2	N
10/3/2017 21:15	9.8	4.7	N	10/4/2017 10:45	7.5	3.9	N	10/5/2017 0:15	7.8	5.1	N
10/3/2017 21:30	8.8	4.6	N	10/4/2017 11:00	7.6	9	Y	10/5/2017 0:30	7.2	5.7	N
10/3/2017 21:45	9	4.7	N	10/4/2017 11:15	6.5	16.7	Y	10/5/2017 0:45	7	5.4	N
10/3/2017 22:00	8.3	4.8	N	10/4/2017 11:30	7.4	6	N	10/5/2017 1:00	7.5	4.9	N
10/3/2017 22:15	7.3	6.1	N	10/4/2017 11:45	6.8	5.3	N	10/5/2017 1:15	7	8.2	Y
10/3/2017 22:30	7	4.7	N	10/4/2017 12:00	7.7	5.1	N	10/5/2017 1:30	8.1	4.9	N
10/3/2017 22:45	6.6	5.3	N	10/4/2017 12:15	6.6	6.1	N	10/5/2017 1:45	9.1	6.5	N
10/3/2017 23:00	7.1	6.1	N	10/4/2017 12:30	7.6	4	N	10/5/2017 2:00	9.2	5.2	N
10/3/2017 23:15	6.5	6	N	10/4/2017 12:45	7.7	3.9	N	10/5/2017 2:15	8.5	3.7	N
10/3/2017 23:30	6.6	6.9	Y	10/4/2017 13:00	8.3	4.8	N	10/5/2017 2:30	10.2	5.2	N
10/3/2017 23:45	7.2	5.2	N	10/4/2017 13:15	8.5	3.9	N	10/5/2017 2:45	10.1	4.2	N
10/4/2017 0:00	6.8	6.3	N	10/4/2017 13:30	9.2	5.5	N	10/5/2017 3:00	10.3	4.9	N
10/4/2017 0:15	7.2	5.6	N	10/4/2017 13:45	9.4	4.5	N	10/5/2017 3:15	9	6.3	N
10/4/2017 0:30	7.4	6.4	N	10/4/2017 14:00	11.1	3.1	N	10/5/2017 3:30	9.2	4.5	N
10/4/2017 0:45	7.1	5	N	10/4/2017 14:15	10	2.5	N	10/5/2017 3:45	8.4	4.1	N
10/4/2017 1:00	7.1	4.3	N	10/4/2017 14:30	9.8	2	N	10/5/2017 4:00	7.4	4.4	N
10/4/2017 1:15	8.3	4.6	N	10/4/2017 14:45	9.7	2.1	N	10/5/2017 4:15	7.3	4.4	N
10/4/2017 1:30	9	5.1	N	10/4/2017 15:00	9.3	2.4	N	10/5/2017 4:30	6.4	4.6	N
10/4/2017 1:45	7.9	4.5	N	10/4/2017 15:15	8.5	2.1	N	10/5/2017 4:45	6.2	5.1	N
10/4/2017 2:00	9.1	4	N	10/4/2017 15:30	8.5	1.8	N	10/5/2017 5:00	5.3	5.2	N
10/4/2017 2:15	7	5.3	N	10/4/2017 15:45	7.2	1.8	N	10/5/2017 5:15	5.3	5.3	N
10/4/2017 2:30	7.2	5.5	N	10/4/2017 16:00	7.3	1.6	N	10/5/2017 5:30	4.8	5	Y
10/4/2017 2:45	6.6	4.8	N	10/4/2017 16:15	6.4	1.8	N	10/5/2017 5:45	5.7	5	N
10/4/2017 3:00	6.6	5.7	N	10/4/2017 16:30	7	1.6	N	10/5/2017 6:00	5.6	4.8	N
10/4/2017 3:15	6.2	5.1	N	10/4/2017 16:45	7.5	2.6	N	10/5/2017 6:15	5.4	4.9	N
10/4/2017 3:30	5.9	4.7	N	10/4/2017 17:00	6.4	2.7	N	10/5/2017 6:30	6.1	5.7	N
10/4/2017 3:45	5.5	5.9	N	10/4/2017 17:15	6.5	2	N	10/5/2017 6:45	5.9	6.4	Y
10/4/2017 4:00	4.9	6.4	Y	10/4/2017 17:30	6.7	2.3	N	10/5/2017 7:00	6.1	7.8	Y
10/4/2017 4:15	5.1	7	Y	10/4/2017 17:45	6.6	2.1	N				
Average	7.5	6.0	N								
Maximum	11.1	16.7	Y								

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT





**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Weekly Report
(TRC Project No.274286-0000-00000)**

**Community Air Monitoring Project
47th Weekly Monitoring Period
Summary Report:**

August 27th, through August 31st, 2018

Report Contents

- Executive Summary
- Daily Data Summary Report – PM₁₀/TVOC
 - Daily Meteorological Summary Report
 - Periodic Monitoring Results

Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study Brooklyn, New York

Executive Summary – Week 47 Monitoring Period August 27th through August 31st, 2018

The following report summarizes site air monitoring activities for the Week 47 monitoring period from August 27th through August 31st, 2018. The start and stop times associated with each daily monitoring period are listed on the respective daily reports.

TRC continued to operate two (2) air monitoring stations on the Citizen Property or Staging Area, and five (5) air monitoring stations in the 4th St Turning Basin Area using the equipment specified previously in the *Gowanus Canal TB-4 Dredging and Pilot Study Executive Summary – Background Monitoring Period Report*. During the Week 47 monitoring period there were no PM₁₀ or TVOC exceedances of the action level of 150 ug/m³ or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017*.

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM₁₀) daily averages and maximums. Figure 3 depicts the station locations along the Gowanus Canal.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 47 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 47 monitoring period of August 27th through August 31st, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 1 and 2. The ST-1 sample was collected on August 27th through August 28th, 2018 and the ST-2 sample was collected on August 29th, through August 30th. Both samples were collected over a 23-hour period and shipped to Con-Test Analytical Laboratory for analyses. The results of the summa canister sampling are pending lab analyses

Site activities which were conducted at the Citizen Property during August 27th through August 31st, 2018 included the following:

- Material and equipment deliveries on Citizen Property
- General vehicular traffic site-wide throughout the monitoring period
- Maintenance of the barges and equipment
- Continue decontaminating and demobilizing equipment

Site activities which were conducted at the 4th St Turning Basin Area of the Canal during August 27th through August 31st, 2018 included the following:

- Commence hydraulic capping of remainder of Turning Basin 4. First treatment layer (i.e., Oleophilic clay/sand) placed along southern bulkhead. Thickness to be measured by catch pans, core collection, and hydrographic survey
- Completed installation of sand buttress to provide additional support for sheet piling at the Whole Foods property
- Placed Oleophilic clay/sand mixture and gravel between sheet piling and existing bulkhead adjacent to Whole Foods

