

WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: March 19 to 23, 2018

Date of Report: March 28, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust



On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Sheet Pile Installation

- Continue installation of granular backfill between installed sheet pile bulkhead supports and existing bulkheads

Phase I Dredging:

- Approximately 325 cubic yards of sediment were dredged between approximate Stations 3+00 to 4+00 to elevation -9'
- Dredged material pushed to Citizens Site for decanting prior to screening and processing at Clean Earth of Claremont

Water Treatment and Monitoring

- Treat and store accumulated stormwater from asphalt pad.
- No discharge of treated water during the week.

Air Curtain System

- Air curtain system working as approved as noted by Geosyntec. Sevenson to monitor and install diffuser ports as necessary.

Turbidity Monitoring

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

Odor and Vapor Suppression

- Odor and vapor suppression foam not deployed.

Quality Assurance and Control – Geosyntec

- No exceedance of the turbidity trigger or action criteria during work.
- Measurements for 3/19/18:
 - Daily average for ambient buoy – 12.8 NTU
 - Daily average for sentinel buoy – 10.3 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 2.6 NTU at 1545.
- Measurements for 3/20/18:
 - Daily average for ambient buoy – 13.7 NTU
 - Daily average for sentinel buoy – 11.5 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 14.1 NTU at 1245.
- Measurements for 3/21/18:
 - Daily average for ambient buoy – 13.3 NTU
 - Daily average for sentinel buoy – 10.0 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 1.2 NTU at 1545.
- Measurements for 3/22/18:
 - Daily average for ambient buoy – 11.6 NTU
 - Daily average for sentinel buoy – 12.2 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 25.4 NTU at 1535.



- Measurements for 3/23/18:
 - Daily average for ambient buoy – 10.8 NTU
 - Daily average for sentinel buoy – 9.6 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 10.3 NTU at 1300.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM₁₀) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM₁₀ in µg/m³
 - Station 1 – 12 µg/m³ recorded on 03/20/18
 - Station 2 – 13 µg/m³ recorded on 03/20/18
 - Station 3 – 24 µg/m³ recorded on 03/22/18
 - Station 4 – 7 µg/m³ recorded on 03/23/18
 - Station 5 – 10 µg/m³ recorded on 03/23/18
 - Station 6 – 11 µg/m³ recorded on 03/22 and 03/23/18
 - Station 7 – 7 µg/m³ recorded on 03/22/18
- Maximum weekly measurements of TVOC in ppb
 - Station 1 – 6 ppb recorded on 03/22 and 03/23/18
 - Station 2 – 25 ppb recorded on 03/19, 03/20, and 03/23/18
 - Station 3 – 27 ppb recorded throughout the week
 - Station 4 – 10 ppb recorded on 03/23/18
 - Station 5 – 20 ppb recorded on 03/19/, and 03/20/18
 - Station 6 – 47 ppb recorded on 03/19/18
 - Station 7 – 71 ppb recorded on 03/19/18
- All real-time readings of hydrogen sulfide, ammonia, or formaldehyde less than instrument reporting limit.
- 23-hour sample collected at ST-6 on 03/19 through 03/20. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 23-hour sample collected at ST-2 on 02/15 through 02/16, ST-6 (collocated) on 02/14 through 02/15, ST-4 on 02/20 through 02/21, and ST-2 (collocated) on 02/26 through 02/27 presented in weekly CAMP report.

Noise and Vibration Monitoring – Wilson Ihrig

- Operated and maintained three (3) noise monitors: NM-1 (north side of canal on Whole Foods promenade), NM-2 (south side of canal on southeast corner of 386 3rd Avenue), and NM-3 (southeast corner of Whole Foods at 3rd Avenue Bridge).
- Exceedances of the hourly Leq noise limit of 80 dBA during work at southern noise monitor (NM-2).
- Greatest hourly Leq noise measurements
 - Northern monitor (NM-1) – 78.6 dBA during 1000-1100 on 03/23/18
 - Southern monitor (NM-2) – 84.8 dBA during 1600-1700 on 03/19/18
 - 3rd Avenue Bridge monitor (NM-3) – 71.7 dBA during 1500-1600 on 03/19/18



- No exceedances of the commercial and industrial structures vibration criterion of 2.0 inches per second peak particle velocity.
- Greatest peak particle velocity measurements
 - Northern monitor (VM-1) – 0.0351 in/sec event between 1400 and 1500 on 03/23/18
 - Southern monitor (VM-2) – 0.09 in/sec event between 0900 and 1000 on 03/22/18

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

- No inspections conducted during week.
- Provide cultural resources training to personnel at Clean Earth of Claremont and coordinate photograph documentation requests.

Two-Week Look Ahead:

Sevenson:

- Mobilize and utilize GIKEN Silent Press to remove and install sheet piling adjacent to Dykes Lumber, Whole Foods, and within transect.
- Perform vibration, benchmark, and optical monitoring of bulkheads and surrounding structures.

Geosyntec – Perform construction quality assurance responsibilities.

TRC CAMP Monitoring – Perform community air monitoring.

Wilson Ihrig – Perform noise and vibration monitoring,

Emilcott – No activities planned.

AHRS –

- Review of screened debris from Access Dredging in preparation for off-site disposal.
- Review photographs of screened Phase I dredging debris from Clean Earth of Claremont.

Project Milestones: Key project milestones either established or completed this period include the following:

- Commence Phase I Dredging on 03/22/18.

Key Milestones

- Commence Phase I Dredging on 03/22/18.

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 current week)
5. Water Treatment System Monitoring Analytical Laboratory Data (no activities during current week)
6. Cumulative Dredged Material Chart



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 001	Date 03-19-2018
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Description
Loading concrete bucket with granular fill for placement in the bulkhead support system.



Photo No. 002	Date 03-19-2018
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Description
Backfilling bulkhead support system with granular fill.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 003	Date 03-20-2018
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Description
Holding Weeks 80 scow and pumping accumulated water from the scow to the dredge water treatment system.



Photo No. 004	Date 03-20-2018
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Description
Changing crane cable from a two part to a single line.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 005	Date 03-22-2018
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Description
Lowering environmental clamshell bucket to dredge material from TB-4.



Photo No. 006	Date 03-22-2018
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Description
Pulling loaded environmental clamshell bucket from TB-4.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 007	Date 03-23-2018
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Description
Dredging material and placing into Weeks 84 scow for transport.



Photo No. 008	Date 03-23-2018
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Description
Weeks 84 scow leaving TB-4 with a load of dredged material.



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 March 19th, 2018

Report Contents

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

Prepared by

Geosyntec  **Beech and Bonaparte** 
consultants engineering p.c.

engineers | scientists | innovators

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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 March 19th, 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 March 19th. 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.



3. HANDHELD MEASUREMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

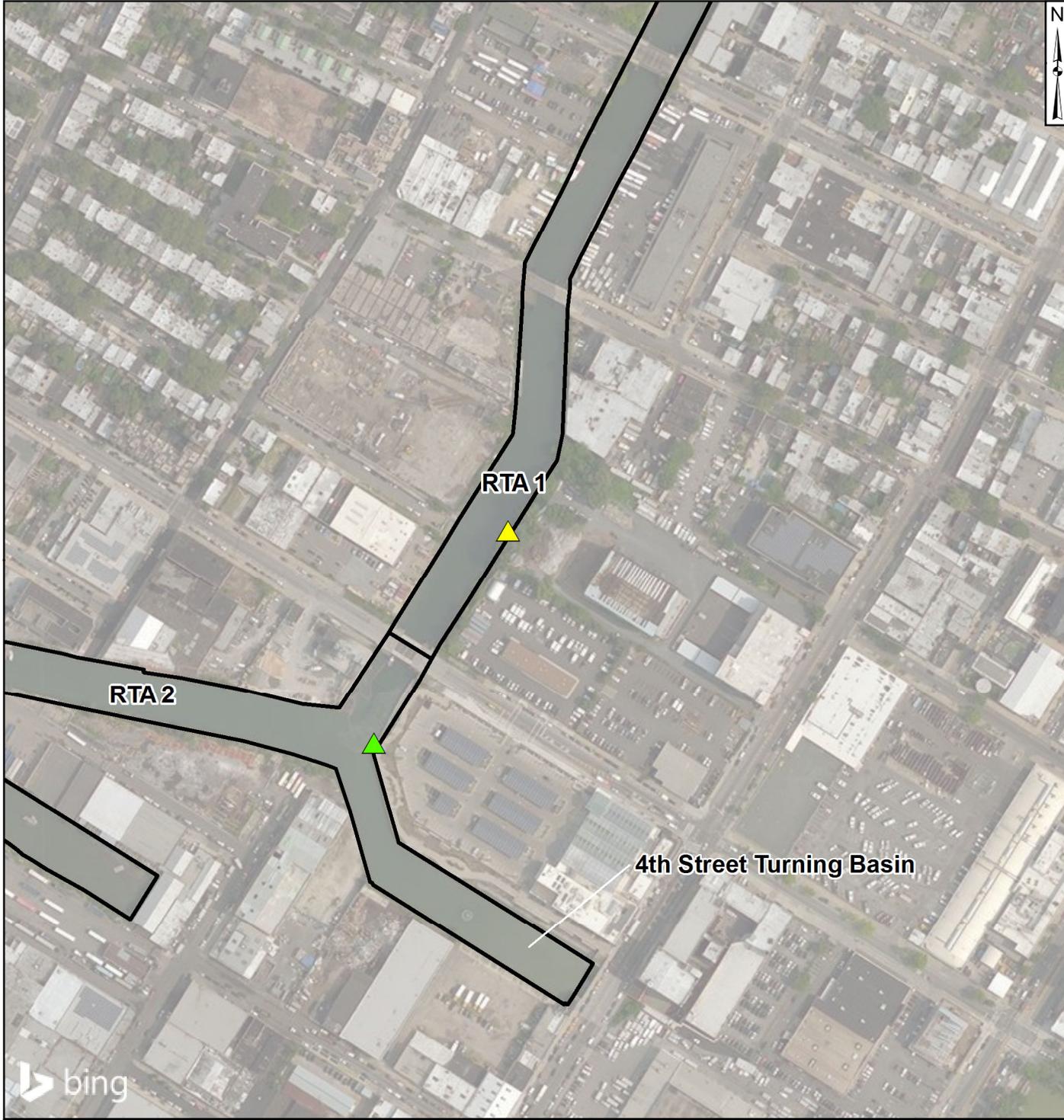
Visual observations are consistent with background conditions of the turning basin.

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

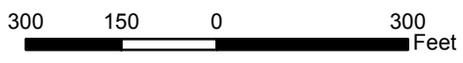


X:\03_GIS\mxd\Canal_Wide_Turbidity_Buoy_Locations.mxd; acarnes; 10/19/2017



Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

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

Figure

1

Ewing, NJ

October 2017

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

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

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT





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

**Community Air Monitoring Project
24th Weekly Monitoring Period
Summary Report:
March 19th through March 23rd, 2018**

Report Contents

- Executive Summary
- Daily Data Summary Report – PM₁₀/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 24 Monitoring Period March 19th through March 23rd, 2018

The following report summarizes site air monitoring activities for the Week 24 monitoring period from March 19th through March 23rd, 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 24 monitoring period there were no PM₁₀ or TVOC exceedances of the action level of 150 ug/m³ or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2018*.

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM₁₀) daily averages and maximums.

Figure 2 depicts the station locations along the Gowanus Canal.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 24 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 24 monitoring period of March 19th through March 23rd, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Station 6. The ST-6 sample was collected on March 19th, through March 20th, 2018. The sample was collected over a 23-hour period. The sample was 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 Station 2 and 6 during Week 19. ST-2 was collected on February 15th, through February 16th, 2018. Co-located samples (ST-6A and ST-6B) were collected at Station 6 on February 14th, through February 15th, 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, 2018.

Table 3 presents the analytical results for 23-hour samples collected at Station 4 during Week 20. The ST-4 sample was collected on February 20th through 21st, 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, 2018.

Table 4 presents the analytical results for 23-hour samples collected at Station 2 during Week 21. Co-located samples (ST-2A and ST-2B) were collected at Station 2 on February 26th, through February 27th, 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, 2018.

Site activities which were conducted at the Citizen Property on March 19th through March 23rd, 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
- Preparation and separation of artifacts for cleaning from debris removal pile.
- Operation of groundwater treatment system

Site activities which were conducted at the 4th St Turning Basin Area of the Canal on March 19th through March 23rd, 2018 included the following:

- Continued installation of granular backfill between installed sheet pile bulkhead supports and existing bulkheads
- Reconfigure crane in preparation for Phase I dredging
- Commence Phase I dredging and remove 325 cubic yards (approximately) at Northwest corner of TB4 between Stations 3+00 to 4+00 (approximate) to elevation - 9' (approximate)
- Moved dredging sediment barge to Citizen Property for de-watering

**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
03/19/2018 06:30 AM - 03/19/2018 23:45 PM**

Station 1 (Citizen Property near Construction Trailers)

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

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	25	ppb	Max.	8	ug/m ³
Avg.	8	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	27	ppb	Max.	7	ug/m ³
Avg.	12	ppb	Avg.	5	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.	20	ppb	Max.	9	ug/m ³
Avg.	9	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	47	ppb	Max.	5	ug/m ³
Avg.	25	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	71	ppb	Max.	<1	ug/m ³
Avg.	3	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
03/20/2018 00:00 AM - 03/20/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	1	ppb	Max.	12	ug/m ³
Avg.	<1	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	25	ppb	Max.	13	ug/m ³
Avg.	17	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	27	ppb	Max.	8	ug/m ³
Avg.	18	ppb	Avg.	5	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.	20	ppb	Max.	5	ug/m ³
Avg.	11	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.	6	ug/m ³
Avg.	5	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

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

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
03/22/2018 00:00 AM - 03/22/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	6	ppb	Max.	10	ug/m ³
Avg.	<1	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	15	ppb	Max.	7	ug/m ³
Avg.	1	ppb	Avg.	2	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.	6	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.	2	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.	23	ppb	Max.	11	ug/m ³
Avg.	2	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	43	ppb	Max.	7	ug/m ³
Avg.	3	ppb	Avg.	1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
03/23/2018 00:00 AM - 03/23/2018 16:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	6	ppb	Max.	9	ug/m ³
Avg.	<1	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	25	ppb	Max.	11	ug/m ³
Avg.	9	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	27	ppb	Max.	12	ug/m ³
Avg.	17	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	10	ppb	Max.	7	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.	9	ppb	Max.	10	ug/m ³
Avg.	3	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	5	ppb	Max.	11	ug/m ³
Avg.	4	ppb	Avg.	4	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

