WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: September 4 to 7, 2018

Date of Report: September 12, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust

On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Water Treatment and Monitoring

- Discharged 29,169 gallons of treated water on 09/04/18.
- No exceedances of continuous monitoring.

Turbidity Monitoring

- Exceedance of water quality monitoring visual action criterion observed on 09/06/18. Immediate corrective actions employed. Further details provided in attached report.

Capping Activities

- Continue hydraulic capping of remainder of Turning Basin 4.
- Complete placement of first treatment layer (i.e., oleophilic clay/sand), pending hydrographic survey results.
- Collect cores and retrieve catch pans to measure thickness of treatment layer placed.

Citizens Site Activities

- Continue decontaminating and demobilizing equipment.

Quality Assurance and Control – Geosyntec

- DWTS discharge sampling conducted on 09/04/18.
- Exceedance of the visual action level criterion on the morning of September 6th due to observation of suspended capping material escaping TB4. Further details provided in attached report.
- Measurements for 9/3/18:
  - Daily average for ambient buoy – 3.4 NTU
  - Daily average for sentinel buoy – 2.7 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 2.7 NTU at 14:30.
- Measurements for 9/4/18:
  - Daily average for ambient buoy – 4.4 NTU
  - Daily average for sentinel buoy – 4.9 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 11.3 NTU at 16:45.
- Measurements for 9/5/18:
  - Daily average for ambient buoy – 5.0 NTU
  - Daily average for sentinel buoy – 7.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 18.7 NTU at 17:00.
- Measurements for 9/6/18:
  - Daily average for ambient buoy – 5.6 NTU
  - Daily average for sentinel buoy – 9.5 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 23.4 NTU at 10:45.

- Measurements for 9/7/18:
    - Daily average for ambient buoy – 4.0 NTU
    - Daily average for sentinel buoy – 7.8 NTU
    - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 19.5 NTU at 12:15.

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 09/06/18
    - Station 2 – 25 $\mu g/m^3$ recorded on 09/06/18
    - Station 3 – 55 $\mu g/m^3$ recorded on 09/07/18
    - Station 4 – 27 $\mu g/m^3$ recorded on 09/06/18
    - Station 5 – 22 $\mu g/m^3$ recorded on 09/06/18
    - Station 6 – 69 $\mu g/m^3$ recorded on 09/06/18
    - Station 7 – <1 $\mu g/m^3$ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
    - Station 1 – 33 ppb recorded on 09/07/18
    - Station 2 – <1 ppb recorded throughout the week
    - Station 3 – 73 ppb recorded on 09/06/18
    - Station 4 – <1 ppb recorded throughout the week
    - Station 5 – 118 ppb recorded on 09/04/18
    - Station 6 – 130 ppb recorded on 09/04/18
    - Station 7 – 50 ppb recorded on 09/05/18
- All real-time readings of formaldehyde, hydrogen sulfide, or ammonia less than instrument reporting limit.
- 23-hour samples collected at ST-3 collected on 09/04 through 09/05 and ST-4 collected on 09/06 through 09/07. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 23-hour sample collected at ST-4 on 08/14 through 08/15 and ST-5 (collocated) on 08/15 through 08/16 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) – 71 dBA during 1000-1100 on 09/05/18
    - Southern monitor (NM-2) – 68.3 dBA during 1300-1400 on 09/04/18

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.
- Complete hydraulic placement of treatment layers in remainder of Turning Basin 4.
- Commence and complete hydraulic placement of isolation and filter layer.
- 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

- No milestones during period.

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	09-04-2018

Description
Intake water pump staged on Huntington Street.

Photo No.	Date
002	09-04-2018

Description
Hydraulic placement of oleophilic clay and sand in southern lane.

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

Photo No.	Date
003	09-05-2018

Description
Unloading and staging granular activated carbon.

Photo No.	Date
004	09-05-2018

Description
Piping secured to southern bulkhead for hydraulic placement within northern lane.

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

Photo No.	Date
005	09-05-2018

Description
Deploying catch pans prior to placement of oleophilic clay and sand within northern lane.

Photo No.	Date
006	09-06-2018

Description
Placing the oleophilic clay and sand in the northern half of the turning basin.

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

Photo No.	Date
007	09-06-2018

Description
Collecting core samples from the hydraulic demonstration area.

Photo No.	Date
008	09-06-2018

Description
Measuring and evaluating the core samples from the hydraulic demonstration area.

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

Photo No.	Date
009	09-07-2018

Description
Placing sand and oleophilic clay mixture in the turning basin.

Photo No.	Date
010	09-07-2018

Description
Full catch pan, set on the placement barge for QA/QC.

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 September 3rd, 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 September 3rd, 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 September 3rd. 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. An exceedance of the visual action criterion occurred on the morning of September 6 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

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 September 3rd to September 7th, 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 31.6 NTU at 10:45 and of 30.9 NTU at 11:45 on September 6th was observed at the sentinel buoy.

2.1 Monday, September 3rd, 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)
9/3/2018 7:00	2.4	3.3	Y	9/3/2018 12:15	3.2	2.4	N
9/3/2018 7:15	3.8	3.4	N	9/3/2018 12:30	3.5	1.4	N
9/3/2018 7:30	2.9	1.2	N	9/3/2018 12:45	4.1	2.4	N
9/3/2018 7:45	2.6	2.4	N	9/3/2018 13:00	2.7	1.6	N
9/3/2018 8:00	2.7	2.2	N	9/3/2018 13:15	3.1	1.7	N
9/3/2018 8:15	3.2	2.0	N	9/3/2018 13:30	5.0	1.6	N
9/3/2018 8:30	3.6	2.1	N	9/3/2018 13:45	2.8	3.8	Y
9/3/2018 8:45	5.4	1.5	N	9/3/2018 14:00	2.0	2.0	N
9/3/2018 9:00	4.1	2.5	N	9/3/2018 14:15	3.6	3.5	N
9/3/2018 9:15	3.3	2.5	N	9/3/2018 14:30	2.8	5.5	Y
9/3/2018 9:30	4.5	1.8	N	9/3/2018 14:45	2.3	2.0	N
9/3/2018 9:45	3.4	2.4	N	9/3/2018 15:00	4.5	2.7	N
9/3/2018 10:00	2.8	4.2	Y	9/3/2018 15:15	3.3	2.1	N
9/3/2018 10:15	3.1	2.0	N	9/3/2018 15:30	2.4	4.3	Y
9/3/2018 10:30	2.6	1.5	N	9/3/2018 15:45	3.9	3.4	N
9/3/2018 10:45	3.0	4.1	Y	9/3/2018 16:00	4.8	4.5	N
9/3/2018 11:00	4.0	2.7	N	9/3/2018 16:15	4.3	2.8	N
9/3/2018 11:15	4.6	2.9	N	9/3/2018 16:30	3.7	3.8	Y
9/3/2018 11:30	2.6	2.2	N	9/3/2018 16:45	4.4	3.9	N
9/3/2018 11:45	3.4	1.8	N	9/3/2018 17:00	3.1	3.2	Y
9/3/2018 12:00	3.2	2.8	N				

Average	3.4	2.7	N
Maximum	5.4	5.5	Y

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

2.2 Tuesday, September 4th, 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)
9/4/2018 7:00	3.2	1.6	N	9/4/2018 12:15	4.4	2.8	N
9/4/2018 7:15	2.5	1.4	N	9/4/2018 12:30	4.5	4.0	N
9/4/2018 7:30	3.5	2.7	N	9/4/2018 12:45	3.4	3.9	Y
9/4/2018 7:45	2.7	3.7	Y	9/4/2018 13:00	3.4	3.0	N
9/4/2018 8:00	3.1	3.3	Y	9/4/2018 13:15	3.6	3.5	N
9/4/2018 8:15	5.1	4.2	N	9/4/2018 13:30	4.6	2.7	N
9/4/2018 8:30	4.3	2.9	N	9/4/2018 13:45	3.3	3.3	N
9/4/2018 8:45	3.7	4.1	Y	9/4/2018 14:00	3.4	3.0	N
9/4/2018 9:00	4.7	4.1	N	9/4/2018 14:15	3.4	3.3	N
9/4/2018 9:15	7.1	4.3	N	9/4/2018 14:30	2.4	1.9	N
9/4/2018 9:30	7.7	5.6	N	9/4/2018 14:45	2.9	1.3	N
9/4/2018 9:45	12.7	4.9	N	9/4/2018 15:00	3.4	2.6	N
9/4/2018 10:00	7.5	4.1	N	9/4/2018 15:15	3.4	1.5	N
9/4/2018 10:15	7.7	5.1	N	9/4/2018 15:30	2.9	7.5	Y
9/4/2018 10:30	5.9	8.9	Y	9/4/2018 15:45	2.8	7.7	Y
9/4/2018 10:45	6.7	5.5	N	9/4/2018 16:00	2.3	7.0	Y
9/4/2018 11:00	4.3	6.5	Y	9/4/2018 16:15	1.7	10.8	Y
9/4/2018 11:15	3.9	5.5	Y	9/4/2018 16:30	2.5	13.3	Y
9/4/2018 11:30	4.9	4.6	N	9/4/2018 16:45	4.6	15.9	Y
9/4/2018 11:45	4.8	4.0	N	9/4/2018 17:00	5.4	10.4	Y
9/4/2018 12:00	5.2	4.0	N				

