WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: July 23 to 27, 2018

Date of Report: August 1, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust

On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Water Treatment and Monitoring

- Discharged 26,296 and 21,932 gallons of treated decant water on 07/23 and 07/26/18, respectively.
- No exceedances of continuous monitoring.

Turbidity Monitoring

- Turbid water not observed migrating from the 4th Street Turning Basin.

Sediment Stabilization Activities

- Approximately 1,967 tons of stabilized material were disposed off-site as daily cover. An approximate total of 19,126 tons of stabilized material has been shipped to Waste Management Fairless Hills.

Capping Activities

- Mobilize equipment and materials for hydraulic capping.
- Complete placement and surveying of sand leveling layer.
- Produce and place oleophilic clay/sand treatment layer and six (6) catch pans in mechanical demonstration area.

Quality Assurance and Control – Geosyntec

- DWTS discharge sampling conducted on 7/26/18.
- No exceedance of the turbidity trigger or action criteria
- Measurements for 7/23/18:
  - Daily average for ambient buoy – 4.2 NTU
  - Daily average for sentinel buoy – 4.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 7.9 NTU at 1145.
- Measurements for 7/24/18:
  - Daily average for ambient buoy – 4.4 NTU
  - Daily average for sentinel buoy –7.3 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 34.3 NTU at 1315.
- Measurements for 7/25/18:
  - Daily average for ambient buoy – 5.6 NTU
  - Daily average for sentinel buoy – 6.4 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 16.5 NTU at 1315.
- Measurements for 7/26/18:
  - Daily average for ambient buoy – 4.4 NTU
  - Daily average for sentinel buoy – 1.8 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 5.2 NTU at 1700.

- Measurements for 7/27/18:
    - Daily average for ambient buoy – 4.7 NTU
    - Daily average for sentinel buoy – 2.9 NTU
    - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 2.2 NTU at 1200.

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 (PM_{10}) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM_{10} in $\mu g/m^3$
    - Station 1 – 29 $\mu g/m^3$ recorded on 07/26/18
    - Station 2 – 52 $\mu g/m^3$ recorded on 07/26/18
    - Station 3 – <1 $\mu g/m^3$ recorded throughout the week
    - Station 4 – <1 $\mu g/m^3$ recorded throughout the week
    - Station 5 – 19 $\mu g/m^3$ recorded on 07/23/18
    - Station 6 – 20 $\mu g/m^3$ recorded on 07/23/18
    - Station 7 – <1 $\mu g/m^3$ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
    - Station 1 – 32 ppb recorded throughout the week
    - Station 2 – 16 ppb recorded on 07/23/18
    - Station 3 – <1 ppb recorded throughout the week
    - Station 4 – <1 ppb recorded throughout the week
    - Station 5 – 148 ppb recorded on 07/24/18
    - Station 6 – 97 ppb recorded on 07/23/18
    - Station 7 – <1 ppb recorded throughout the week
- All real-time readings of formaldehyde, hydrogen sulfide, or ammonia less than instrument reporting limit.
- 23-hour samples collected at ST-4 (collocated) on 07/23 through 07/24 and ST-6 on 07/26 through 07/27. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 23-hour sample collected at ST-4 on 06/25 through 06/26, ST-5 on 06/27 through 06/28, ST-6 on 07/02 through 07/03, and ST-7 on 07/05 through 07/06 presented in weekly CAMP report.

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 1300-1400 on 07/25/18
    - Southern monitor (NM-2) – 74.3 dBA during 1100-1200 on 07/24/18

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 decanted accumulated during decontamination operations.
- Produce treatment layers with mixing plant.
- Perform optical monitoring of bulkheads and surrounding structures with autonomous total survey stations. Along with weekly optical surveys conducted by subcontractor.
- Continue and complete placement of leveling layer.
- Continue and complete installation of mechanical capping demonstration area following acceptance of hydrographic survey of leveling layer.
- Mobilize and assemble equipment and materials in preparation of hydraulic capping activities.

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 – Perform final inspection of screened debris at Clean Earth Claremont and Citizens Site to prepare final report and inventory.

Key Milestones

- Complete mechanical placement of leveling layer on 07/26/18.
- Commence installation of mechanical capping demonstration on 07/26/18.

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:	Site Location:	Project No.:
Gowanus ERT	TB-4 Pilot Study	283126.0000.0001

Photo No.	Date
001	07-23-2018

Description
Placing sand leveling layer into TB-4.

Photo No.	Date
002	07-23-2018

Description
Placing low permeability layer above the TNARA #2 behind Dykes Lumber.

Client Name:	Site Location:	Project No.:
Gowanus ERT	TB-4 Pilot Study	283126.0000.0001

Photo No.	Date
003	07-24-2018

Description
Spray bar up the stacking conveyor to reduce fugitive dust emissions.

Photo No.	Date
004	07-24-2018

Description
Assembling the sand spreader device on the hydraulic placement barge.

Client Name:	Site Location:	Project No.:
Gowanus ERT	TB-4 Pilot Study	283126.0000.0001

Photo No.	Date
005	07-25-2018

Description
Dumping sand onto the sand stockpile.

Photo No.	Date
006	07-25-2018

Description
Sand and GAC exiting the stacking conveyor and dumping into the quad screw mixer.

Client Name:	Site Location:	Project No.:
Gowanus ERT	TB-4 Pilot Study	283126.0000.0001

Photo No.	Date
007	07-26-2018

Description
Hydrographic survey boat operating in TB-4.

Photo No.	Date
008	07-26-2018

Description
Placing levelling layer sand into a low area indicated by hydrographic survey. Working east to west to complete TB-4 levelling layer.

Client Name:	Site Location:	Project No.:
Gowanus ERT	TB-4 Pilot Study	283126.0000.0001

Photo No.	Date
009	07-27-2018

Description
Floating lines attached to test pans on the bottom.

Photo No.	Date
010	07-27-2018

Description
Installing mufflers on 14" centrifugal pump for hydraulic cap placement.

GEOSYNTEC IN-CANAL WATER QUALITY MONITORING WEEKLY DATA SUMMARY

Prepared for

Gowanus Canal Remedial Design Group

GOWANUS CANAL SUPERFUND SITE DREDGING AND CAPPING PILOT STUDY

Water Quality Monitoring Weekly Data Summary

Week of July 23rd, 2018

Report Contents

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

Prepared by

Geosyntec consultants
engineers | scientists | innovators

Beech and Bonaparte engineering p.c.
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Project Number HPH106A (52)

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of July 23rd, 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 July 23rd. Average and maximum turbidity are also presented. No handheld measurements were collected during this reporting period. 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.

Legend

- Ambient Buoy
- Sentinel Buoy
- RTA Boundary

300 150 0 300 Feet

Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group

Geosyntec consultants

Beech and Bourgarie engineering p.c.

Figure 1

Ewing, NJ | October 2017

2. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from July 23rd to July 27th, 2018. Background data prior to the start of dredging is provided in Appendix A. No exceedances to the numerical rolling average threshold criteria were observed during the reporting period. A spike in turbidity of 40.5 NTU at 13:15 on July 24th was observed at the sentinel buoy. Buoys were serviced previously to address to the negative values the buoys recorded, but there continue to be negative values. Since the numerical criteria is based on the difference between the ambient and sentinel turbidity buoy measurements, these negative values do not impact monitoring.

2.1 Monday, July 23rd, 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)
7/23/2018 7:00	3.0	0.7	N	7/23/2018 12:15	4.9	9.4	Y
7/23/2018 7:15	2.6	0.3	N	7/23/2018 12:30	4.8	11.1	Y
7/23/2018 7:30	3.3	1.1	N	7/23/2018 12:45	5.5	8.5	Y
7/23/2018 7:45	2.8	-1.1	N	7/23/2018 13:00	6.0	7.9	Y
7/23/2018 8:00	3.9	1.2	N	7/23/2018 13:15	5.3	5.0	N
7/23/2018 8:15	3.3	2.2	N	7/23/2018 13:30	5.1	6.1	Y
7/23/2018 8:30	3.9	2.2	N	7/23/2018 13:45	5.0	5.4	Y
7/23/2018 8:45	6.2	2.3	N	7/23/2018 14:00	4.1	5.1	Y
7/23/2018 9:00	4.8	5.3	Y	7/23/2018 14:15	4.2	2.8	N
7/23/2018 9:15	4.1	3.7	N	7/23/2018 14:30	4.1	8.1	Y
7/23/2018 9:30	5.4	6.7	Y	7/23/2018 14:45	3.4	2.7	N
7/23/2018 9:45	4.2	2.1	N	7/23/2018 15:00	6.2	1.6	N
7/23/2018 10:00	4.5	3.0	N	7/23/2018 15:15	3.8	1.6	N
7/23/2018 10:15	4.6	2.9	N	7/23/2018 15:30	2.5	0.9	N
7/23/2018 10:30	5.1	3.8	N	7/23/2018 15:45	3.2	0.9	N
7/23/2018 10:45	5.4	10.7	Y	7/23/2018 16:00	2.5	1.3	N
7/23/2018 11:00	5.6	8.1	Y	7/23/2018 16:15	2.8	-0.1	N
7/23/2018 11:15	5.4	6.8	Y	7/23/2018 16:30	2.7	2.0	N
7/23/2018 11:30	5.0	4.3	N	7/23/2018 16:45	2.6	0.0	N
7/23/2018 11:45	5.0	12.9	Y	7/23/2018 17:00	2.3	0.7	N
7/23/2018 12:00	4.5	6.8	Y				

Average	4.2	4.1	N
Maximum	6.2	12.9	Y

Notes:

No exceedances 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

2.2 Tuesday, July 24th, 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)
7/24/2018 7:00	3.5	-0.8	N	7/24/2018 12:15	6.4	6.7	Y
7/24/2018 7:15	1.7	-0.3	N	7/24/2018 12:30	5.9	20.6	Y
7/24/2018 7:30	2.7	1.4	N	7/24/2018 12:45	6.0	22.4	Y
7/24/2018 7:45	3.3	0.9	N	7/24/2018 13:00	6.4	13.6	Y
7/24/2018 8:00	2.9	1.6	N	7/24/2018 13:15	6.2	40.5	Y
7/24/2018 8:15	3.5	3.4	N	7/24/2018 13:30	6.1	13.6	Y
7/24/2018 8:30	4.4	4.3	N	7/24/2018 13:45	6.5	7.6	Y
7/24/2018 8:45	3.9	0.8	N	7/24/2018 14:00	5.3	18.4	Y
7/24/2018 9:00	3.7	2.4	N	7/24/2018 14:15	5.0	8.4	Y
7/24/2018 9:15	4.2	11.5	Y	7/24/2018 14:30	4.9	11.1	Y
7/24/2018 9:30	4.2	5.5	Y	7/24/2018 14:45	4.4	6.1	Y
7/24/2018 9:45	4.5	5.6	Y	7/24/2018 15:00	4.7	4.8	Y
7/24/2018 10:00	4.9	2.3	N	7/24/2018 15:15	3.9	6.3	Y
7/24/2018 10:15	3.7	4.6	Y	7/24/2018 15:30	4.2	1.4	N
7/24/2018 10:30	4.5	7.3	Y	7/24/2018 15:45	3.4	0.4	N
7/24/2018 10:45	3.9	6.9	Y	7/24/2018 16:00	3.7	1.3	N
7/24/2018 11:00	4.4	7.1	Y	7/24/2018 16:15	3.8	1.1	N
7/24/2018 11:15	4.0	10.9	Y	7/24/2018 16:30	3.2	0.7	N
7/24/2018 11:30	5.2	12.6	Y	7/24/2018 16:45	3.3	0.3	N
7/24/2018 11:45	5.8	11.1	Y	7/24/2018 17:00	3.1	0.8	N
7/24/2018 12:00	5.2	12.5	Y				

Average	4.4	7.3	Y
Maximum	6.5	40.5	Y

Notes:

No exceedances 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

2.3 Wednesday, July 25th, 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)
7/25/2018 7:00	4.8	13.8	Y	7/25/2018 12:15	5.9	11.6	Y
7/25/2018 7:15	8.9	9.7	Y	7/25/2018 12:30	5.0	18.3	Y
7/25/2018 7:30	10.3	9.9	N	7/25/2018 12:45	5.1	9.1	Y
7/25/2018 7:45	9.5	8.8	N	7/25/2018 13:00	4.6	6.9	Y
7/25/2018 8:00	11.4	6.9	N	7/25/2018 13:15	4.0	20.5	Y
7/25/2018 8:15	9.0	7.0	N	7/25/2018 13:30	5.2	2.9	N
7/25/2018 8:30	7.4	4.7	N	7/25/2018 13:45	6.1	3.8	N
7/25/2018 8:45	6.2	5.6	N	7/25/2018 14:00	6.8	4.4	N
7/25/2018 9:00	5.8	4.9	N	7/25/2018 14:15	7.0	2.9	N
7/25/2018 9:15	5.3	6.9	Y	7/25/2018 14:30	4.6	5.5	Y
7/25/2018 9:30	7.5	5.9	N	7/25/2018 14:45	4.0	7.1	Y
7/25/2018 9:45	6.3	5.8	N	7/25/2018 15:00	4.5	5.6	Y
7/25/2018 10:00	4.9	5.2	Y	7/25/2018 15:15	4.6	2.7	N
7/25/2018 10:15	5.0	4.1	N	7/25/2018 15:30	4.2	2.3	N
7/25/2018 10:30	4.9	5.4	Y	7/25/2018 15:45	3.3	14.0	Y
7/25/2018 10:45	5.2	3.2	N	7/25/2018 16:00	3.7	1.3	N
7/25/2018 11:00	5.3	3.3	N	7/25/2018 16:15	3.5	3.6	Y
7/25/2018 11:15	4.4	3.5	N	7/25/2018 16:30	3.3	2.6	N
7/25/2018 11:30	4.3	3.3	N	7/25/2018 16:45	3.0	2.3	N
7/25/2018 11:45	5.6	4.6	N	7/25/2018 17:00	3.5	4.8	Y
7/25/2018 12:00	5.0	6.8	Y				

Average	5.6	6.4	Y
Maximum	11.4	20.5	Y

Notes:

No exceedances 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, July 26th, 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)
7/26/2018 7:00	2.6	-0.5	N	7/26/2018 12:15	3.8	2.7	N
7/26/2018 7:15	2.9	-0.5	N	7/26/2018 12:30	3.3	1.8	N
7/26/2018 7:30	2.4	-1.0	N	7/26/2018 12:45	3.8	2.2	N
7/26/2018 7:45	3.9	-1.8	N	7/26/2018 13:00	3.5	1.3	N
7/26/2018 8:00	3.6	-0.1	N	7/26/2018 13:15	4.5	3.4	N
7/26/2018 8:15	3.7	-0.7	N	7/26/2018 13:30	5.3	1.5	N
7/26/2018 8:30	3.0	-0.4	N	7/26/2018 13:45	5.7	2.6	N
7/26/2018 8:45	2.9	-0.6	N	7/26/2018 14:00	5.0	3.2	N
7/26/2018 9:00	2.8	0.0	N	7/26/2018 14:15	5.5	3.3	N
7/26/2018 9:15	3.5	0.3	N	7/26/2018 14:30	6.7	2.3	N
7/26/2018 9:30	4.1	0.2	N	7/26/2018 14:45	6.8	4.5	N
7/26/2018 9:45	4.4	2.6	N	7/26/2018 15:00	6.7	8.2	Y
7/26/2018 10:00	4.0	0.2	N	7/26/2018 15:15	5.0	6.4	Y
7/26/2018 10:15	5.5	0.0	N	7/26/2018 15:30	4.4	2.7	N
7/26/2018 10:30	5.8	0.2	N	7/26/2018 15:45	4.7	3.2	N
7/26/2018 10:45	5.5	0.1	N	7/26/2018 16:00	4.4	1.7	N
7/26/2018 11:00	6.2	3.5	N	7/26/2018 16:15	3.7	0.4	N
7/26/2018 11:15	5.2	2.8	N	7/26/2018 16:30	3.7	1.3	N
7/26/2018 11:30	5.3	2.1	N	7/26/2018 16:45	4.0	0.5	N
7/26/2018 11:45	4.7	4.0	N	7/26/2018 17:00	4.8	10.0	Y
7/26/2018 12:00	3.5	2.2	N				

Average	4.4	1.8	N
Maximum	6.8	10.0	Y

Notes:

No exceedances 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

2.5 Friday, July 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)
7/27/2018 7:00	2.9	0.0	N	7/27/2018 12:15	4.0	5.3	Y
7/27/2018 7:15	3.0	1.0	N	7/27/2018 12:30	4.1	5.1	Y
7/27/2018 7:30	3.1	-0.3	N	7/27/2018 12:45	4.9	5.2	Y
7/27/2018 7:45	2.9	-1.0	N	7/27/2018 13:00	3.4	4.5	Y
7/27/2018 8:00	7.3	-0.9	N	7/27/2018 13:15	3.7	3.9	Y
7/27/2018 8:15	3.1	-0.6	N	7/27/2018 13:30	3.9	2.9	N
7/27/2018 8:30	3.4	-0.7	N	7/27/2018 13:45	4.6	4.3	N
7/27/2018 8:45	3.8	-0.9	N	7/27/2018 14:00	4.8	3.8	N
7/27/2018 9:00	4.1	2.1	N	7/27/2018 14:15	4.6	3.2	N
7/27/2018 9:15	4.5	1.5	N	7/27/2018 14:30	4.8	3.8	N
7/27/2018 9:30	5.2	2.3	N	7/27/2018 14:45	5.8	3.3	N
7/27/2018 9:45	6.4	1.8	N	7/27/2018 15:00	5.7	5.6	N
7/27/2018 10:00	5.7	2.6	N	7/27/2018 15:15	4.7	3.9	N
7/27/2018 10:15	6.4	1.4	N	7/27/2018 15:30	5.9	3.9	N
7/27/2018 10:30	7.2	1.0	N	7/27/2018 15:45	3.2	4.5	Y
7/27/2018 10:45	7.2	4.0	N	7/27/2018 16:00	4.5	5.1	Y
7/27/2018 11:00	7.4	2.4	N	7/27/2018 16:15	4.2	3.2	N
7/27/2018 11:15	6.1	3.8	N	7/27/2018 16:30	4.6	4.4	N
7/27/2018 11:30	5.1	3.4	N	7/27/2018 16:45	3.9	3.0	N
7/27/2018 11:45	4.1	6.1	Y	7/27/2018 17:00	5.5	4.9	N
7/27/2018 12:00	4.1	6.3	Y				

Average	4.7	2.9	N
Maximum	7.4	6.3	N

Notes:

No exceedances 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 MEASURMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

During the start of Phase II dredging with the excavator bucket an increased occurrence of sheen was observed. This sheen was localized in the area of dredging and did not migrate outside of the turning basin.

5. REPORT OF EXCEEDANCES

No exceedances of the water quality monitoring threshold criteria were met during the reporting period. 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

Legend

- Ambient Buoy
- Sentinel Buoy
- RTA Boundary

300 150 0 300 Feet

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

X:\03_GIS\mxd\Canal_Wide\Turbidity Buoy Locations.mxd; acarnes; 10/19/2017

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

PRELIMINARY DATA
NOT YET SUBJECT TO QC REVIEW

Geosyntec consultants

Beech and Bonaparte engineering p.c.
an affiliate of Geosyntec Consultants

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
42nd Weekly Monitoring Period
Summary Report:

July 23rd, through July 27th, 2018

Report Contents

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

Executive Summary – Week 42 Monitoring Period
July 23rd through July 27th, 2018

The following report summarizes site air monitoring activities for the Week 42 monitoring period from July 23rd through July 27th, 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 42 monitoring period there were no PM_{10} or TVOC exceedances of the action level of 150 ug/m^3 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 (PM_{10}) 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 42 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 42 monitoring period of July 23rd through July 27th, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 4 and 6. Co-located samples (ST-4A and ST-4B) were collected at Station 4 on July 23rd, through July 24th, 2018 and the ST-6 sample was collected on July 26th, through July 27th, 2018. 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.