PM₁₀ – Particulates as PM₁₀

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

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

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

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 24

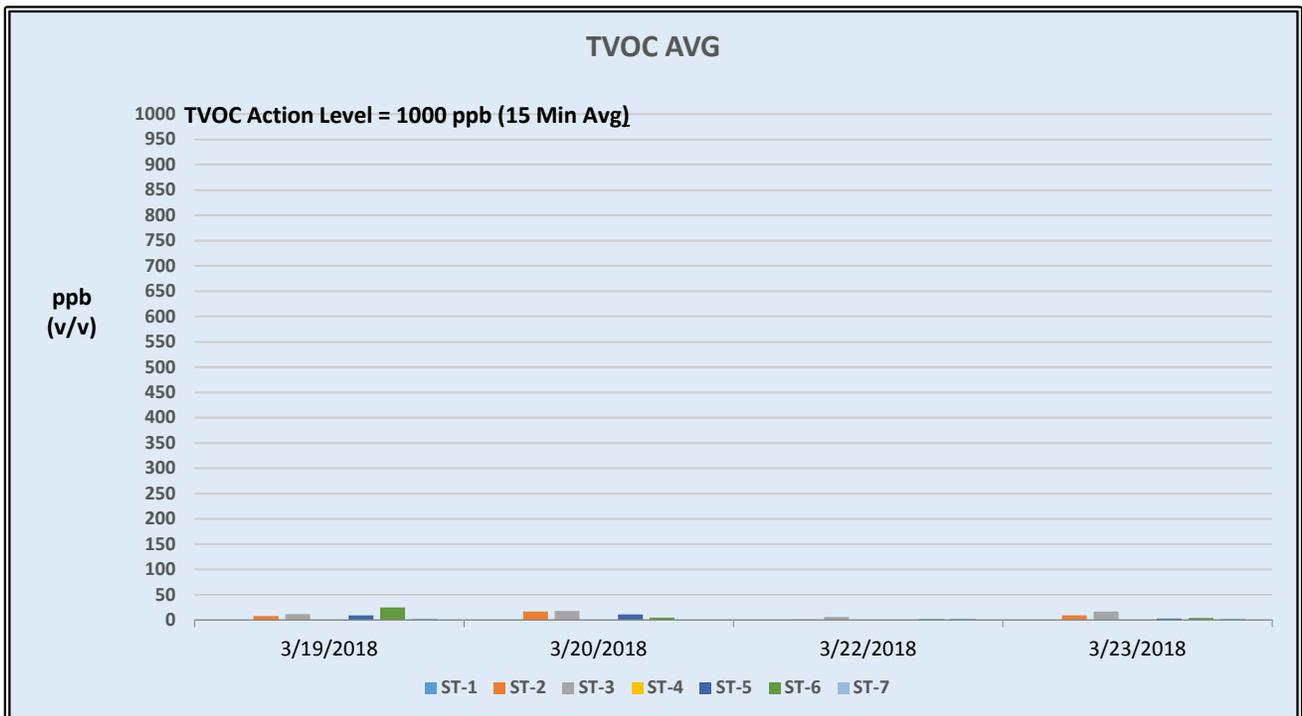
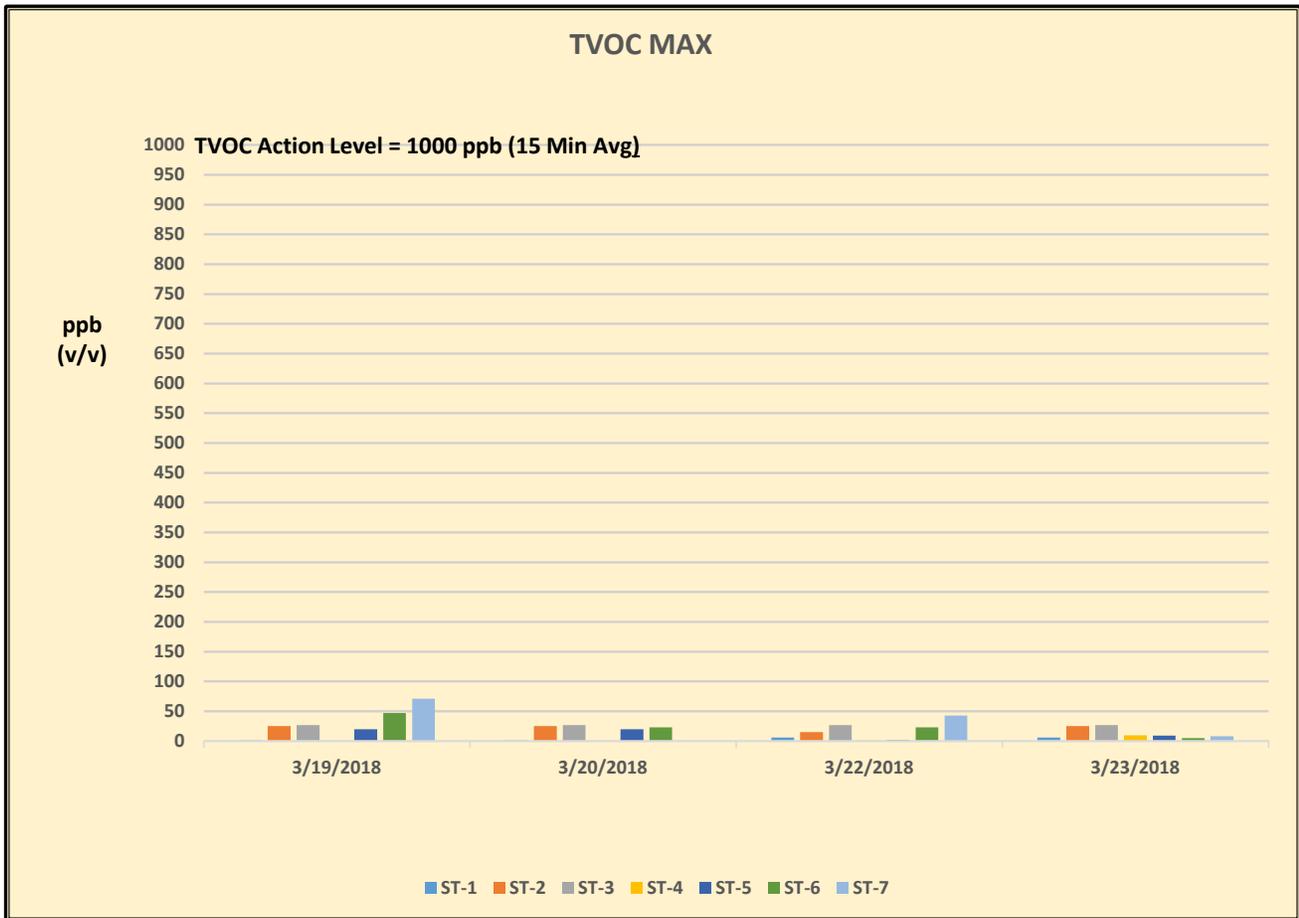
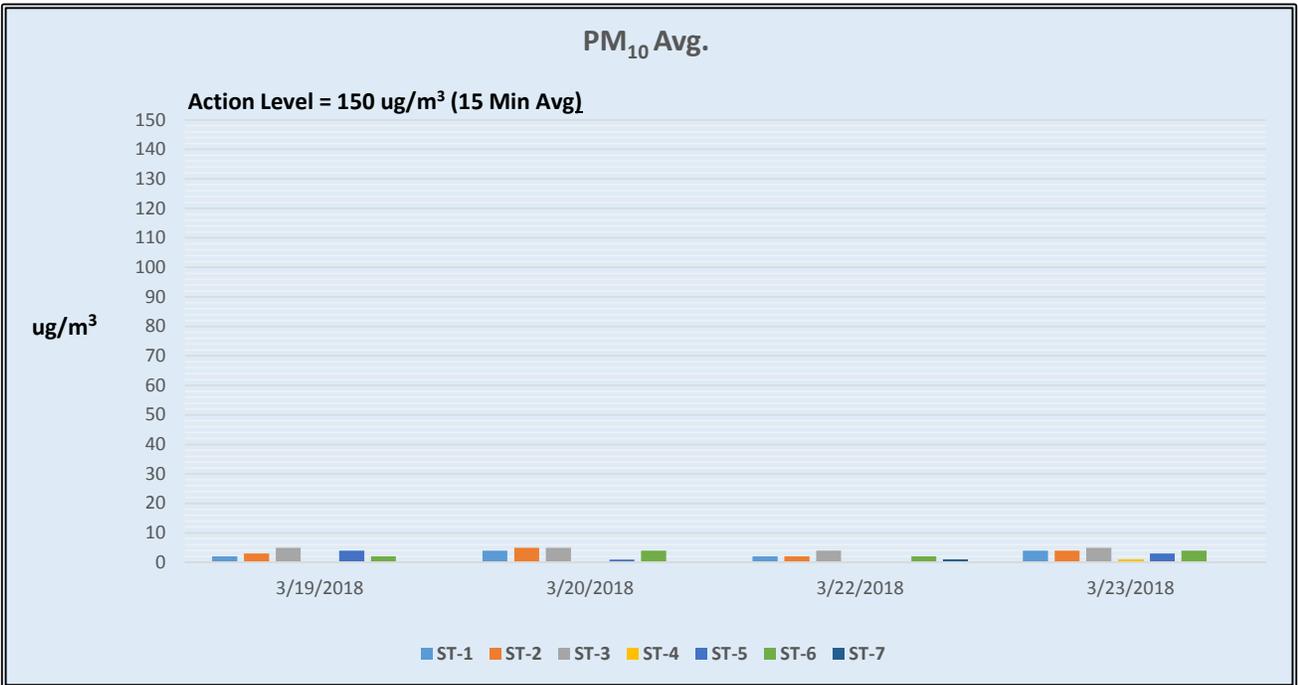
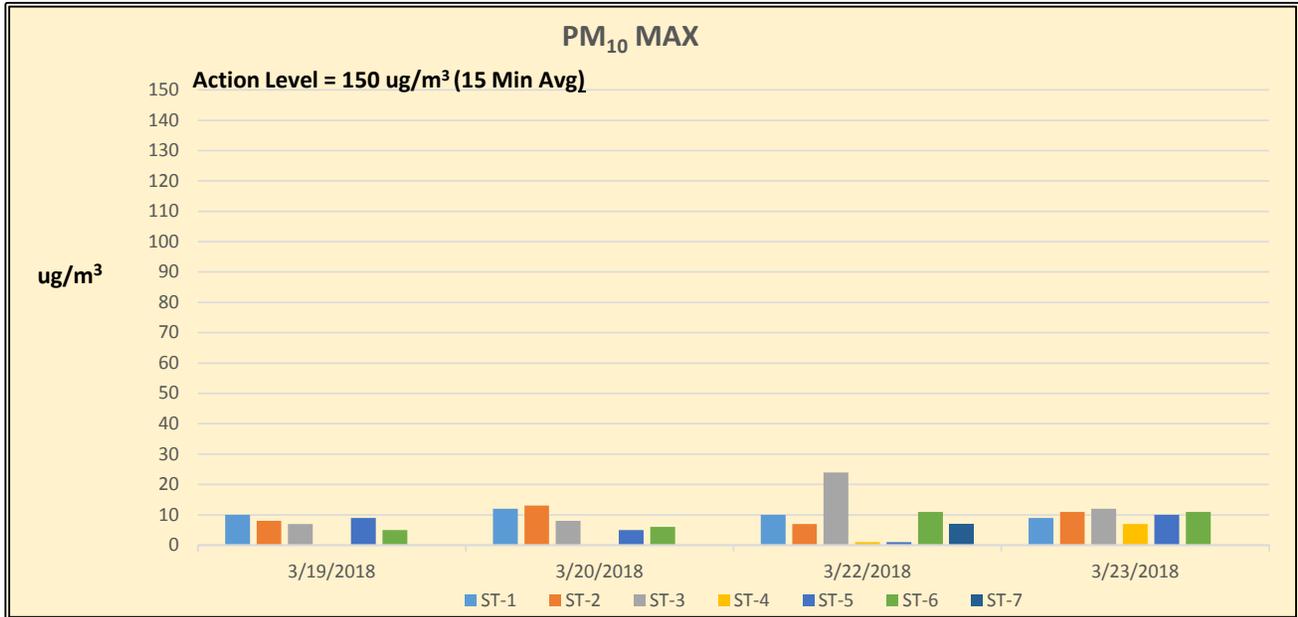


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM₁₀ Monitoring Data - Week 24