Average	4.4	4.9	Y
Maximum	12.7	15.9	Y

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

2.3 Wednesday, September 5th, 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)
9/5/2018 7:00	4.1	5.1	Y	9/5/2018 12:15	5.2	7.9	Y
9/5/2018 7:15	4.1	4.9	Y	9/5/2018 12:30	4.0	6.6	Y
9/5/2018 7:30	3.2	7.3	Y	9/5/2018 12:45	5.1	4.6	N
9/5/2018 7:45	3.5	5.2	Y	9/5/2018 13:00	3.8	6.0	Y
9/5/2018 8:00	3.4	6.3	Y	9/5/2018 13:15	3.7	5.3	Y
9/5/2018 8:15	3.5	7.4	Y	9/5/2018 13:30	3.5	5.4	Y
9/5/2018 8:30	5.5	6.1	Y	9/5/2018 13:45	4.8	5.5	Y
9/5/2018 8:45	4.3	6.1	Y	9/5/2018 14:00	3.4	4.6	Y
9/5/2018 9:00	6.8	6.6	N	9/5/2018 14:15	3.2	9.0	Y
9/5/2018 9:15	5.9	6.4	Y	9/5/2018 14:30	3.7	9.7	Y
9/5/2018 9:30	7.9	7.6	N	9/5/2018 14:45	3.2	7.6	Y
9/5/2018 9:45	8.4	6.7	N	9/5/2018 15:00	3.0	5.9	Y
9/5/2018 10:00	7.3	8.1	Y	9/5/2018 15:15	2.3	5.2	Y
9/5/2018 10:15	7.4	7.6	Y	9/5/2018 15:30	3.1	5.2	Y
9/5/2018 10:30	9.7	7.3	N	9/5/2018 15:45	3.5	3.8	Y
9/5/2018 10:45	12.2	6.7	N	9/5/2018 16:00	3.7	5.1	Y
9/5/2018 11:00	7.6	6.6	N	9/5/2018 16:15	3.4	7.9	Y
9/5/2018 11:15	7.3	7.7	Y	9/5/2018 16:30	2.2	14.5	Y
9/5/2018 11:30	7.5	5.9	N	9/5/2018 16:45	3.7	12.3	Y
9/5/2018 11:45	6.2	6.8	Y	9/5/2018 17:00	2.5	21.2	Y
9/5/2018 12:00	6.2	6.2	N				

Average	5.0	7.1	Y
Maximum	12.2	21.2	Y

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, September 6th, 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)
9/6/2018 7:00	2.8	5.5	Y	9/6/2018 12:15	9.3	9.4	Y
9/6/2018 7:15	5.0	6.9	Y	9/6/2018 12:30	6.7	8.8	Y
9/6/2018 7:30	4.8	5.9	Y	9/6/2018 12:45	6.1	7.2	Y
9/6/2018 7:45	5.0	5.4	Y	9/6/2018 13:00	6.0	7.2	Y
9/6/2018 8:00	4.3	6.4	Y	9/6/2018 13:15	5.8	7.6	Y
9/6/2018 8:15	6.3	6.9	Y	9/6/2018 13:30	5.9	6.0	Y
9/6/2018 8:30	6.4	7.9	Y	9/6/2018 13:45	4.6	6.7	Y
9/6/2018 8:45	6.4	9.4	Y	9/6/2018 14:00	4.8	6.2	Y
9/6/2018 9:00	6.9	7.4	Y	9/6/2018 14:15	4.8	5.3	Y
9/6/2018 9:15	5.7	8.6	Y	9/6/2018 14:30	4.2	5.9	Y
9/6/2018 9:30	5.6	11.7	Y	9/6/2018 14:45	4.4	6.0	Y
9/6/2018 9:45	7.3	13.7	Y	9/6/2018 15:00	3.0	10.7	Y
9/6/2018 10:00	5.4	13.6	Y	9/6/2018 15:15	3.6	7.0	Y
9/6/2018 10:15	5.2	11.0	Y	9/6/2018 15:30	2.8	9.0	Y
9/6/2018 10:30	6.4	23.9	Y	9/6/2018 15:45	2.9	5.7	Y
9/6/2018 10:45	8.2	31.6	Y	9/6/2018 16:00	2.9	2.9	N
9/6/2018 11:00	10.4	20.4	Y	9/6/2018 16:15	3.7	2.2	N
9/6/2018 11:15	8.3	14.2	Y	9/6/2018 16:30	3.2	2.9	N
9/6/2018 11:30	8.0	14.8	Y	9/6/2018 16:45	4.4	1.9	N
9/6/2018 11:45	8.3	30.9	Y	9/6/2018 17:00	3.4	2.7	N
9/6/2018 12:00	9.6	11.3	Y				

Average	5.6	9.5	Y
Maximum	10.4	31.6	Y

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

2.5 Friday, September 7th, 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)
9/7/2018 7:00	0.5	2.2	Y	9/7/2018 12:15	3.1	22.6	Y
9/7/2018 7:15	2.0	2.4	Y	9/7/2018 12:30	5.0	18.7	Y
9/7/2018 7:30	3.5	3.5	N	9/7/2018 12:45	5.0	11.1	Y
9/7/2018 7:45	3.4	5.5	Y	9/7/2018 13:00	4.3	6.5	Y
9/7/2018 8:00	3.3	4.4	Y	9/7/2018 13:15	4.8	8.5	Y
9/7/2018 8:15	2.7	5.5	Y	9/7/2018 13:30	8.7	6.8	N
9/7/2018 8:30	4.3	5.7	Y	9/7/2018 13:45	7.0	5.5	N
9/7/2018 8:45	3.5	6.1	Y	9/7/2018 14:00	7.3	5.1	N
9/7/2018 9:00	4.0	6.0	Y	9/7/2018 14:15	6.0	5.6	N
9/7/2018 9:15	4.7	10.0	Y	9/7/2018 14:30	4.6	4.6	N
9/7/2018 9:30	2.8	10.3	Y	9/7/2018 14:45	3.1	5.1	Y
9/7/2018 9:45	4.7	8.3	Y	9/7/2018 15:00	4.3	5.0	Y
9/7/2018 10:00	4.6	10.5	Y	9/7/2018 15:15	4.4	4.5	Y
9/7/2018 10:15	5.6	12.5	Y	9/7/2018 15:30	3.0	5.0	Y
9/7/2018 10:30	4.2	13.9	Y	9/7/2018 15:45	4.9	3.9	N
9/7/2018 10:45	4.5	11.9	Y	9/7/2018 16:00	5.1	3.6	N
9/7/2018 11:00	5.0	14.1	Y	9/7/2018 16:15	2.2	3.5	Y
9/7/2018 11:15	3.5	10.3	Y	9/7/2018 16:30	-0.5	3.0	Y
9/7/2018 11:30	2.3	14.6	Y	9/7/2018 16:45	1.6	3.2	Y
9/7/2018 11:45	3.9	14.0	Y	9/7/2018 17:00	1.4	2.6	Y
9/7/2018 12:00	3.7	14.6	Y				

Average	4.0	7.8	Y
Maximum	8.7	22.6	Y

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 MEASURMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

At 10:55 on September 6 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 morning of September 6 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 northwestern portion of the turning basin. The air curtain was operating but was not effectively containing the suspended capping material. The turbidity curtain was also deployed but suspended capping material was bypassing the turbidity curtain through a gap between the turbidity curtain and the northern bulkhead. In response to the exceedance the turbidity curtain was tightened to close this gap. The EPA was notified of the exceedance on September 6.

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
48th Weekly Monitoring Period
Summary Report:

September 4th, through September 7th, 2018

Report Contents

- Executive Summary
- Daily Data Summary Report – PM_{10}/TVOC
- Daily Meteorological Summary Report
- Periodic Monitoring Results
- Volatile Organic Compounds (USEPA Method TO-15)

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

Executive Summary – Week 48 Monitoring Period
September 4th through September 7th, 2018

The following report summarizes site air monitoring activities for the Week 48 monitoring period from September 4th through September 7th, 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 48 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 48 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 48 monitoring period of September 4th through September 7th, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 3 and 4. The ST-3 sample was collected on September 4th through September 5th, 2018 and the ST-4 sample was collected on September 6th, through September 7th, 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 samples collected at Stations 4 and 5 during Week 45. ST-4 was collected on August 14th, through August 15th, 2018. Co-located samples (ST-5A and ST-5B) were collected at Station 5 on August 15th, through August 16th, 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 September 4th through September 7th, 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 September 4th through September 7th, 2018 included the following:

- Continue hydraulic capping of remainder of 4th St Turning Basin
- Complete placement of first treatment layer (i.e., Oleophilic clay/sand), pending hydrographic survey results
- Collect cores and retrieve catch pans to measure thickness of treatment layer that has been put in place