Table 2 presents the analytical results for 23-hour sample collected at Stations 4 and 5 during Week 38. The ST-4 sample was collected on June 25th through 26th, 2018 and ST-5 was collected on June 27th through 28th, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Table 3 presents the analytical results for 23-hour sample collected at Stations 6 and 7 during Week 39. The ST-6 sample was collected on July 2nd through 3rd, 2018 and ST-7 was collected on July 5th through 6th, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Site activities which were conducted at the Citizen Property during July 23th through July 27th, 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
- Discharge of decant water
- Produce Oleophilic clay/sand and granular activated carbon/sand with mixing plant

Site activities which were conducted at the 4th St Turning Basin Area of the Canal during July 23th through July 27th, 2018 included the following:

- Place sand, survey, and complete installation of cap leveling layer
- Commence placement of Oleophilic clay/sand mixture in mechanical capping demonstration area
- Survey Oleophilic clay/sand layer to determine areas requiring additional material
- Install catch pans in six (6) locations within mechanical capping demonstration area

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
07/23/2018 06:30 AM - 07/23/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	17	ug/m^3
Avg.	17	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	16	ppb	Max.	18	ug/m^3
Avg.	1	ppb	Avg.	14	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW 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 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.	105	ppb	Max.	19	ug/m^3
Avg.	25	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	97	ppb	Max.	20	ug/m^3
Avg.	11	ppb	Avg.	10	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 PM_{10} – Particulates as PM_{10}

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m3 - PM_{10})

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
07/24/2018 00:00 AM - 07/24/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	15	ug/m^3
Avg.	15	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	1	ppb	Max.	16	ug/m^3
Avg.	<1	ppb	Avg.	13	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW 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 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.	148	ppb	Max.	14	ug/m^3
Avg.	47	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	24	ppb	Max.	15	ug/m^3
Avg.	11	ppb	Avg.	13	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 PM_{10} – Particulates as PM_{10}

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m3 - PM_{10})

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
07/25/2018 00:00 AM - 07/25/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	11	ug/m^3
Avg.	20	ppb	Avg.	8	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	15	ug/m^3
Avg.	<1	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW 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 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.	<1	ppb	Max.	5	ug/m^3
Avg.	<1	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	23	ppb	Max.	15	ug/m^3
Avg.	9	ppb	Avg.	9	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 PM_{10} – Particulates as PM_{10}

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m3 - PM_{10})

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
07/26/2018 00:00 AM - 07/26/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	29	ug/m^3
Avg.	19	ppb	Avg.	8	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	52	ug/m^3
Avg.	<1	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW 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 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.	114	ppb	Max.	10	ug/m^3
Avg.	20	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	22	ppb	Max.	<1	ug/m^3
Avg.	3	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 PM_{10} – Particulates as PM_{10}

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m3 - PM_{10})

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
07/27/2018 00:00 AM - 07/27/2018 19:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	22	ug/m^3
Avg.	19	ppb	Avg.	14	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	2	ppb	Max.	23	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.	<1	ppb	Max.	<1	ug/m^3
Avg.	<1	ppb	Avg.	<1	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.	127	ppb	Max.	<1	ug/m^3
Avg.	42	ppb	Avg.	<1	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

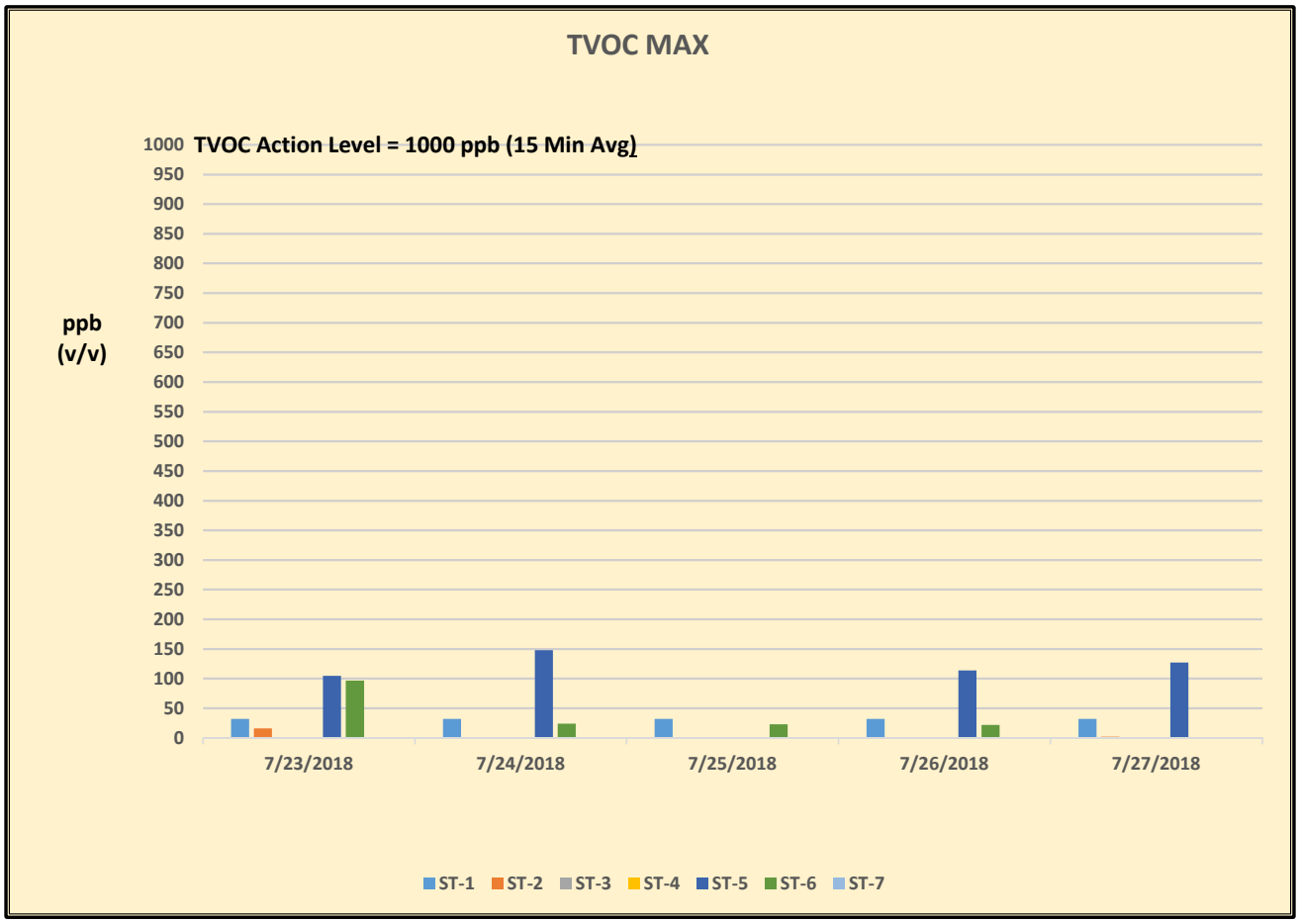
TVOC – Total Volatile Organic Compounds PM_{10} – Particulates as PM_{10}

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM_{10})

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m3 - PM_{10})

