

WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: February 20 to 23, 2018

Date of Report: February 28, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust



On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Sheet Pile Installation

- Relocation and reinstallation of falsework east of approximate Station 2+63

Water Treatment and Monitoring

- No discharge of treated water during the week.

Turbidity Monitoring

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

Vibration Monitoring (subcontractor – Vibra-Tech)

- Operated and maintained five (5) stationary vibration monitors. Two (2) stationary monitors located on the south side of the canal, one (1) stationary monitor located on the north side of the canal, two (2) stationary monitors located on the 3rd Avenue Bridge abutments. Additionally, employed two (2), at a minimum, portable vibration monitors to measure vibration levels within 15 feet of the sheet pile installation work.
- Performed daily crack gauge inspections at 386 3rd Avenue during sheet pile installation.
- No exceedances of the peak particle velocity level specified in the Contract Documents (0.40 inches per second) or acceleration level specified in the Contract Documents (0.1 g).

Quality Assurance and Control – Geosyntec

- No exceedance of the turbidity trigger or action criteria during bulkhead support installation.
- Measurements for 2/19/18:
 - Daily average for ambient buoy – 11.4 NTU
 - Daily average for sentinel buoy – 8.2 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 2.5 NTU at 1045
- Measurements for 2/20/18:
 - Daily average for ambient buoy – 11.4 NTU
 - Daily average for sentinel buoy – 9.4 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 16.4 NTU at 1115.
- Measurements for 2/21/18:
 - Daily average for ambient buoy – 11.1 NTU
 - Daily average for sentinel buoy – 7.6 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 1.6 NTU at 1115.
- Measurements for 2/22/18:
 - Daily average for ambient buoy – 12.7 NTU
 - Daily average for sentinel buoy – 11.0 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 6.1 NTU at 1230.



- Measurements for 2/23/18:
 - Daily average for ambient buoy – 11.7 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 – 3.8 NTU at 1445.

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 – 24 µg/m³ recorded on 02/21/18
 - Station 2 – 16 µg/m³ recorded on 02/21/18
 - Station 3 – <1 µg/m³ recorded throughout the week
 - Station 4 – 56 µg/m³ recorded on 02/20/18
 - Station 5 – 113 µg/m³ recorded on 02/20/18
 - Station 6 – 45 µg/m³ recorded on 02/20/18
 - Station 7 – <1 µg/m³ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
 - Station 1 – 37 ppb recorded on 02/21/18
 - Station 2 – 28 ppb recorded on 02/21/18
 - Station 3 – 137 ppb recorded on 02/22/18
 - Station 4 – 145 ppb recorded on 02/21/18
 - Station 5 – 133 ppb recorded on 02/21/18
 - Station 6 – 47 ppb recorded on 02/22/18
 - Station 7 – 144 ppb recorded on 02/22/18
- All real-time readings of hydrogen sulfide, ammonia, or formaldehyde less than instrument reporting limit.
- 23-hour collocated sample collected at ST-4 on 02/20 through 02/21. Laboratory turnaround time is 10 business days.

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) during placement of vertical pin piles for falsework in preparation of installation of falsework east of approximate Station 2+63.
- Greatest hourly Leq noise measurements
 - Northern monitor (NM-1) – 79.7 dBA during 1000-1100 on 02/22/18
 - Southern monitor (NM-2) – 82.8 dBA during 1000-1100 on 02/22/18
 - 3rd Avenue Bridge monitor (NM-3) – 77.2 dBA during 1000-1100 on 02/23/18
- 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) – 0.0323 in/sec event between 1000 and 1100 on 02/22/18
 - Southern monitor (VM-2) – 0.210 in/sec event between 0900 and 1000 on 02/21/18



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

- No inspections conducted during week and expected prior to commencing Phase 1 dredging.

Two-Week Look Ahead:

Sevenson:

- Continue installation of steel sheet pile bulkhead supports utilizing only hydraulic impact hammer to determine if change in means reduces vibrations and settlement. Variable moment vibratory hammer to be used to install falsework and if needed to regain verticality.
- Complete installation of steel sheet pile bulkhead supports on south side of the canal and commence installation of 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,

AHRS – No activities planned.

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

- None during this 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 current week)
5. Water Treatment System Monitoring Analytical Laboratory Data (no activities during current week)
6. Cumulative Dredged Material Chart (no activities during current week)



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 001	Date 02-21-2018
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Description
Removing top waler beam adjacent to Dykes Lumber.

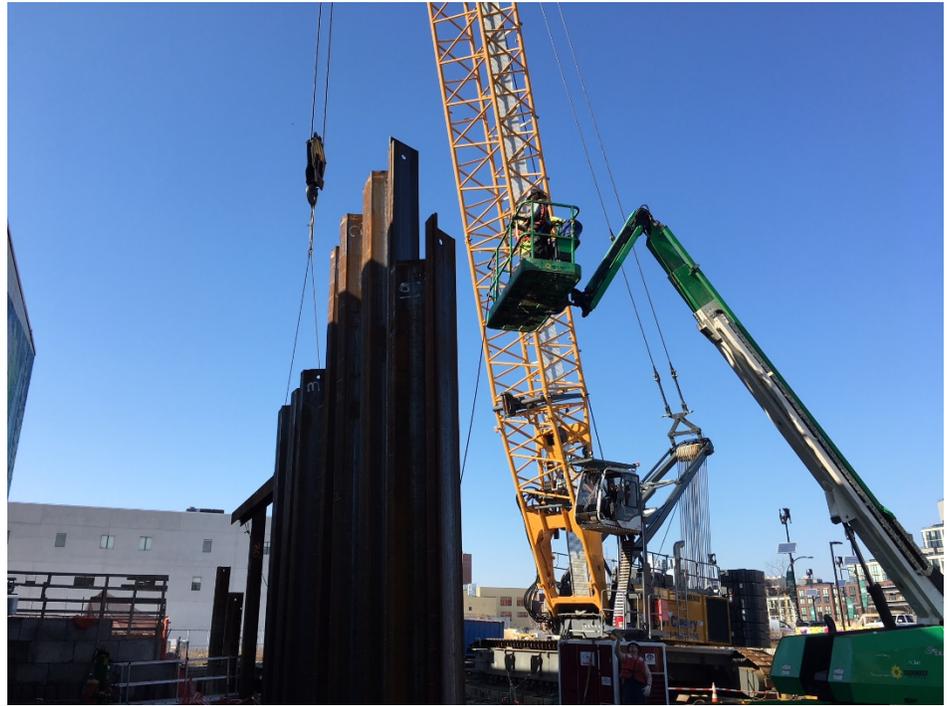


Photo No. 002	Date 02-22-2018
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Description
Re-locating pin pile.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 003	Date 02-22-2018
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Description
Attaching safety cable prior to pin pile removal.

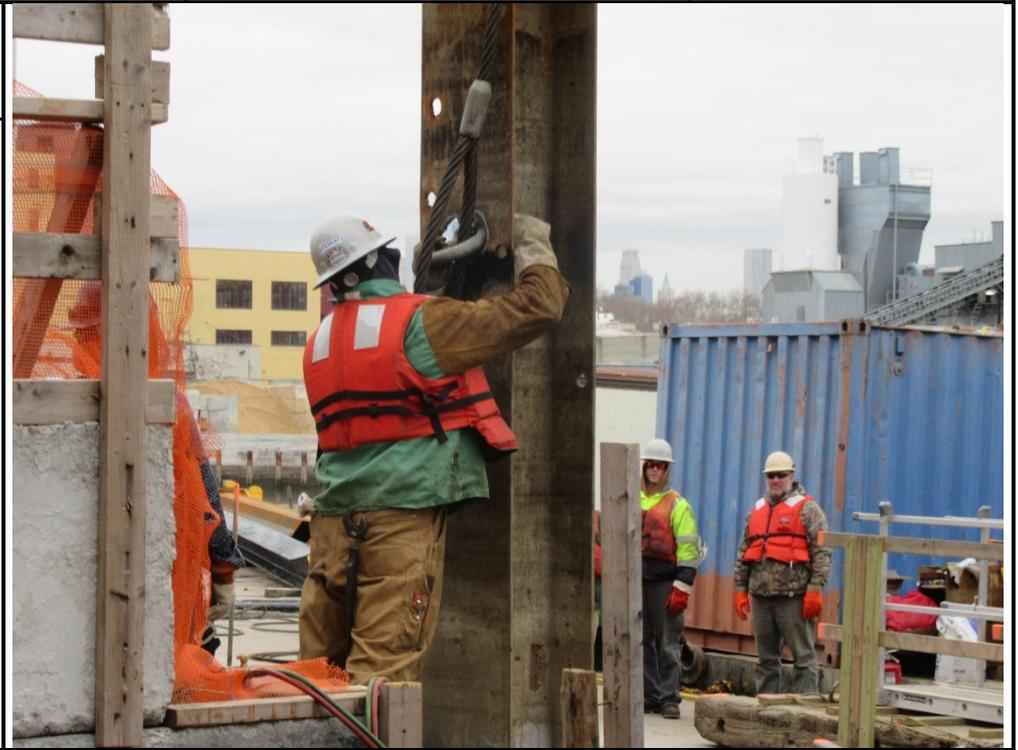
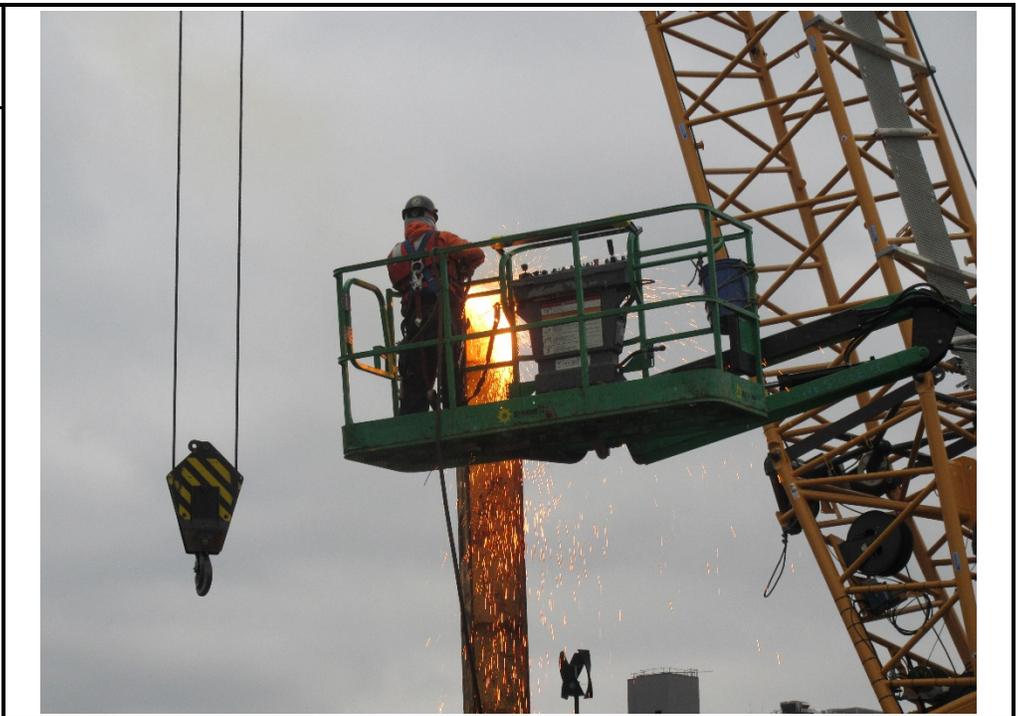