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)
09/04/2018 06:30 AM - 09/04/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	13	ppb	Max.	8	ug/m^3
Avg.	4	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.	<1	ug/m^3
Avg.	<1	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	28	ppb	Max.	21	ug/m^3
Avg.	21	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	13	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.	118	ppb	Max.	13	ug/m^3
Avg.	19	ppb	Avg.	6	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	130	ppb	Max.	10	ug/m^3
Avg.	40	ppb	Avg.	5	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM_{10}		
Max.	8	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 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)
09/05/2018 00:00 AM - 09/05/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	22	ppb	Max.	15	ug/m^3
Avg.	6	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.	10	ug/m^3
Avg.	<1	ppb	Avg.	7	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	27	ppb	Max.	24	ug/m^3
Avg.	27	ppb	Avg.	18	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	14	ug/m^3
Avg.	<1	ppb	Avg.	11	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.	15	ug/m^3
Avg.	43	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	76	ppb	Max.	13	ug/m^3
Avg.	34	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM_{10}		
Max.	50	ppb	Max.	<1	ug/m^3
Avg.	20	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)
09/06/2018 00:00 AM - 09/06/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	20	ppb	Max.	29	ug/m^3
Avg.	6	ppb	Avg.	14	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	25	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.	73	ppb	Max.	51	ug/m^3
Avg.	25	ppb	Avg.	16	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	27	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.	36	ppb	Max.	22	ug/m^3
Avg.	19	ppb	Avg.	2	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	115	ppb	Max.	69	ug/m^3
Avg.	41	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM_{10}		
Max.	7	ppb	Max.	<1	ug/m^3
Avg.	5	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)
09/07/2018 00:00 AM - 09/07/2018 16:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	33	ppb	Max.	14	ug/m^3
Avg.	16	ppb	Avg.	7	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	18	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.	20	ppb	Max.	55	ug/m^3
Avg.	14	ppb	Avg.	4	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.	<1	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.	28	ppb	Max.	<1	ug/m^3
Avg.	4	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM_{10}		
Max.	7	ppb	Max.	<1	ug/m^3
Avg.	2	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

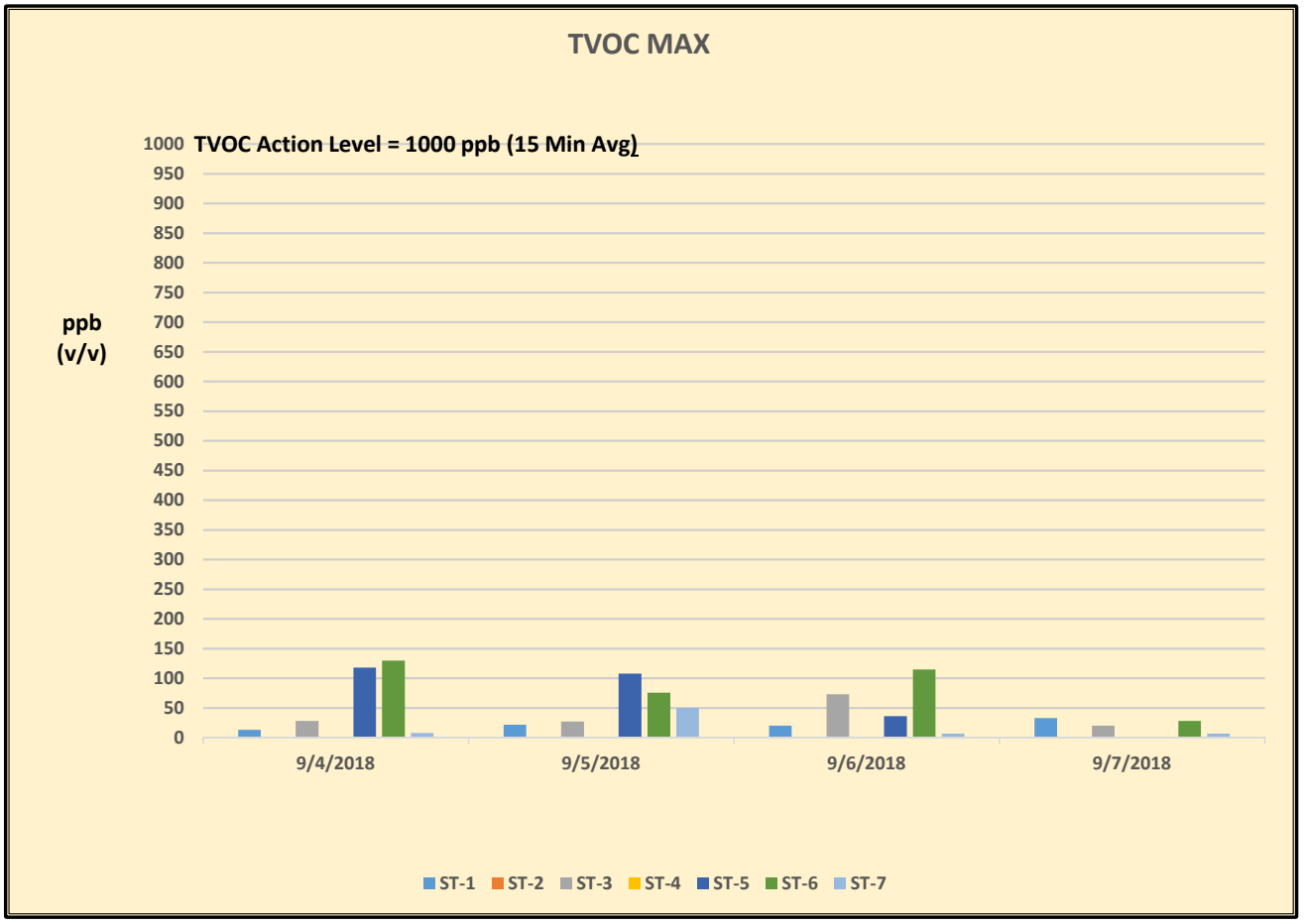
TVOC – Total Volatile Organic Compounds PM_{10} – Particulates as PM_{10}