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 42



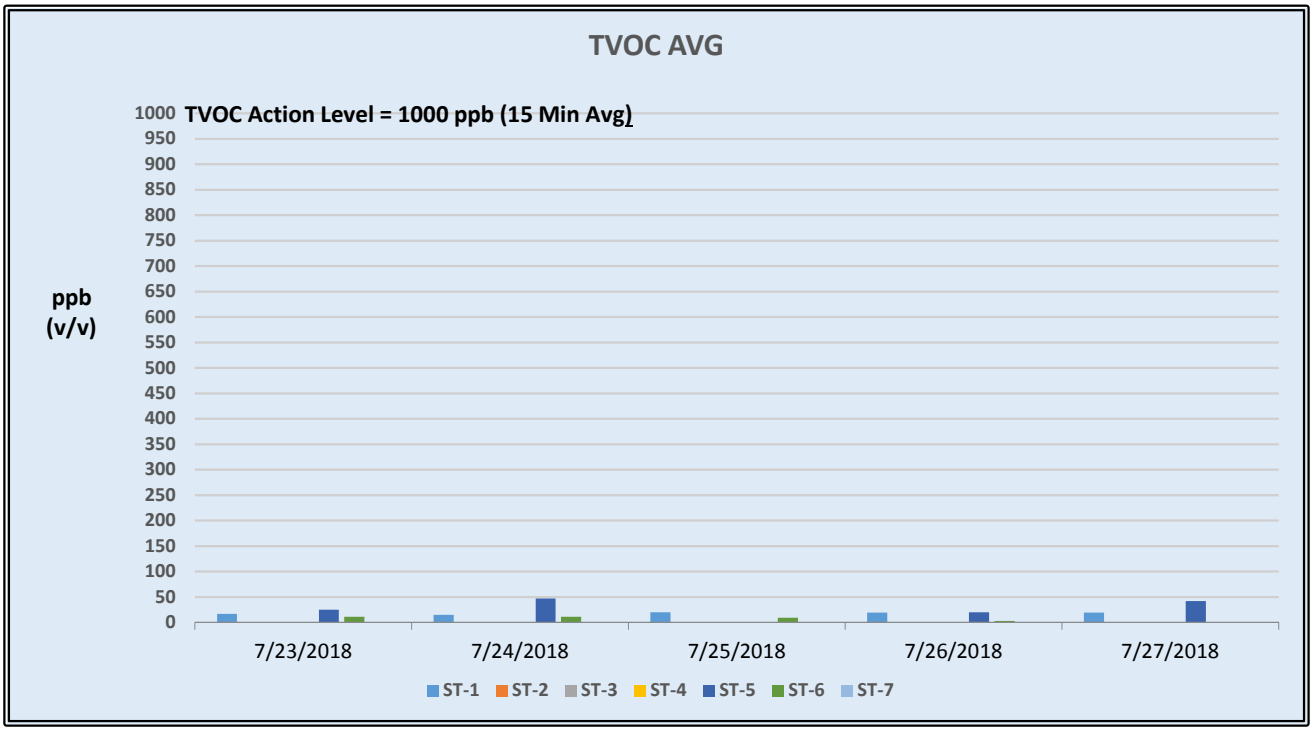
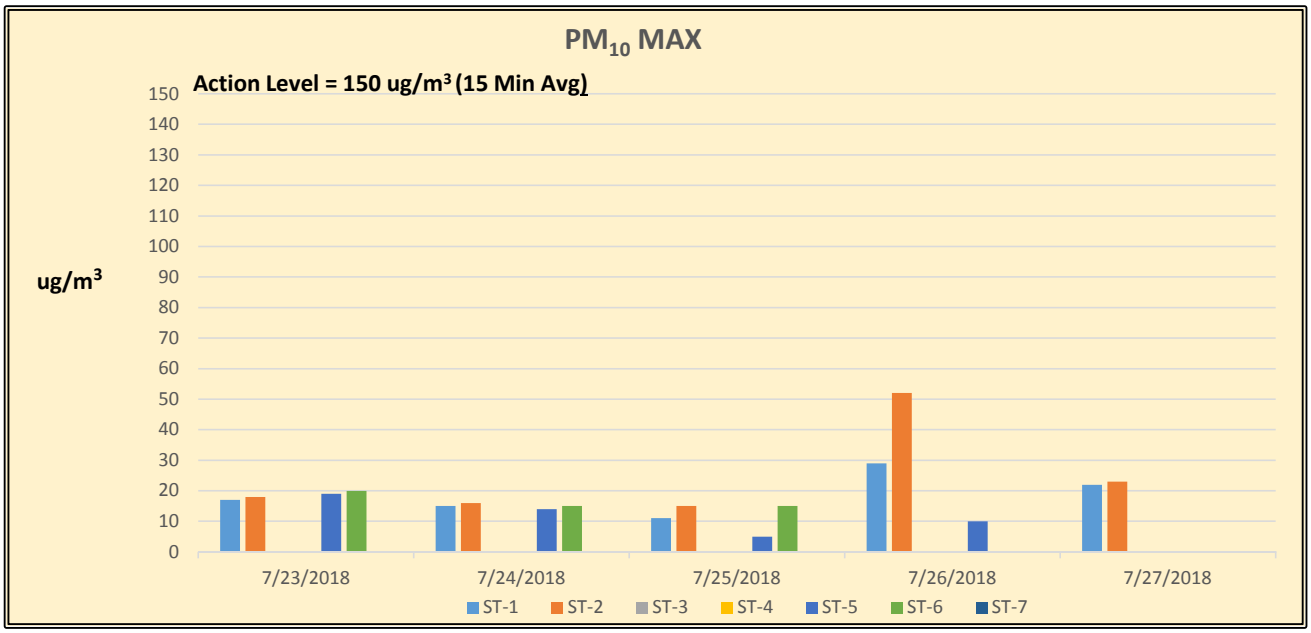
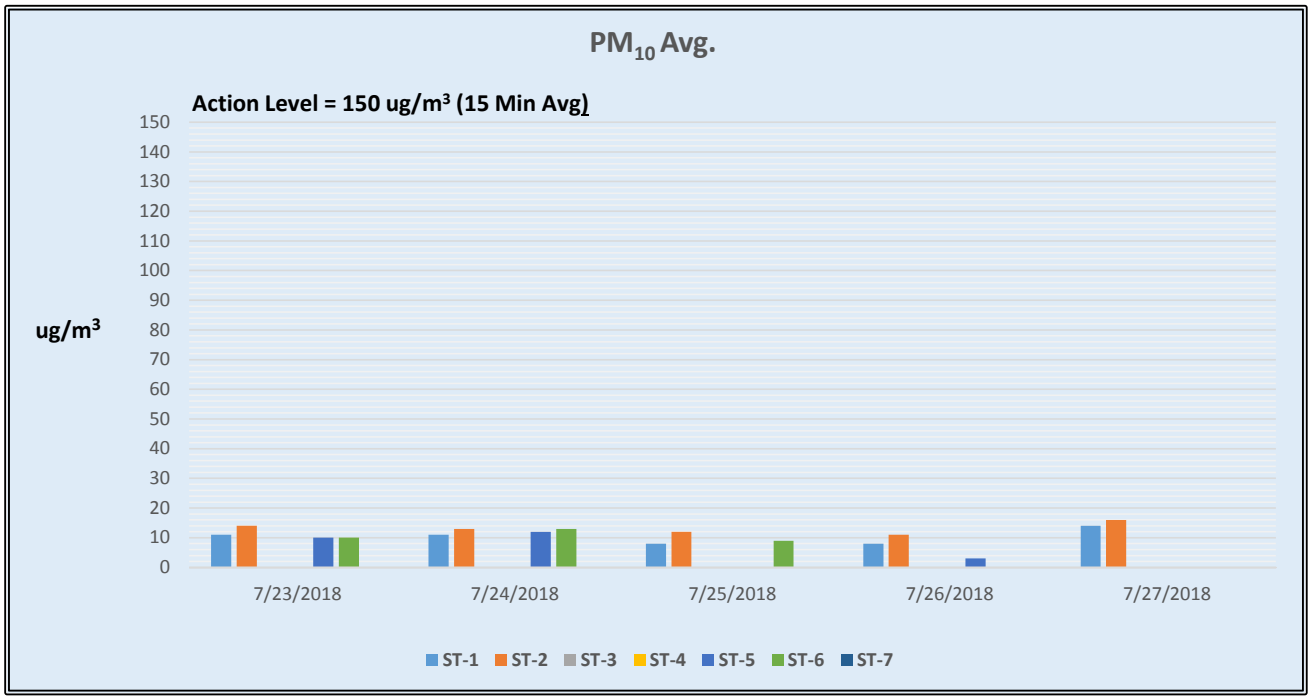
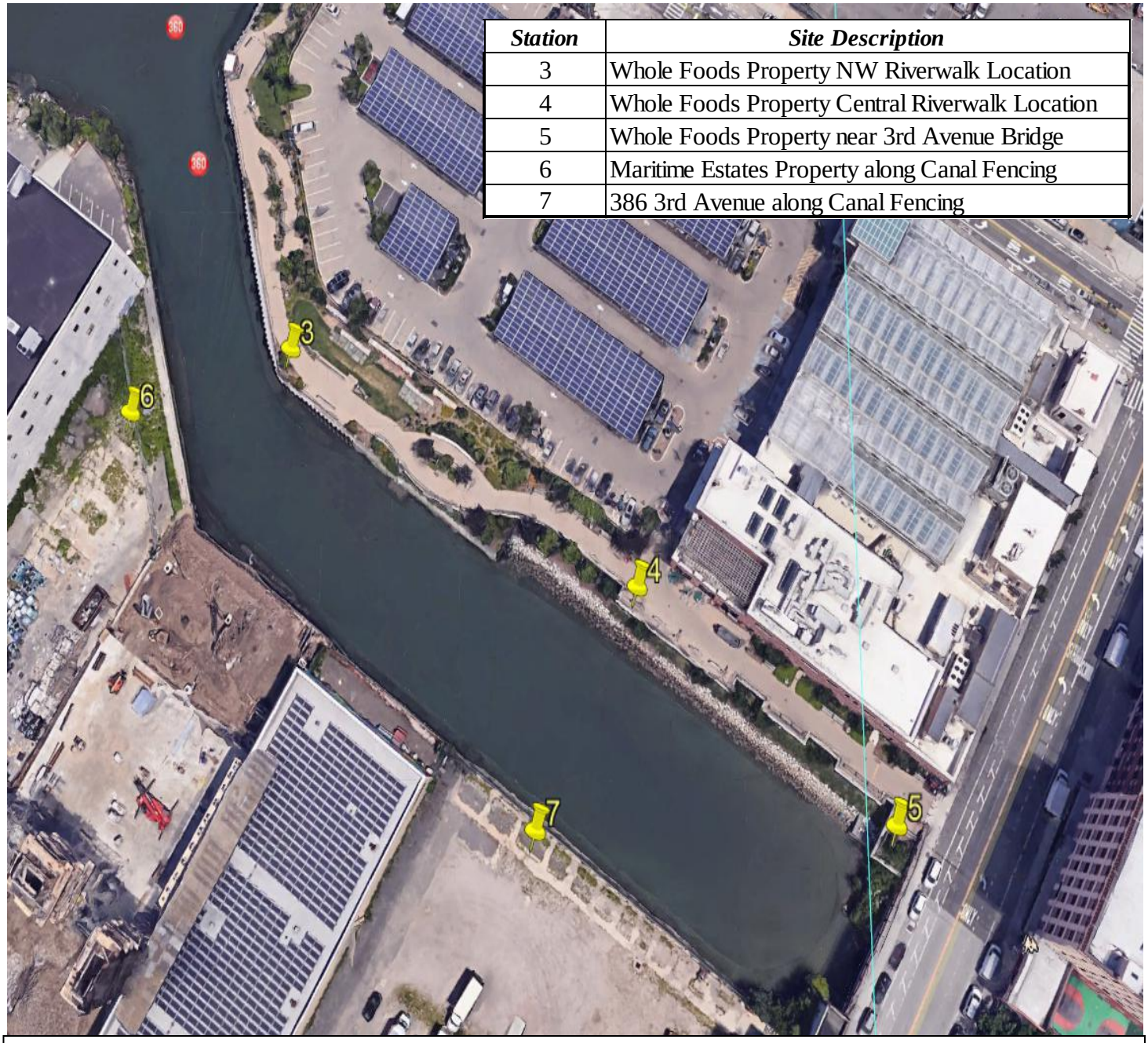


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM_{10} Monitoring Data - Week 42







Station	*Site Description*
3	Whole Foods Property NW Riverwalk Location
4	Whole Foods Property Central Riverwalk Location
5	Whole Foods Property near 3rd Avenue Bridge
6	Maritime Estates Property along Canal Fencing
7	386 3rd Avenue along Canal Fencing

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

Table 2:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 38 VOCs Results: June 25th through 26th and June 27th through 28th