Photo No. 004	Date 02-23-2018
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Description
Removing damaged top of 90' pin pile.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 005	Date 02-23-2018
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Description
Pulling previously installed sheet pile pair for use as falsework.



Photo No. 006	Date 02-23-2018
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Description
Installing 90' pin pile for use as falsework.



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 February 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

an affiliate of Geosyntec Consultants

7 Graphics Drive, Suite 106
Ewing, NJ 08628
Project Number HPH106A (52)

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of February 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 February 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.



2.3 Wednesday, February 21st, 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)
2/21/2018 7:00	9.1	7.1	N	2/21/2018 12:15	12.4	9.5	N
2/21/2018 7:15	8.9	5.5	N	2/21/2018 12:30	13.8	8.7	N
2/21/2018 7:30	7.7	5.3	N	2/21/2018 12:45	13.3	7.3	N
2/21/2018 7:45	7.5	4.5	N	2/21/2018 13:00	12.0	11.4	N
2/21/2018 8:00	7.8	6.1	N	2/21/2018 13:15	11.2	7.4	N
2/21/2018 8:15	8.6	4.8	N	2/21/2018 13:30	11.6	7.3	N
2/21/2018 8:30	8.6	5.0	N	2/21/2018 13:45	15.6	7.8	N
2/21/2018 8:45	9.9	5.4	N	2/21/2018 14:00	13.7	9.0	N
2/21/2018 9:00	10.9	6.0	N	2/21/2018 14:15	11.5	8.9	N
2/21/2018 9:15	14.7	5.6	N	2/21/2018 14:30	8.3	9.6	Y
2/21/2018 9:30	14.1	8.6	N	2/21/2018 14:45	8.6	6.7	N
2/21/2018 9:45	14.6	7.5	N	2/21/2018 15:00	9.1	6.3	N
2/21/2018 10:00	13.7	9.5	N	2/21/2018 15:15	8.0	7.5	N
2/21/2018 10:15	13.5	10.0	N	2/21/2018 15:30	8.6	4.7	N
2/21/2018 10:30	12.6	10.2	N	2/21/2018 15:45	8.2	5.3	N
2/21/2018 10:45	14.7	9.0	N	2/21/2018 16:00	9.3	5.3	N
2/21/2018 11:00	14.8	12.1	N	2/21/2018 16:15	8.6	5.7	N
2/21/2018 11:15	11.6	13.2	Y	2/21/2018 16:30	9.6	5.7	N
2/21/2018 11:30	12.4	10.2	N	2/21/2018 16:45	10.5	6.0	N
2/21/2018 11:45	11.8	9.2	N	2/21/2018 17:00	12.0	7.3	N
2/21/2018 12:00	12.6	9.9	N				

Average	11.1	7.6	N
Maximum	15.6	13.2	N

Notes:

No exceedances to rolling average threshold criteria during reporting period
 Values highlighted in green are greater than 20 NTU above the ambient buoy reading
 Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

3. HANDHELD MEASUREMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

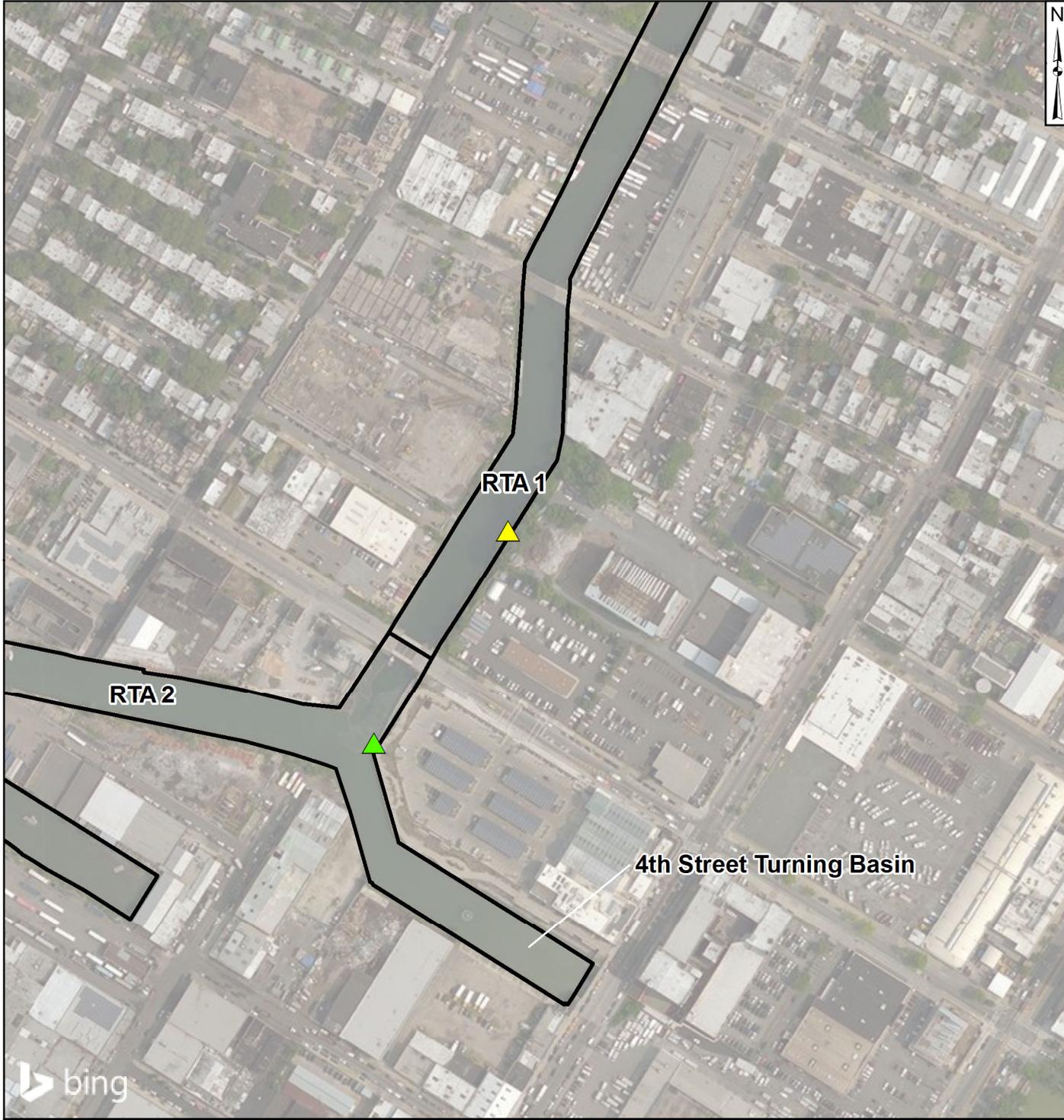
Visual observations are consistent with background conditions of the turning basin.

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.

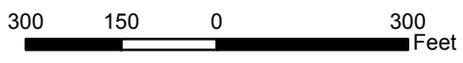
FIGURES



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

Ewing, NJ

October 2017

Figure

1

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
20th Weekly Monitoring Period
Summary Report:
February 20th through February 23rd, 2018**

Report Contents

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

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

Executive Summary – Week 20 Monitoring Period February 20th through 23rd, 2018

The following report summarizes site air monitoring activities for the Week 20 monitoring period from February 20th through 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 20 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.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 20 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 20 monitoring period of February 20th through 23rd, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Station 4. The ST-4 sample was collected on February 20th, through February 21st, 2018 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.