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 48



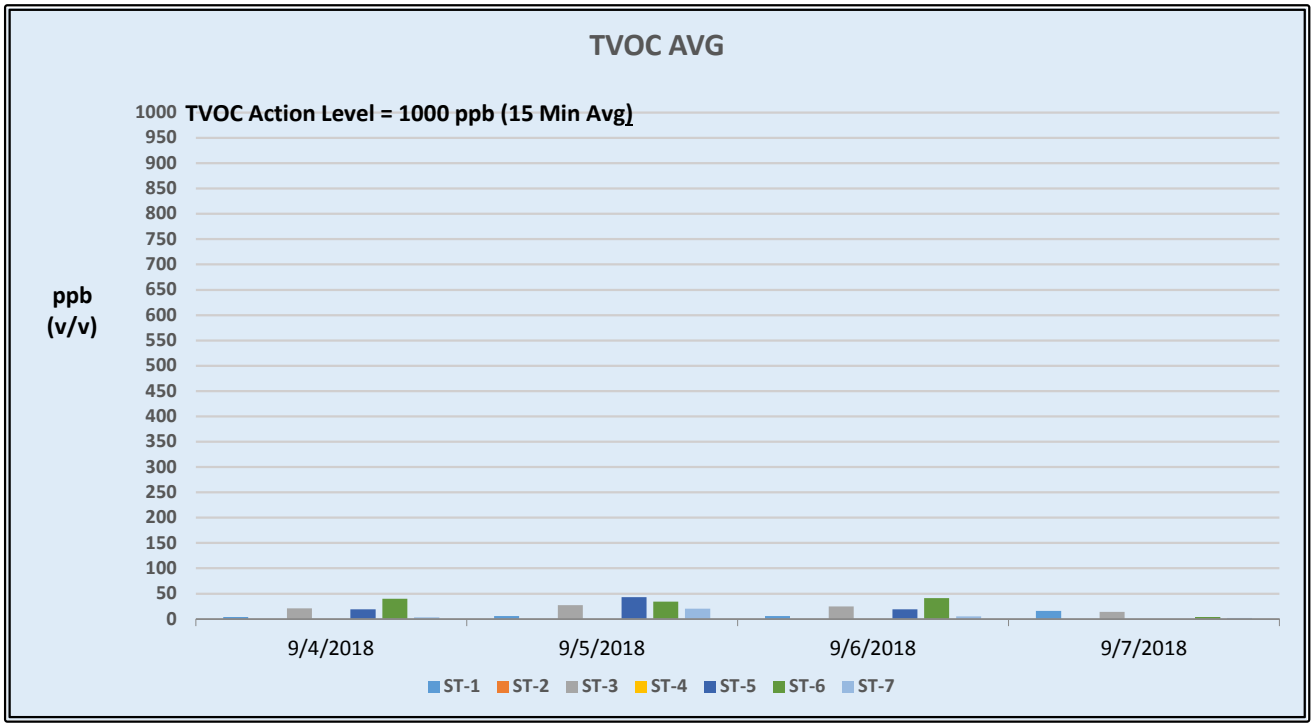
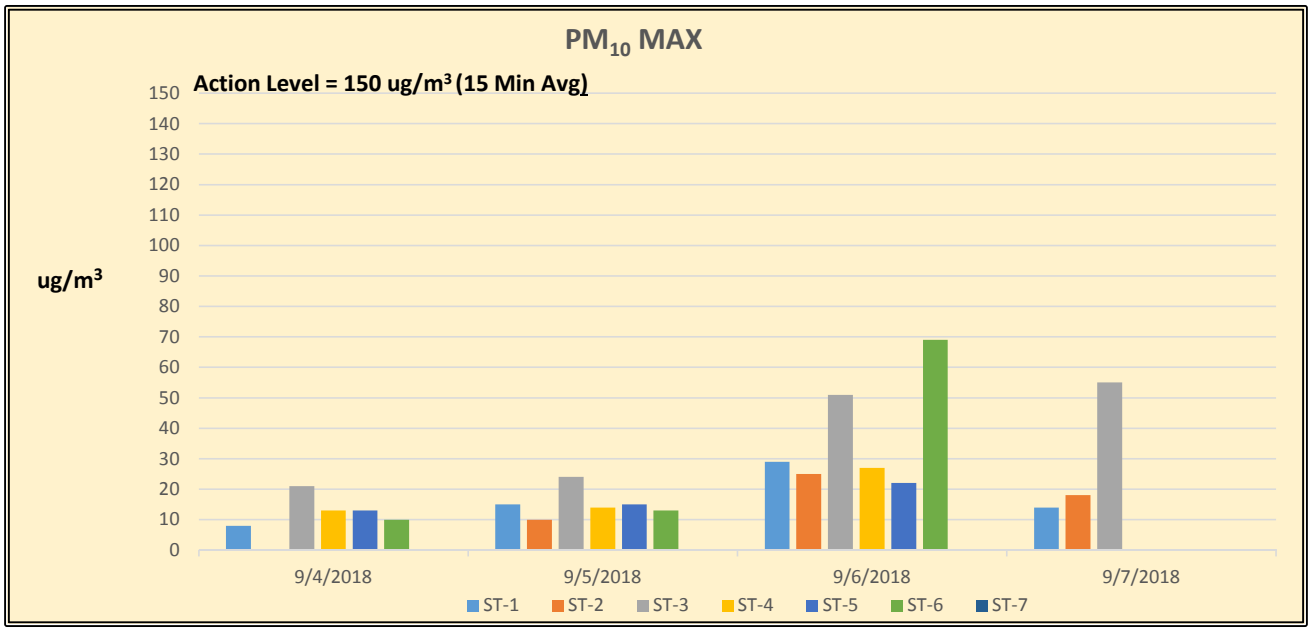
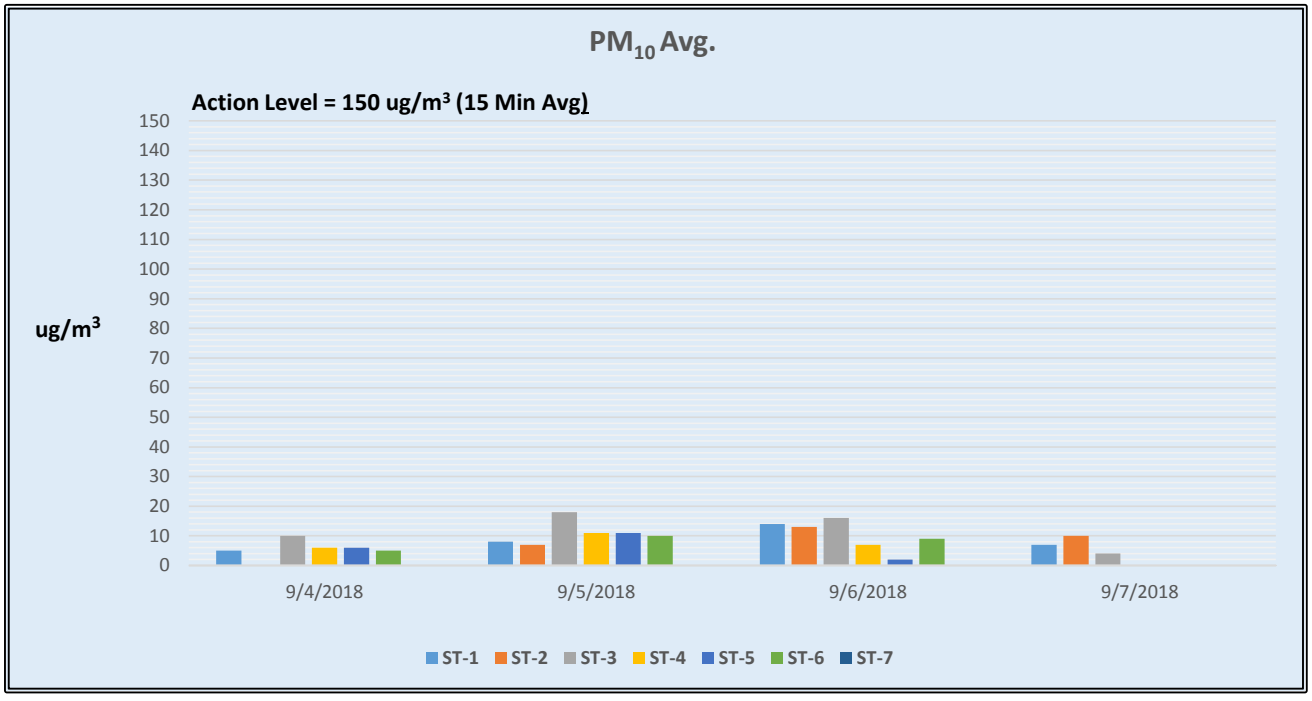
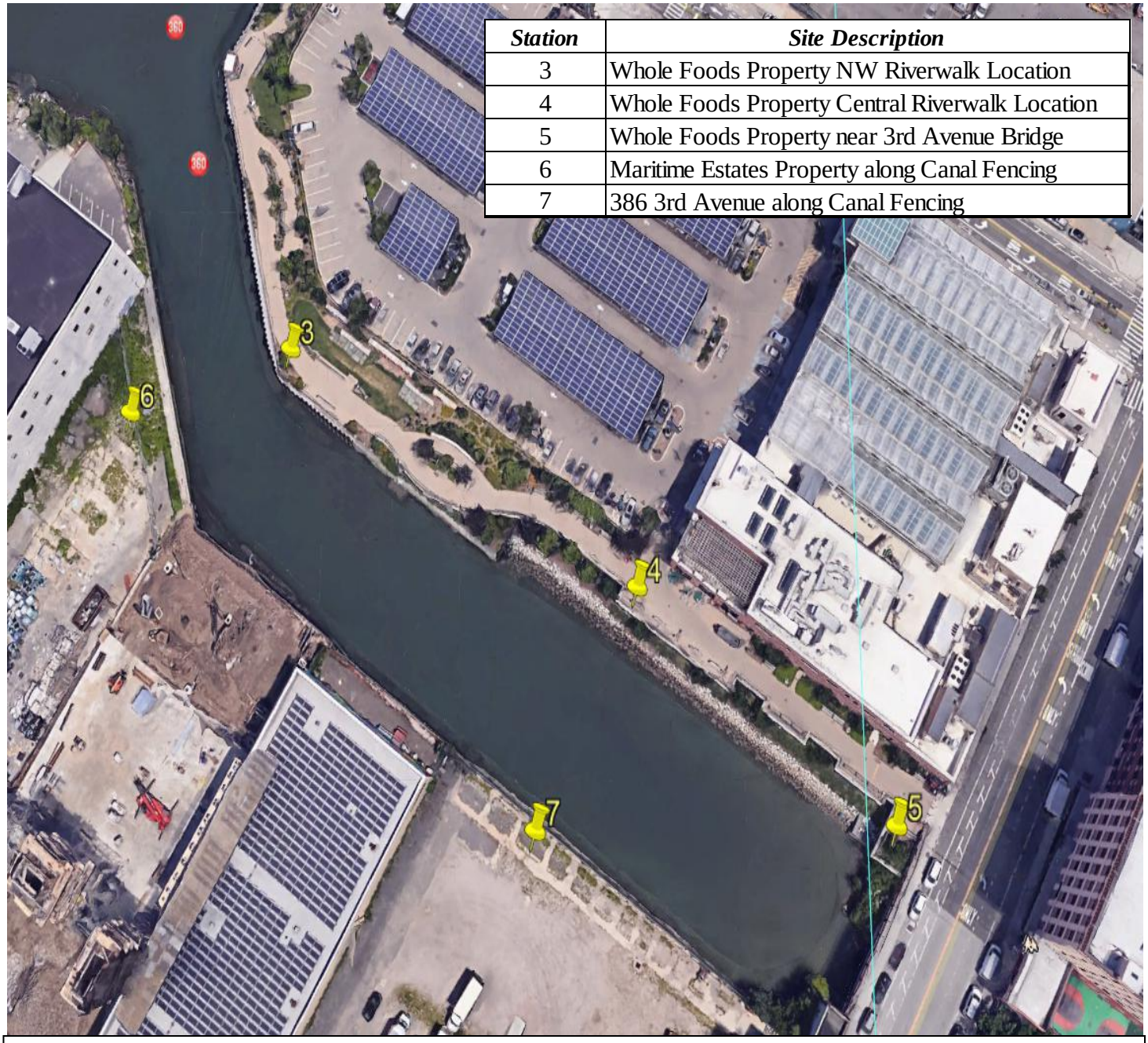


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM_{10} Monitoring Data - Week 48







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 1

Week 48
Summary of Additional Periodic (Daily) Monitoring Data

September 4th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-3	8:00	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-5	8:20	<50	<3	<1.0
	15:50	<50	<3	<1.0
ST-6	9:00	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-7	9:20	<50	<3	<1.0
	16:20	<50	<3	<1.0

September 5th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:00	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-2	7:10	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-3	7:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-4	7:40	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-5	7:50	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-6	8:10	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-7	8:30	<50	<3	<1.0
	16:00	<50	<3	<1.0

Table 1

Week 48
Summary of Additional Periodic (Daily) Monitoring Data

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

September 7th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:30	<50	<3	<1.0
	12:00	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	12:10	<50	<3	<1.0
ST-3	8:00	<50	<3	<1.0
	12:30	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	12:35	<50	<3	<1.0
ST-5	8:20	<50	<3	<1.0
	12:45	<50	<3	<1.0
ST-6	8:40	<50	<3	<1.0
	13:00	<50	<3	<1.0
ST-7	9:00	<50	<3	<1.0
	13:20	<50	<3	<1.0

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

Table 2:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 45 VOCs Results: August 14th through 15th and August 15th through 16th (Co-located)