Sample ID	ST-4-VOC-062518			ST-5-VOC-062718		
Laboratory ID	18G0278-01			18G0262-01		
Date Sampled	6/25/18 09:30 - 6/26/18 08:30			6/27/18 11:00 - 6/28/18 10:00		
Location	Station 4			Station 5		
VOCs - TO-15	ppbV	ug/m3		ppbV	ug/m3	
Acetone	**4**	**9.6**		**7.7**	**18**	
Benzene	**0.1**	**0.32**		**0.12**	**0.39**	
Benzyl chloride	<0.035	<0.18		<0.035	<0.18	
Bromodichloromethane	<0.035	<0.24		<0.035	<0.24	
Bromoform	<0.035	<0.36		<0.035	<0.36	
Bromomethane	<0.070	<0.14		<0.070	<0.14	
1,3-Butadiene	<0.035	<0.078		<0.035	<0.078	
2-Butanone (MEK)	<1.4	<4.1		<1.4	<4.1	
Carbon Disulfide	<0.35	<1.1		<0.35	<1.1	
Carbon Tetrachloride	**0.055**	**0.35**		**0.053**	**0.33**	
Chlorobenzene	<0.035	<0.16		<0.035	<0.16	
Chloroethane	<0.035	<0.093		<0.035	<0.093	
Chloroform	<0.035	<0.17		<0.035	<0.17	
Chloromethane	**0.42**	**0.87**		**0.52**	**1.1**	
Cyclohexane	<0.070	<0.12		<0.070	<0.12	
Dibromochloromethane	<0.035	<0.30		<0.035	<0.30	
1,2-Dibromoethane (EDB)	<0.035	<0.27		<0.035	<0.27	
1,2-Dichlorobenzene	<0.035	<0.21		<0.035	<0.21	
1,3-Dichlorobenzene	<0.035	<0.21		<0.035	<0.21	
1,4-Dichlorobenzene	<0.035	<0.21		**0.042**	**0.25**	
Dichlorodifluoromethane (Freon 12)	**0.34**	**1.7**	**J-**	**0.34**	**1.7**	**J-**
1,1-Dichloroethane	<0.035	<0.14		<0.035	<0.14	
1,2-Dichloroethane	<0.035	<0.14		<0.035	<0.14	
1,1-Dichloroethylene	<0.035	<0.14		<0.035	<0.14	
cis-1,2-Dichloroethylene	<0.035	<0.14		<0.035	<0.14	
trans-1,2-Dichloroethylene	<0.035	<0.14		<0.035	<0.14	
1,2-Dichloropropane	<0.035	<0.16		<0.035	<0.16	
cis-1,3-Dichloropropene	<0.035	<0.16		<0.035	<0.16	
trans-1,3-Dichloropropene	<0.035	<0.16		<0.035	<0.16	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.035	<0.25		<0.035	<0.25	
1,4-Dioxane	<0.35	<1.3		<0.35	<1.3	
Ethanol	**7.8**	**15**		**6.5**	**12**	
Ethyl Acetate	**0.29**	**1**		**0.18**	**0.65**	
Ethylbenzene	<0.035	<0.15		**0.048**	**0.21**	
4-Ethyltoluene	<0.035	<0.17		<0.035	<0.17	
Heptane	<0.035	<0.14		**0.074**	**0.3**	
Hexachlorobutadiene	<0.035	<0.37	J-	<0.035	<0.37	J-
Hexane	<1.4	<4.9		<1.4	<4.9	
2-Hexanone (MBK)	<0.035	<0.14		<0.035	<0.14	
Isopropanol	<1.4	<3.4	J-	<1.4	<3.4	J-
Methyl tert-Butyl Ether (MTBE)	<0.035	<0.13		<0.035	<0.13	
Methylene Chloride	<0.35	<1.2		0.68	<1.2	
4-Methyl-2-pentanone (MIBK)	<0.035	<0.14		<0.035	<0.14	
Naphthalene	**0.065**	**0.34**	**J-**	<0.035	<0.18	J-
Propene	<1.4	<2.4		<1.4	<2.4	
Styrene	<0.035	<0.15		<0.035	<0.15	
1,1,2,2-Tetrachloroethane	<0.035	<0.24		<0.035	<0.24	
Tetrachloroethylene	**0.042**	**0.29**		**0.15**	**1**	
Tetrahydrofuran	<0.070	<0.21		<0.070	<0.21	
Toluene	**0.2**	**0.74**		**0.37**	**1.4**	
1,2,4-Trichlorobenzene	<0.035	<0.26	J-	<0.035	<0.26	J-
1,1,1-Trichloroethane	<0.035	<0.19		<0.035	<0.19	
1,1,2-Trichloroethane	<0.035	<0.19		<0.035	<0.19	
Trichloroethylene	<0.035	<0.19		<0.035	<0.19	
Trichlorofluoromethane (Freon 11)	<0.14	<0.79	J-	**0.15**	**0.82**	**J-**
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.14	<1.1		<0.14	<1.1	
1,2,4-Trimethylbenzene	**0.043**	**0.21**		**0.087**	**0.43**	
1,3,5-Trimethylbenzene	<0.035	<0.17		<0.035	<0.17	
Vinyl Acetate	<0.70	<2.5		<0.70	<2.5	
Vinyl Chloride	<0.035	<0.090		<0.035	<0.090	
m&p-Xylene	<0.070	<0.30		**0.15**	**0.67**	
o-Xylene	<0.035	<0.15		**0.069**	**0.3**	

Notes:

Values in **bold** indicate detected concentrations

J-: The results for these compounds are estimated and may be biased low.

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol

Table 3:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 39 VOCs Results: July 2nd through 3rd and July 5th through 6th

Sample ID	ST-6-VOC-070218			ST-7-VOC-070518	
Laboratory ID	18G0261-01			18G0356-01	
Date Sampled	7/2/18 13:00 - 7/3/18 12:00			7/5/18 13:00 - 7/6/18 12:00	
Location	Station 6			Station 7	
VOCs - TO-15	ppbV	ug/m3		ppbV	ug/m3
Acetone	**7.6**	**18**		**7.4**	**18**
Benzene	**0.11**	**0.35**		<0.035	<0.11
Benzyl chloride	<0.040	<0.21		<0.035	<0.18
Bromodichloromethane	<0.040	<0.27		<0.035	<0.24
Bromoform	<0.040	<0.41		<0.035	<0.36
Bromomethane	<0.080	<0.31		<0.035	<0.14
1,3-Butadiene	<0.040	<0.088		<0.070	<0.078
2-Butanone (MEK)	<1.6	<4.7		<1.4	<4.1
Carbon Disulfide	<0.40	<1.2		<0.35	<1.1
Carbon Tetrachloride	**0.055**	**0.35**		**0.073**	**0.46**
Chlorobenzene	<0.040	<0.18		<0.035	<0.16
Chloroethane	<0.040	<0.11		<0.070	<0.19
Chloroform	<0.040	<0.20		<0.035	<0.17
Chloromethane	**0.53**	**1.1**		**0.78**	**1.6**
Cyclohexane	<0.080	<0.28		<0.035	<0.12
Dibromochloromethane	<0.040	<0.34		<0.035	<0.30
1,2-Dibromoethane (EDB)	<0.040	<0.31		<0.035	<0.27
1,2-Dichlorobenzene	<0.040	<0.24		<0.035	<0.21
1,3-Dichlorobenzene	<0.040	<0.24		<0.035	<0.21
1,4-Dichlorobenzene	<0.040	<0.24		<0.035	<0.21
Dichlorodifluoromethane (Freon 12)	**0.34**	**1.7**	**J-**	**0.25**	**1.2**
1,1-Dichloroethane	<0.040	<0.16		<0.035	<0.14
1,2-Dichloroethane	<0.040	<0.16		<0.035	<0.14
1,1-Dichloroethylene	<0.040	<0.16		<0.035	<0.14
cis-1,2-Dichloroethylene	<0.040	<0.16		<0.035	<0.14
trans-1,2-Dichloroethylene	<0.040	<0.16		<0.035	<0.14
1,2-Dichloropropane	<0.040	<0.18		<0.035	<0.16
cis-1,3-Dichloropropene	<0.040	<0.18		<0.035	<0.16
trans-1,3-Dichloropropene	<0.040	<0.18		<0.035	<0.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.040	<0.28		<0.035	<0.25
1,4-Dioxane	<0.40	<1.4		<0.35	<1.3
Ethanol	**3.2**	**6.1**		**7**	**13**
Ethyl Acetate	**0.19**	**0.69**		<0.14	<0.51
Ethylbenzene	<0.040	<0.17		**0.069**	**0.3**
4-Ethyltoluene	<0.040	<0.20		<0.35	<0.17
Heptane	**0.059**	**0.24**		<0.070	<0.29
Hexachlorobutadiene	<0.040	<0.43	J-	<0.035	<0.37
Hexane	<1.6	<5.6		<1.4	<4.9
2-Hexanone (MBK)	<0.040	<0.16		<0.070	<0.14
Isopropanol	<1.6	<3.9	J-	**1.8**	**4.5**
Methyl tert-Butyl Ether (MTBE)	<0.040	<0.14		<0.035	<0.13
Methylene Chloride	<0.40	<1.4		**0.84**	**2.9**
4-Methyl-2-pentanone (MIBK)	<0.040	<0.16		<0.070	<0.14
Naphthalene	**0.13**	**0.69**	**J-**	**0.037**	**0.19**
Propene	<1.6	<2.8		<1.4	<2.4
Styrene	<0.040	<0.17		<0.070	<0.15
1,1,2,2-Tetrachloroethane	<0.040	<0.27		<0.035	<0.24
Tetrachloroethylene	**0.098**	**0.67**		**0.078**	**0.53**
Tetrahydrofuran	<0.080	<0.24		<0.070	<0.21
Toluene	**0.31**	**1.2**		**0.41**	**1.5**
1,2,4-Trichlorobenzene	<0.040	<0.30	J-	<0.035	<0.26
1,1,1-Trichloroethane	<0.040	<0.22		<0.035	<0.19
1,1,2-Trichloroethane	<0.040	<0.22		<0.035	<0.19
Trichloroethylene	<0.040	<0.21		<0.035	<0.19
Trichlorofluoromethane (Freon 11)	<0.16	<0.90	J-	**0.26**	**1.5**
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.16	<1.2		<0.14	<1.1
1,2,4-Trimethylbenzene	**0.082**	**0.41**		<0.035	<0.17
1,3,5-Trimethylbenzene	<0.040	<0.20		<0.035	<0.17
Vinyl Acetate	<0.80	<2.8		**1**	**3.5**
Vinyl Chloride	<0.040	<0.10		<0.035	<0.090
m&p-Xylene	**0.1**	**0.44**		**0.22**	**0.98**
o-Xylene	**0.044**	**0.19**		**0.084**	**0.36**

Notes:

Values in **bold** indicate detected concentrations

J-: The results for these compounds are estimated and may be biased low.