Site activities which were conducted at the Citizen Property on February 20th through 23rd, 2018 included the following:

- Material and equipment deliveries
- General vehicular traffic site-wide
- Maintenance of the barges and equipment

Site activities which were conducted at the 4th St Turning Basin Area of the Canal on February 20th through 23rd, 2018 included the following:

- Relocation and reinstallation of falsework east of Station 2+63

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)
02/20/2018 06:30 AM - 02/20/2018 23:45 PM

Station 1

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 2

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

TVOC			PM ₁₀		
Max.	108	ppb	Max.	<1	ug/m ³
Avg.	14	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4

TVOC			PM ₁₀		
Max.	118	ppb	Max.	56	ug/m ³
Avg.	22	ppb	Avg.	20	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM ₁₀		
Max.	47	ppb	Max.	113	ug/m ³
Avg.	15	ppb	Avg.	26	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM ₁₀		
Max.	23	ppb	Max.	45	ug/m ³
Avg.	16	ppb	Avg.	19	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM ₁₀		
Max.	62	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)
02/21/2018 00:00 AM - 02/21/2018 23:45 PM

Station 1

TVOC			PM ₁₀		
Max.	37	ppb	Max.	24	ug/m ³
Avg.	16	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM ₁₀		
Max.	28	ppb	Max.	16	ug/m ³
Avg.	4	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3

TVOC			PM ₁₀		
Max.	81	ppb	Max.	<1	ug/m ³
Avg.	21	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4

TVOC			PM ₁₀		
Max.	145	ppb	Max.	24	ug/m ³
Avg.	41	ppb	Avg.	14	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM ₁₀		
Max.	133	ppb	Max.	16	ug/m ³
Avg.	18	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM ₁₀		
Max.	23	ppb	Max.	25	ug/m ³
Avg.	10	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM ₁₀		
Max.	86	ppb	Max.	<1	ug/m ³
Avg.	35	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)
02/22/2018 00:00 AM - 02/22/2018 23:45 PM

Station 1

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

Station 2

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

Station 3

TVOC			PM ₁₀		
Max.	137	ppb	Max.	<1	ug/m ³
Avg.	59	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4

TVOC			PM ₁₀		
Max.	22	ppb	Max.	17	ug/m ³
Avg.	3	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM ₁₀		
Max.	115	ppb	Max.	8	ug/m ³
Avg.	39	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM ₁₀		
Max.	47	ppb	Max.	15	ug/m ³
Avg.	27	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM ₁₀		
Max.	144	ppb	Max.	<1	ug/m ³
Avg.	69	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
02/23/2018 00:00 AM - 02/23/2018 23:45 PM

Station 1

TVOC			PM ₁₀		
Max.	9	ppb	Max.	9	ug/m ³
Avg.	1	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM ₁₀		
Max.	5	ppb	Max.	13	ug/m ³
Avg.	<1	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3

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

Station 4

TVOC			PM ₁₀		
Max.	12	ppb	Max.	23	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	8	ug/m ³
Avg.	<1	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	13	ug/m ³
Avg.	<1	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7

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

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 20

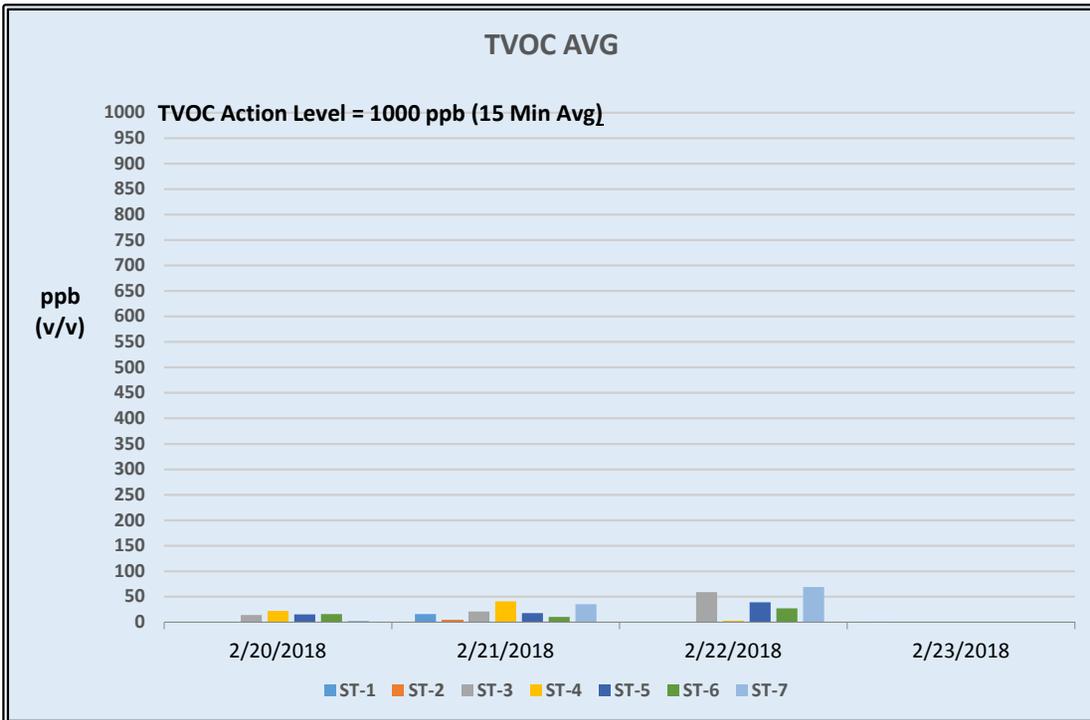
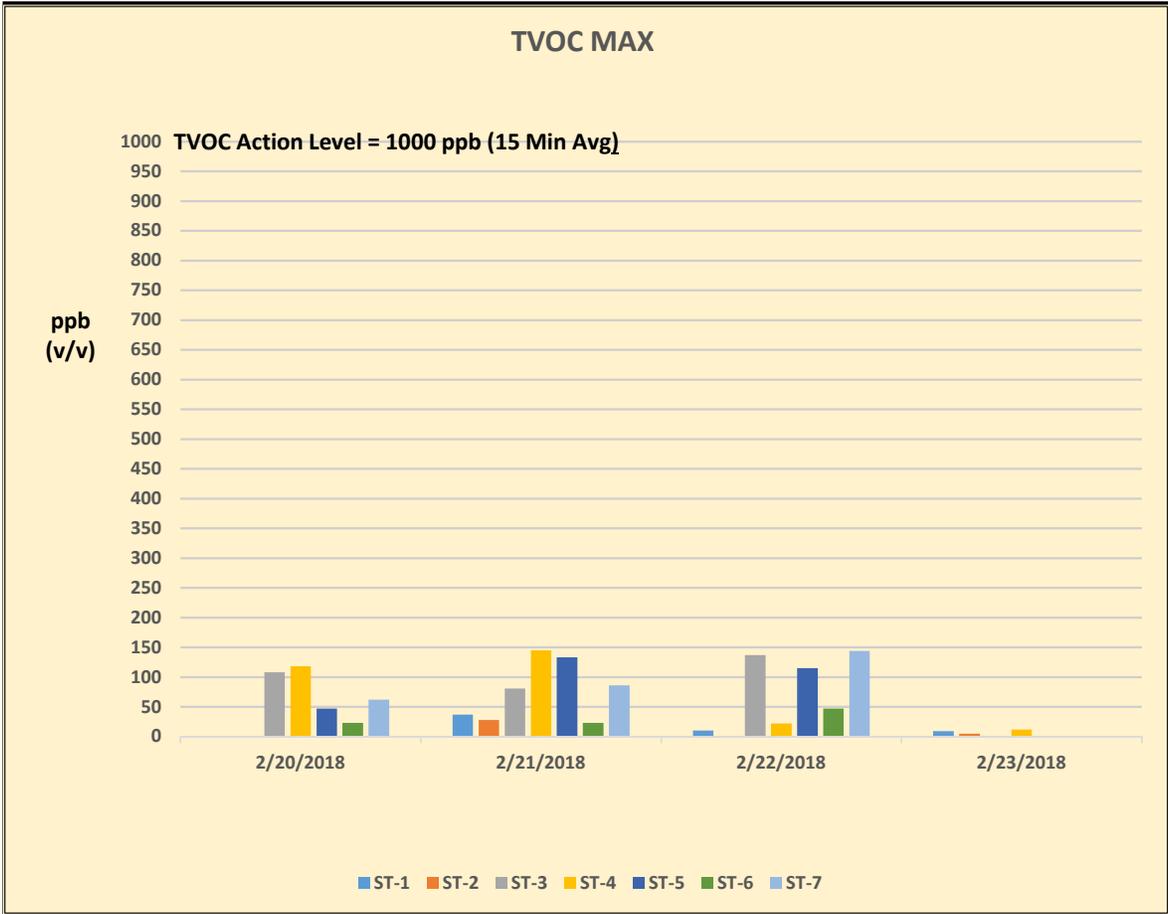


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM₁₀ Monitoring Data - Week 20