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
08/27/2018 06:30 AM - 08/27/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	33	ppb	Max.	36	ug/m ³
Avg.	16	ppb	Avg.	21	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	3	ppb	Max.	25	ug/m ³
Avg.	<1	ppb	Avg.	15	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	27	ppb	Max.	80	ug/m ³
Avg.	7	ppb	Avg.	46	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	41	ppb	Max.	24	ug/m ³
Avg.	4	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	33	ppb	Max.	55	ug/m ³
Avg.	2	ppb	Avg.	16	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	116	ppb	Max.	41	ug/m ³
Avg.	20	ppb	Avg.	14	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	11	ppb	Max.	<1	ug/m ³
Avg.	3	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
08/28/2018 00:00 AM - 08/28/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	33	ppb	Max.	57	ug/m ³
Avg.	13	ppb	Avg.	30	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	37	ug/m ³
Avg.	<1	ppb	Avg.	21	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	70	ppb	Max.	136	ug/m ³
Avg.	11	ppb	Avg.	62	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	36	ppb	Max.	15	ug/m ³
Avg.	1	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	144	ppb	Max.	61	ug/m ³
Avg.	36	ppb	Avg.	33	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	86	ppb	Max.	66	ug/m ³
Avg.	38	ppb	Avg.	32	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	110	ppb	Max.	<1	ug/m ³
Avg.	49	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
08/29/2018 00:00 AM - 08/29/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	33	ppb	Max.	32	ug/m ³
Avg.	12	ppb	Avg.	20	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	24	ug/m ³
Avg.	<1	ppb	Avg.	16	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	2	ppb	Max.	59	ug/m ³
Avg.	<1	ppb	Avg.	15	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	108	ppb	Max.	38	ug/m ³
Avg.	22	ppb	Avg.	12	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	83	ppb	Max.	37	ug/m ³
Avg.	36	ppb	Avg.	22	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	91	ppb	Max.	<1	ug/m ³
Avg.	69	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
08/30/2018 00:00 AM - 08/30/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	31	ppb	Max.	27	ug/m ³
Avg.	8	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	22	ug/m ³
Avg.	<1	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	61	ug/m ³
Avg.	<1	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	12	ug/m ³
Avg.	<1	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	12	ug/m ³
Avg.	<1	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	72	ppb	Max.	27	ug/m ³
Avg.	26	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	82	ppb	Max.	<1	ug/m ³
Avg.	23	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
08/31/2018 00:00 AM - 08/31/2018 16:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	9	ppb	Max.	8	ug/m ³
Avg.	3	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	14	ug/m ³
Avg.	<1	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	22	ug/m ³
Avg.	<1	ppb	Avg.	16	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	5	ppb	Max.	9	ug/m ³
Avg.	<1	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	11	ug/m ³
Avg.	<1	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 47