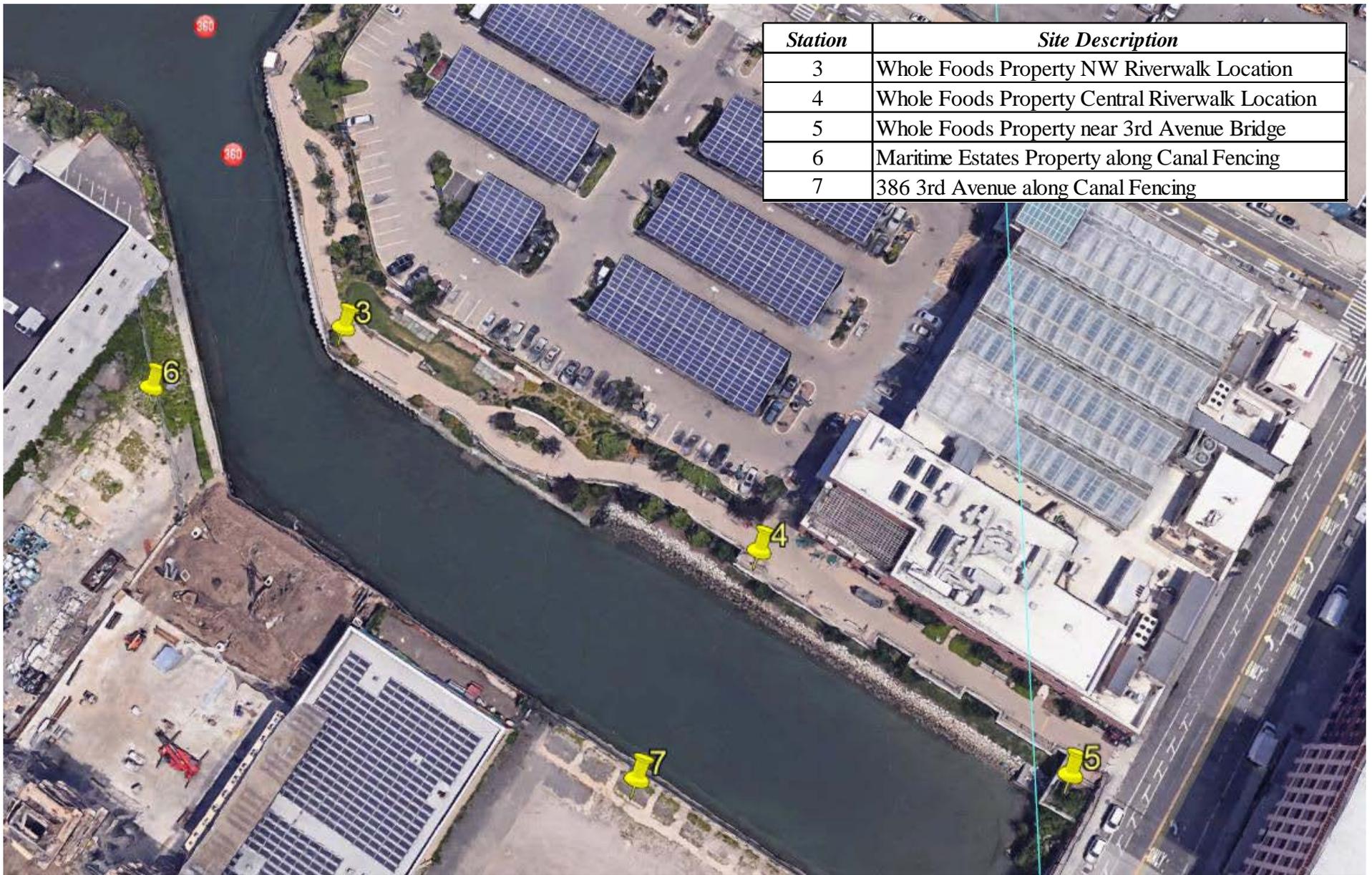


FIGURE 3
Gowanus Canal Superfund Site-TB4
Dredging and Capping Pilot Program

Table 1

Week 24

Summary of Additional Periodic (Daily) Monitoring Data

March 19 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	7:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	7:35	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	7:50	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-4	7:55	<50	<3	<1.0
	15:25	<50	<3	<1.0
ST-5	8:05	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-6	8:20	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-7	8:35	<50	<3	<1.0
	15:50	<50	<3	<1.0
March 20 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	8:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:05	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	8:20	<50	<3	<1.0
	14:20	<50	<3	<1.0
ST-4	8:25	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-5	8:30	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-6	8:50	<50	<3	<1.0
	14:50	<50	<3	<1.0
ST-7	9:00	<50	<3	<1.0
	14:55	<50	<3	<1.0

Table 1

Week 24

Summary of Additional Periodic (Daily) Monitoring Data

March 22 nd , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	7:45	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-2	7:50	<50	<3	<1.0
	13:40	<50	<3	<1.0
ST-3	7:55	<50	<3	<1.0
	13:55	<50	<3	<1.0
ST-4	8:05	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-5	8:15	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-6	8:20	<50	<3	<1.0
	14:20	<50	<3	<1.0
ST-7	8:35	<50	<3	<1.0
	14:40	<50	<3	<1.0

March 23 rd , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	8:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:05	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	8:15	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-4	8:20	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-5	8:25	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-6	8:40	<50	<3	<1.0
	14:45	<50	<3	<1.0
ST-7	8:55	<50	<3	<1.0
	15:00	<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 19 VOCs Results: February 14th through 15th (Co-located) and February 15th through 16th

Sample ID	ST-2-VOC-021518		ST-6A-VOC-021418		ST-6B-VOC-021418		Relative Percent Difference
	18B0899-01		18B0877-01		18B0877-02		
Laboratory ID	2/15/18 12:30 - 2/16/18 11:30		2/14/18 12:30 - 2/15/18 11:30		2/14/18 12:30 - 2/15/18 11:30		Difference
Date Sampled	Station 2		Station 6		Station 6 Duplicate		Station 6 Pair
Location	ppbV	ug/m3	ppbV	ug/m3	ppbV	ug/m3	
VOCs - TO-15							
Acetone	9.3	22	8.3	20	5.2	12	50.0%
Benzene	0.61	1.9	0.33	1.1	0.26	0.82	29.2%
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	0.058	0.23	0.081	0.32	0.087	0.34	6.1%
1,3-Butadiene	0.12	0.27	<0.035	<0.078	<0.035	<0.078	NC
2-Butanone (MEK)	<1.4	<4.1	<1.4	<4.1	<1.4	<4.1	NC
Carbon Disulfide	<0.35	<1.1	<0.35	<1.1	<0.35	<1.1	NC
Carbon Tetrachloride	0.079	0.5	0.067	0.42	0.071	0.45	6.9%
Chlorobenzene	<0.035	<0.16	<0.035	<0.16	<0.035	<0.16	NC
Chloroethane	0.041	0.11	<0.035	<0.093	<0.035	<0.093	NC
Chloroform	0.085	0.41	<0.035	<0.17	<0.035	<0.17	NC
Chloromethane	0.65	1.3	0.51	1.1	0.52	1.1	0.0%
Cyclohexane	0.25	0.85	0.12	0.4	0.1	0.35	13.3%
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	<0.035	<0.21	<0.035	<0.21	NC
1,3-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21	<0.035	<0.21	NC
1,4-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21	<0.035	<0.21	NC
Dichlorodifluoromethane (Freon 12)	0.3	1.5	0.21	1	0.19	0.93	7.3%
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	<0.14	<0.035	<0.14	<0.035	<0.14	NC
cis-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14	<0.035	<0.14	NC
trans-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14	<0.035	<0.14	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	10	19	11	20	8.7	16	22.2%
Ethyl Acetate	0.18	0.65	0.25	0.89	0.25	0.9	1.1%
Ethylbenzene	0.23	0.99	0.1	0.44	0.081	0.35	22.8%
4-Ethyltoluene	0.067	0.33	<0.035	<0.17	<0.035	<0.17	NC
Heptane	0.32	1.3	0.16	0.64	0.14	0.56	13.3%
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)	<0.035	<0.14	0.064	0.26	0.073	0.3	14.3%
Isopropanol	<1.4	<3.4	<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	0.36	1.3	0.39	1.4	0.45	1.6	NC
4-Methyl-2-pentanone (MIBK)	0.12	0.49	0.047	0.19	<0.035	<0.14	NC
Naphthalene	0.21	1.1	J+ 0.075	0.39	0.078	0.41	5.0%
Propene	<1.4	<2.4	<1.4	<2.4	<1.4	<2.4	NC
Styrene	0.058	2.5	<0.035	<0.15	<0.035	<0.15	NC
1,1,2,2-Tetrachloroethane	<0.035	<0.10	<0.035	<0.10	<0.035	<0.10	NC
Tetrachloroethylene	0.37	2.5	1.2	8.3	1.1	7.5	10.1%
Tetrahydrofuran	<0.035	<0.10	<0.035	<0.10	<0.035	<0.10	NC
Toluene	1.7	6.3	0.79	3	0.68	2.6	14.3%
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)	0.36	2.1	0.28	1.6	0.27	1.5	6.5%
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	0.2	0.99	0.099	0.49	0.091	0.45	8.5%
1,3,5-Trimethylbenzene	0.063	0.31	<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	0.61	2.7	0.3	1.3	0.25	1.1	16.7%
o-Xylene	0.23	1	0.12	0.5	0.1	0.45	10.5%

Notes:

Values in **bold** indicate detected concentrations

J+: The detected result for naphthalene in this sample is estimated and may be biased high.

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 calculable due to a non-detect result in one or both co-located sample

Table 3:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 20 VOCs Results: February 20th through 21st

Sample ID	ST-4-VOC-022018		
Laboratory ID	18B0902-01		
Date Sampled	2/20/2018 12:30 - 2/21/18 11:30		
Location	Station 4		
	ppbV	ug/m ³	
VOCs - TO-15			
Acetone	7.5	18	
Benzene	0.32	1	
<i>Benzyl chloride</i>	<0.035	<0.18	
<i>Bromodichloromethane</i>	<0.035	<0.24	
<i>Bromoform</i>	<0.035	<0.36	
<i>Bromomethane</i>	<0.035	<0.14	
<i>1,3-Butadiene</i>	0.087	0.19	
<i>2-Butanone (MEK)</i>	<1.4	<4.1	
<i>Carbon Disulfide</i>	<0.35	<1.1	
<i>Carbon Tetrachloride</i>	0.079	0.49	
<i>Chlorobenzene</i>	<0.035	<0.16	
<i>Chloroethane</i>	<0.035	<0.19	
<i>Chloroform</i>	0.043	0.21	
<i>Chloromethane</i>	0.61	1.3	
<i>Cyclohexane</i>	0.11	0.37	
<i>Dibromochloromethane</i>	<0.035	<0.30	
<i>1,2-Dibromoethane (EDB)</i>	<0.035	<0.27	
<i>1,2-Dichlorobenzene</i>	<0.035	<0.21	
<i>1,3-Dichlorobenzene</i>	<0.035	<0.21	
<i>1,4-Dichlorobenzene</i>	0.072	0.43	
<i>Dichlorodifluoromethane (Freon 12)</i>	0.28	1.4	
<i>1,1-Dichloroethane</i>	<0.035	<0.14	
<i>1,2-Dichloroethane</i>	<0.035	<0.14	
<i>1,1-Dichloroethylene</i>	<0.035	<0.14	
<i>cis-1,2-Dichloroethylene</i>	<0.035	<0.14	
<i>trans-1,2-Dichloroethylene</i>	<0.035	<0.14	
<i>1,2-Dichloropropane</i>	<0.035	<0.16	
<i>cis-1,3-Dichloropropene</i>	<0.035	<0.16	
<i>trans-1,3-Dichloropropene</i>	<0.035	<0.16	
<i>1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)</i>	<0.035	<0.25	
<i>1,4-Dioxane</i>	<0.35	<1.3	
<i>Ethanol</i>	11	22	
<i>Ethyl Acetate</i>	0.19	0.7	
<i>Ethylbenzene</i>	0.18	0.8	
<i>4-Ethyltoluene</i>	0.049	0.24	
<i>Heptane</i>	0.18	0.74	
<i>Hexachlorobutadiene</i>	<0.035	<0.37	
<i>Hexane</i>	<1.4	<4.9	
<i>2-Hexanone (MBK)</i>	0.058	0.24	
<i>Isopropanol</i>	2.1	5.1	
<i>Methyl tert-Butyl Ether (MTBE)</i>	<0.035	<0.13	
<i>Methylene Chloride</i>	0.36	1.3	
<i>4-Methyl-2-pentanone (MIBK)</i>	0.069	0.28	
<i>Naphthalene</i>	0.082	0.43	J+
<i>Propene</i>	<1.4	<2.4	
<i>Styrene</i>	0.036	0.16	
<i>1,1,2,2-Tetrachloroethane</i>	<0.035	<0.24	
<i>Tetrachloroethylene</i>	0.58	3.9	
<i>Tetrahydrofuran</i>	<0.035	<0.10	
<i>Toluene</i>	1.1	4.2	
<i>1,2,4-Trichlorobenzene</i>	<0.035	<0.26	
<i>1,1,1-Trichloroethane</i>	<0.035	<0.19	
<i>1,1,2-Trichloroethane</i>	<0.035	<0.19	
<i>Trichloroethylene</i>	<0.035	<0.19	
<i>Trichlorofluoromethane (Freon 11)</i>	0.27	1.5	
<i>1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)</i>	<0.14	<1.1	
<i>1,2,4-Trimethylbenzene</i>	0.17	0.82	
<i>1,3,5-Trimethylbenzene</i>	0.054	0.27	
<i>Vinyl Acetate</i>	<0.70	<2.5	
<i>Vinyl Chloride</i>	<0.035	<0.090	
<i>m&p-Xylene</i>	0.6	2.6	
<i>o-Xylene</i>	0.22	0.96	

Notes:

Values in **bold** indicate detected concentrations

J+: The result for naphthalene is an estimated quantity, but may be biased high.