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol

Table 1

Week 42
Summary of Additional Periodic (Daily) Monitoring Data

July 23rd, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	9:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	9:05	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	9:25	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-4	9:30	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-5	9:40	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-6	9:55	<50	<3	<1.0
	14:55	<50	<3	<1.0
ST-7	10:15	<50	<3	<1.0
	15:05	<50	<3	<1.0

July 24th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	10:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	10:05	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	10:15	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	10:20	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-5	10:25	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-6	10:35	<50	<3	<1.0
	15:50	<50	<3	<1.0
ST-7	10:50	<50	<3	<1.0
	16:20	<50	<3	<1.0

Table 1

Week 42
Summary of Additional Periodic (Daily) Monitoring Data

July 25th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:50	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-2	7:55	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-3	8:05	<50	<3	<1.0
	13:50	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	13:55	<50	<3	<1.0
ST-5	8:15	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-6	8:25	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-7	8:40	<50	<3	<1.0
	14:45	<50	<3	<1.0

July 26th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	9:00	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-2	9:10	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-3	9:25	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	9:30	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-5	9:35	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-6	9:50	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-7	10:05	<50	<3	<1.0
	16:15	<50	<3	<1.0

Table 1

Week 42
Summary of Additional Periodic (Daily) Monitoring Data

July 27th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	8:30	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:35	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	8:45	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-4	8:55	<50	<3	<1.0
	14:20	<50	<3	<1.0
ST-5	9:05	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-6	9:20	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-7	9:50	<50	<3	<1.0
	14:55	<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
July 23rd through July 27th, 2018

July 23rd, 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	**8.60**	**84.3**

July 24th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	**8.64**	**87.3**

July 25th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	**5.97**	**83.1**

July 26th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	**1.43**	**87.4**

July 27th, 2018 ***		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SE	**2.26**	**88.3**

* 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 19:00.

WILSON IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #15-081

MEMORANDUM

July 30, 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, 23 July – 27 July, 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 plan[1]. 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 reference[2].

[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.