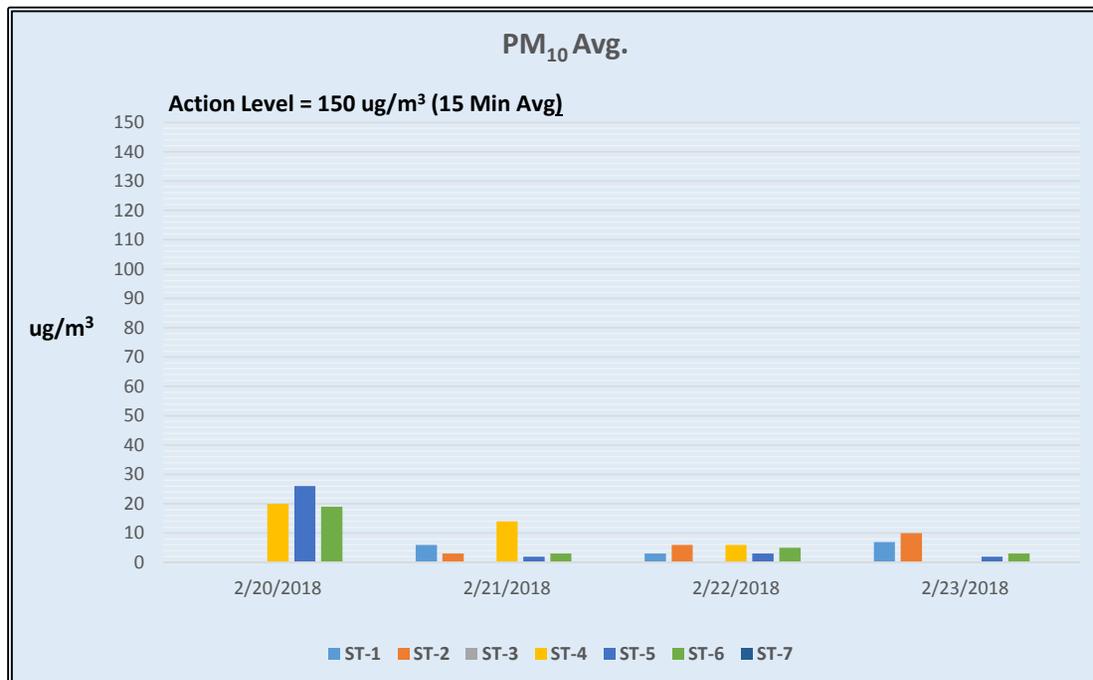
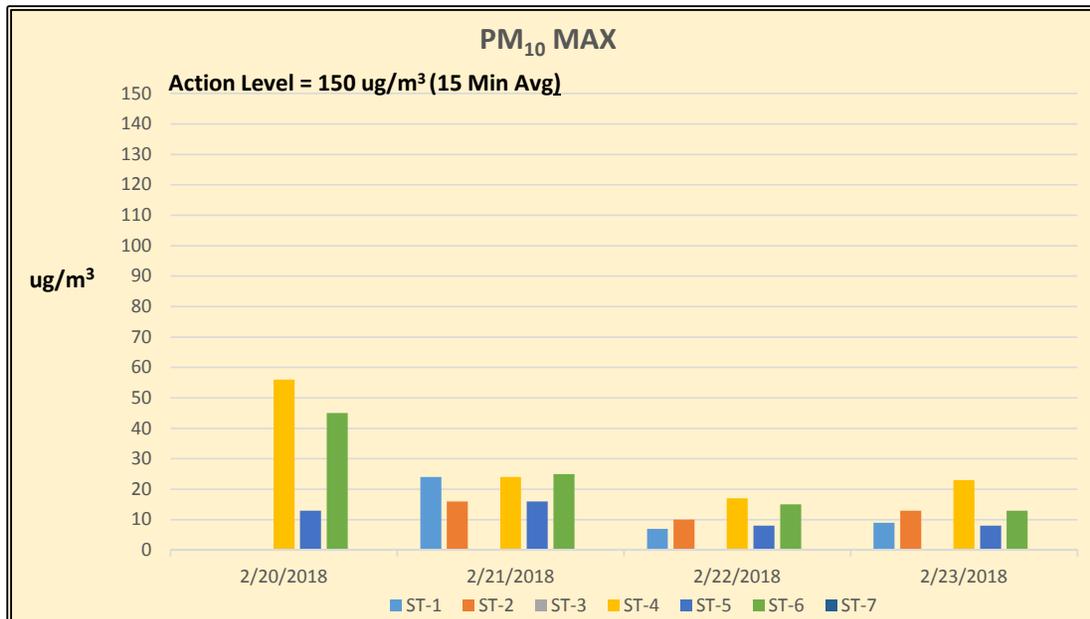


Table 1**Week 20****Summary of Additional Periodic (Daily) Monitoring Data**

February 20 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	7:30	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-2	7:35	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-3	7:45	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-4	7:50	<50	<3	<1.0
	14:45	<50	<3	<1.0
ST-5	7:55	<50	<3	<1.0
	14:50	<50	<3	<1.0
ST-6	8:10	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-7	8:25	<50	<3	<1.0
	15:25	<50	<3	<1.0

February 21 st , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	8:10	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	8:15	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	8:25	<50	<3	<1.0
	15:15	<50	<3	<1.0
ST-4	8:30	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-5	8:35	<50	<3	<1.0
	15:25	<50	<3	<1.0
ST-6	8:50	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-7	9:00	<50	<3	<1.0
	16:00	<50	<3	<1.0

Table 1**Week 20****Summary of Additional Periodic (Daily) Monitoring Data**

February 22 nd , 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
	14:45	<50	<3	<1.0
ST-2	7:35	<50	<3	<1.0
	14:50	<50	<3	<1.0
ST-3	7:50	<50	<3	<1.0
	15:15	<50	<3	<1.0
ST-4	7:55	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-5	8:00	<50	<3	<1.0
	15:25	<50	<3	<1.0
ST-6	8:15	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-7	8:30	<50	<3	<1.0
	15:45	<50	<3	<1.0
February 23 rd , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H ₂ S) (ppb)	Ammonia (NH ₃) (ppm)
ST-1	6:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	6:35	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	6:50	<50	<3	<1.0
	15:15	<50	<3	<1.0
ST-4	6:55	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-5	7:00	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-6	7:15	<50	<3	<1.0
	15:50	<50	<3	<1.0
ST-7	7:30	<50	<3	<1.0
	16:00	<50	<3	<1.0

*(ppb) Indicates results reported in parts per billion

* (ppm) Indicates results reported in parts per million



**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Meteorological Summary
February 20th through February 23rd, 2018**

February 20 th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	1.32	57.4

February 21 st , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	1.60	62.8

February 22 nd , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
NE	6.94	63.9

February 23 rd , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
NE	6.18	37.2

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

*All meteorological data represents averages for the time period of 00:00 to 23:45 for Wednesday 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

February 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 February – 23 February, 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.

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. Vibration data for North monitor VM-1 is not shown for Monday February 19 due to equipment issues. The monitor was reset and resumed normal function on Tuesday February 20 2018 at 5:00 PM.

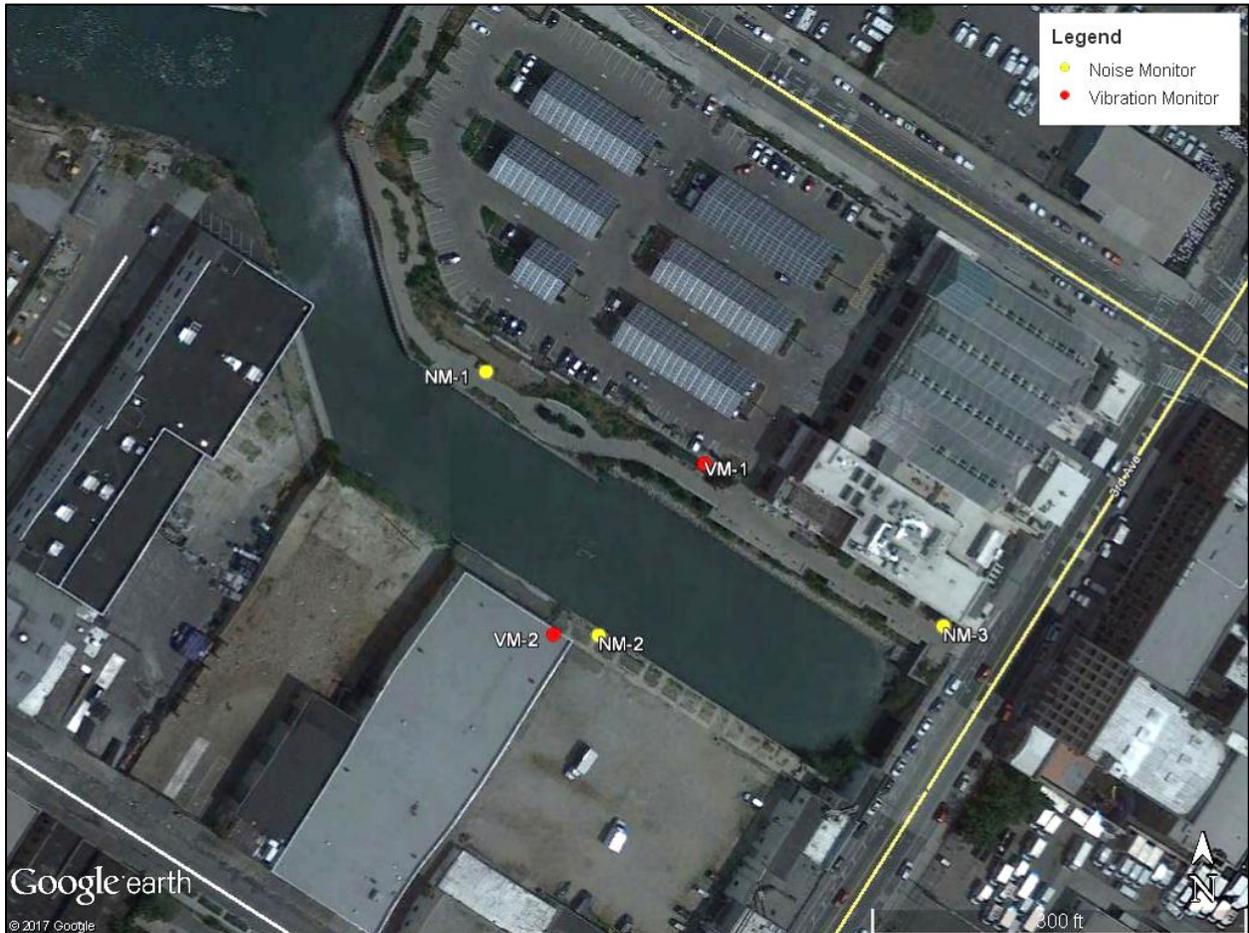


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

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)