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

acetone, ethanol, methylene chloride and isopropanol

Table 4:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 21 VOCs Results: February 26th through 27th (Co-located)

Sample ID	ST-2A-VOC-022618		ST-2B-VOC-022618		Relative Percent Difference
	18B1179-01		18B1179-02		
Laboratory ID	2/26/18 15:00 - 2/27/18 14:00		2/26/18 15:00 - 2/27/18 14:00		
Date Sampled	Station 2		Station 2 Duplicate		Station 2 Pair
Location	ppbV	ug/m3	ppbV	ug/m3	
VOCs - TO-15					
Acetone	10	24	5.7	13	59.5%
Benzene	0.45	1.4	0.3	0.97	36.3%
Benzyl chloride	<0.040	<0.21	<0.035	<0.18	NC
Bromodichloromethane	<0.040	<0.27	<0.035	<0.24	NC
Bromoform	<0.040	<0.41	<0.035	<0.36	NC
Bromomethane	<0.040	<0.16	<0.035	<0.14	NC
1,3-Butadiene	0.094	0.21	0.073	0.16	27.0%
2-Butanone (MEK)	<1.6	<4.7	<1.4	<4.1	NC
Carbon Disulfide	<0.40	<1.2	<0.35	<1.1	NC
Carbon Tetrachloride	0.07	0.44	0.05	0.31	34.7%
Chlorobenzene	<0.040	<0.18	<0.035	<0.16	NC
Chloroethane	<0.040	<0.11	<0.035	<0.093	NC
Chloroform	0.048	0.23	<0.035	<0.17	NC
Chloromethane	0.56	1.2	0.4	0.83	36.5%
Cyclohexane	0.17	0.57	0.12	0.42	30.3%
Dibromochloromethane	<0.040	<0.34	<0.035	<0.30	NC
1,2-Dibromoethane (EDB)	<0.040	<0.31	<0.035	<0.27	NC
1,2-Dichlorobenzene	<0.040	<0.21	<0.035	<0.21	NC
1,3-Dichlorobenzene	<0.040	<0.24	<0.035	<0.21	NC
1,4-Dichlorobenzene	<0.040	<0.24	<0.035	<0.21	NC
Dichlorodifluoromethane (Freon 12)	0.54	2.7	0.38	1.9	34.8%
1,1-Dichloroethane	<0.040	<0.16	<0.035	<0.14	NC
1,2-Dichloroethane	<0.040	<0.16	<0.035	<0.14	NC
1,1-Dichloroethylene	<0.040	<0.16	<0.035	<0.14	NC
cis-1,2-Dichloroethylene	<0.040	<0.16	<0.035	<0.14	NC
trans-1,2-Dichloroethylene	<0.040	<0.16	<0.035	<0.14	NC
1,2-Dichloropropane	<0.040	<0.18	<0.035	<0.16	NC
cis-1,3-Dichloropropene	<0.040	<0.19	<0.035	<0.16	NC
trans-1,3-Dichloropropene	<0.040	<0.20	<0.035	<0.16	NC
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.040	<0.28	<0.035	<0.25	NC
1,4-Dioxane	<0.40	<1.4	<0.35	<1.3	NC
Ethanol	11	21	9.1	17	21.1%
Ethyl Acetate	0.31	1.1	0.15	0.54	68.3%
Ethylbenzene	0.15	0.67	0.11	0.46	37.2%
4-Ethyltoluene	0.051	0.25	0.037	0.18	32.6%
Heptane	0.24	0.98	0.16	0.66	39.0%
Hexachlorobutadiene	<0.040	<0.43	<0.035	<0.37	NC
Hexane	<1.6	<5.6	<1.4	<4.9	NC
2-Hexanone (MBK)	0.11	0.45	0.1	0.43	4.5%
Isopropanol	<1.6	<3.9	<1.4	<3.4	NC
Methyl tert-Butyl Ether (MTBE)	<0.040	<0.14	<0.035	<0.13	NC
Methylene Chloride	<0.40	<1.4	<0.35	<1.2	NC
4-Methyl-2-pentanone (MIBK)	0.066	0.27	0.046	0.19	34.8%
Naphthalene	0.054	0.29	0.046	0.24	18.9%
Propene	<1.6	<2.8	<1.4	<2.4	NC
Styrene	<0.040	<0.17	<0.035	<0.15	NC
1,1,2,2-Tetrachloroethane	<0.040	<0.27	<0.035	<0.10	NC
Tetrachloroethylene	0.19	1.3	0.13	0.87	39.6%
Tetrahydrofuran	0.05	0.15	0.038	0.11	30.8%
Toluene	1.4	5.2	0.86	3.2	47.6%
1,2,4-Trichlorobenzene	<0.040	<0.30	<0.035	<0.26	NC
1,1,1-Trichloroethane	<0.040	<0.22	<0.035	<0.19	NC
1,1,2-Trichloroethane	<0.040	<0.22	<0.035	<0.19	NC
Trichloroethylene	<0.040	<0.21	<0.035	<0.19	NC
Trichlorofluoromethane (Freon 11)	0.32	1.8	0.23	1.3	32.3%
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.16	<1.2	<0.14	<1.1	NC
1,2,4-Trimethylbenzene	0.16	0.8	0.12	0.61	27.0%
1,3,5-Trimethylbenzene	0.047	0.23	<0.035	<0.17	NC
Vinyl Acetate	<0.80	<2.8	<0.70	<2.5	NC
Vinyl Chloride	<0.040	<0.10	<0.035	<0.090	NC
m&p-Xylene	0.44	1.9	0.31	1.3	37.5%
o-Xylene	0.16	0.69	0.12	0.51	30.0%

Notes:

Values in **bold** indicate detected concentrations

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 calculable 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
March 19th through March 23rd, 2018**

March 19 th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
W	3.15	40.8

March 20 th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
NNE	7.73	34.7

March 22 nd , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
W	2.33	37.5

March 23 rd , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
W	3.15	40.8

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

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

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

WILSON IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT





WI #15-081

MEMORANDUM

March 26, 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 and Vibration Monitoring Report, 19 March – 23 March, 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. NM-3 is installed at a light pole on the north side of TB4 near 3rd Avenue, approximately 50 feet from the north edge of the canal. Photos 1, 2, and 3 show the recent field conditions at the monitors.

Vibration Monitoring Locations

Figure 1 shows the vibration monitoring locations. Vibration monitor VM-1 is installed at the parking lot curb on the north side of TB4, approximately 45 feet from the north edge of the canal. Vibration monitor VM-2 is installed near the corner of an existing building on the south side of TB4, approximately 24 feet from the south edge of the canal. Photos 4 and 5 show the recent field conditions at the monitors.

Noise Monitoring Results

Figures 2 through 16 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring plan¹. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference². Noise level data for Northeast Monitor NM-3 on Wednesday, March 21 over the 15:00, 19:00, and 21:00 intervals are incomplete due to intermittent equipment issues.

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.

Vibration Monitoring Results

Figures 17 through 26 present the maximum peak particle velocity (PPV) vibration events compared with the thresholds discussed in the vibration monitoring plan³. Commercial and Industrial structures are assigned a PPV vibration criterion of 2.0 inches/second.

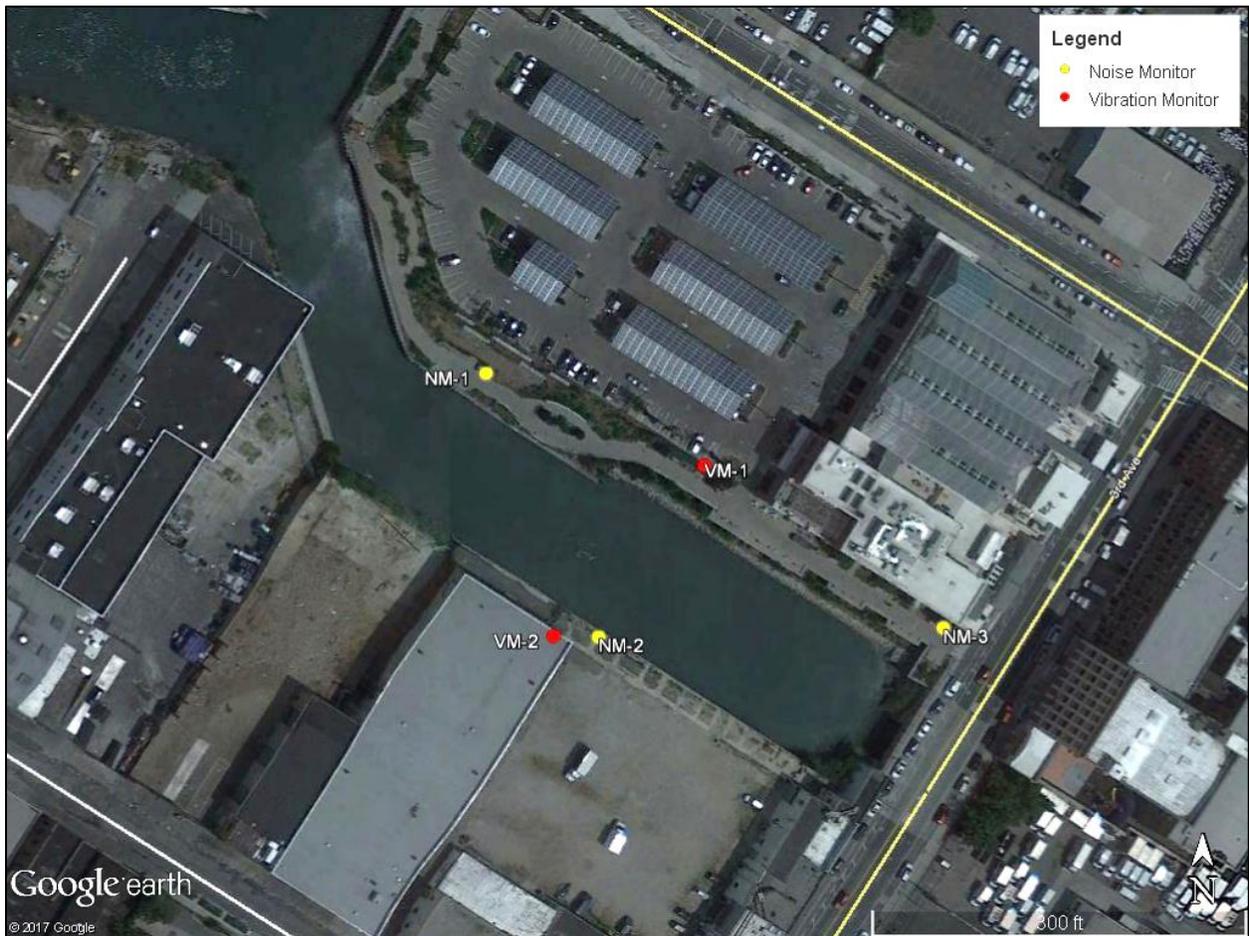


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

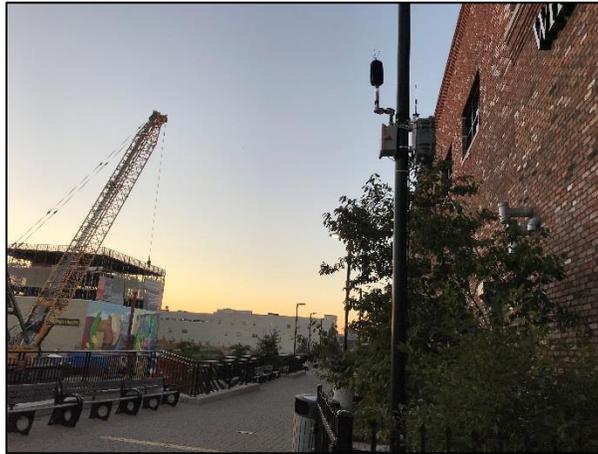
³ Wilson Ihrig. *Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study Noise and Vibration Monitoring Plan*. California: prepared for Gowanus Canal Remedial Design Group, DRAFT May 2017



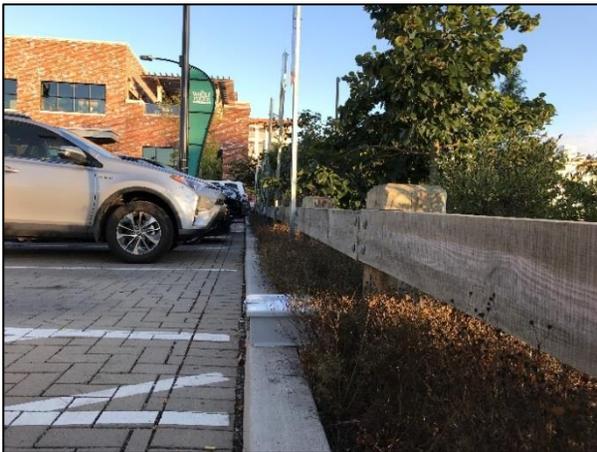
**Photo 1: Noise Monitoring Location NM-1
(26 September 2017)**