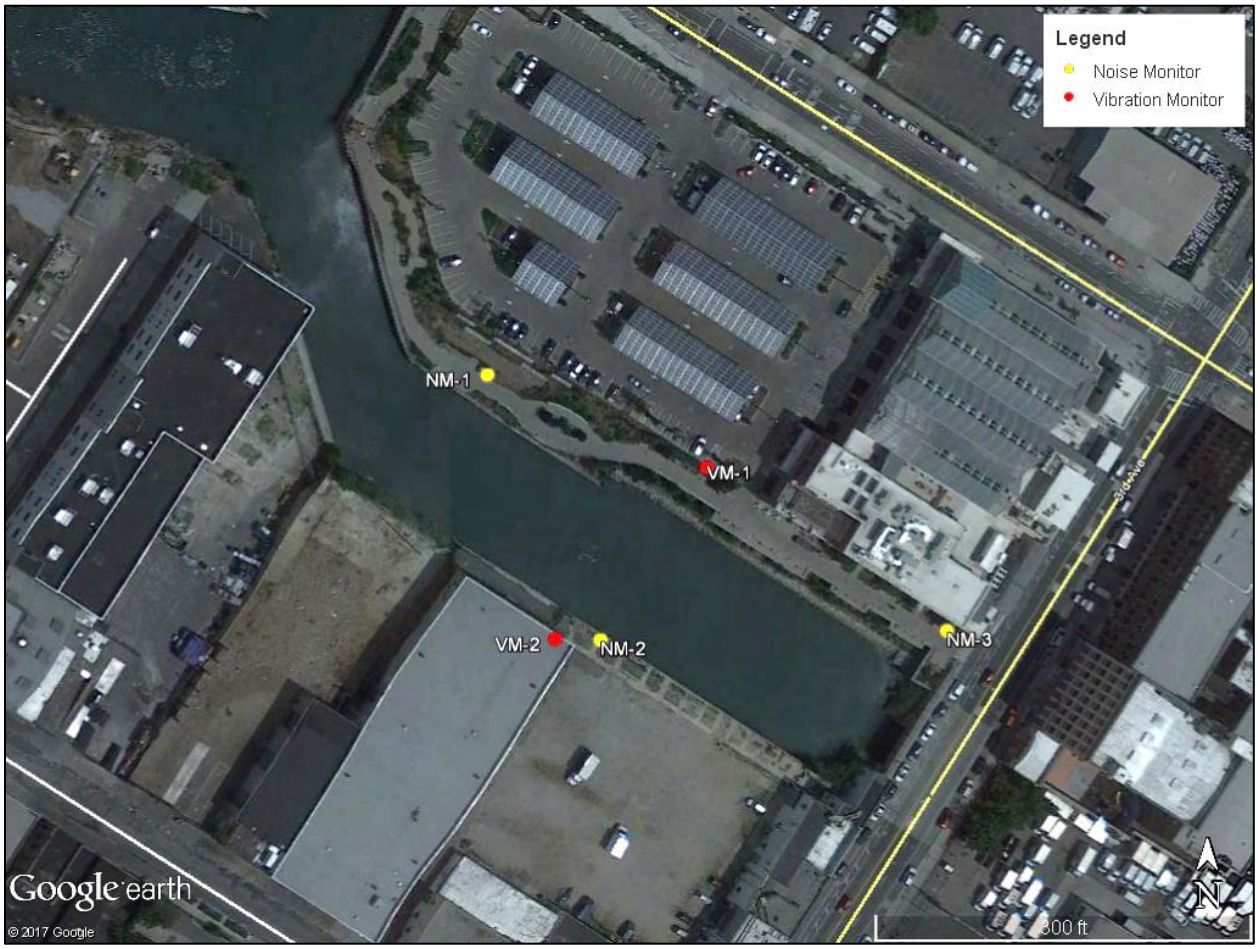


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

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

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

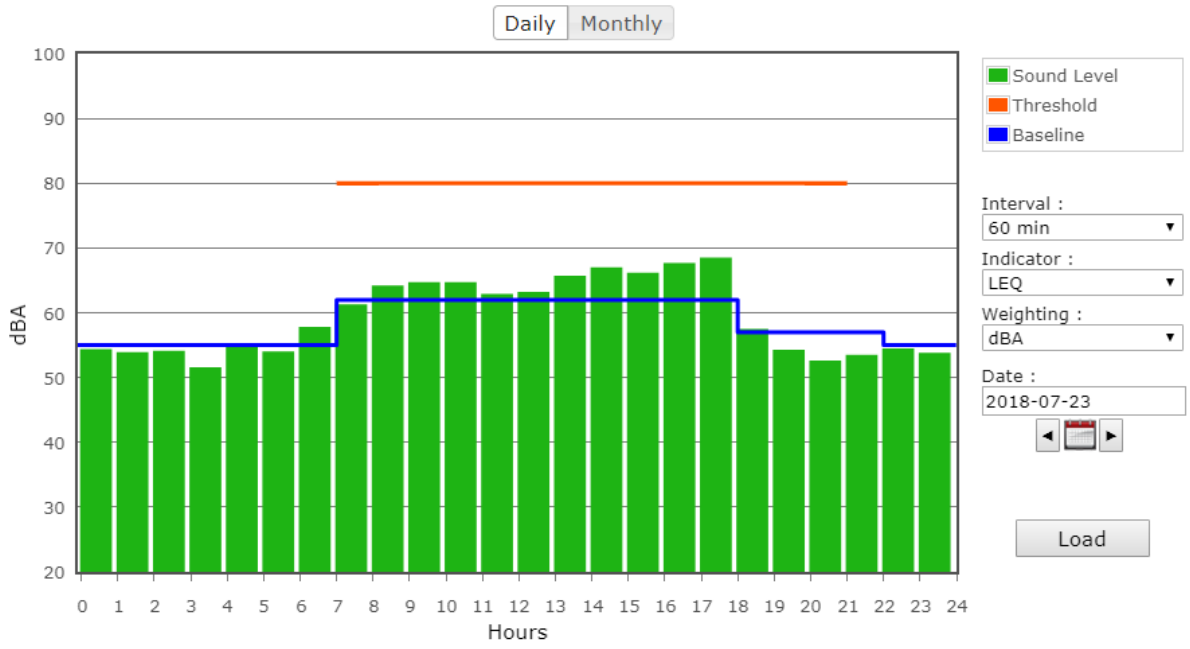


Figure 2: North Monitor NM-1 on Monday

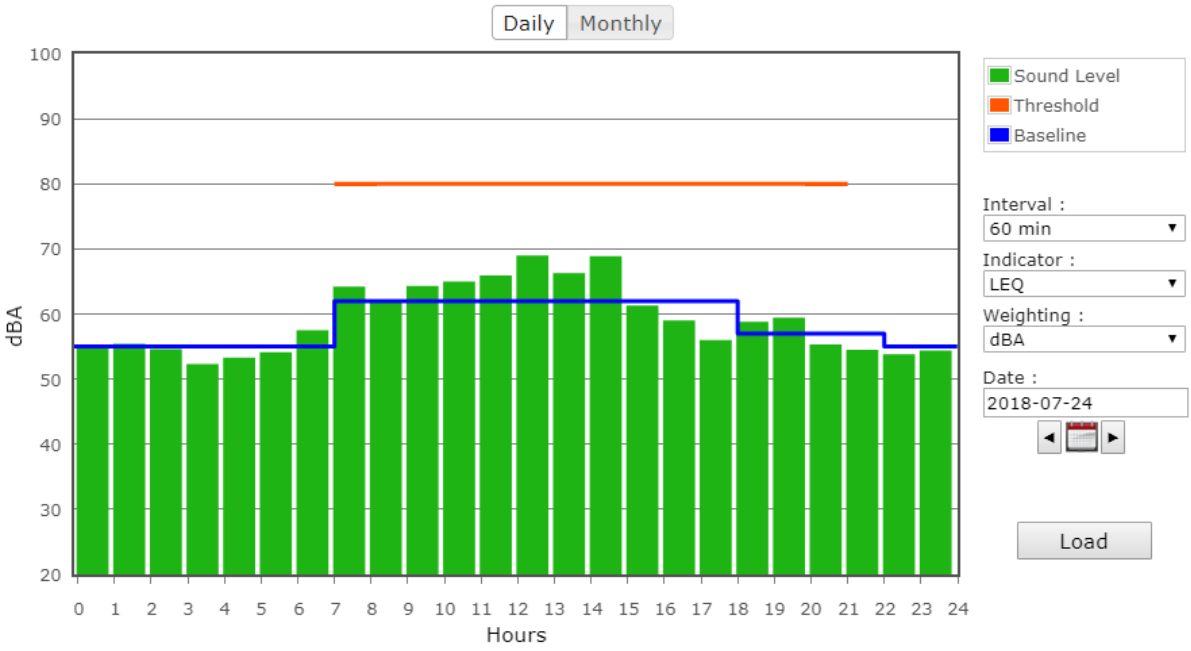


Figure 3: North Monitor NM-1 on Tuesday

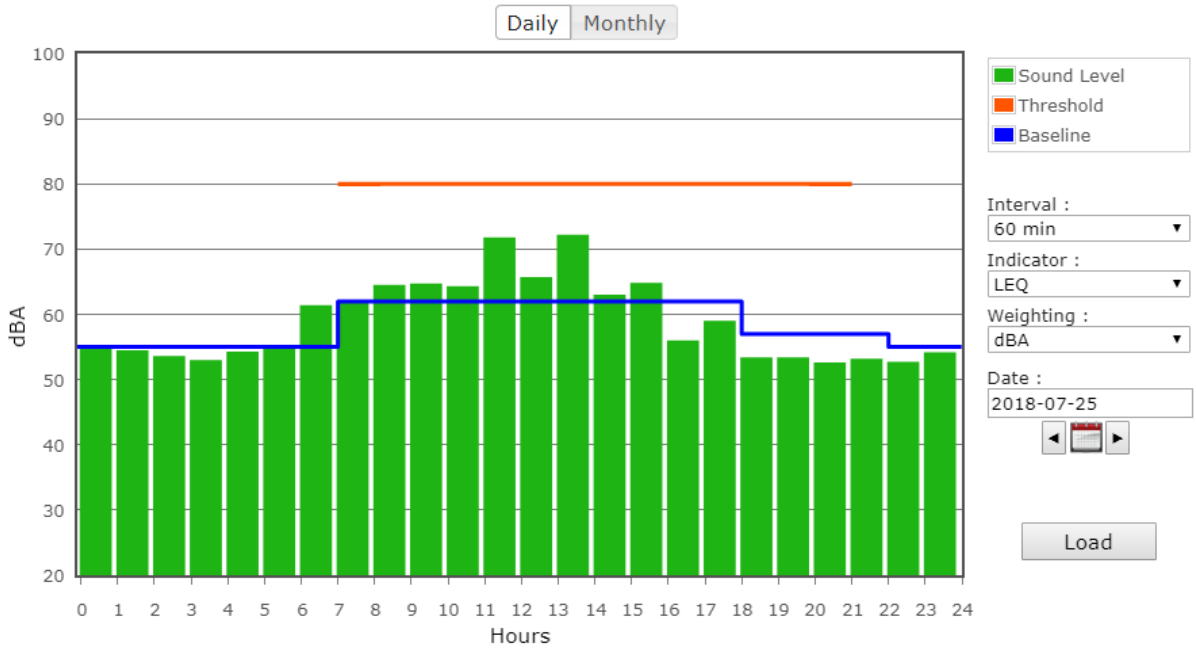


Figure 4: North Monitor NM-1 on Wednesday

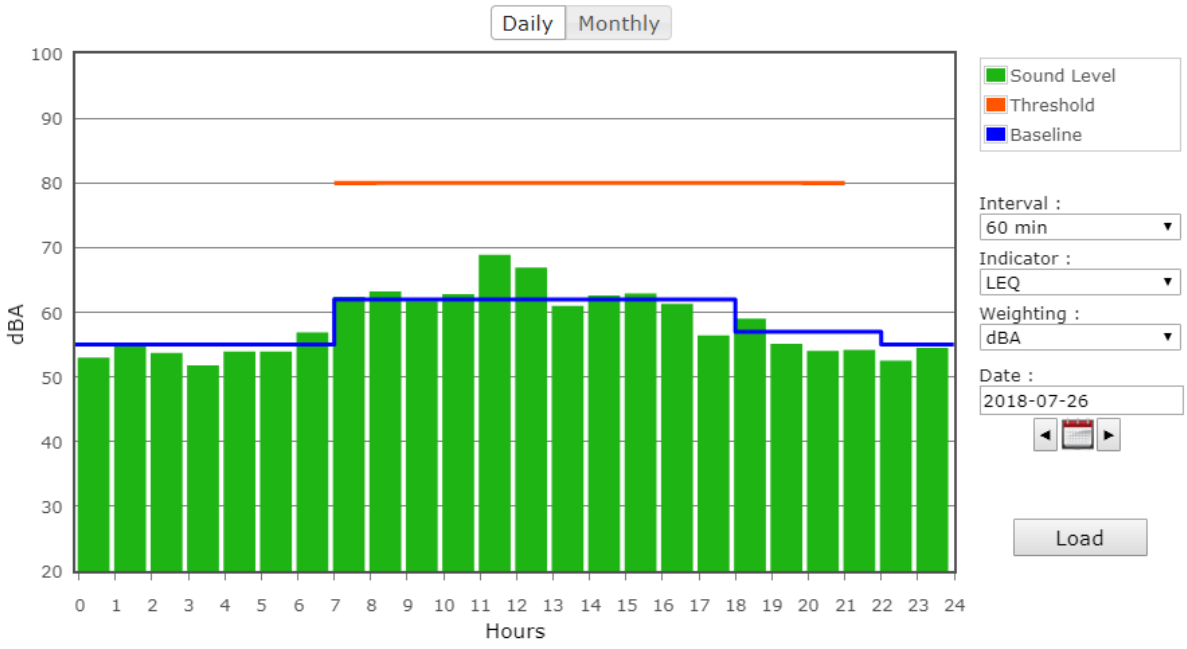


Figure 5: North Monitor NM-1 on Thursday