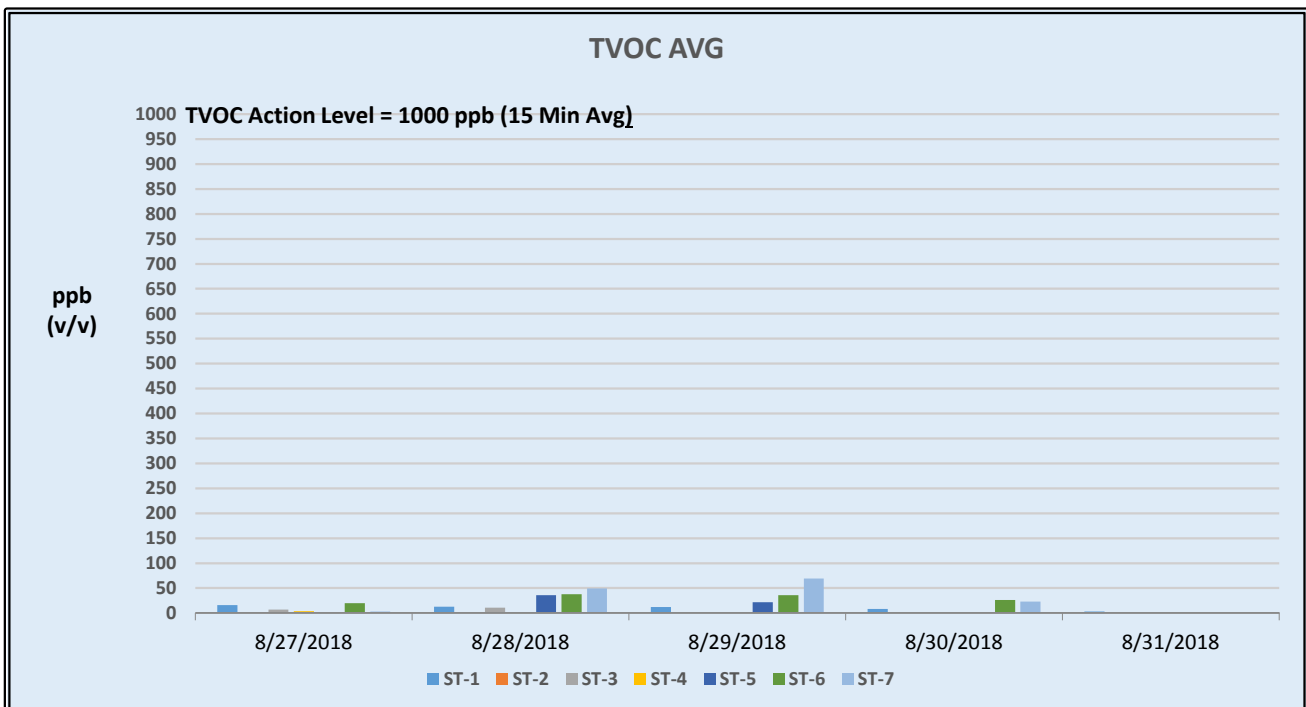
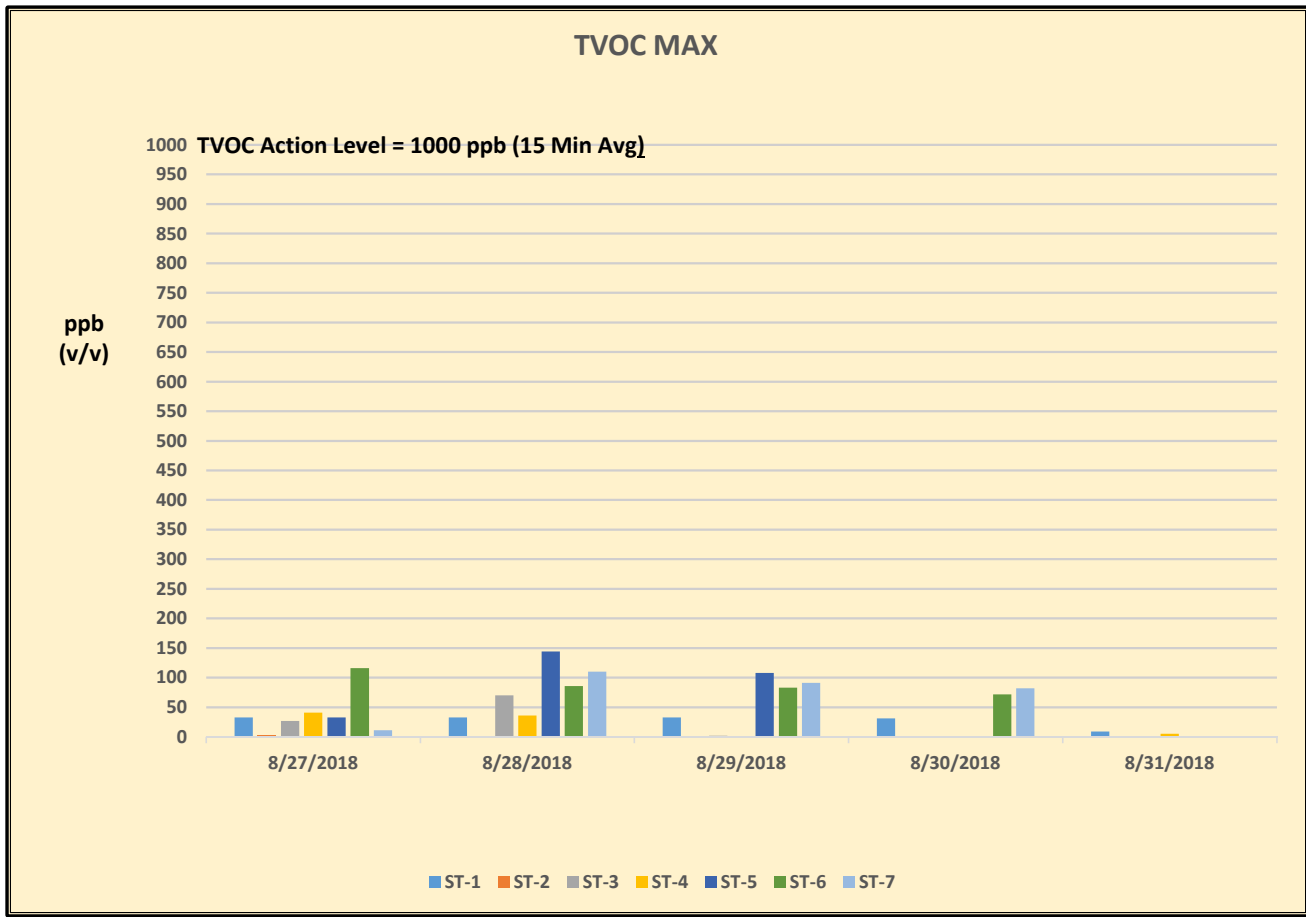
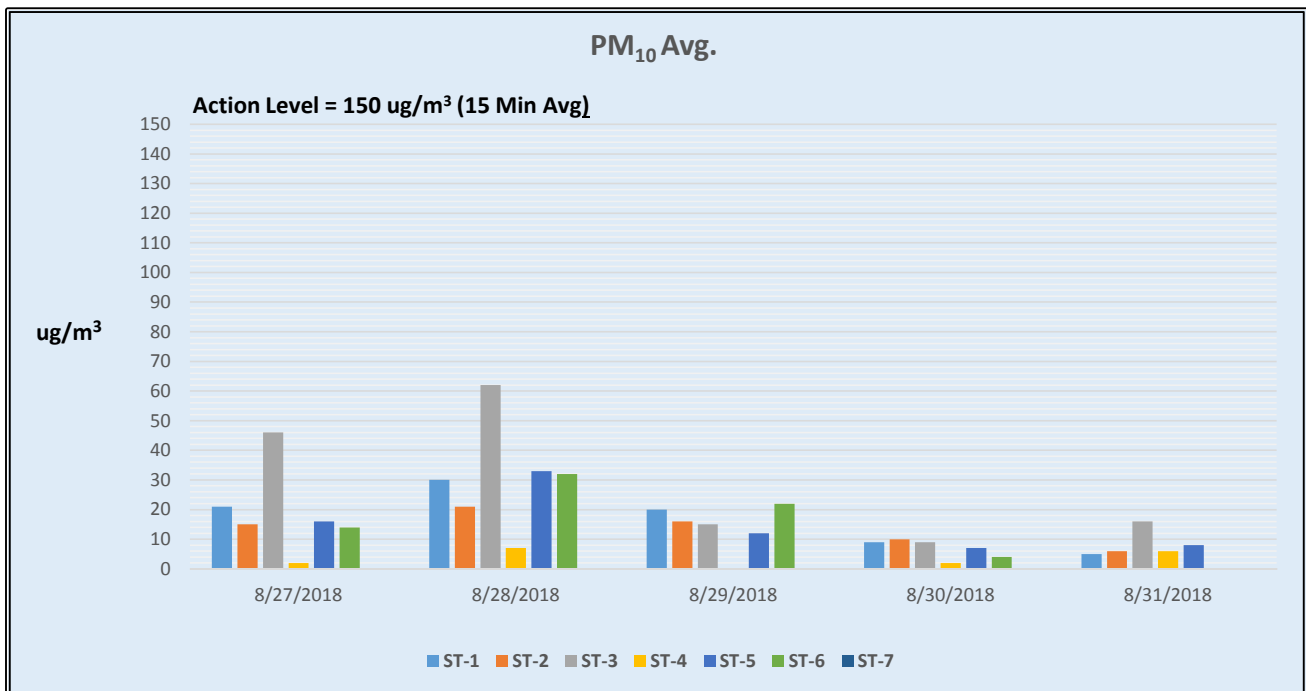
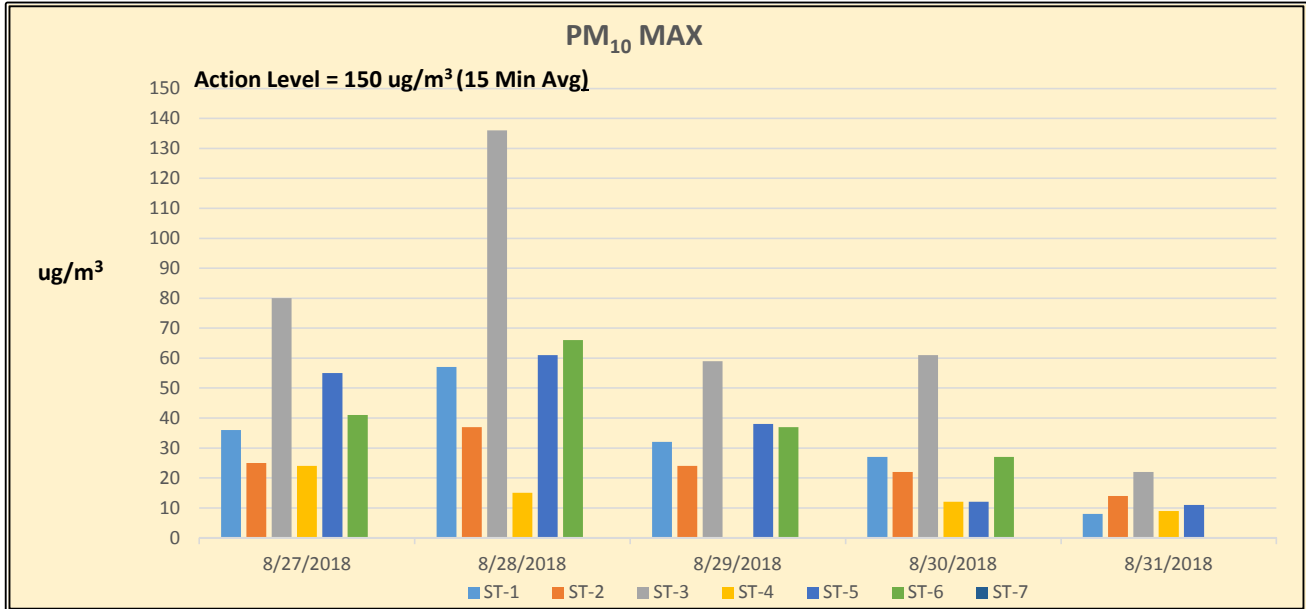


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM₁₀ Monitoring Data - Week 47