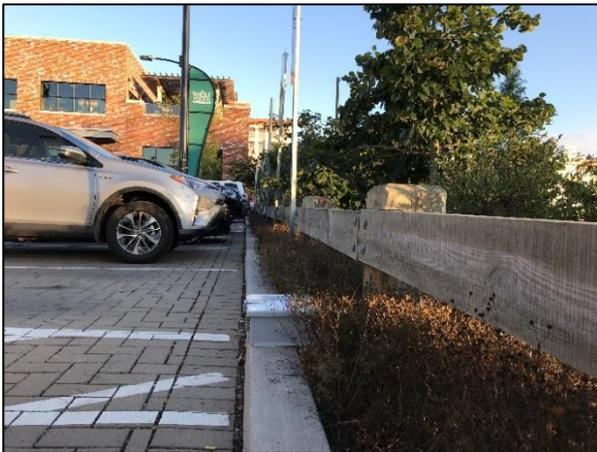


Photo 4: Vibration Monitoring Location VM-1
(12 October 2017)



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

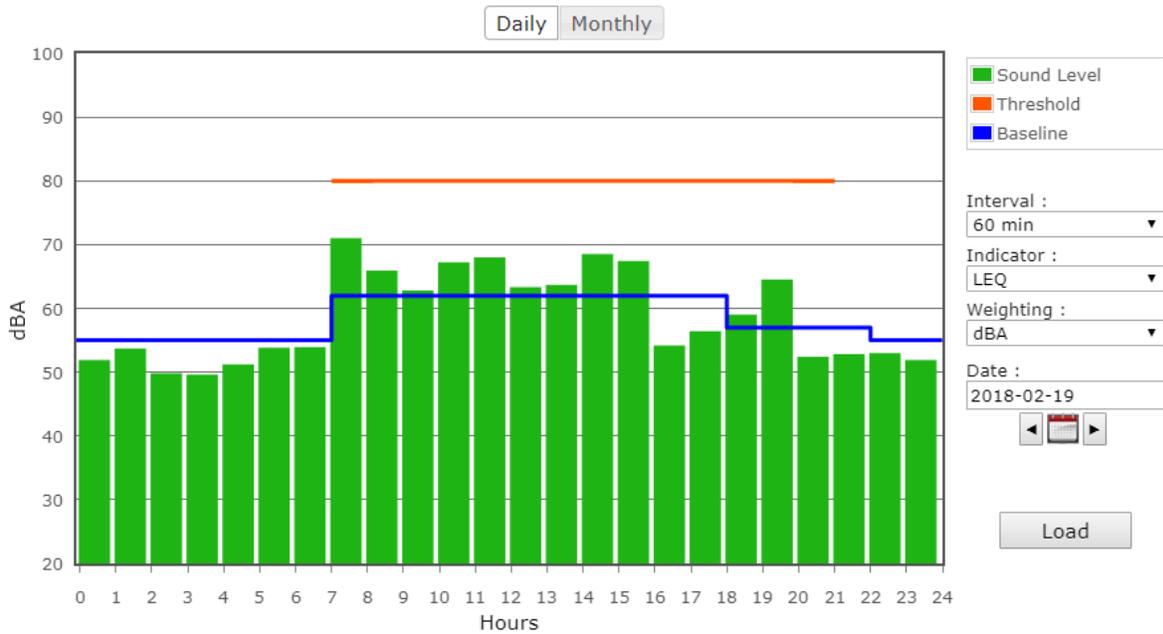


Figure 2: North Monitor NM-1 on Monday

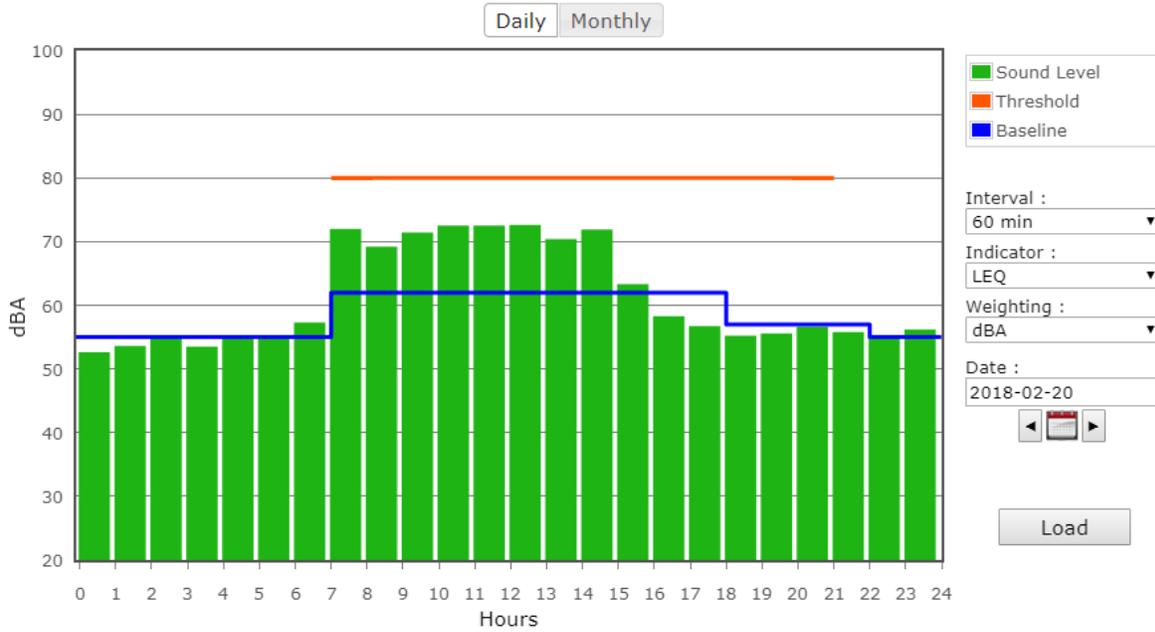


Figure 3: North Monitor NM-1 on Tuesday

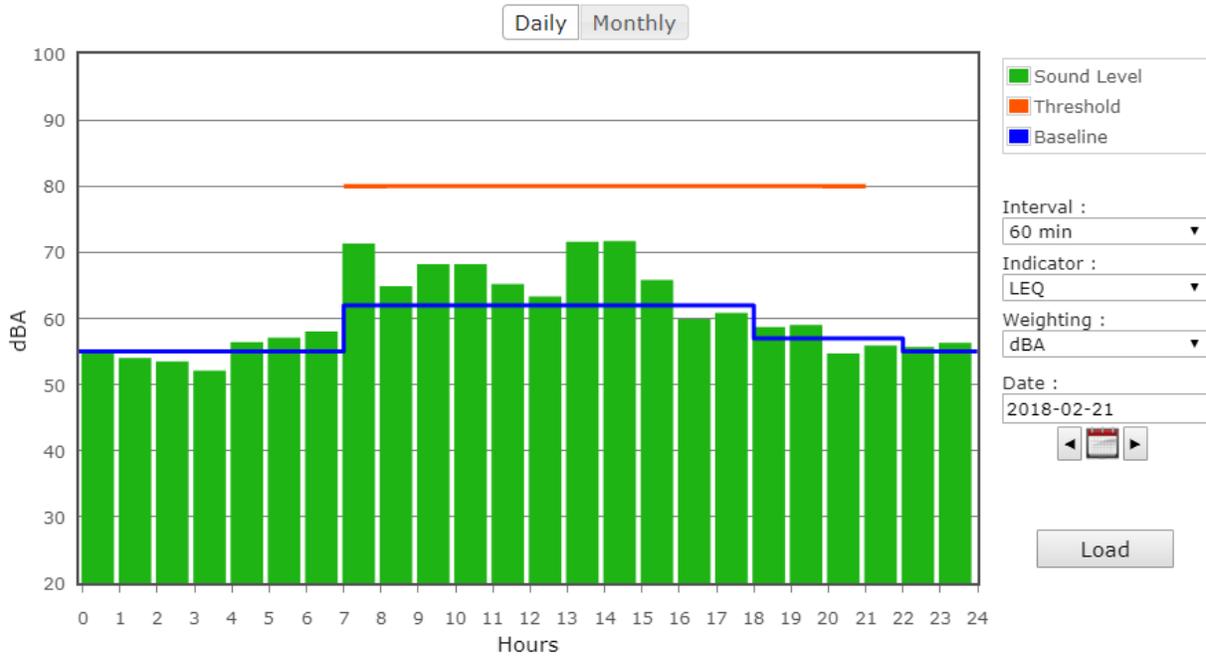


Figure 4: North Monitor NM-1 on Wednesday