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



**Photo 3: Noise Monitoring Location NM-3
(29 October 2017)**



**Photo 4: Vibration Monitoring Location VM-1
(12 October 2017)**



**Photo 5: Vibration Monitoring Location VM-2
(12 October 2017)**

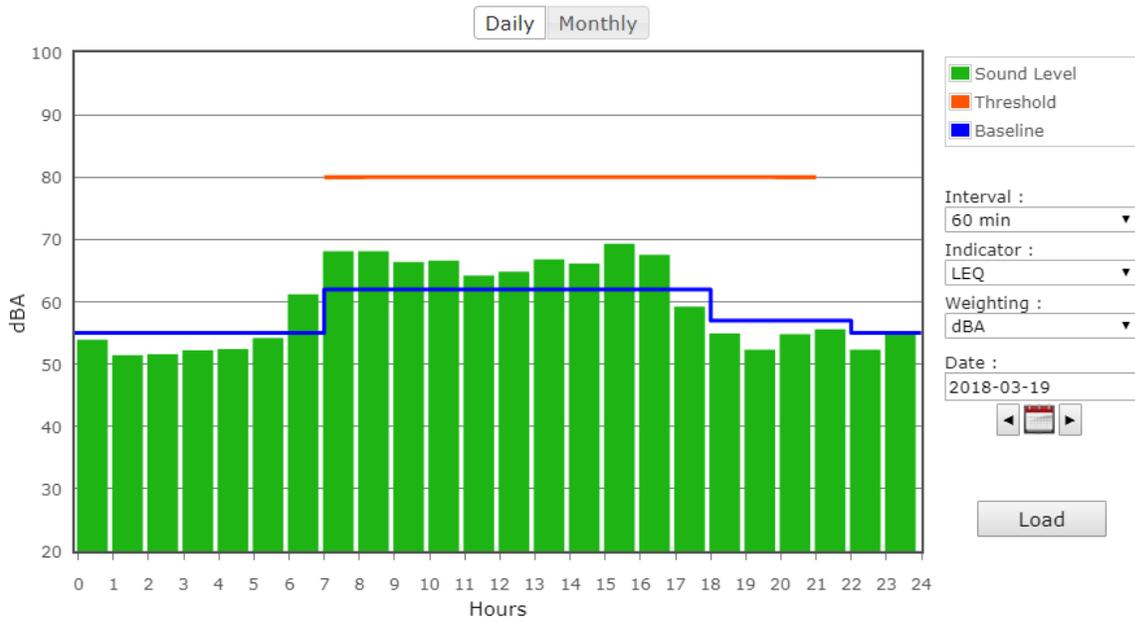


Figure 2: North Monitor NM-1 on Monday

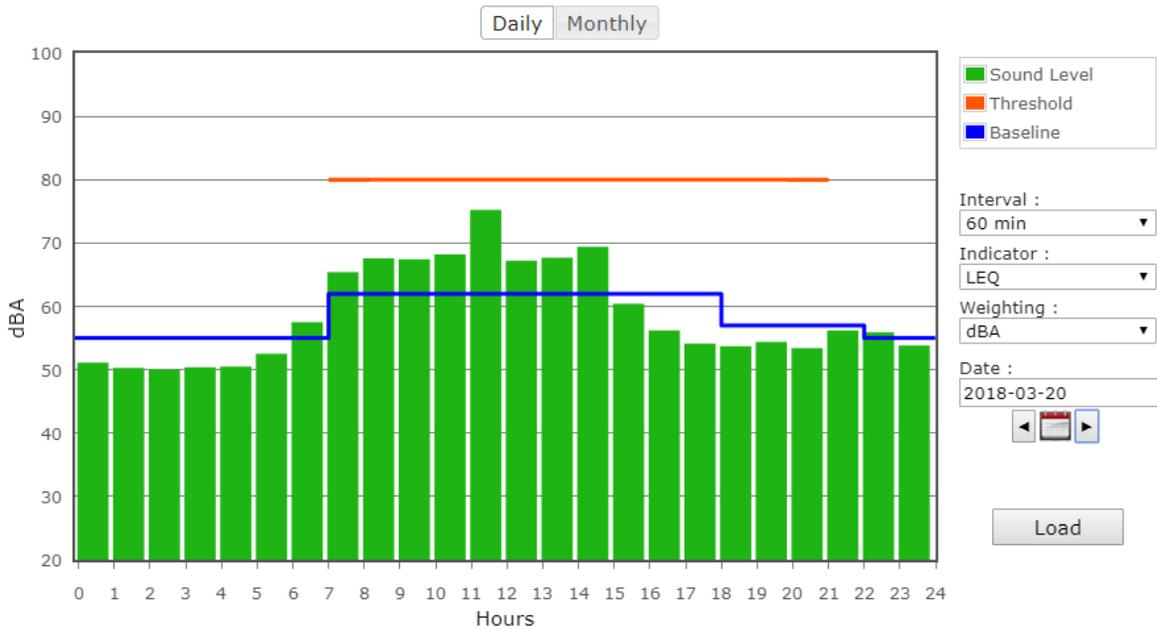


Figure 3: North Monitor NM-1 on Tuesday

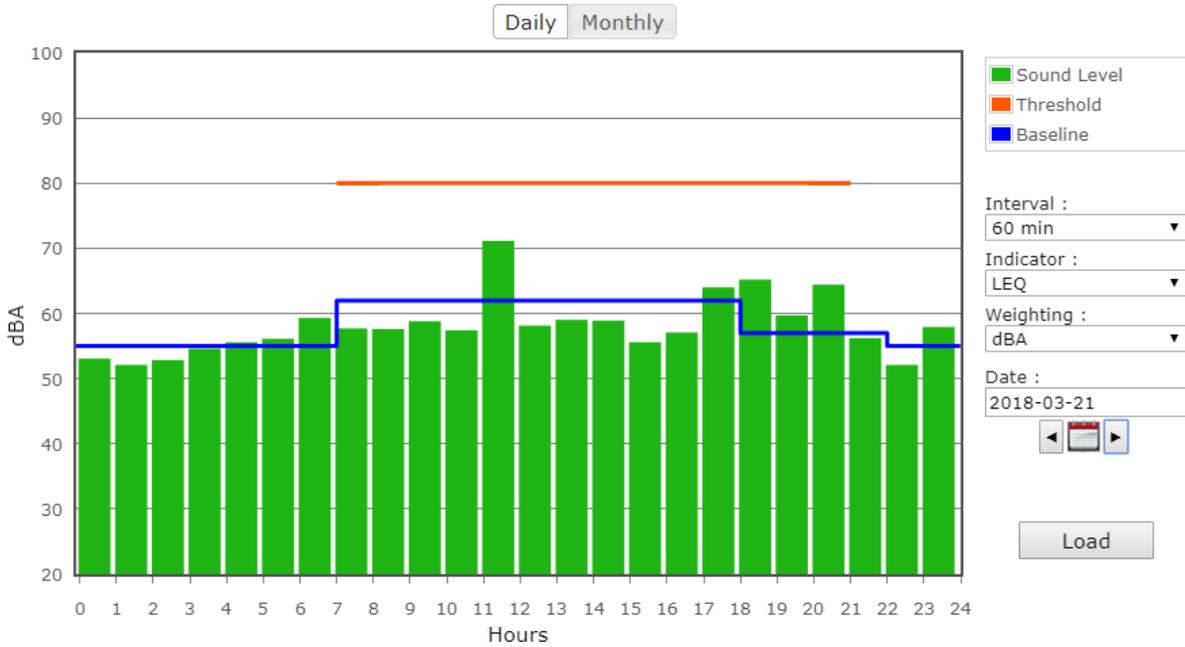


Figure 4: North Monitor NM-1 on Wednesday

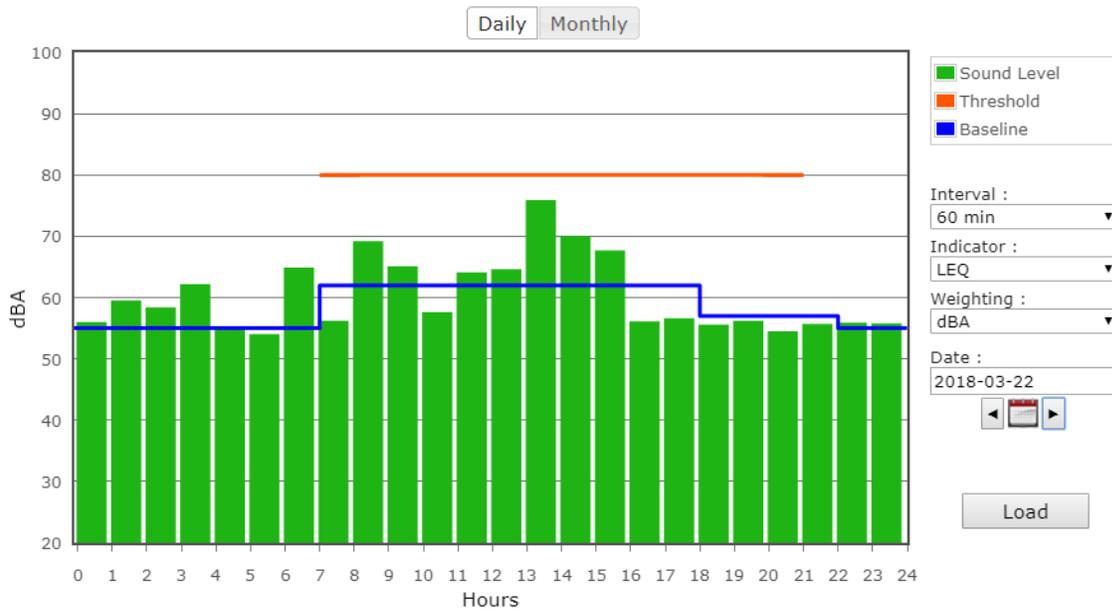


Figure 5: North Monitor NM-1 on Thursday

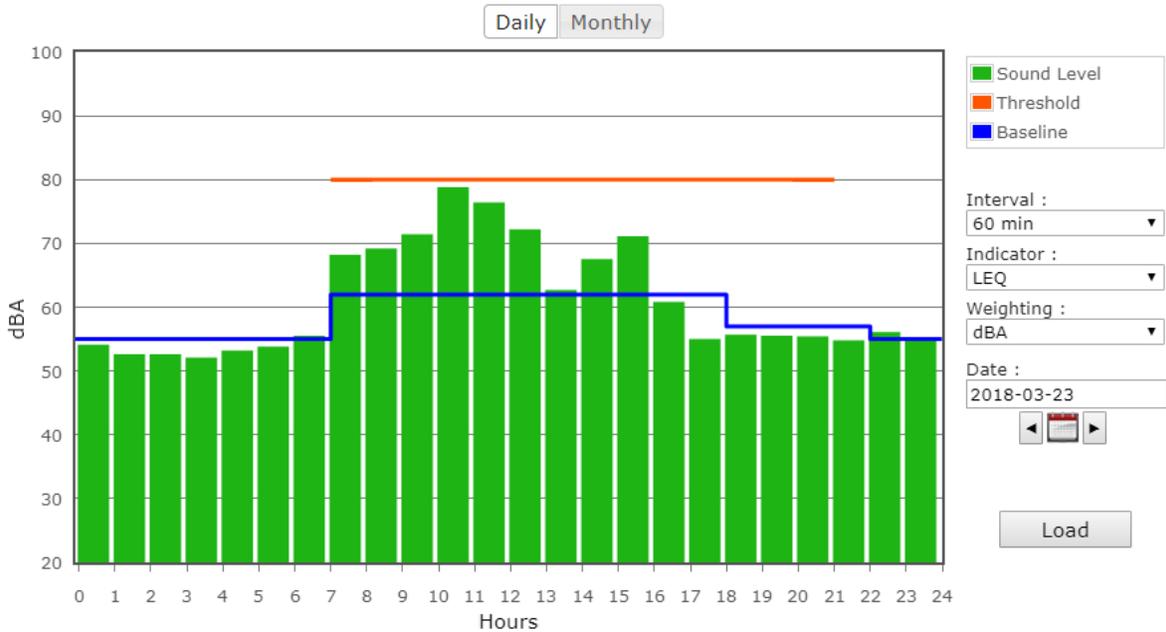


Figure 6: North Monitor NM-1 on Friday

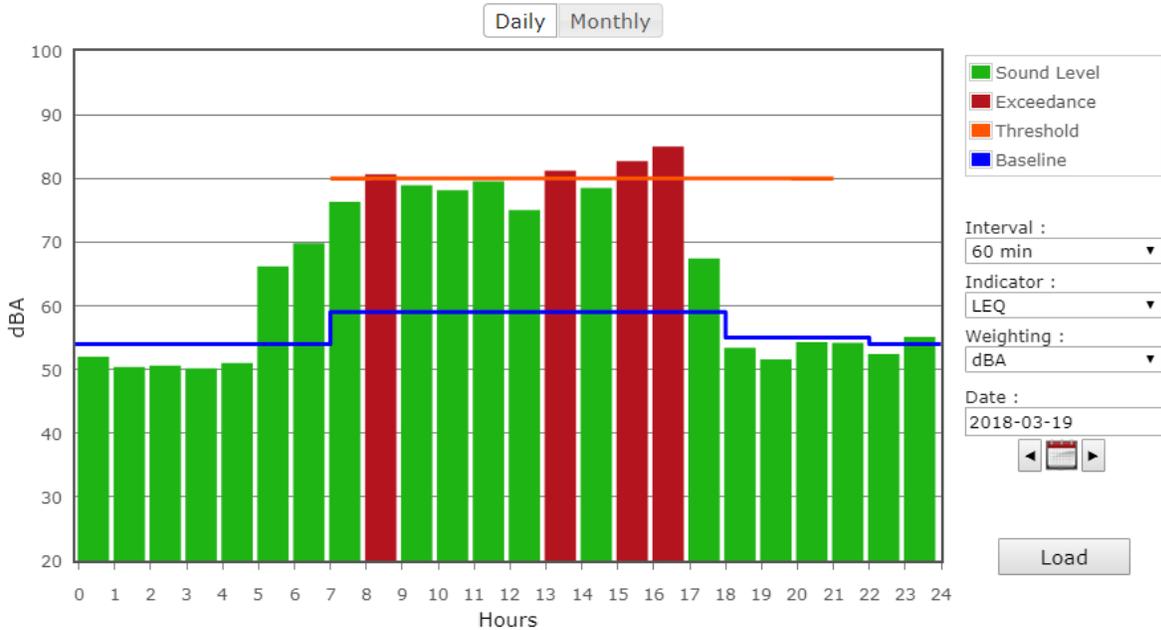