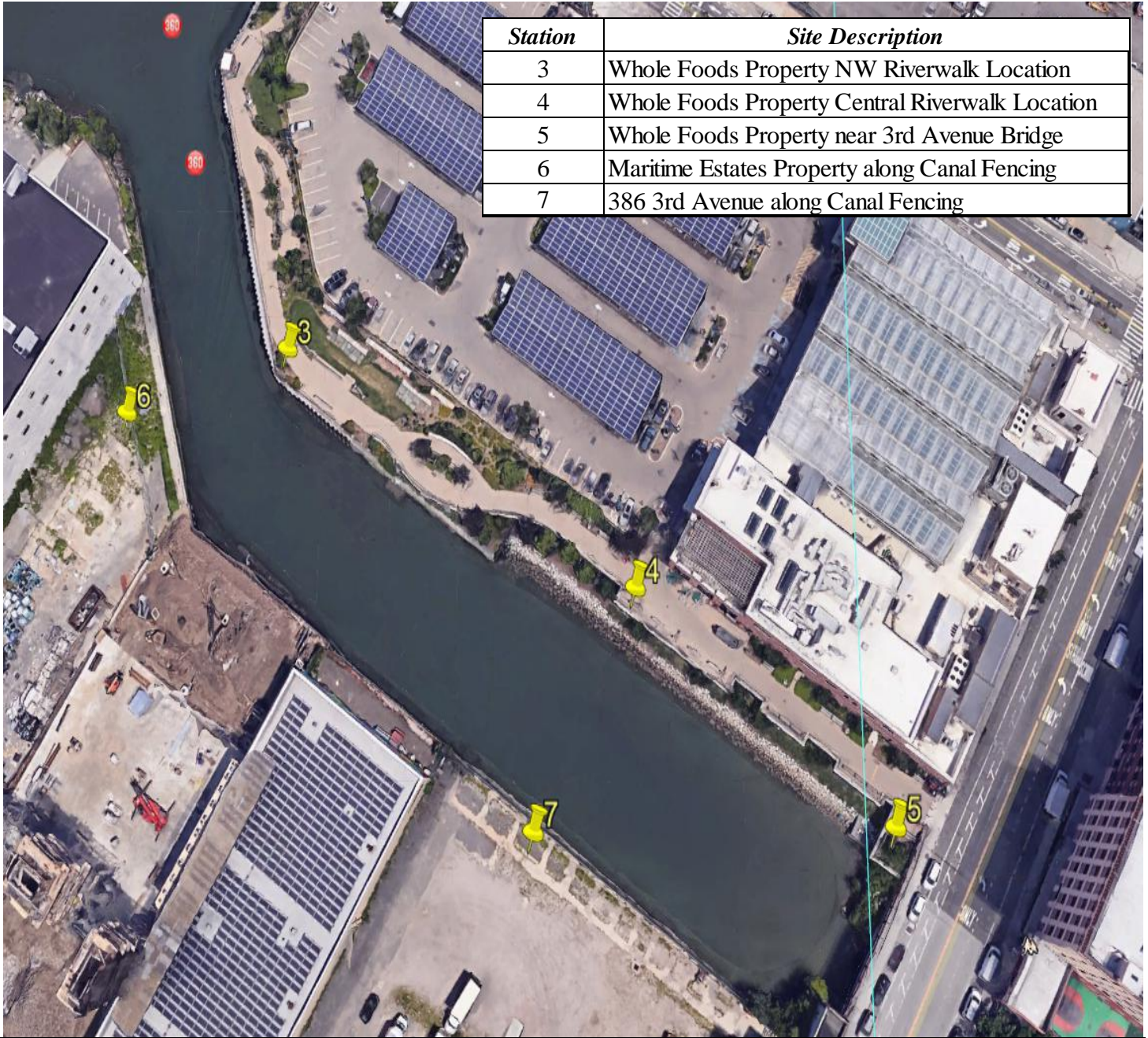


FIGURE 3
Gowanus Canal Superfund Site-TB4
Dredging and Capping Pilot Program

Table 1**Week 47****Summary of Additional Periodic (Daily) Monitoring Data**

August 27 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	9:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	9:10	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	9:30	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-4	9:40	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-5	9:50	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-6	10:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-7	10:20	<50	<3	<1.0
	15:20	<50	<3	<1.0

August 28 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	7:30	<50	<3	<1.0
	13:00	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	13:05	<50	<3	<1.0
ST-3	8:00	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	13:40	<50	<3	<1.0
ST-5	8:20	<50	<3	<1.0
	13:50	<50	<3	<1.0
ST-6	8:40	<50	<3	<1.0
	14:50	<50	<3	<1.0
ST-7	9:00	<50	<3	<1.0
	14:20	<50	<3	<1.0

Table 1

Week 47

Summary of Additional Periodic (Daily) Monitoring Data

August 29 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	14:10	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-4	8:40	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-5	8:50	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-6	9:15	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-7	9:25	<50	<3	<1.0
	16:00	<50	<3	<1.0
August 30 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	15:15	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	8:40	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-5	9:00	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-6	9:20	<50	<3	<1.0
	15:55	<50	<3	<1.0
ST-7	9:40	<50	<3	<1.0
	16:20	<50	<3	<1.0

Table 1

Week 47

Summary of Additional Periodic (Daily) Monitoring Data

August 31 st , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:00	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	14:20	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-4	8:40	<50	<3	<1.0
	14:45	<50	<3	<1.0
ST-5	8:50	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-6	9:15	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-7	9:30	<50	<3	<1.0
	15:20	<50	<3	<1.0

* (ppb) Indicates results reported in parts per billion

** (ppm) Indicates results reported in parts per million



**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Meteorological Summary
August 27th through August 31st, 2018**

August 27 th , 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	1.62	84.7

August 28 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SSW	0.86	87.6

August 29 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SSW	0.96	89.0

August 30 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
WSW	2.42	85.7

August 31 st , 2018 ***		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ENE	7.62	75.1

* Monday's meteorological data represents an average for the time period of 06:30 to 23:45.

** Tuesday's, Wednesday's, and Thursday's meteorological data represents averages for the time period of 00:00 to 23:45.

*** Friday's meteorological data represents an average for the time period of 00:00 to 16:00.

WILSON IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT





WI #15-081

MEMORANDUM

September 4, 2018

To: William Lee/ de maximis, inc.
Kirsten Meyers / TRC

From: Silas Bensing, Ani Toncheva / Wilson Ihrig

Subject: Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study, Weekly Noise Monitoring Report, 27 August – 31 August, 2018

Noise Monitoring Locations

Figure 1 shows the noise monitoring locations. NM-1 is installed at a light pole on the north side of TB4 and is approximately 25 feet from the north edge of the canal. NM-2 is installed at the existing guard rail on the south side of TB4, approximately 4 feet from the south edge of the canal. Photos 1 and 2 show the recent field conditions at the monitors.

Noise Monitoring Results

Figures 2 through 11 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring plan¹. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference².

¹ Wilson Ihrig. *Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study Noise and Vibration Monitoring Plan*. California: prepared for Gowanus Canal Remedial Design Group, DRAFT May 2017

² Wilson Ihrig. *Gowanus Canal Remedial Design Project RTA-1 Noise and Vibration Baseline Report*. California: prepared for Geosyntec Consultants Inc., October 2015.