Sample ID	ST-4-VOC-081418		ST-5A-VOC-081518		ST-5B-VOC-081518		
Laboratory ID	18H1149-01		18H1149-02		18H1149-03		Relative Percent
Date Sampled	8/14/18 07:00 - 8/15/18 06:00		8/15/18 09:00 - 8/16/18 08:00		8/15/18 09:00 - 8/16/18 08:00		Difference
Location	Station 4		Station 5		Station 5 Duplicate		Station 5 Pair
VOCs - TO-15	ppbV	ug/m^3	ppbV	ug/m3	ppbV	ug/m3	
Acetone	**14**	**32**	**13**	**31**	**14**	**33**	**6.3%**
Benzene	**0.2**	**0.63**	**0.21**	**0.67**	**0.21**	**0.67**	**0.0%**
Benzyl chloride	<0.035	<0.18	<0.035	<0.18	<0.035	<0.18	NC
Bromodichloromethane	<0.035	<0.24	<0.035	<0.24	<0.035	<0.24	NC
Bromoform	<0.035	<0.36	<0.035	<0.36	<0.035	<0.36	NC
Bromomethane	<0.035	<0.27	<0.035	<0.27	<0.035	<0.27	NC
1,3-Butadiene	<0.035	<0.078	<0.035	<0.078	<0.035	<0.078	NC
2-Butanone (MEK)	<1.4	<41	<1.4	<41	<1.4	<41	NC
Carbon Disulfide	<0.35	<1.1	<0.35	<1.1	<0.35	<1.1	NC
Carbon Tetrachloride	**0.072**	**0.45**	**0.075**	**0.47**	**0.073**	**0.46**	**2.2%**
Chlorobenzene	<0.035	<0.16	<0.035	<0.16	<0.035	<0.16	NC
Chloroethane	<0.035	<0.093	<0.035	<0.093	<0.035	<0.093	NC
Chloroform	**0.041**	**0.2**	**0.039**	**0.19**	**0.039**	**0.19**	**0.0%**
Chloromethane	**0.5**	**1**	**0.54**	**1.1**	**0.53**	**1.1**	**0.0%**
Cyclohexane	<0.035	<0.24	<0.035	<0.24	<0.035	<0.24	NC
Dibromochloromethane	<0.035	<0.30	<0.035	<0.30	<0.035	<0.30	NC
1,2-Dibromoethane (EDB)	<0.035	<0.27	<0.035	<0.27	<0.035	<0.27	NC
1,2-Dichlorobenzene	<0.035	<0.21 J-	<0.035	<0.21 J-	<0.035	<0.21 J-	NC
1,3-Dichlorobenzene	<0.070	<0.21	<0.070	<0.21	<0.070	<0.21	NC
1,4-Dichlorobenzene	<0.070	<0.21 J-	<0.070	<0.21 J-	<0.070	<0.21 J-	NC
Dichlorodifluoromethane (Freon 12)	**0.34**	**1.7**	**0.33**	**1.6**	**0.36**	**1.8**	**11.8%**
1,1-Dichloroethane	<0.035	<0.14	<0.035	<0.14	<0.035	<0.14	NC
1,2-Dichloroethane	<0.035	<0.14	<0.035	<0.14	<0.035	<0.14	NC
1,1-Dichloroethylene	<0.035	<0.15	<0.035	<0.15	<0.035	<0.15	NC
cis-1,2-Dichloroethylene	<0.035	<0.16	<0.035	<0.16	<0.035	<0.16	NC
trans-1,2-Dichloroethylene	0.036	<0.17	<0.035	<0.17	<0.035	<0.17	NC
1,2-Dichloropropane	<0.035	<0.16	<0.035	<0.16	<0.035	<0.16	NC
cis-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16	<0.035	<0.16	NC
trans-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16	<0.035	<0.16	NC
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.035	<0.25	<0.035	<0.25	<0.035	<0.25	NC
1,4-Dioxane	<0.35	<1.3	<0.35	<1.3	<0.35	<1.3	NC
Ethanol	**13**	**24**	**7**	**13**	**8.7**	**16**	**20.7%**
Ethyl Acetate	**0.33**	**1.2**	**0.26**	**0.95**	**0.25**	**0.9**	**5.4%**
Ethylbenzene	**0.078**	**0.34**	**0.089**	**0.39**	**0.086**	**0.37**	**5.3%**
4-Ethyltoluene	<0.035	<0.17	<0.035	<0.17	<0.035	<0.17	NC
Heptane	**0.12**	**0.5**	**0.11**	**0.47**	**0.12**	**0.48**	**2.1%**
Hexachlorobutadiene	<0.035	<0.37	<0.035	<0.37	<0.035	<0.37	NC
Hexane	<1.4	<4.9	<1.4	<4.9	<1.4	<4.9	NC
2-Hexanone (MBK)	**0.082**	**0.34**	**0.1**	**0.42**	**0.08**	**0.33**	**24.0%**
Isopropanol	**3.9**	**9.5**	<1.4	<3.4	<1.4	<3.4	NC
Methyl tert-Butyl Ether (MTBE)	<0.035	<0.13	<0.035	<0.13	<0.035	<0.13	NC
Methylene Chloride	**0.59**	**2**	**0.41**	**1.4**	**0.4**	**1.4**	**0.0%**
4-Methyl-2-pentanone (MIBK)	**0.062**	**0.25**	**0.074**	**0.3**	**0.075**	**0.31**	**3.3%**
Naphthalene	**0.044**	**0.23**	**0.046**	**0.24**	**0.053**	**0.28**	**15.4%**
Propene	<1.4	<2.4	<1.4	<2.4	<1.4	<2.4	NC
Styrene	<0.035	<0.15	<0.035	<0.15	<0.035	<0.15	NC
1,1,2,2-Tetrachloroethane	<0.035	<0.24	<0.035	<0.24	<0.035	<0.24	NC
Tetrachloroethylene	**0.13**	**0.91**	**0.14**	**0.97**	**0.14**	**0.95**	**2.1%**
Tetrahydrofuran	<0.035	<0.21	<0.035	<0.21	<0.035	<0.21	NC
Toluene	**0.64**	**2.4**	**0.71**	**2.7**	**0.7**	**2.7**	**0.0%**
1,2,4-Trichlorobenzene	<0.035	<0.26	<0.035	<0.26	<0.035	<0.26	NC
1,1,1-Trichloroethane	<0.035	<0.19	<0.035	<0.19	<0.035	<0.19	NC
1,1,2-Trichloroethane	<0.035	<0.19	<0.035	<0.19	<0.035	<0.19	NC
Trichloroethylene	<0.035	<0.19	<0.035	<0.19	<0.035	<0.19	NC
Trichlorofluoromethane (Freon 11)	**0.34**	**1.9**	**0.33**	**1.9**	**0.35**	**2**	**5.1%**
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.14	<1.1	<0.14	<1.1	0.14	<1.1	NC
1,2,4-Trimethylbenzene	**0.079**	**0.39**	**0.088**	**0.43**	**0.091**	**0.45**	**4.5%**
1,3,5-Trimethylbenzene	<0.035	<0.17	<0.035	<0.17	<0.035	<0.17	NC
Vinyl Acetate	<0.70	<2.5	<0.70	<2.5	<0.70	<2.5	NC
Vinyl Chloride	<0.035	<0.090	<0.035	<0.090	<0.035	<0.090	NC
m&p-Xylene	**0.25**	**1.1**	**0.29**	**1.3**	**0.27**	**1.2**	**8.0%**
o-Xylene	**0.095**	**0.41**	**0.11**	**0.49**	**0.1**	**0.44**	**10.8%**

Notes:

Values in **bold** indicate detected concentrations

J-: The results for 1,2-dichlorobenzene and 1,4-dichlorobenzene 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

Relative Percent Difference (RPD) calculated using the following equation:

RPD = |X1 -X2|/[(X1+X2)/2]

where: X1 = original sample, X2 = duplicate sample

NC: RPD not calcuable due to a non-detect result in one or both co-located sample

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

Meteorological Summary

September 4th through September 7th, 2018

September 4th, 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	**1.62**	**84.7**

September 5th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SSW	**0.86**	**87.6**

September 6th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SSW	**0.96**	**89.0**

September 7th, 2018 ** *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
WSW	**2.42**	**85.7**

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

** 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

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #15-081

MEMORANDUM

September 10, 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, 3 September – 7 September, 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.