Figure 7: South Monitor NM-2 on Monday

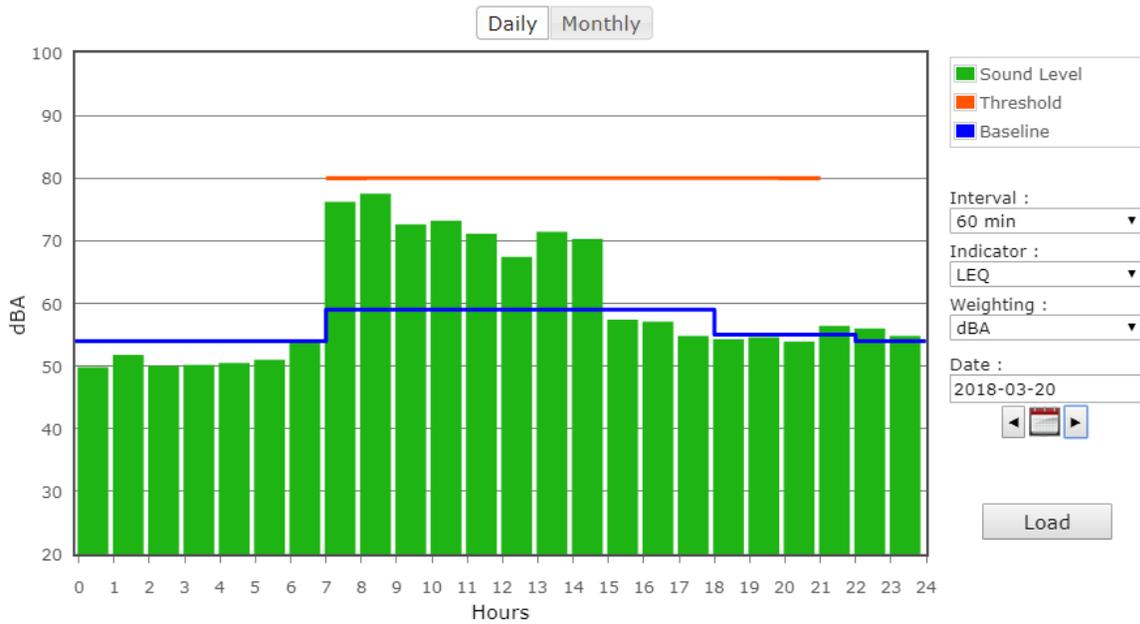


Figure 8: South Monitor NM-2 on Tuesday

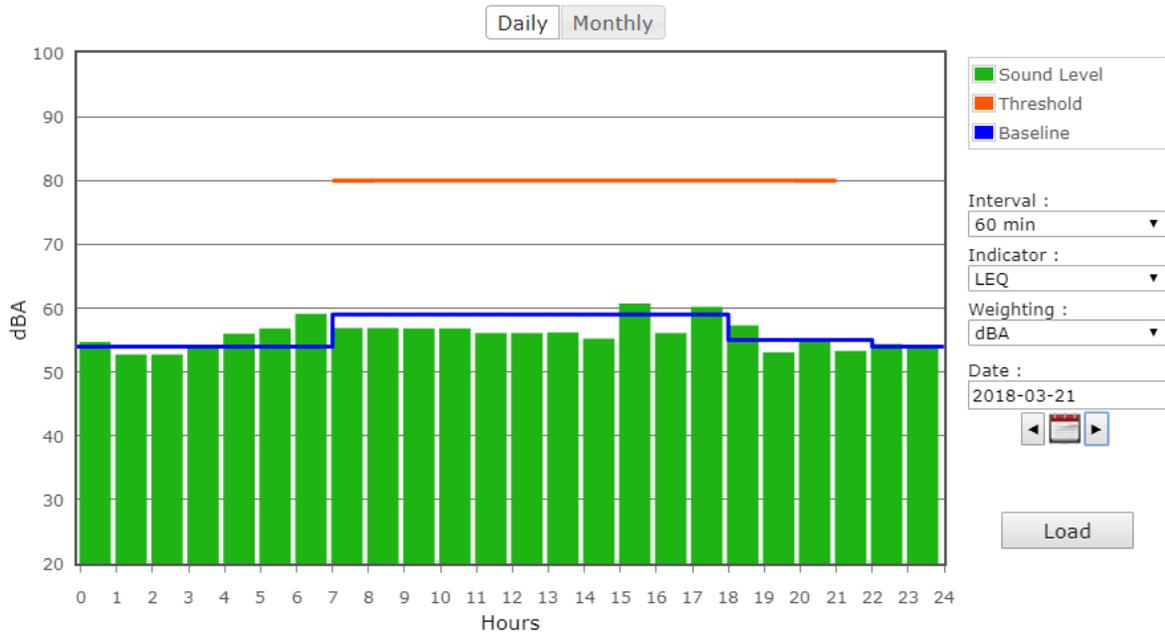


Figure 9: South Monitor NM-2 on Wednesday

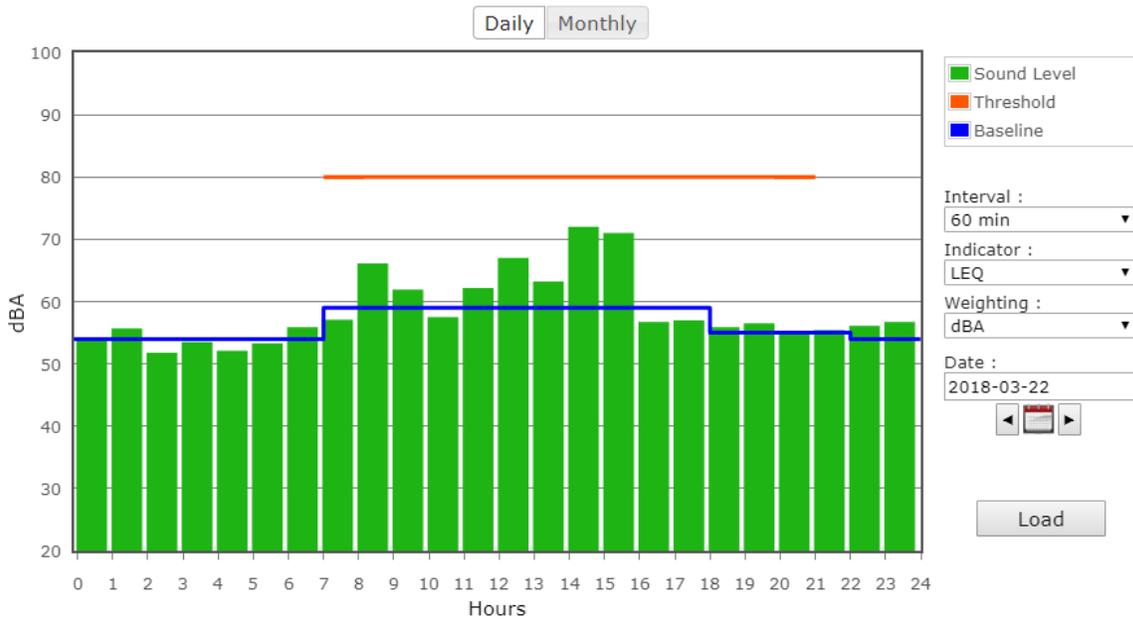


Figure 10: South Monitor NM-2 on Thursday

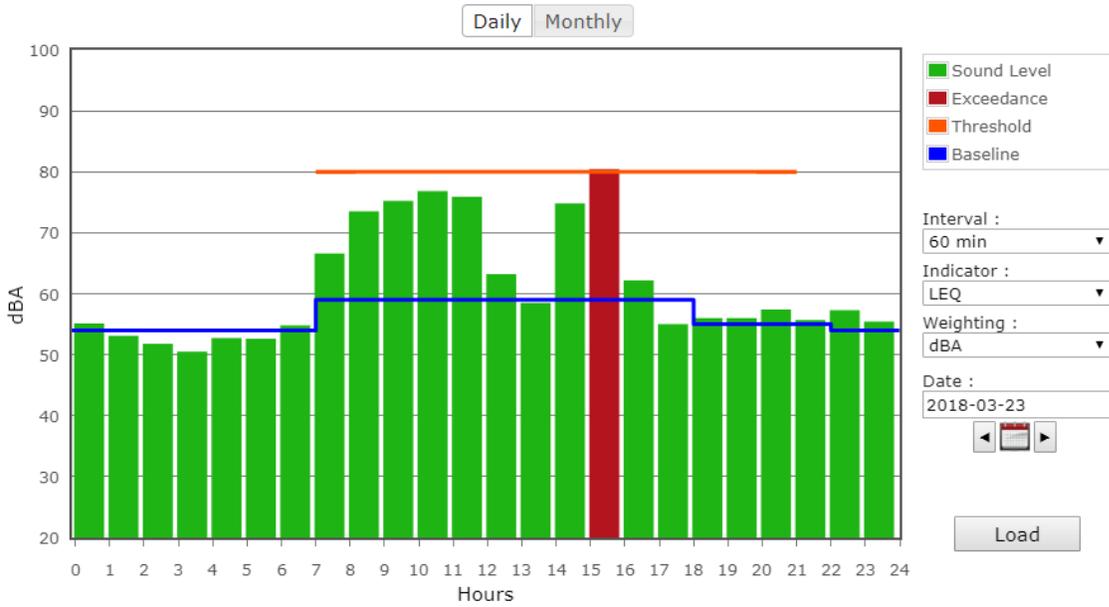


Figure 11: South Monitor NM-2 on Friday

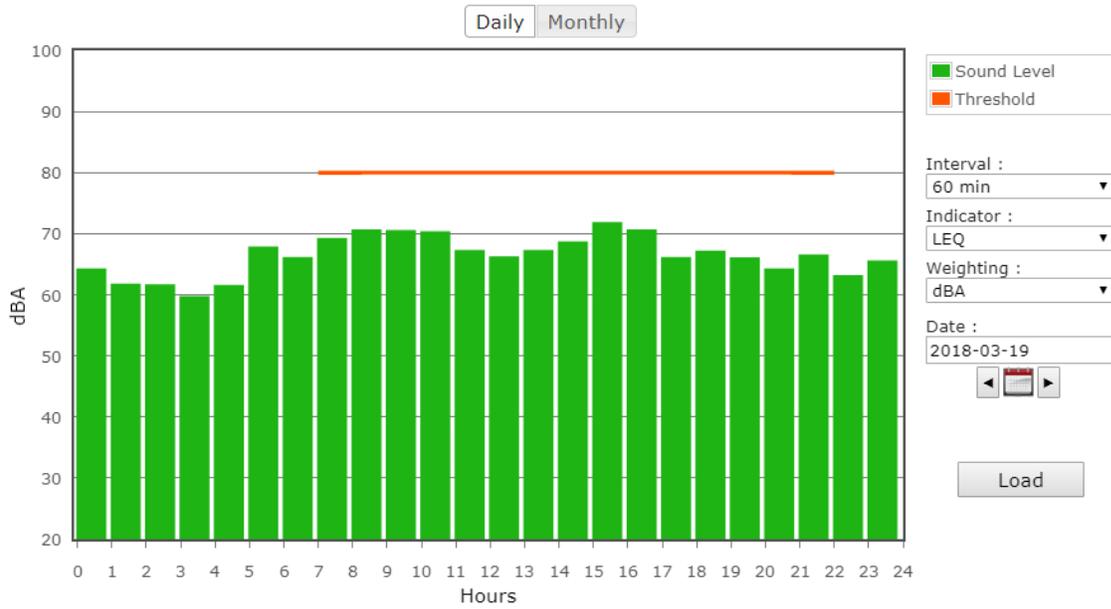


Figure 12: Northeast Monitor NM-3 on Monday

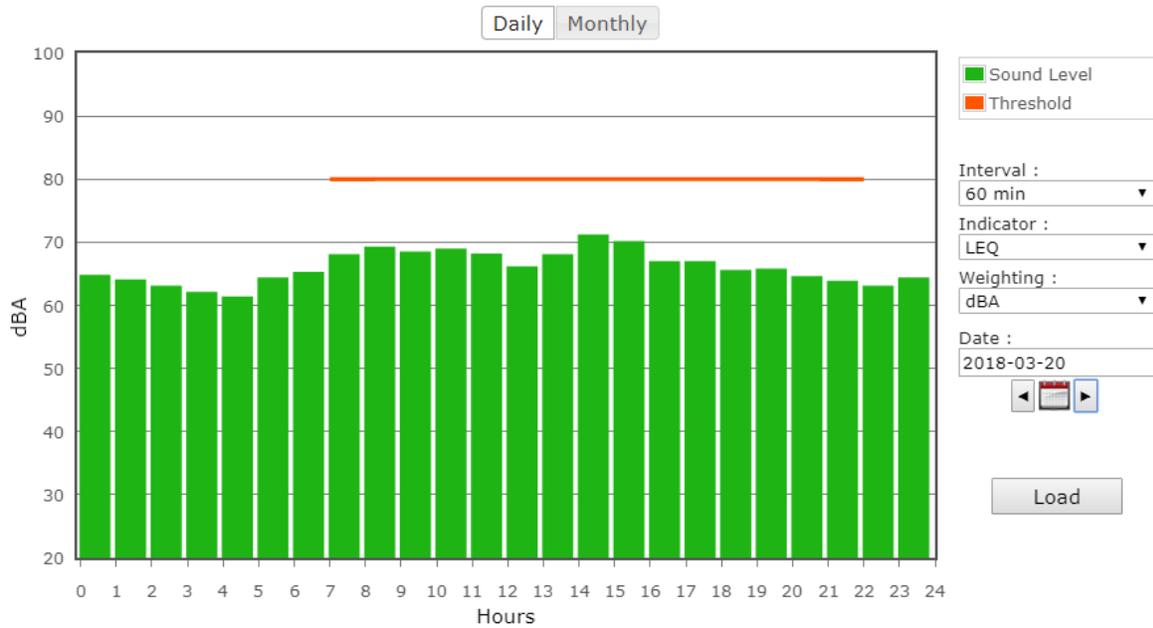


Figure 13: Northeast Monitor NM-3 on Tuesday

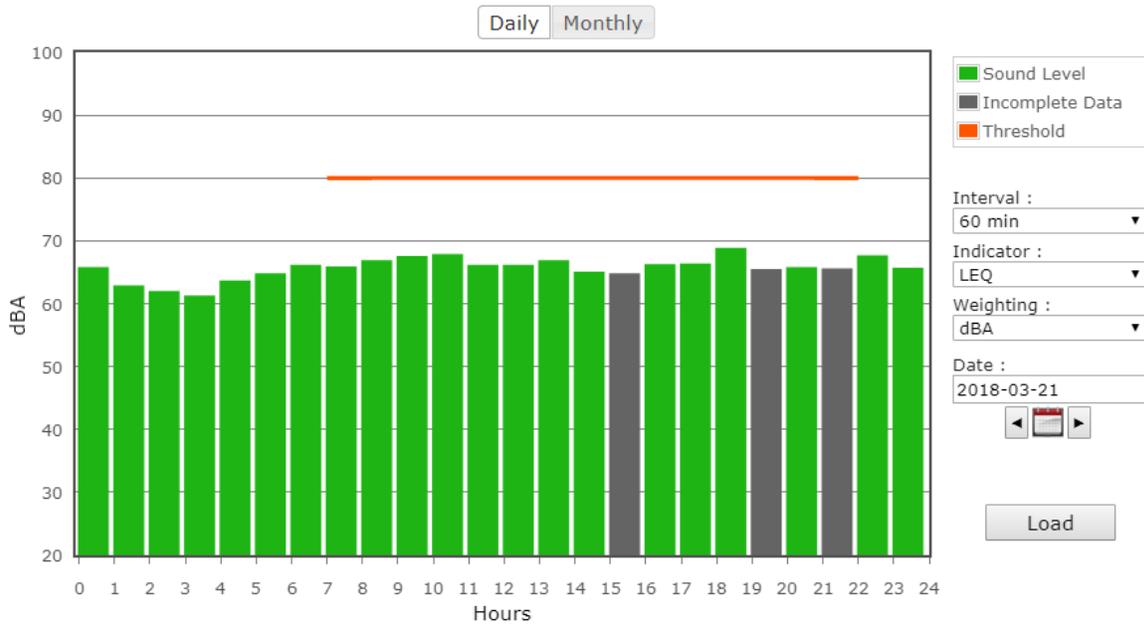


Figure 14: Northeast Monitor NM-3 on Wednesday*

*Noise Levels for the 15:00, 19:00, and 21:00 intervals are incomplete due to intermittent equipment issues.