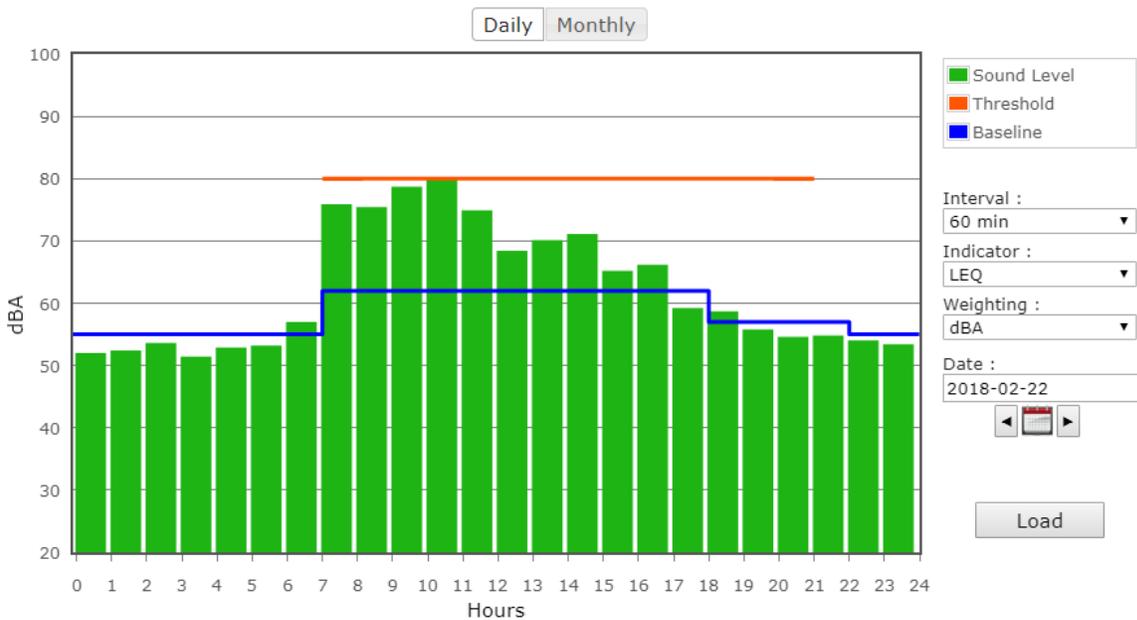


Figure 5: North Monitor NM-1 on Thursday

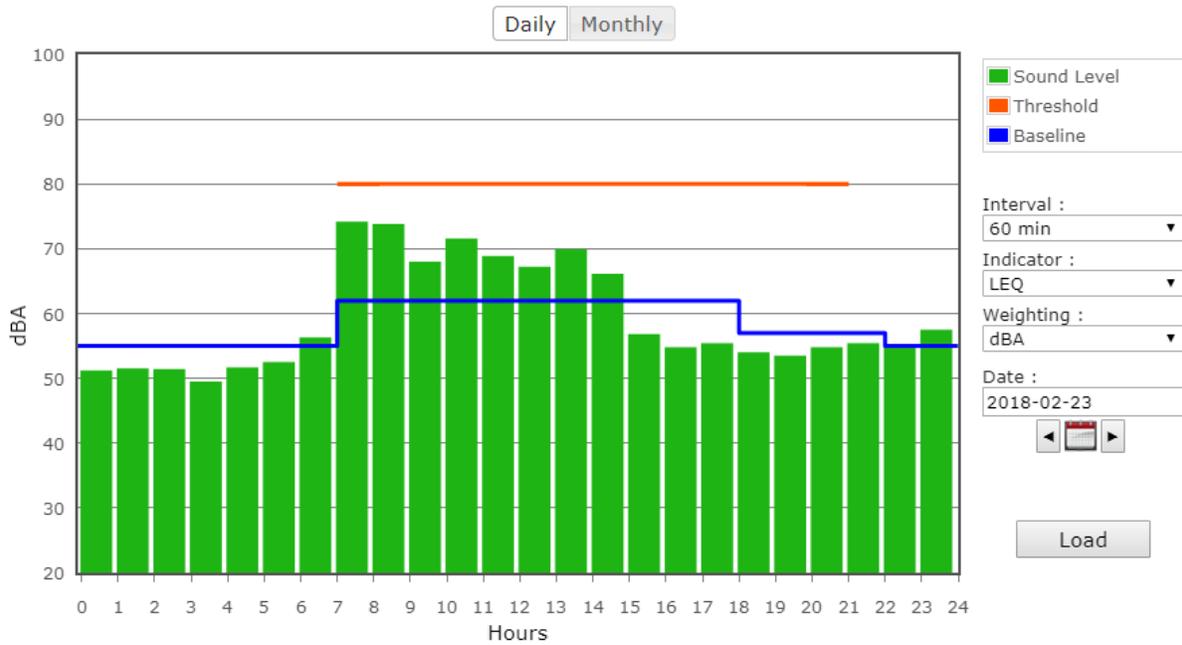


Figure 6: North Monitor NM-1 on Friday

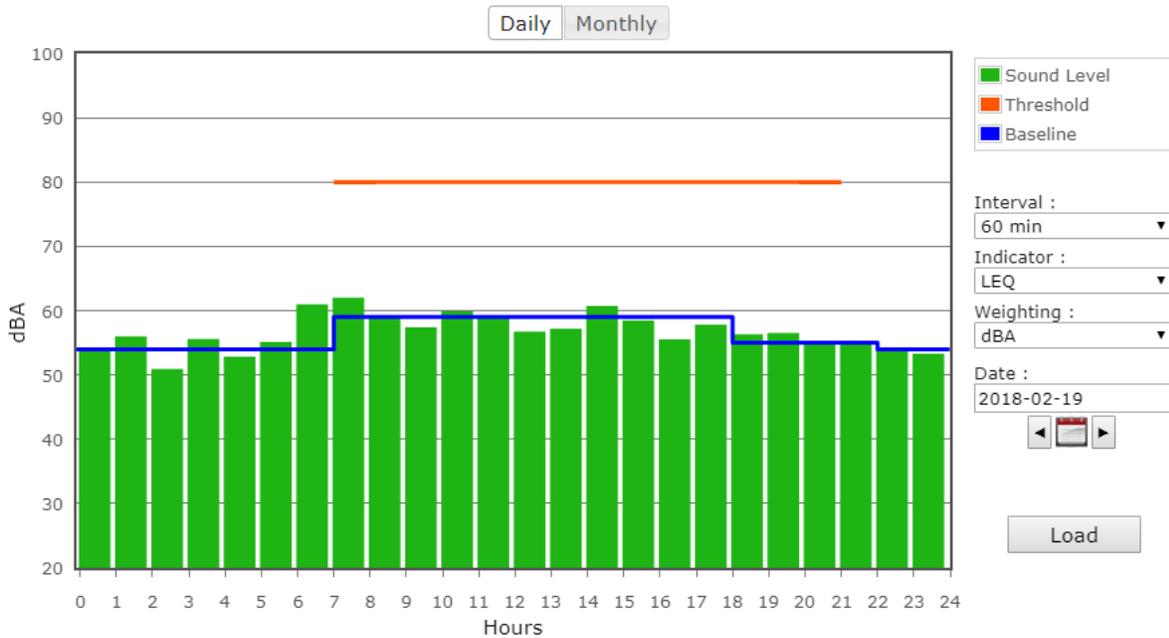


Figure 7: South Monitor NM-2 on Monday

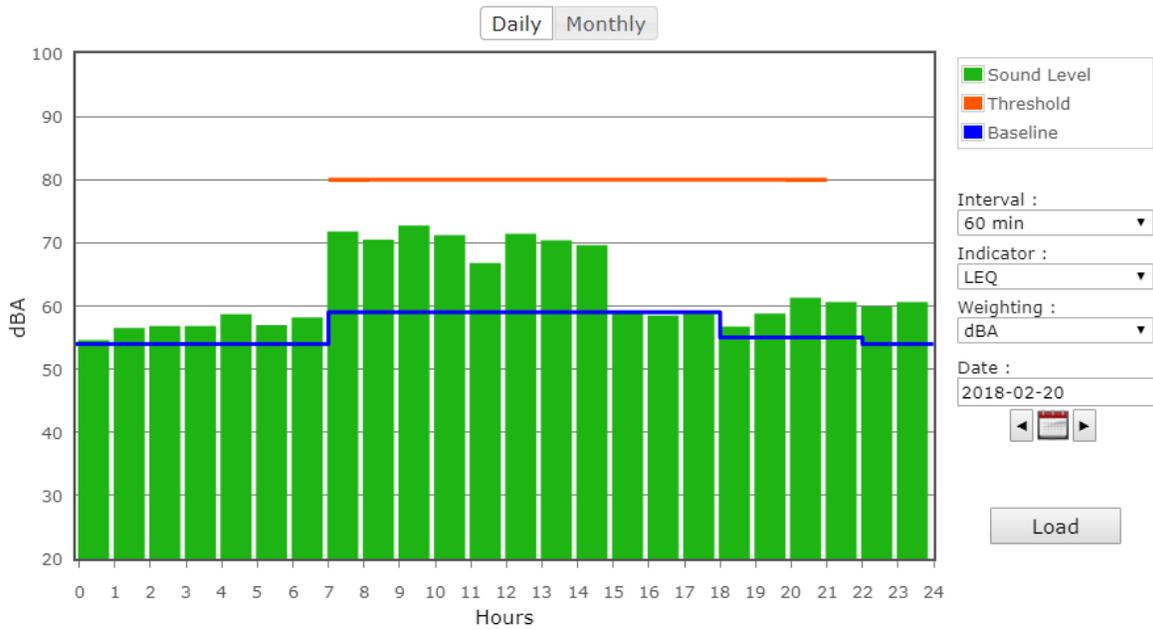


Figure 8: South Monitor NM-2 on Tuesday

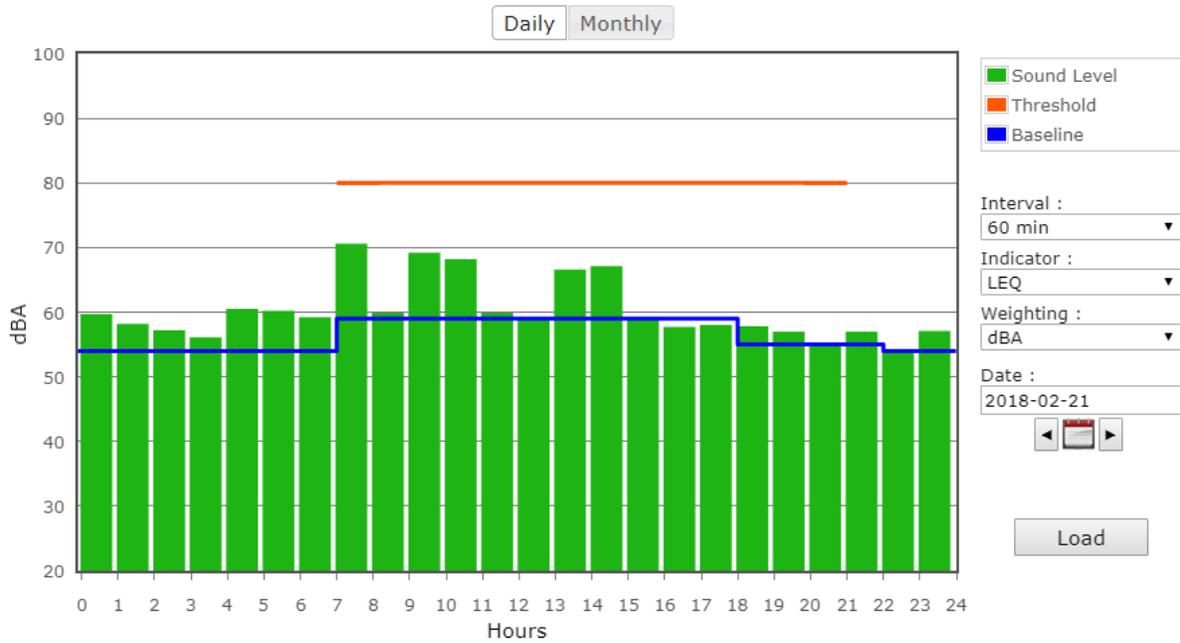


Figure 9: South Monitor NM-2 on Wednesday