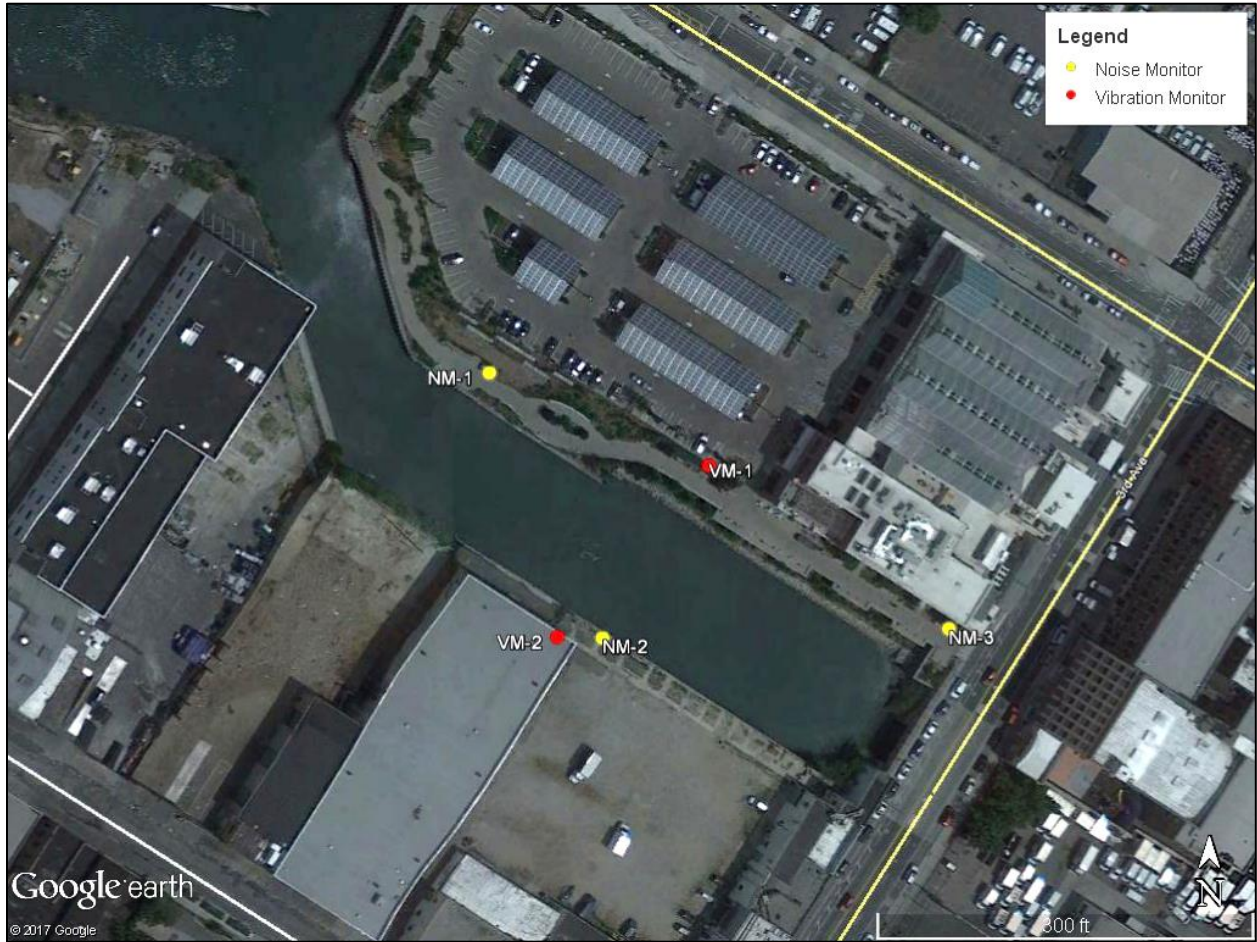
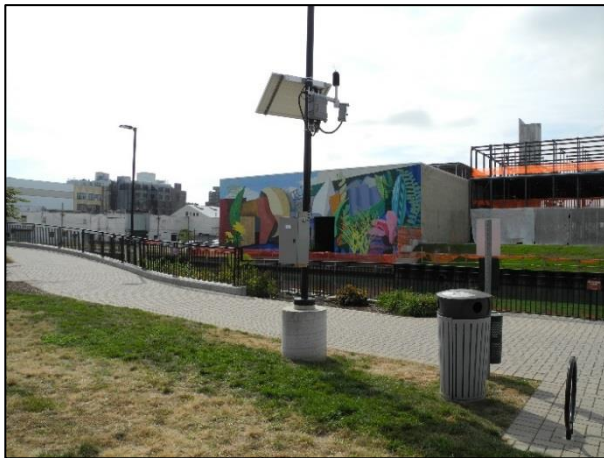