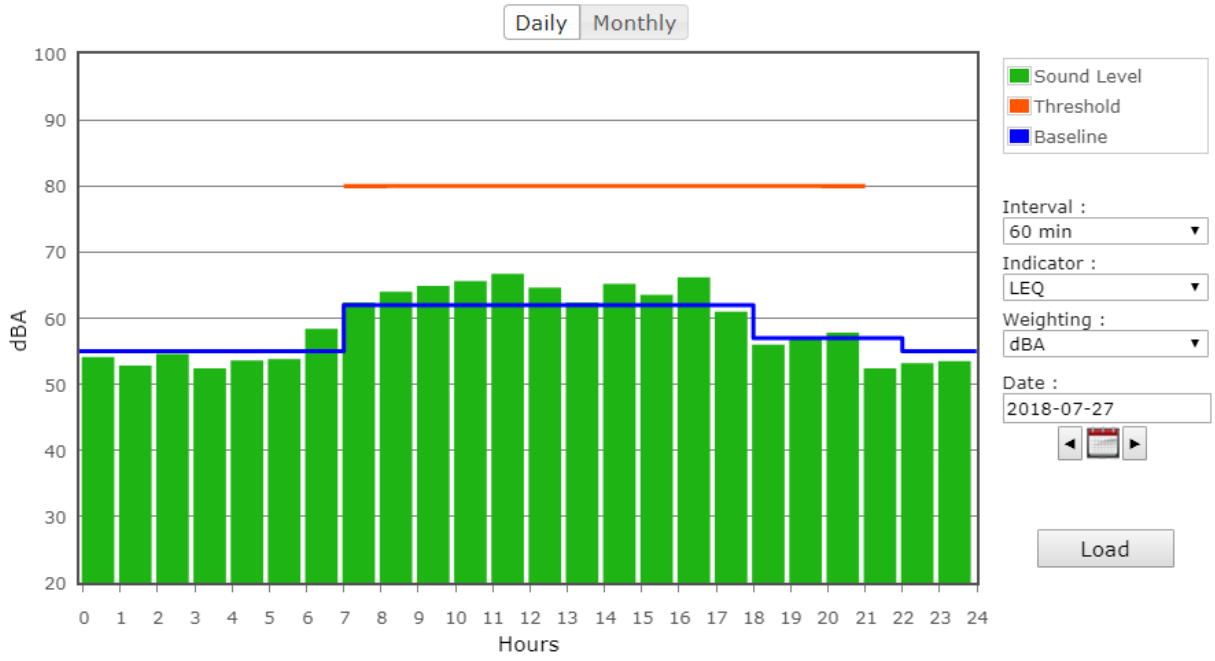


Figure 6: North Monitor NM-1 on Friday

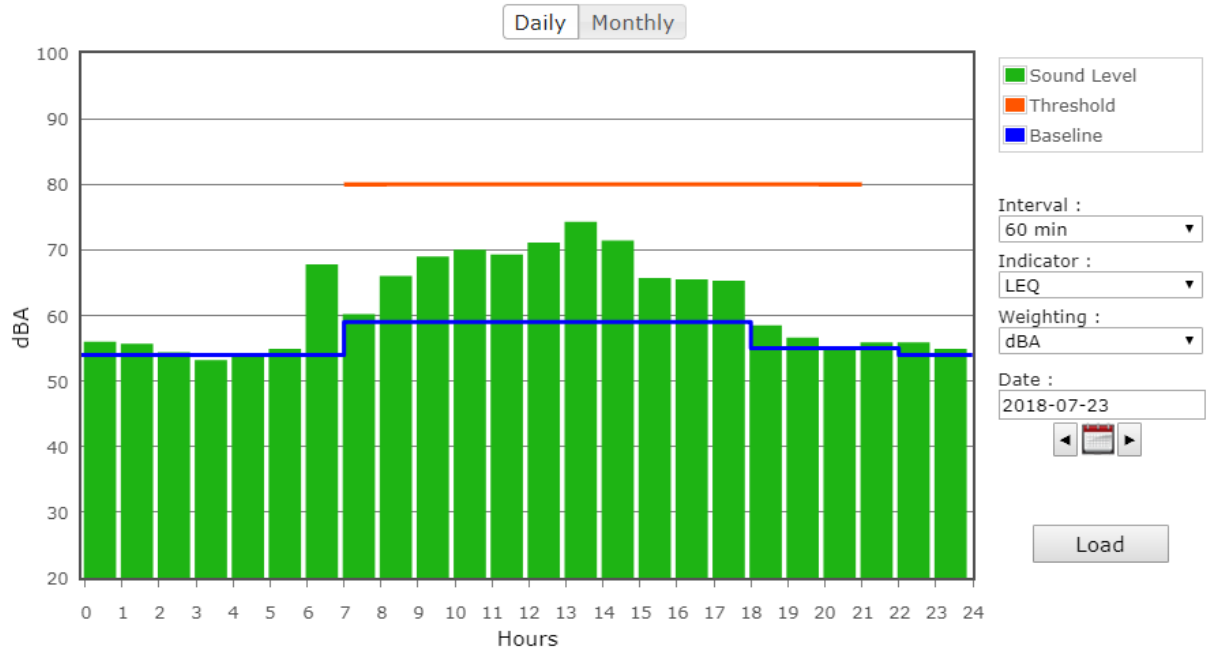


Figure 7: South Monitor NM-2 on Monday

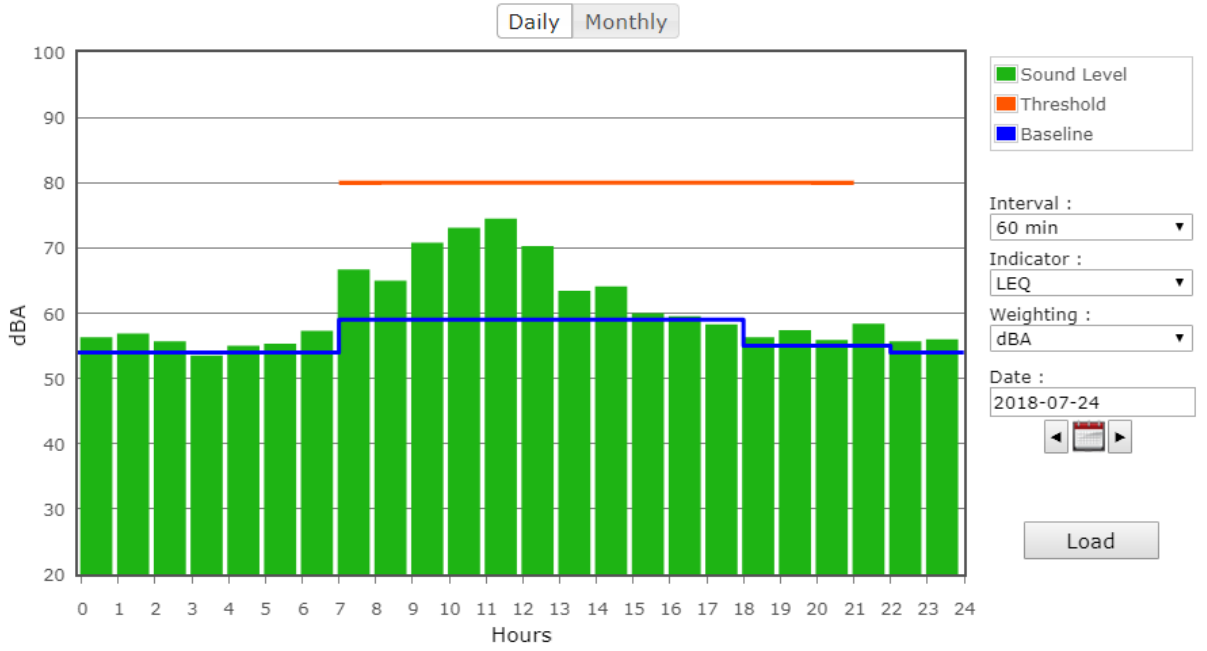


Figure 8: South Monitor NM-2 on Tuesday

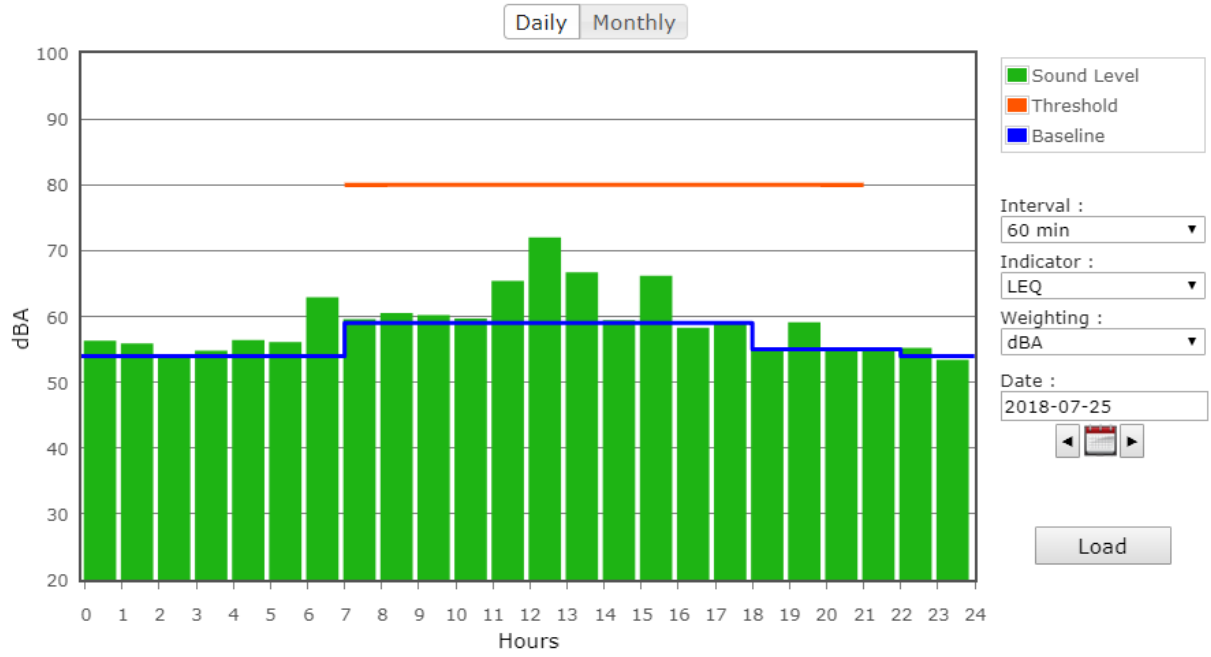


Figure 9: South Monitor NM-2 on Wednesday

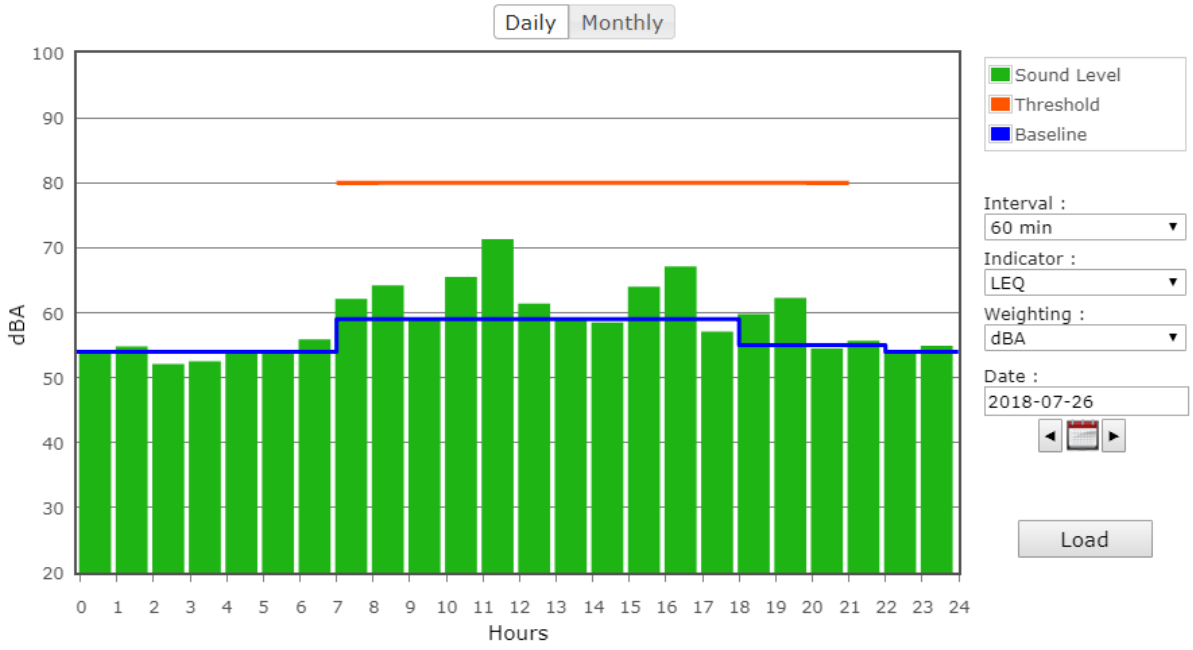


Figure 10: South Monitor NM-2 on Thursday

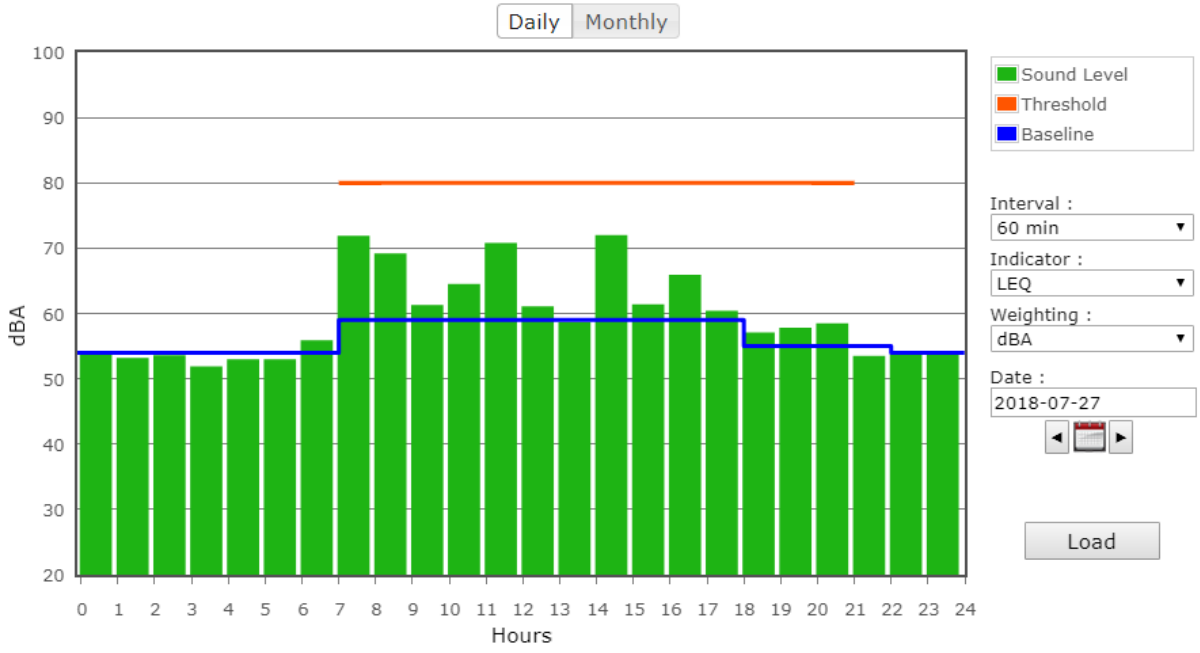


Figure 11: South Monitor NM-2 on Friday

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)