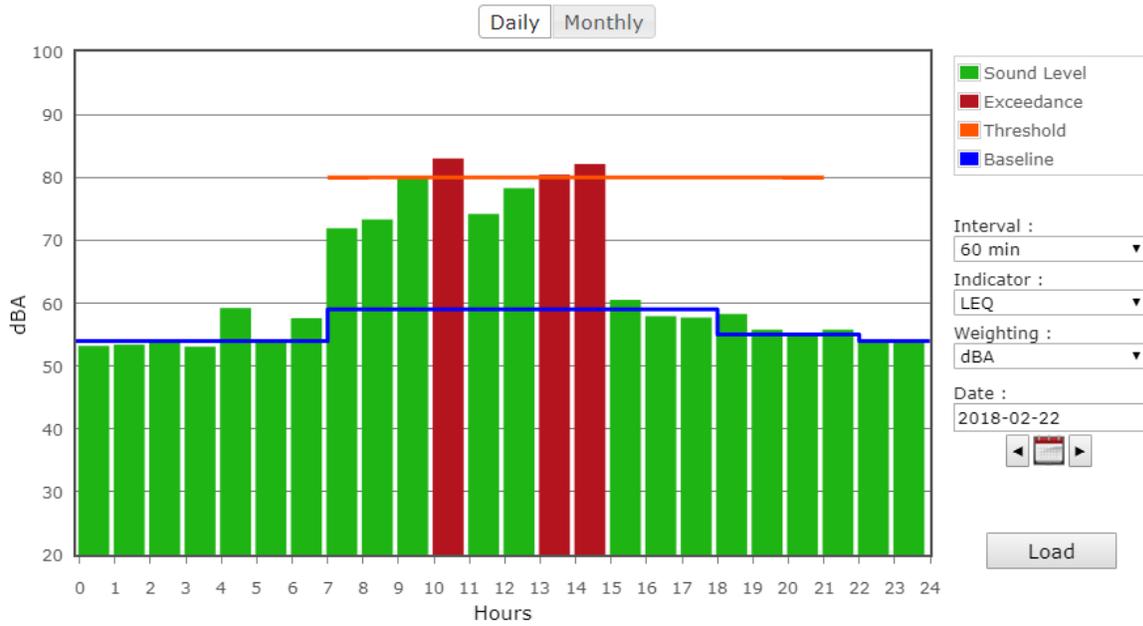


Figure 10: South Monitor NM-2 on Thursday

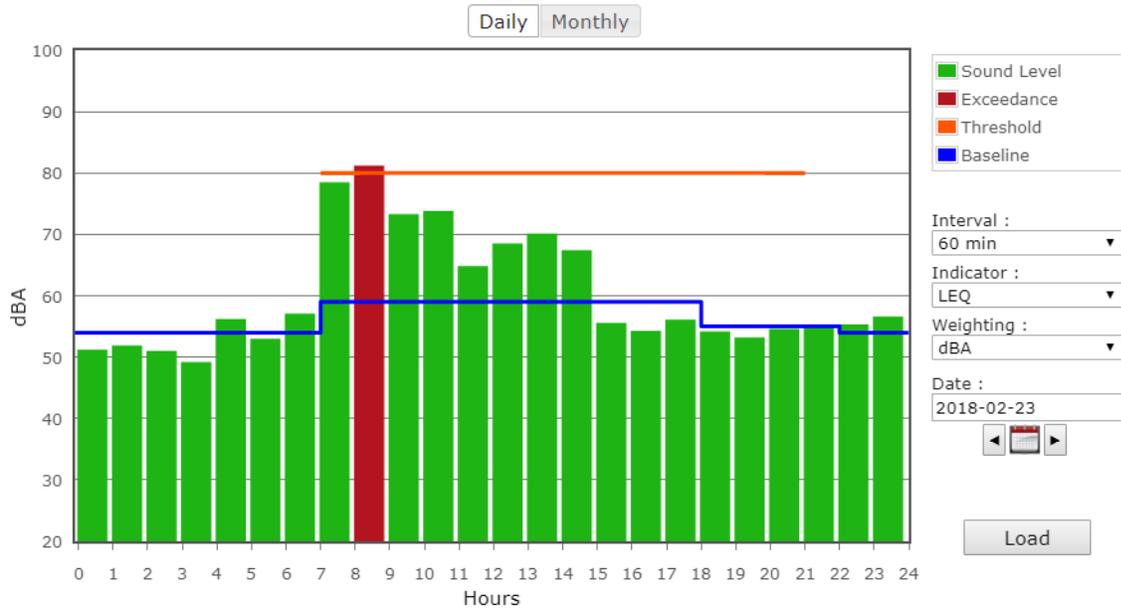


Figure 11: South Monitor NM-2 on Friday

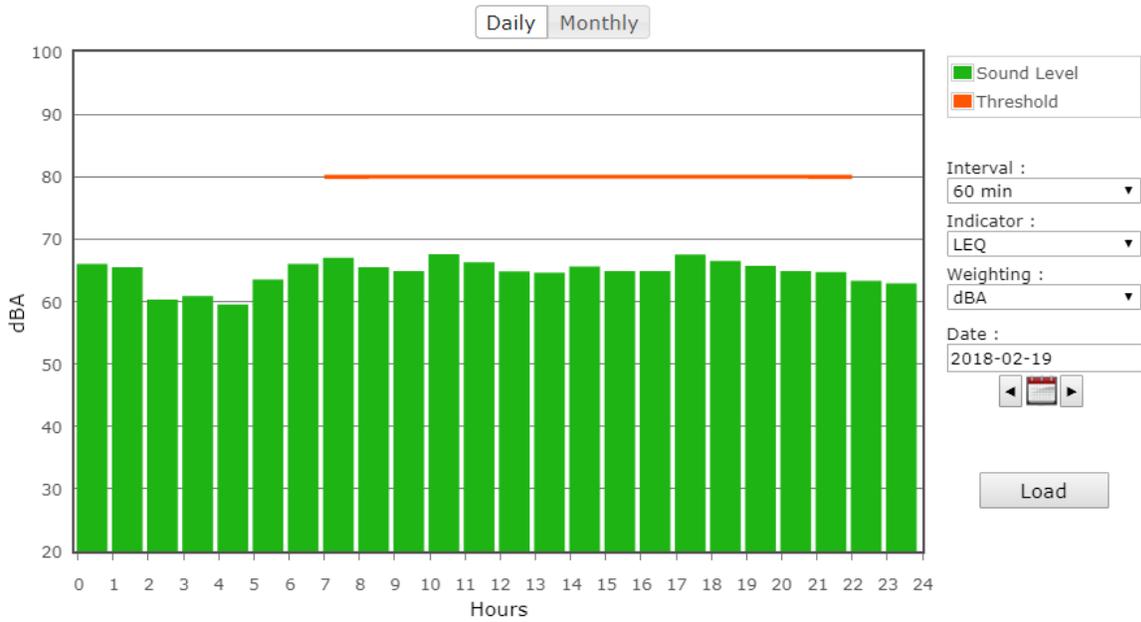


Figure 12: Northeast Monitor NM-3 on Monday

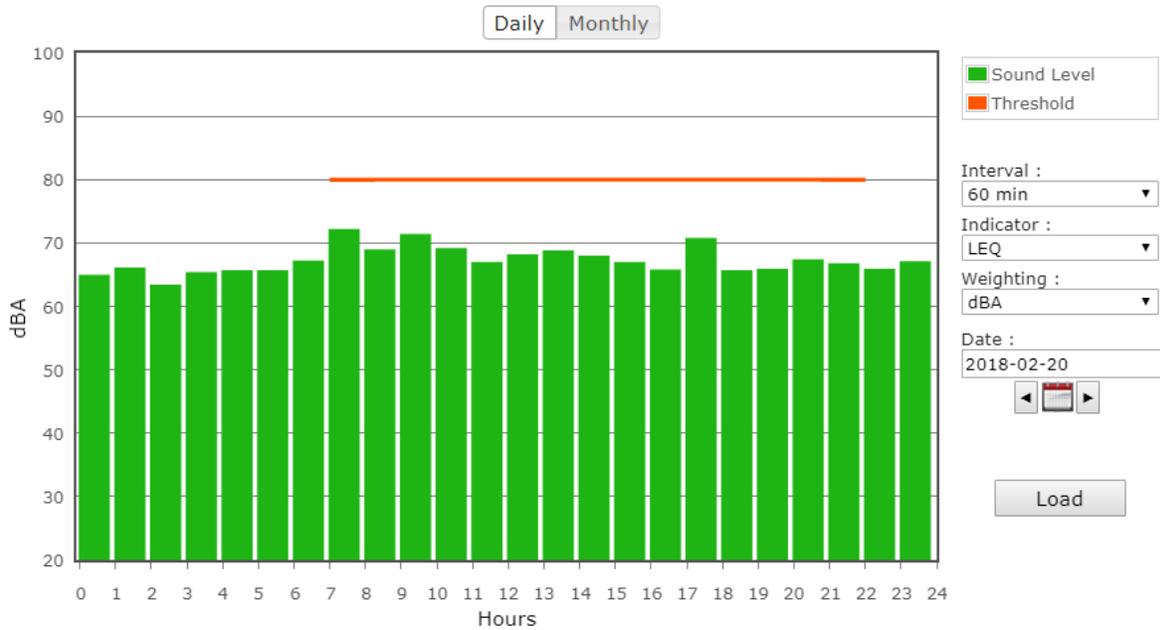


Figure 13: Northeast Monitor NM-3 on Tuesday

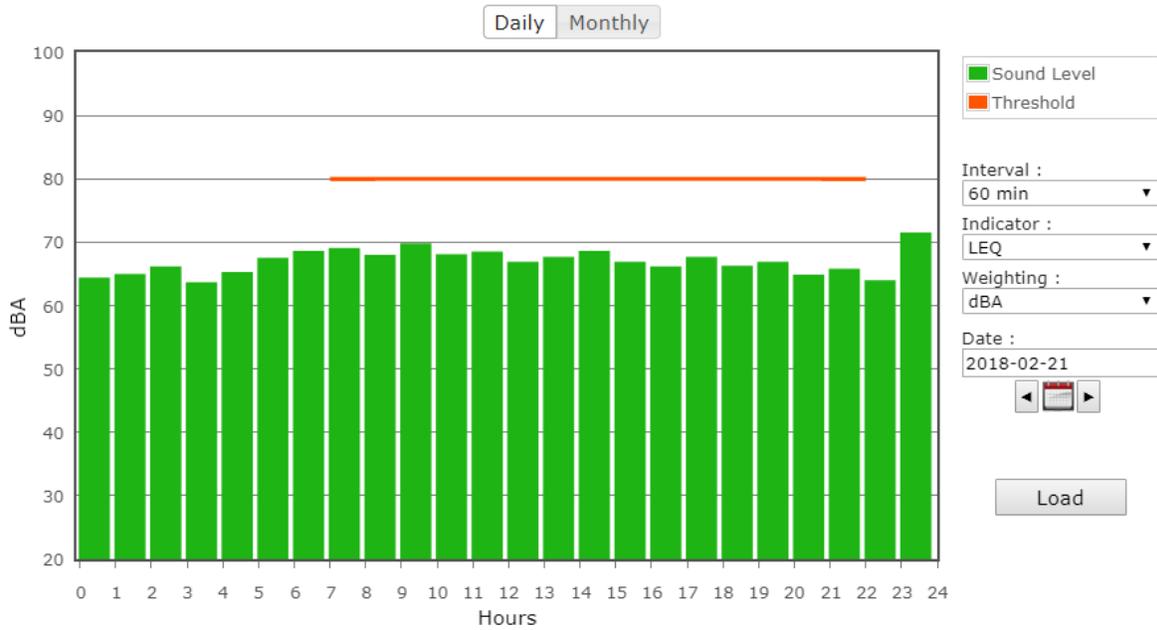


Figure 14: Northeast Monitor NM-3 on Wednesday