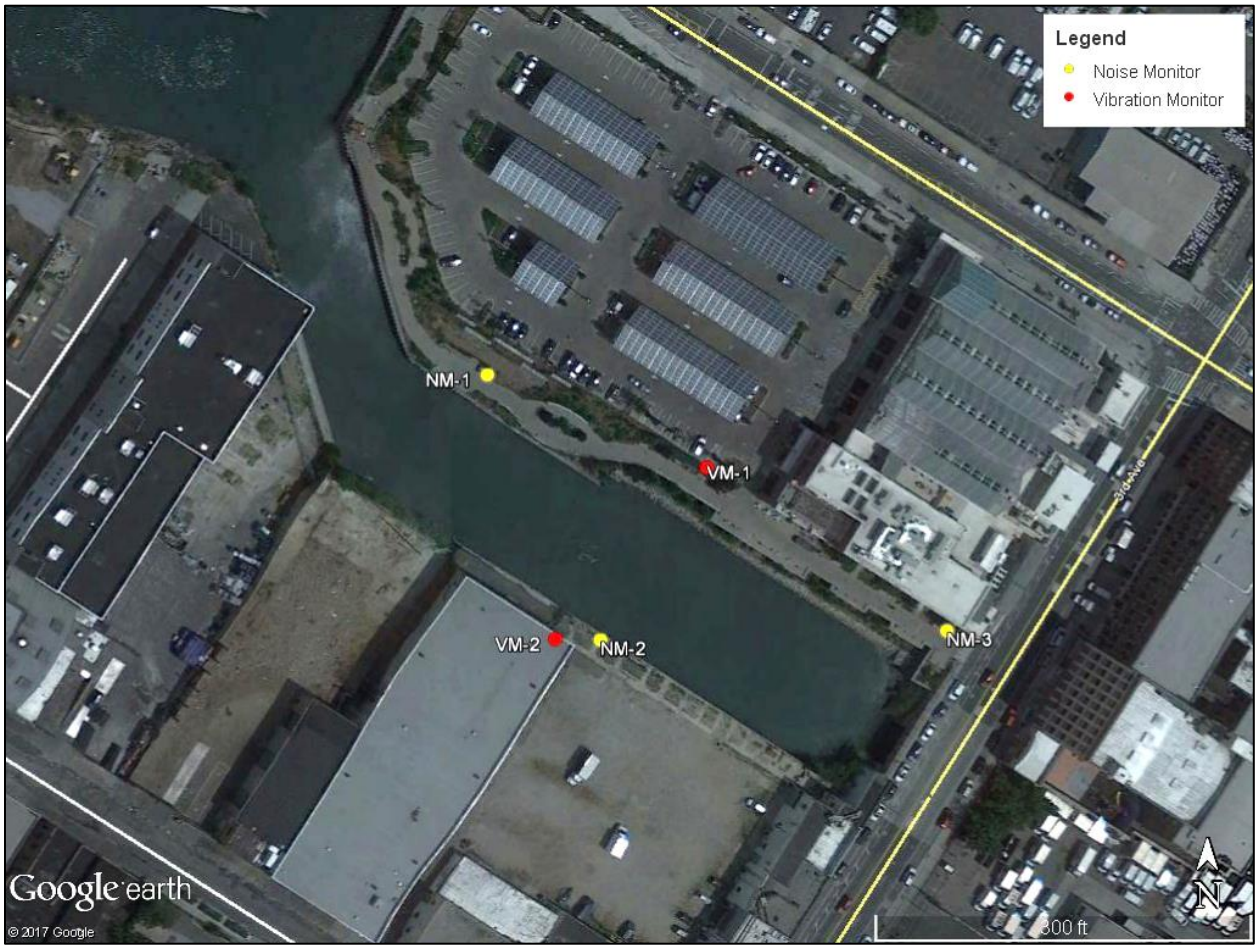


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

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

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

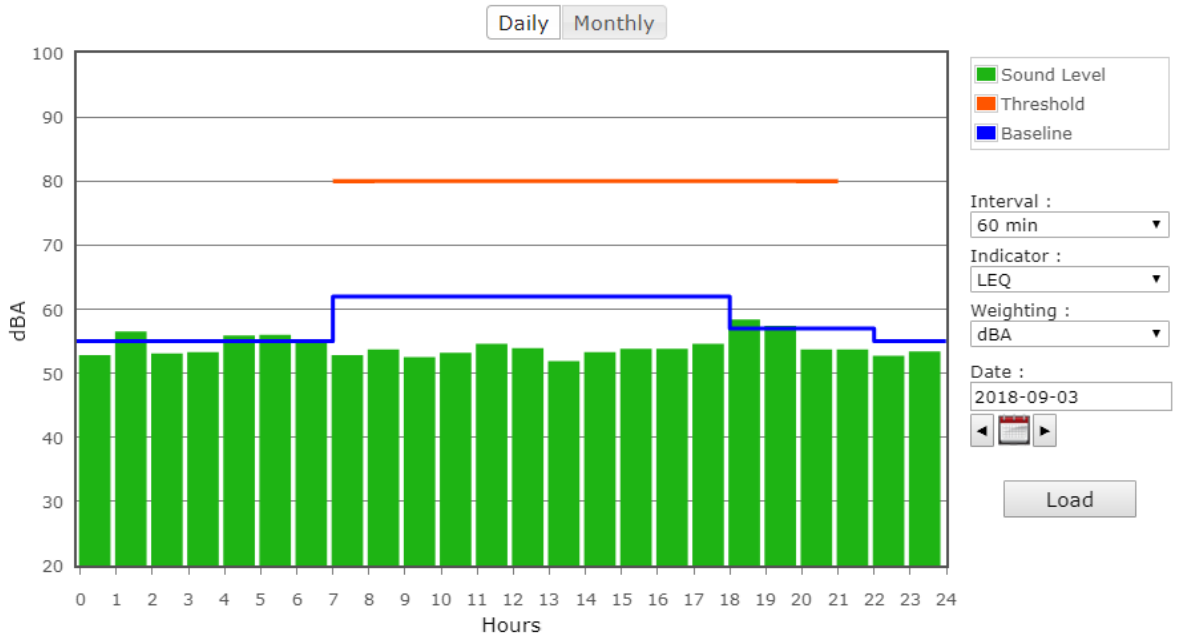


Figure 2: North Monitor NM-1 on Monday

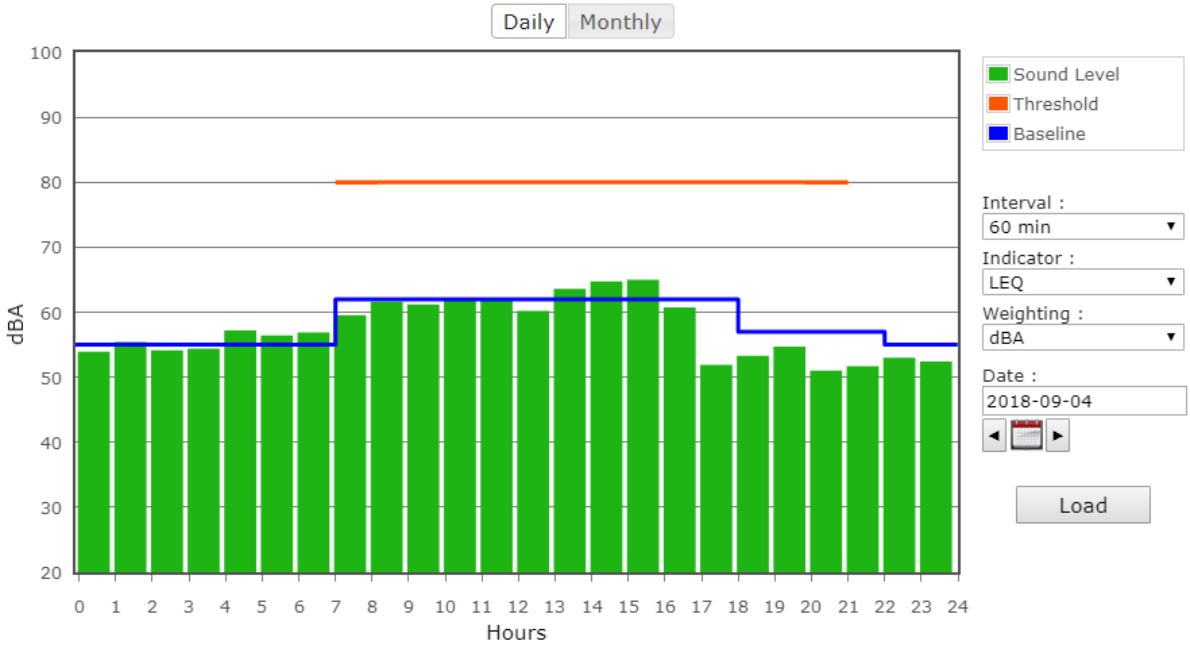


Figure 3: North Monitor NM-1 on Tuesday