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study



**Photo 1: Noise Monitoring Location NM-1
(26 September 2017)**



**Photo 2: Noise Monitoring Location NM-2
(25 September 2017)**

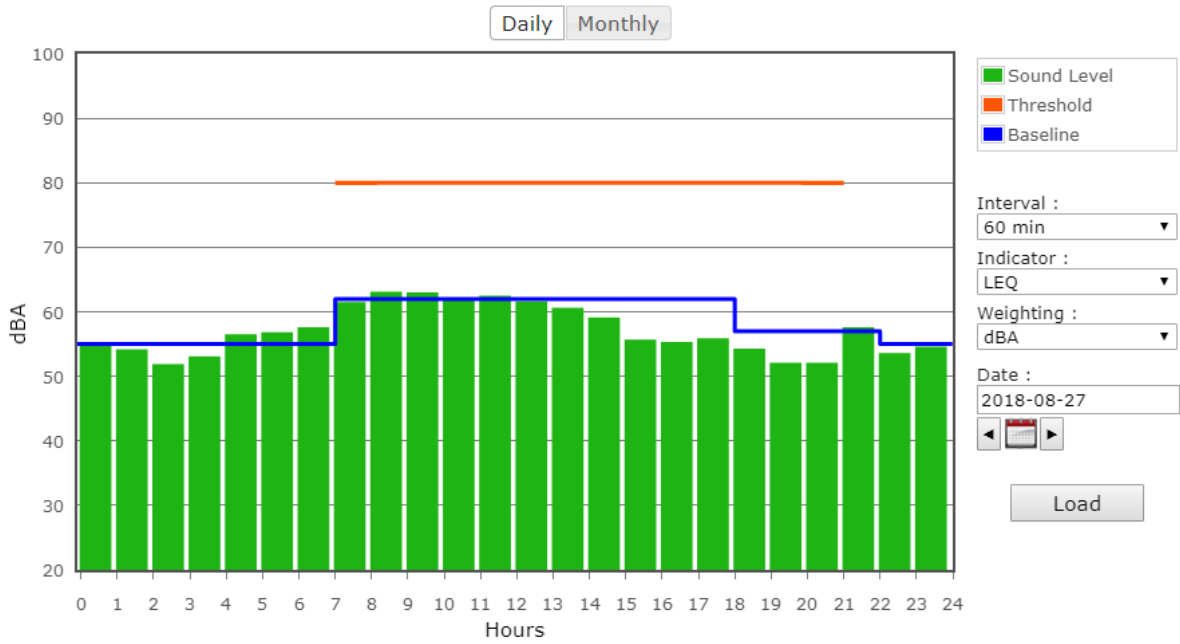


Figure 2: North Monitor NM-1 on Monday

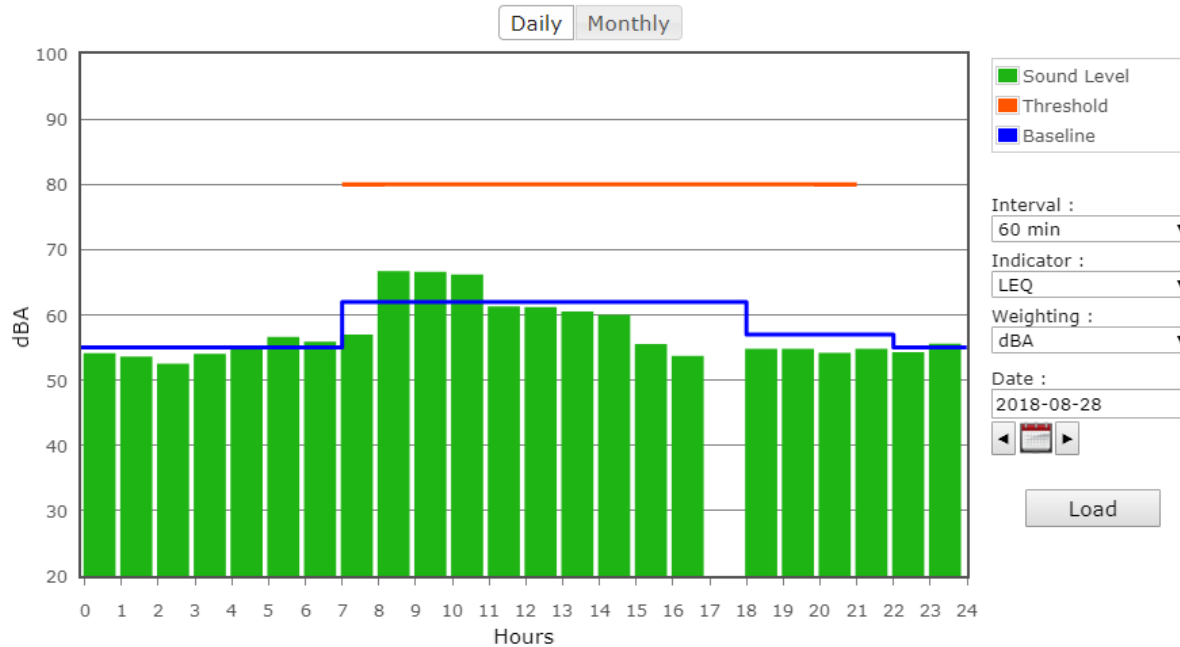


Figure 3: North Monitor NM-1 on Tuesday

**Noise levels for the 17:00-18:00 interval are unavailable due to intermittent equipment issues*

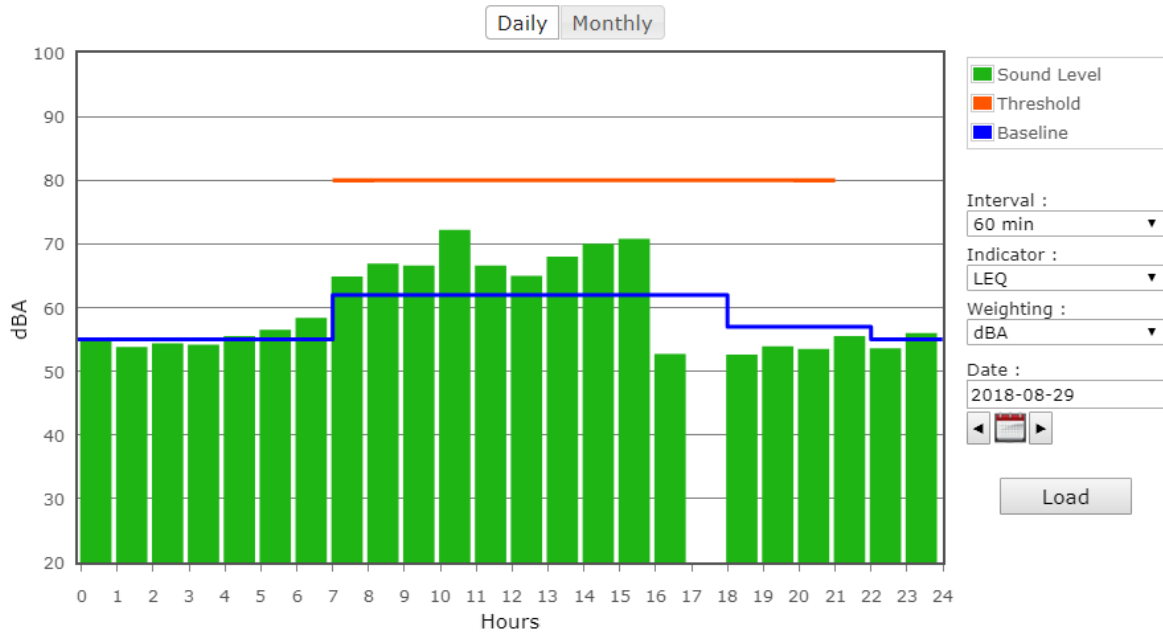