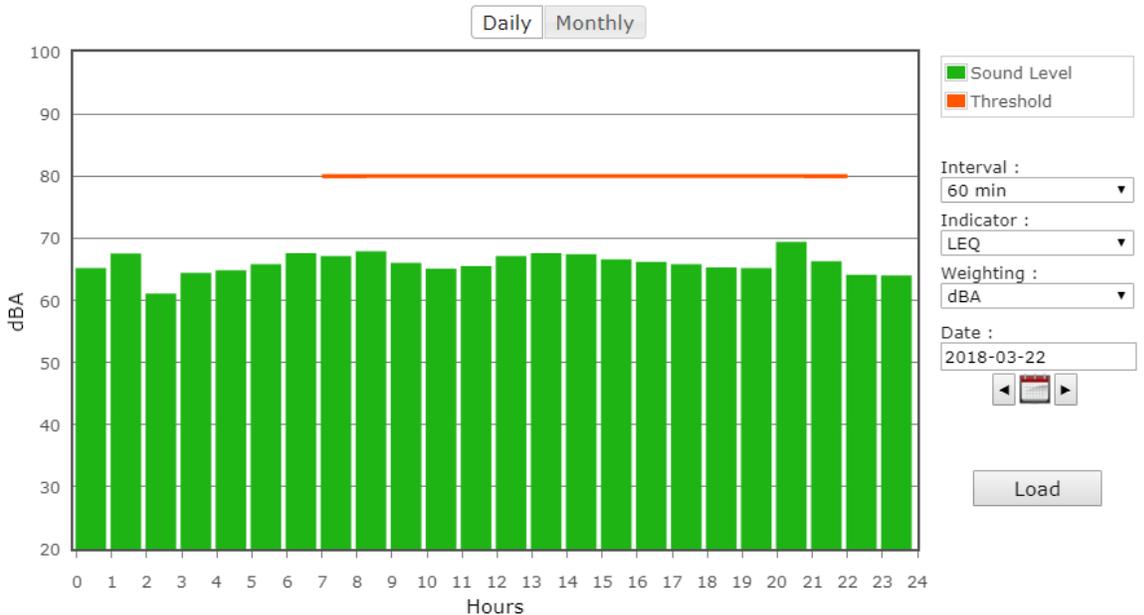


Figure 15: Northeast Monitor NM-3 on Thursday

Figure

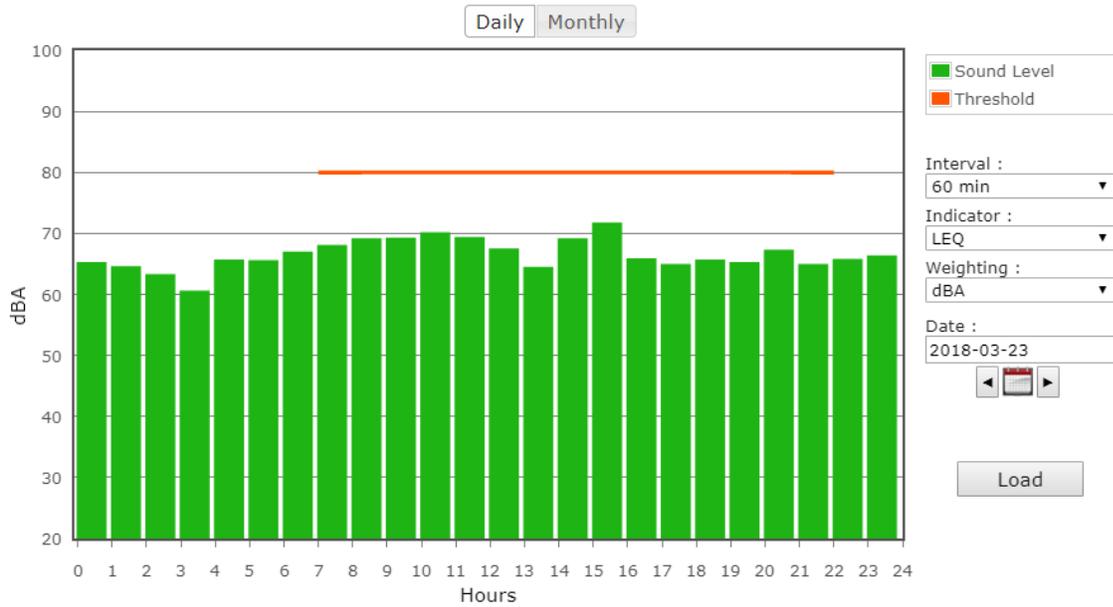


Figure 16: Northeast Monitor NM-3 on Friday

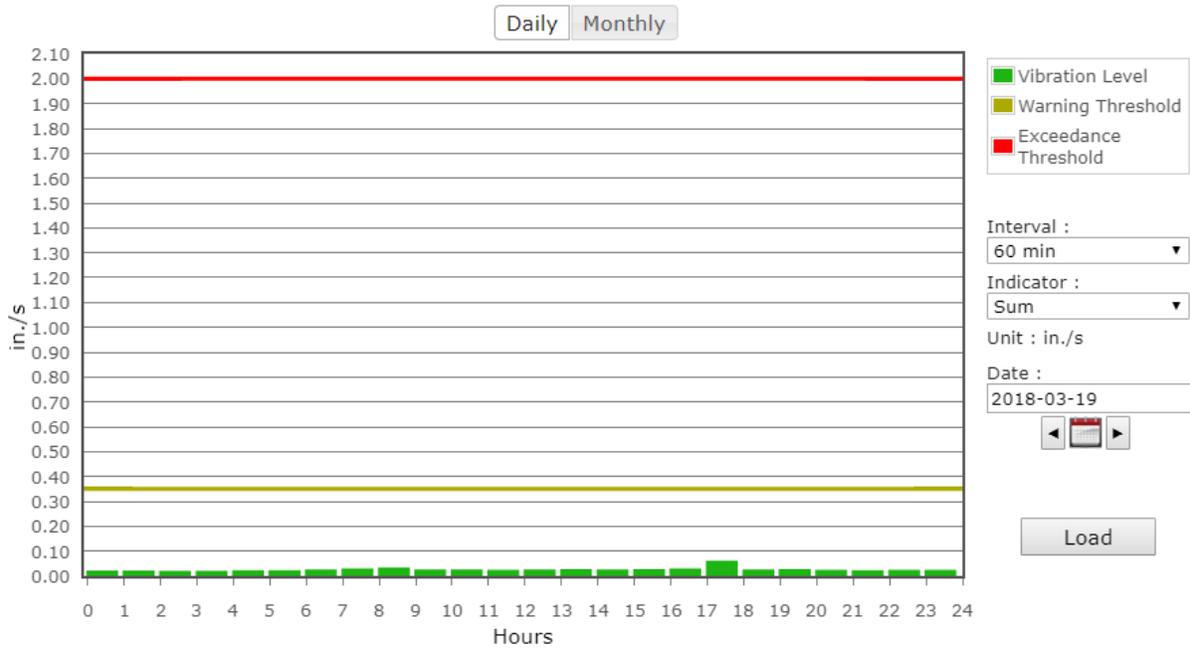


Figure 17: North Vibration Monitor VM-1 on Monday

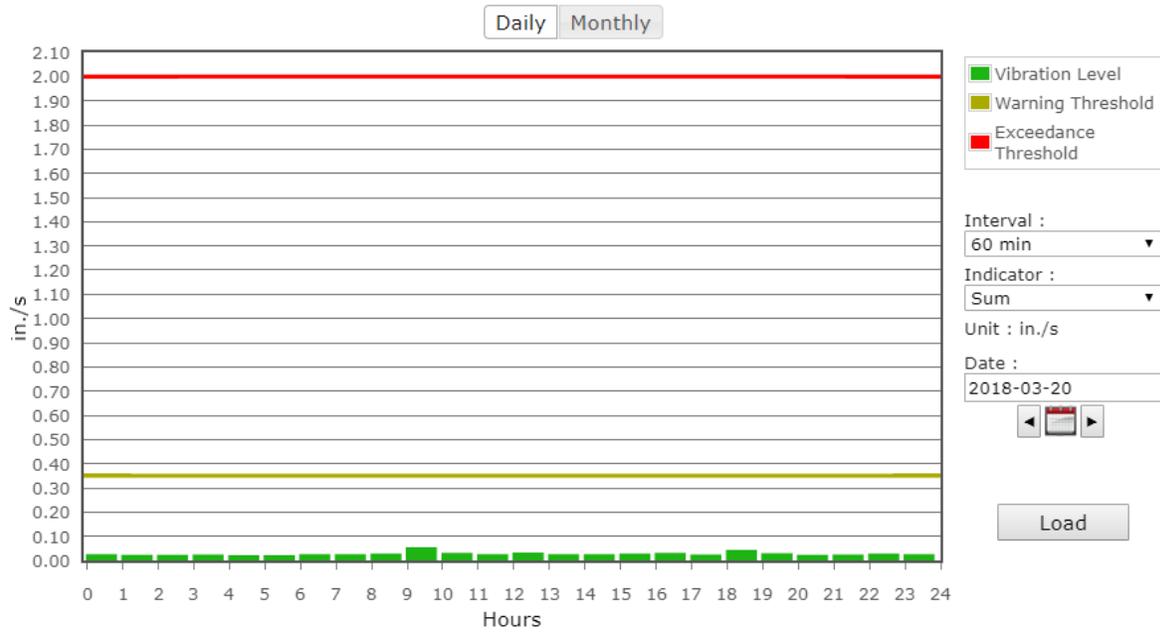


Figure 18: North Vibration Monitor VM-1 on Tuesday

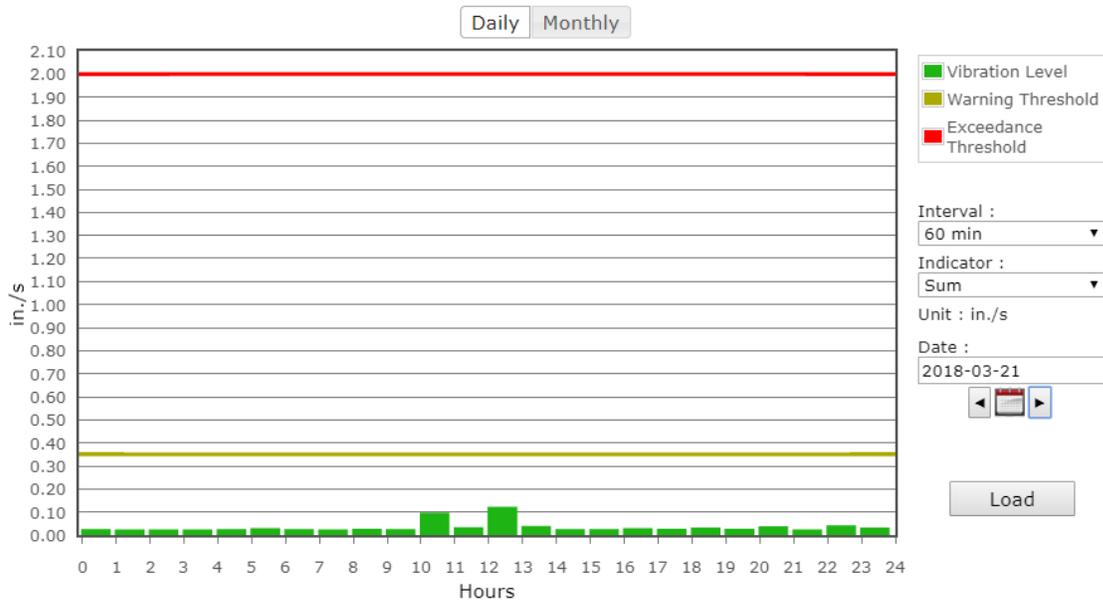


Figure 19: North Vibration Monitor VM-1 on Wednesday

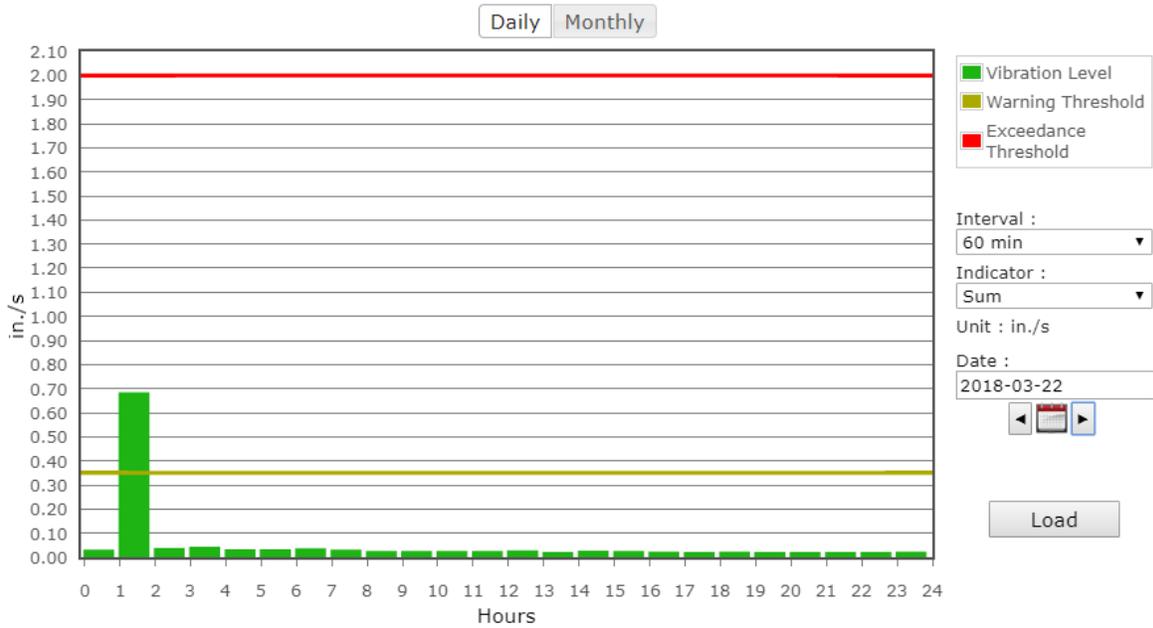


Figure 20: North Vibration Monitor VM-1 on Thursday

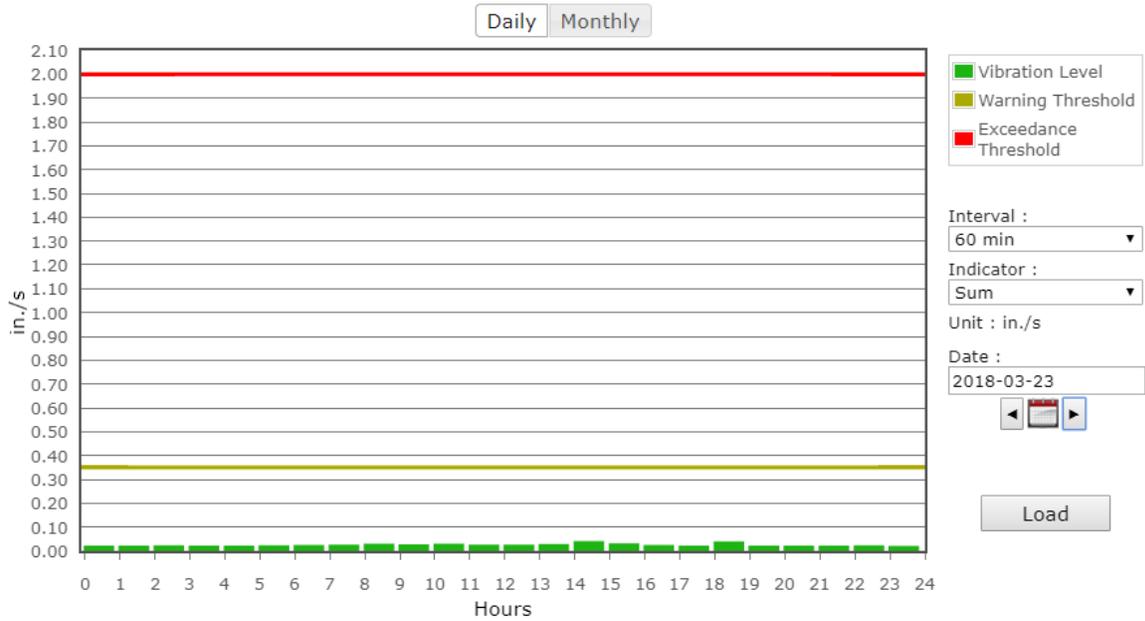


Figure 21: North Vibration Monitor VM-1 on Friday

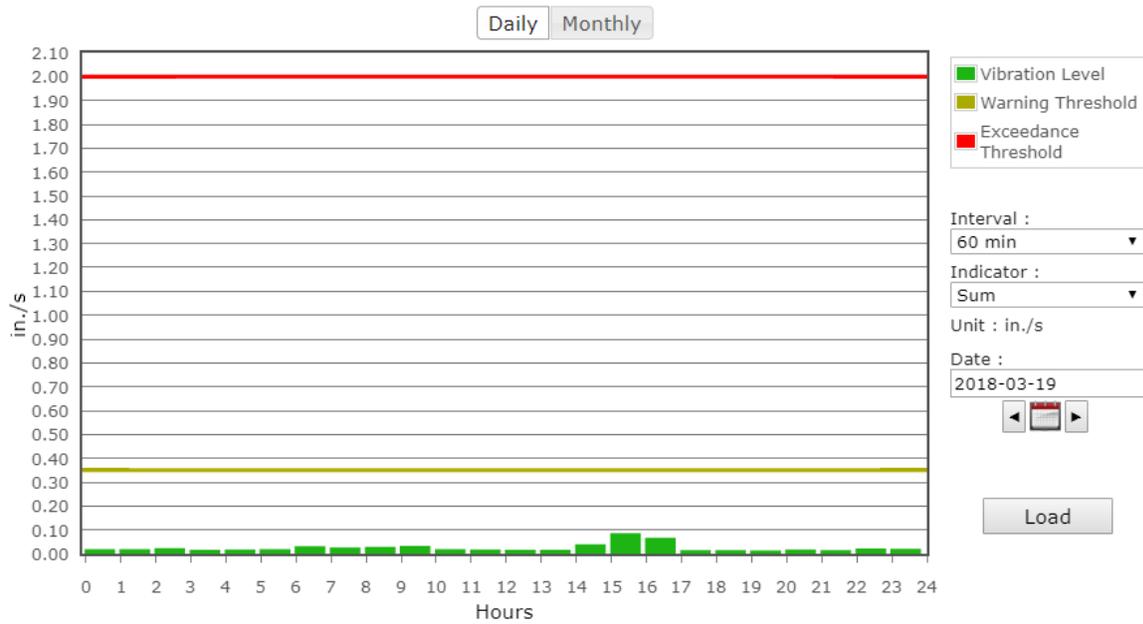


Figure 22: South Vibration Monitor VM-2 on Monday