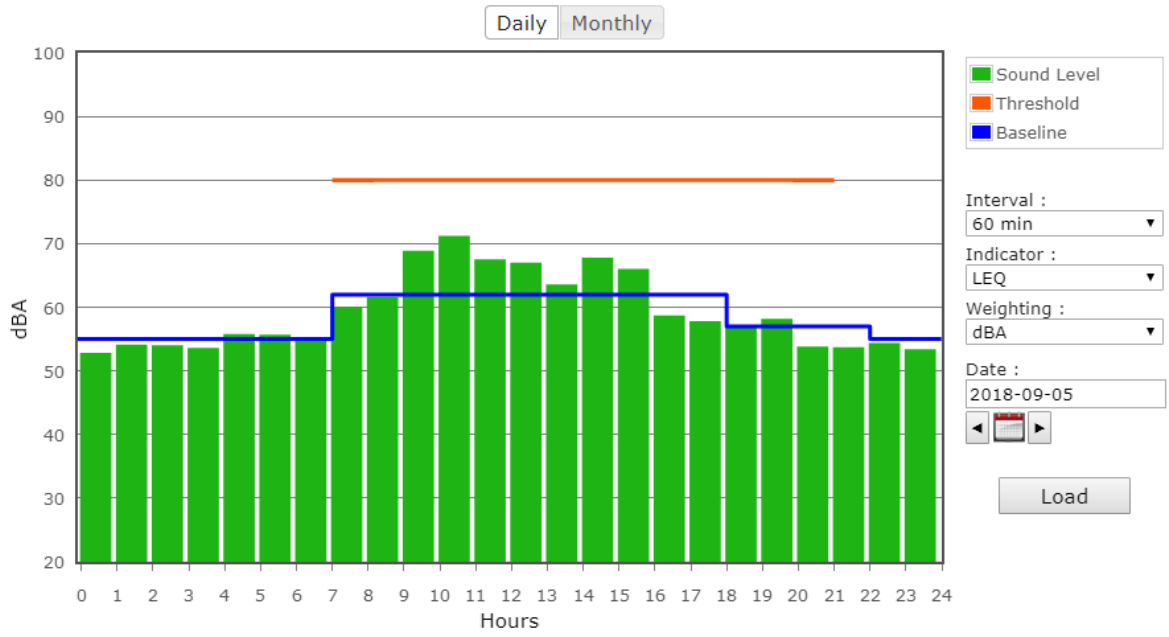


Figure 4: North Monitor NM-1 on Wednesday

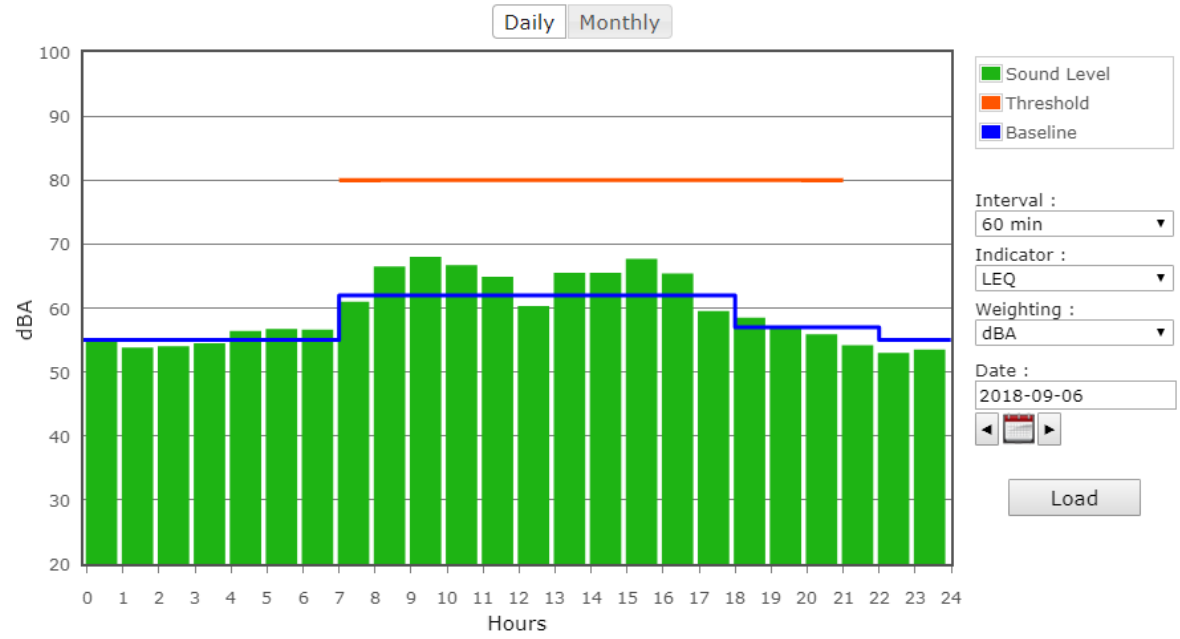


Figure 5: North Monitor NM-1 on Thursday

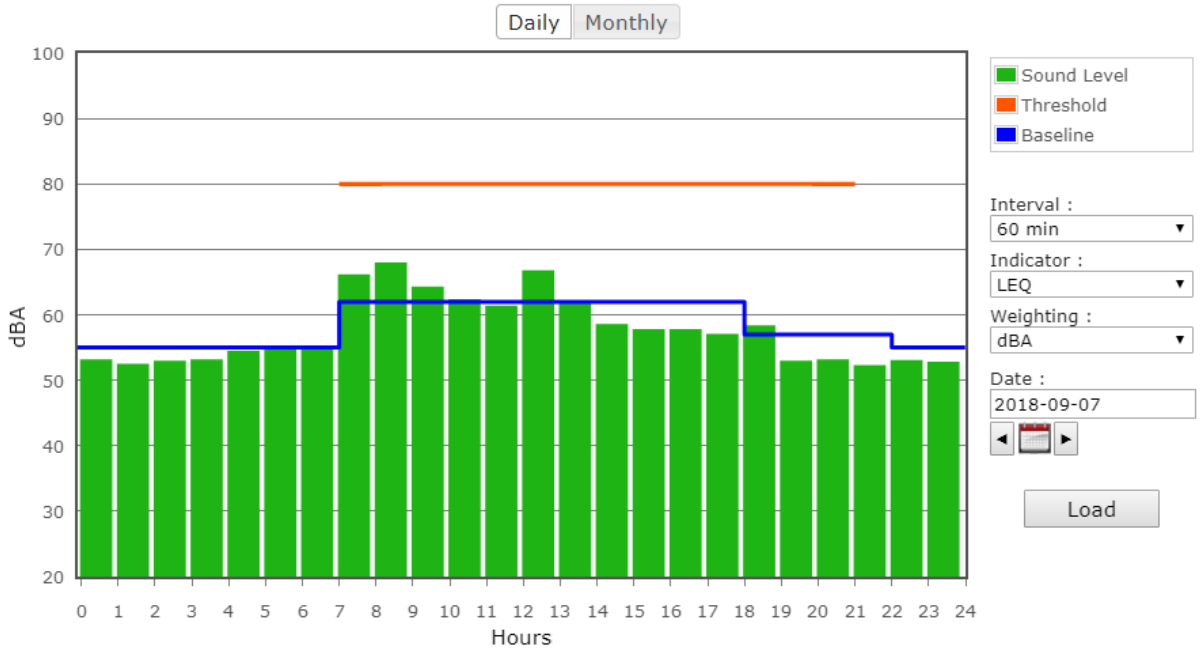


Figure 6: North Monitor NM-1 on Friday

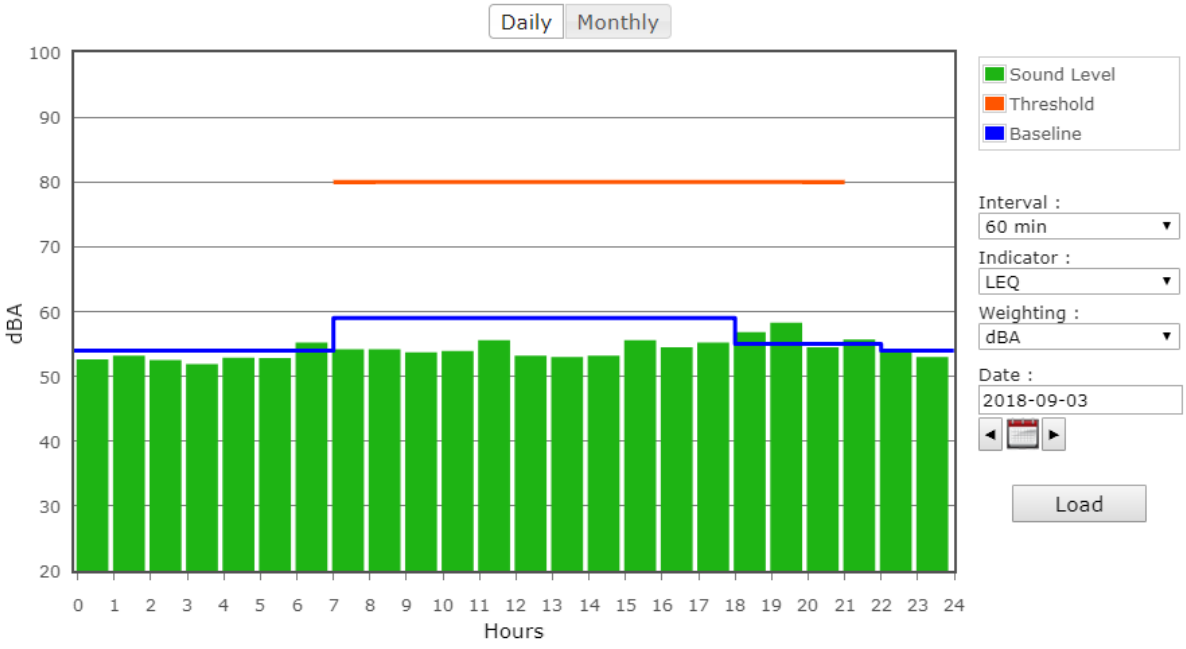


Figure 7: South Monitor NM-2 on Monday

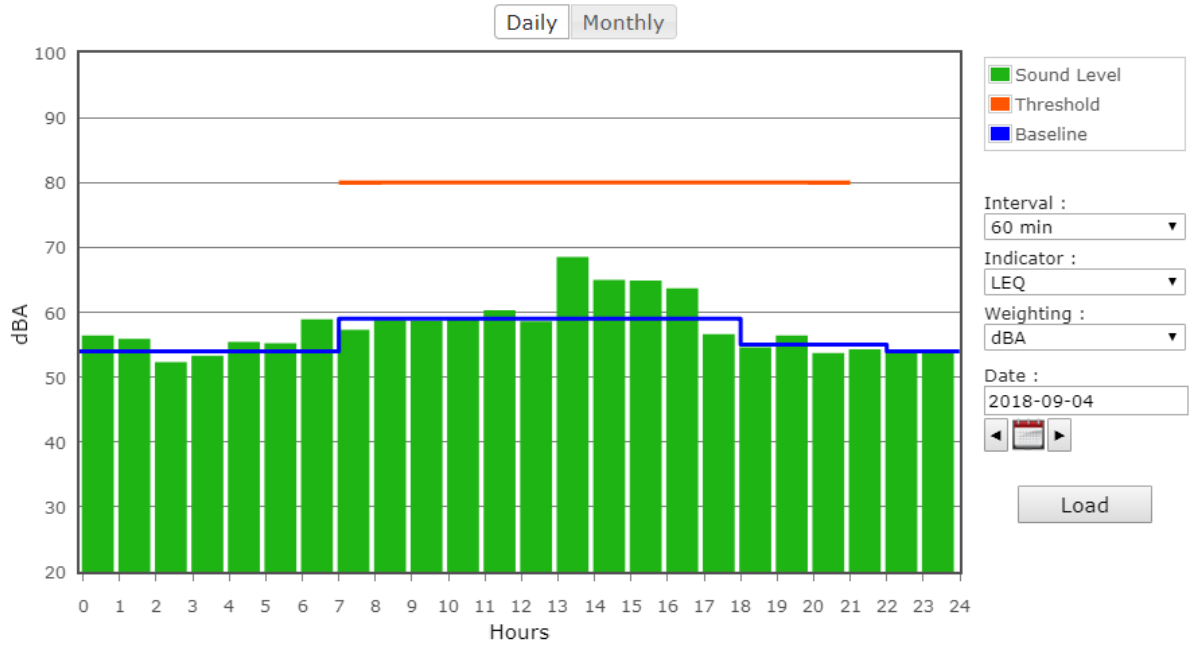