Figure 4: North Monitor NM-1 on Wednesday

**Noise levels for the 17:00-18:00 interval are unavailable due to intermittent equipment issues*

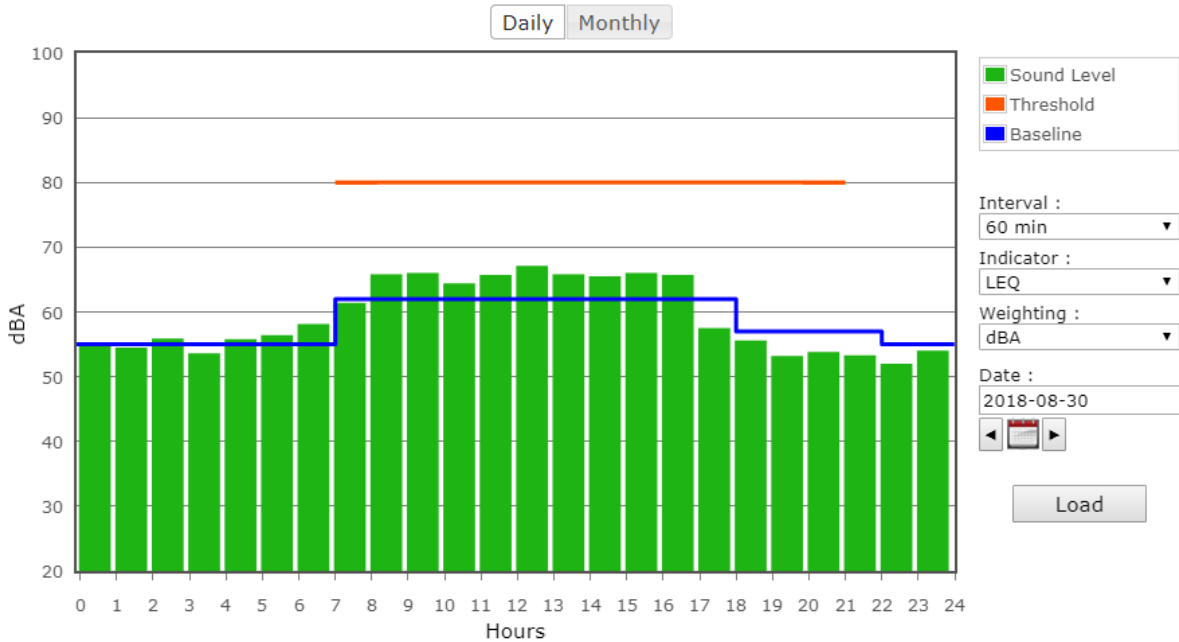


Figure 5: North Monitor NM-1 on Thursday

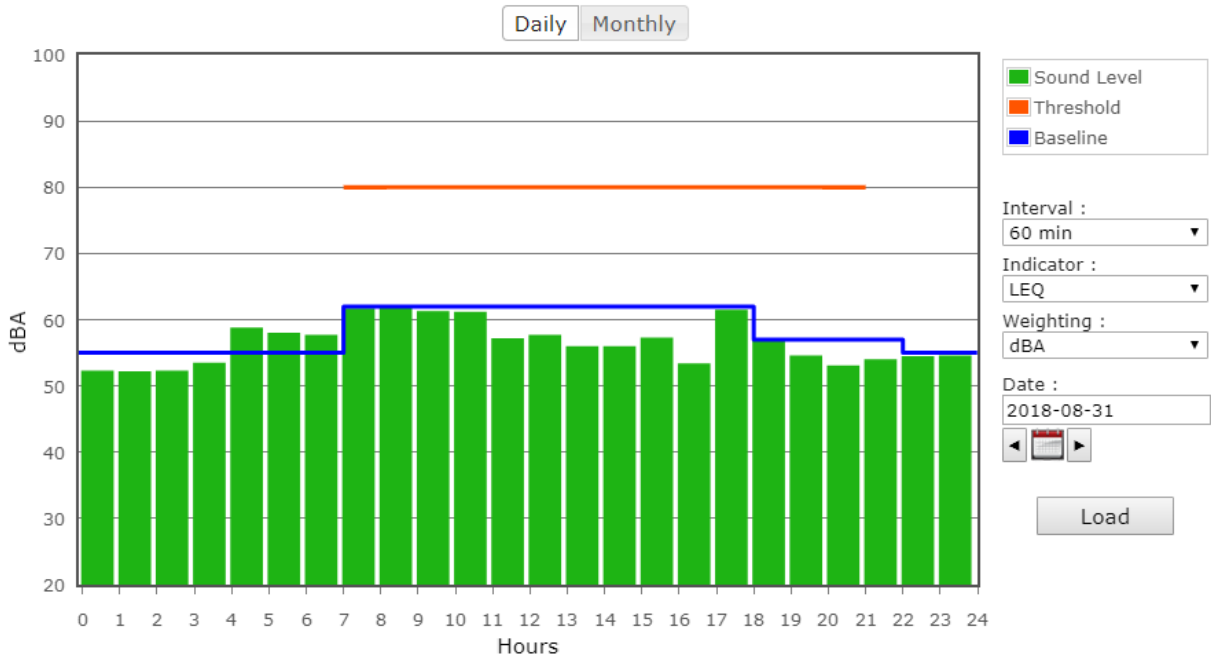


Figure 6: North Monitor NM-1 on Friday

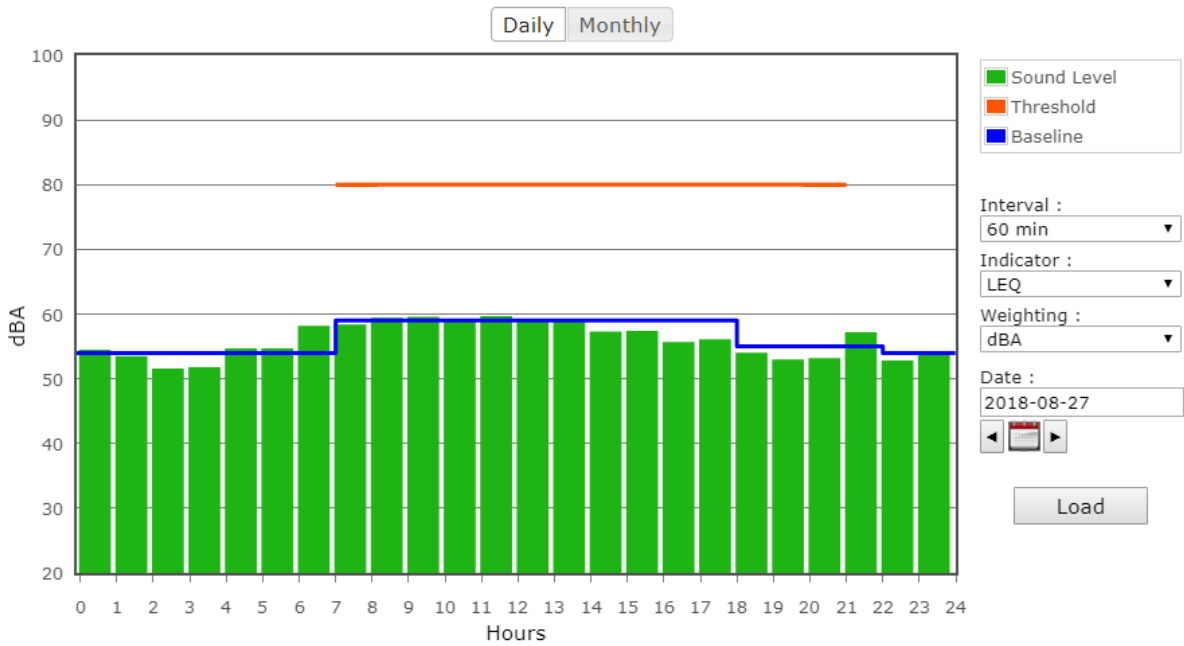


Figure 7: South Monitor NM-2 on Monday

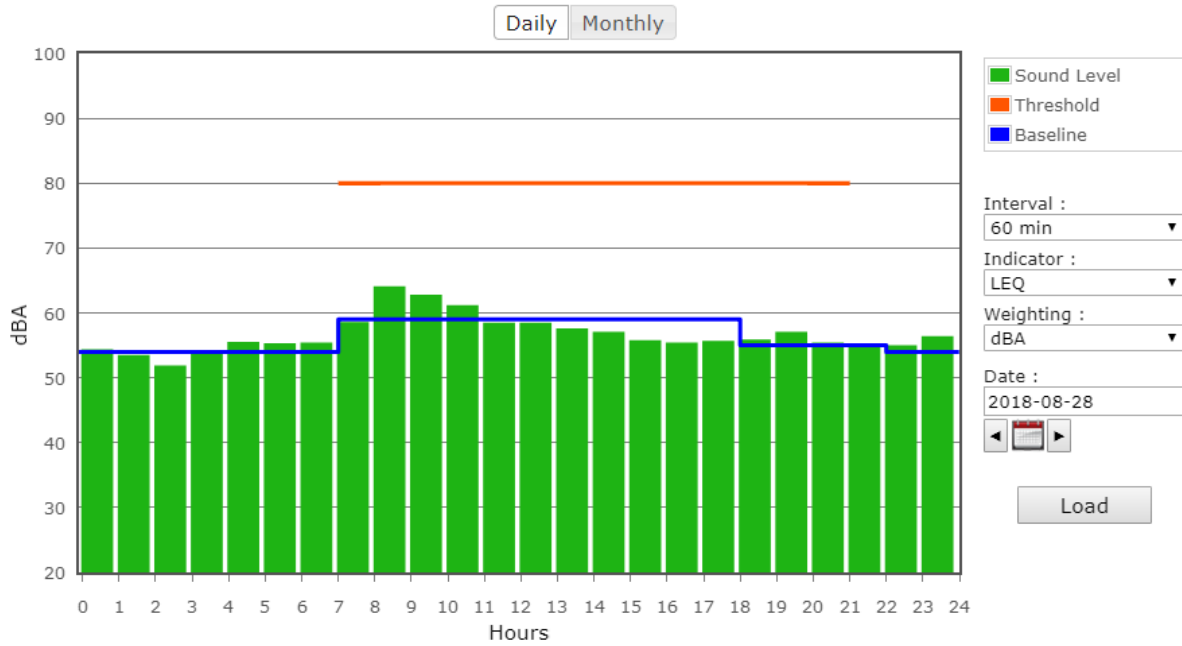


Figure 8: South Monitor NM-2 on Tuesday