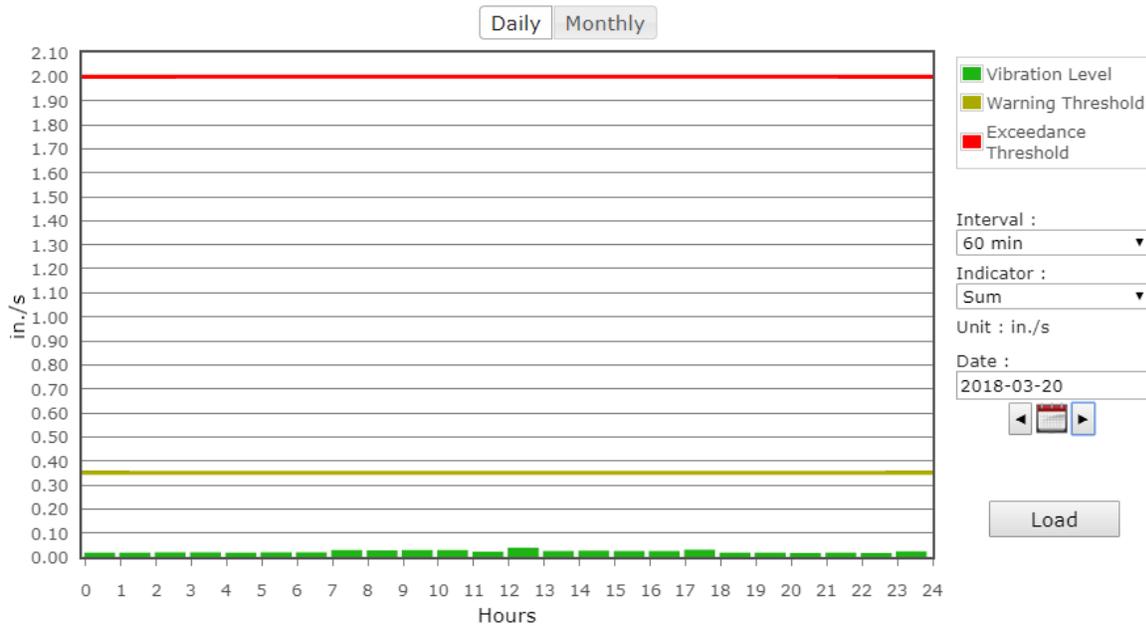


Figure 23: South Vibration Monitor VM-2 on Tuesday

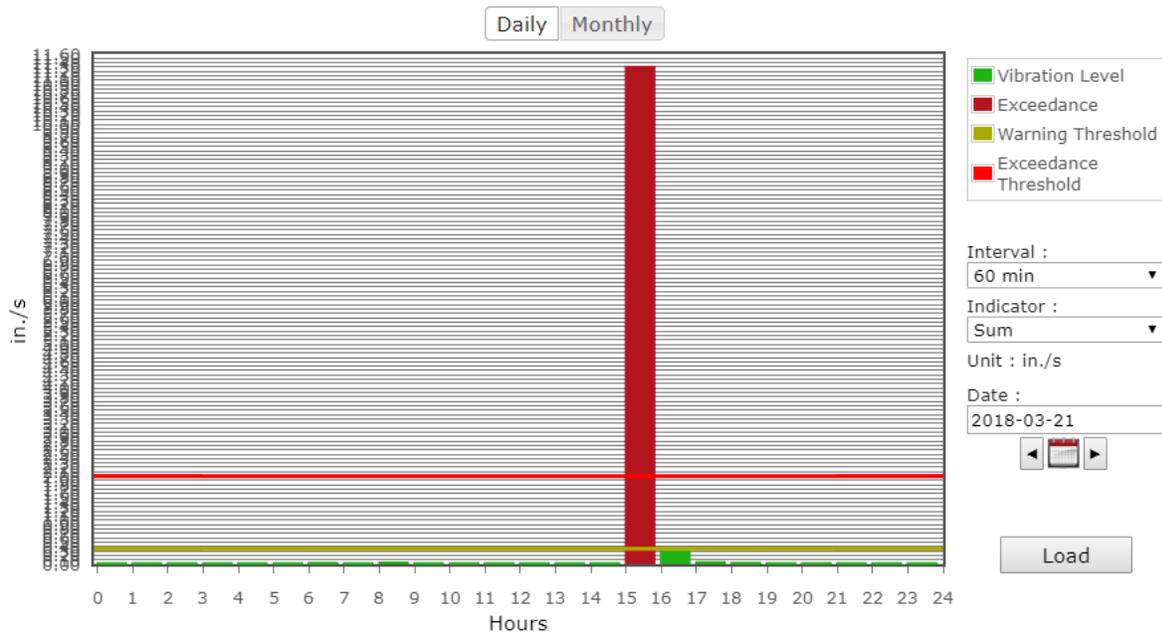


Figure 24: South Vibration Monitor VM-2 on Wednesday*

*The exceedance in the 15:00 interval is not construction-related. No work was done on 3/21/2018.

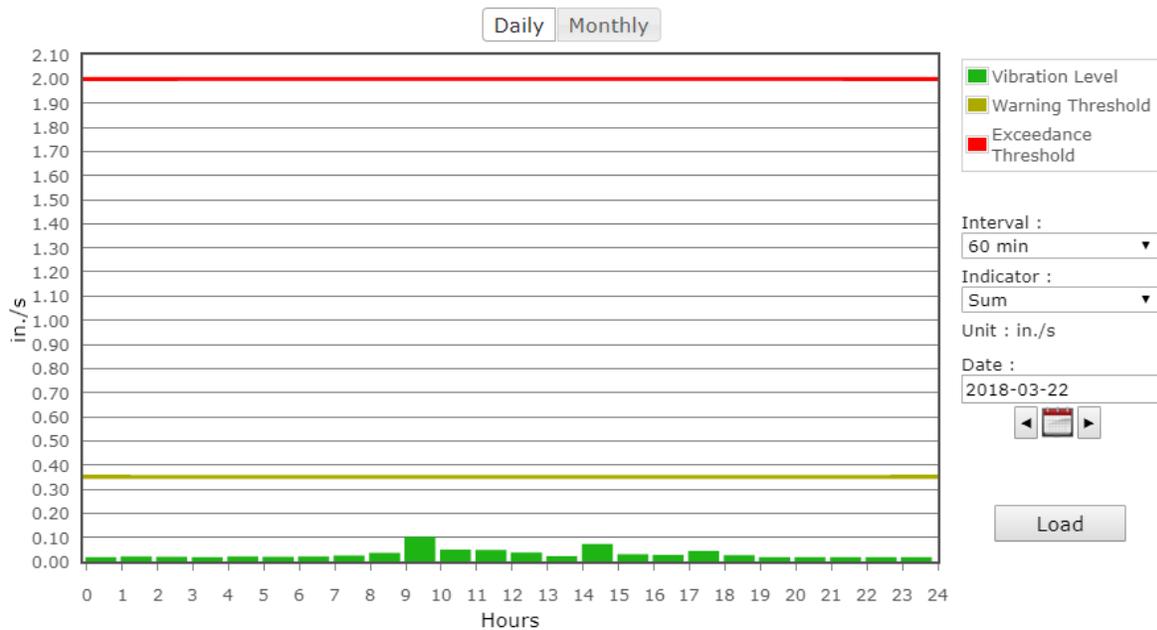


Figure 25: South Vibration Monitor VM-2 on Thursday

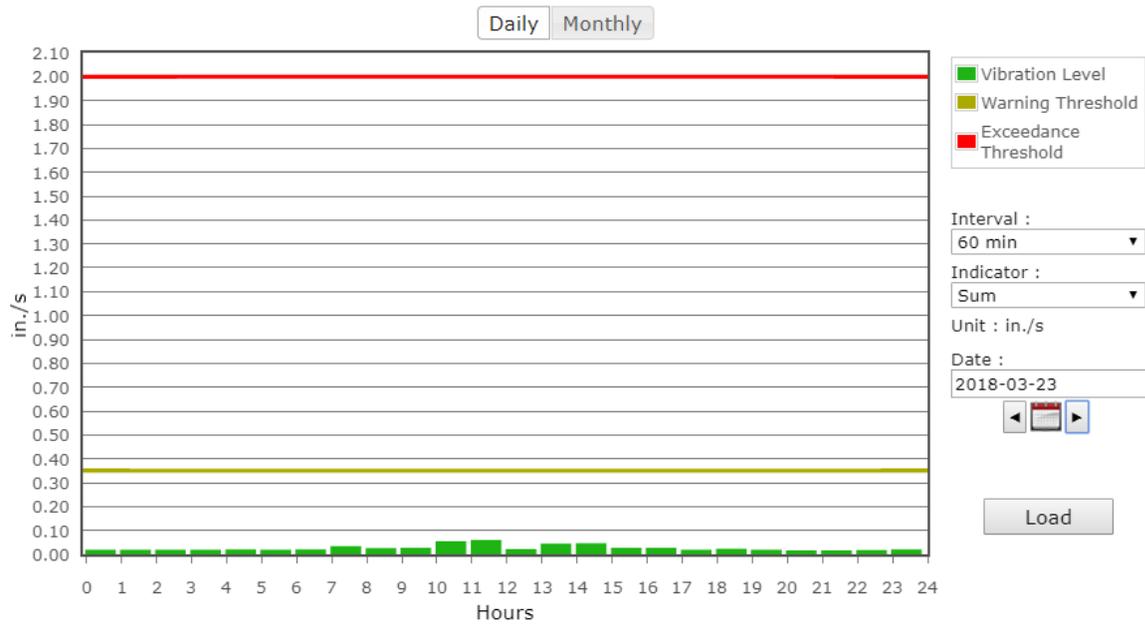


Figure 26: South Vibration Monitor VM-2 on Friday

20180326 Wilson Ihrig Weekly Noise and Vibration Report 19 Mar - 23 Mar 2018

AHRS WEEKLY REPORT
(NO ACTIVITIES DURING CURENT WEEK)



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



CUMULATIVE DREDGED MATERIAL CHART



Gowanus Canal TB4 Pilot Study Cumulative Material Dredged Weekly Report Update