Figure 8: South Monitor NM-2 on Tuesday

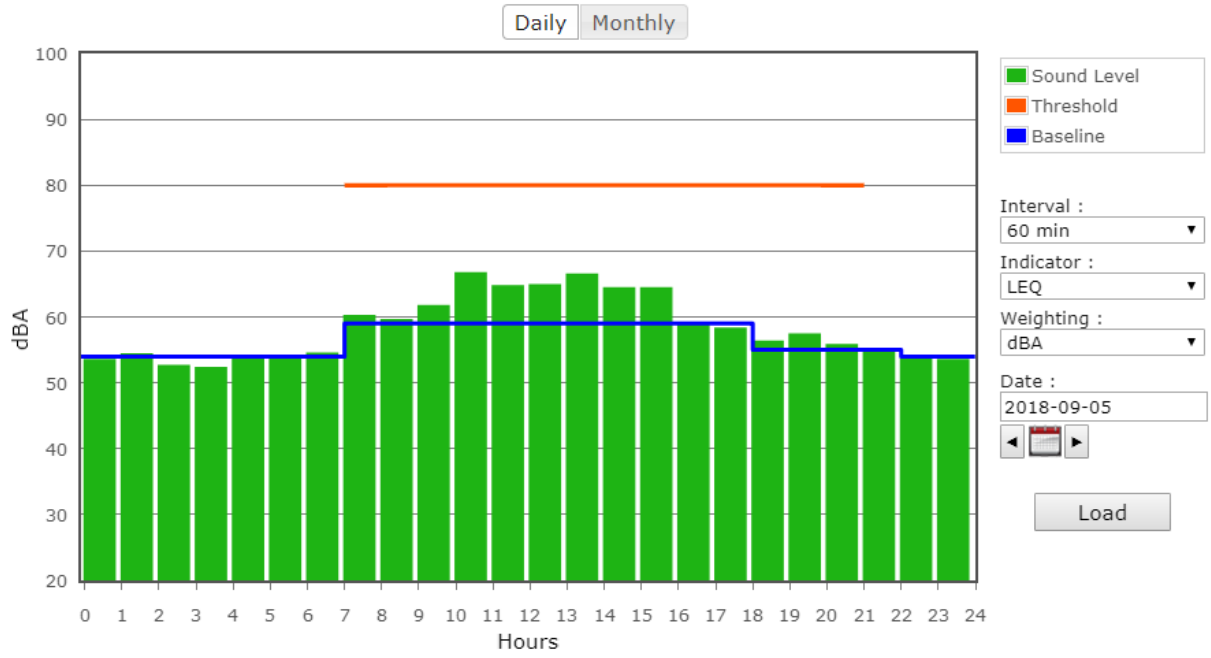


Figure 9: South Monitor NM-2 on Wednesday

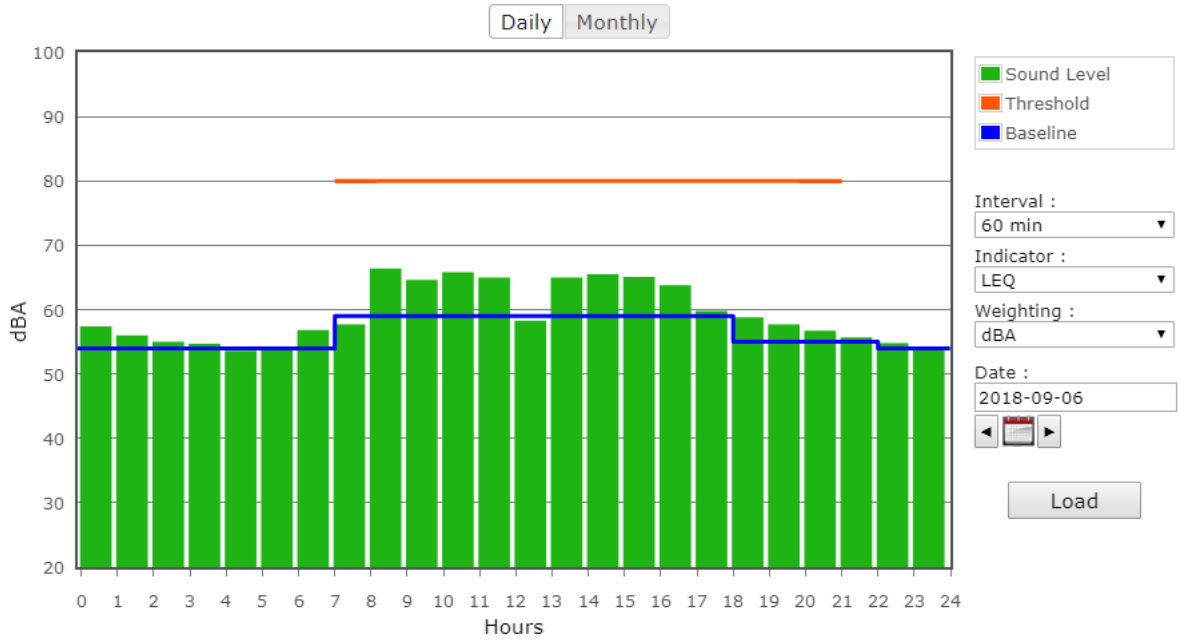


Figure 10: South Monitor NM-2 on Thursday

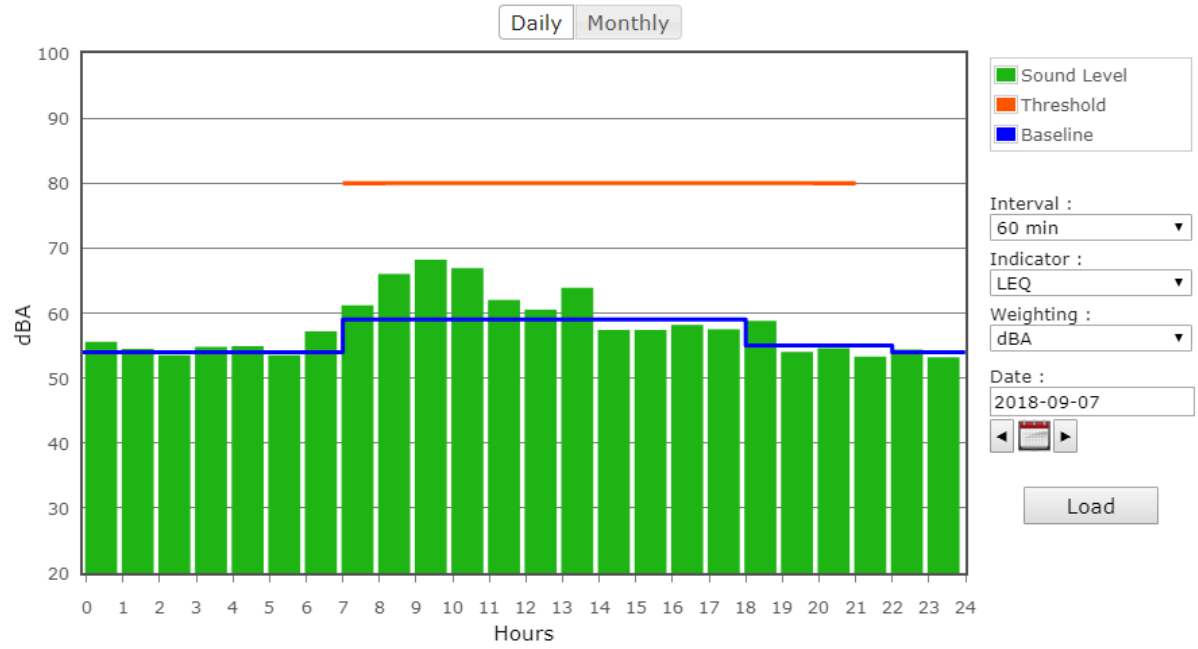


Figure 11: South Monitor NM-2 on Friday

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)