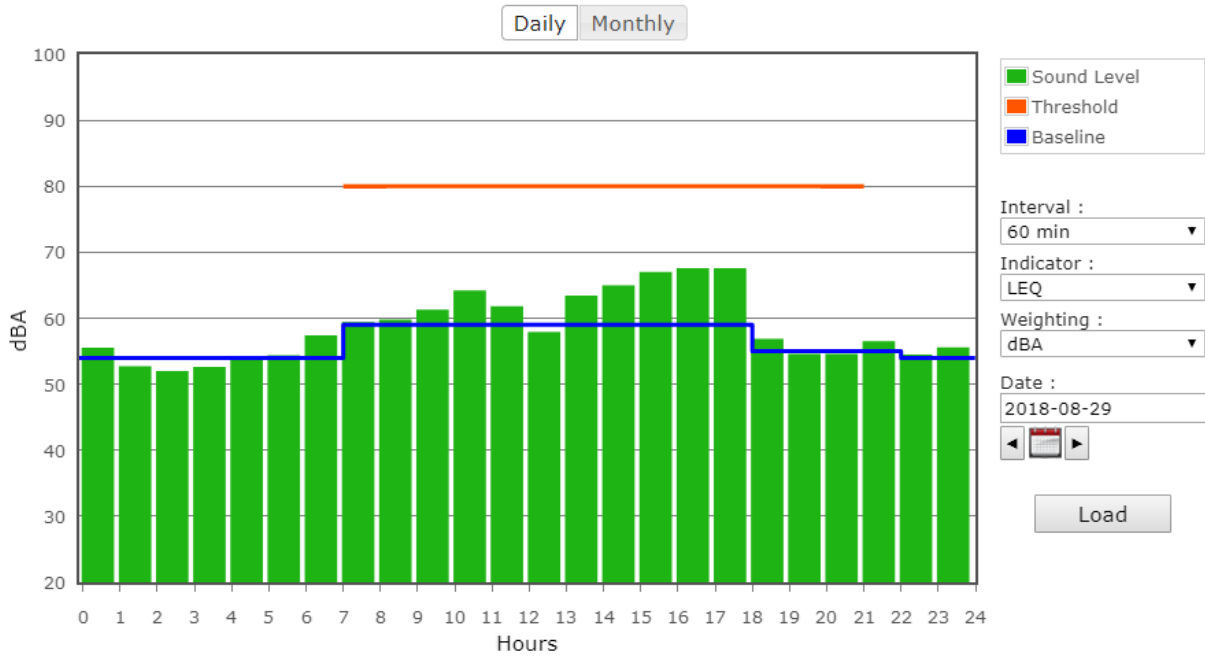


Figure 9: South Monitor NM-2 on Wednesday

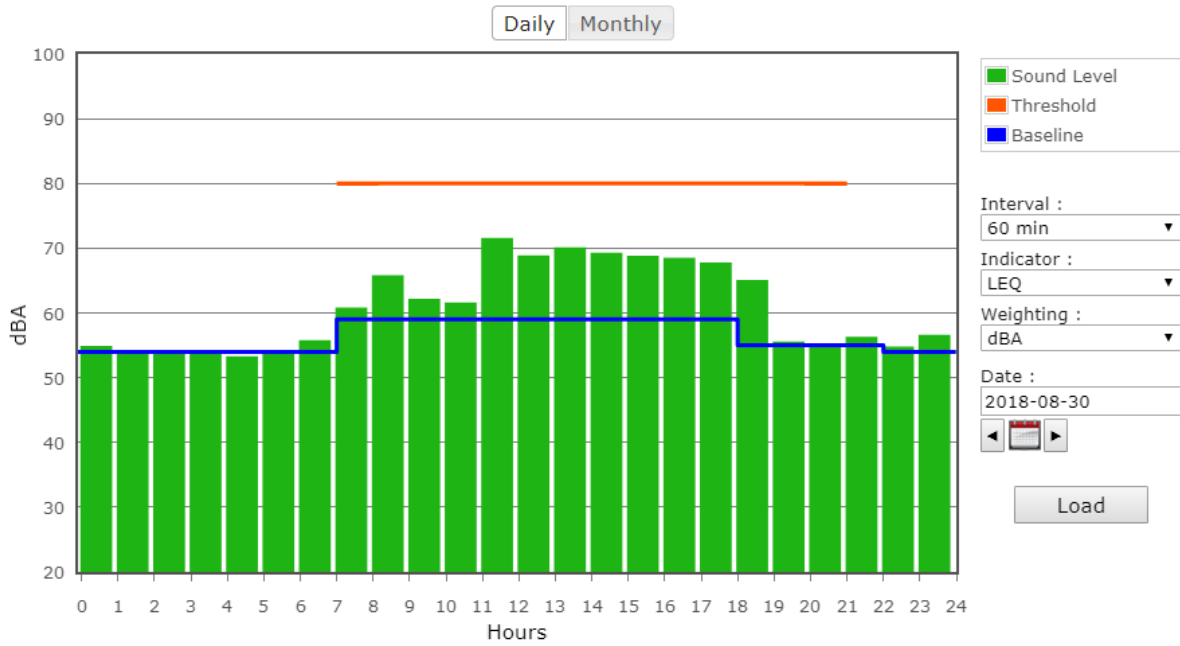


Figure 10: South Monitor NM-2 on Thursday

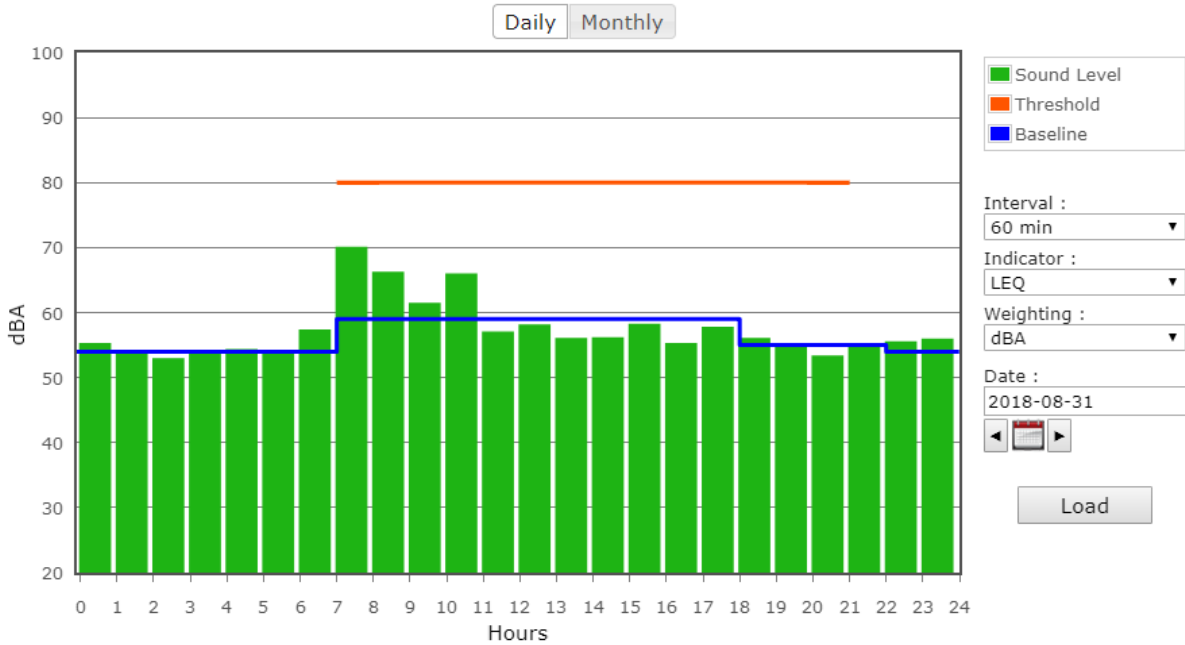


Figure 11: South Monitor NM-2 on Friday

AHRS WEEKLY REPORT
(NO ACTIVITIES DURING WEEK)



**WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA
(NO ACTIVITIES DURING WEEK)**



**CUMULATIVE DREDGED MATERIAL CHART
(NO ACTIVITIES DURING WEEK)**