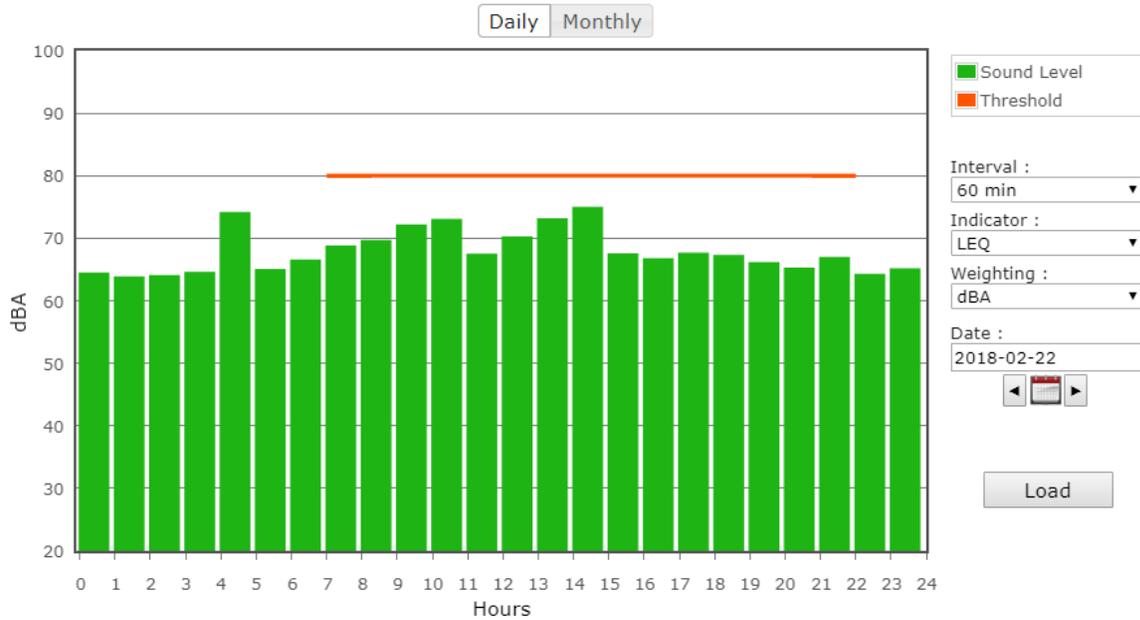


Figure 15: Northeast Monitor NM-3 on Thursday

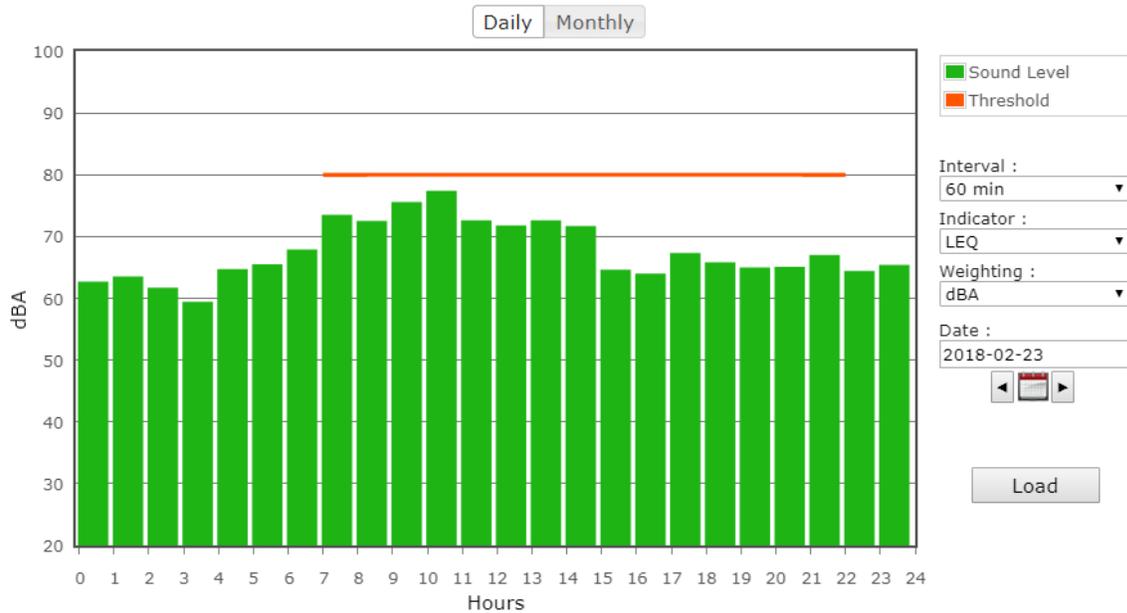


Figure 16: Northeast Monitor NM-3 on Friday

Figure 17: North Vibration Monitor VM-1 on Monday*

* Vibration data for North monitor VM-1 is not shown for Monday February 19 due to equipment issues. The monitor was reset and resumed normal function on Tuesday February 20 2018 at 5:00 PM.

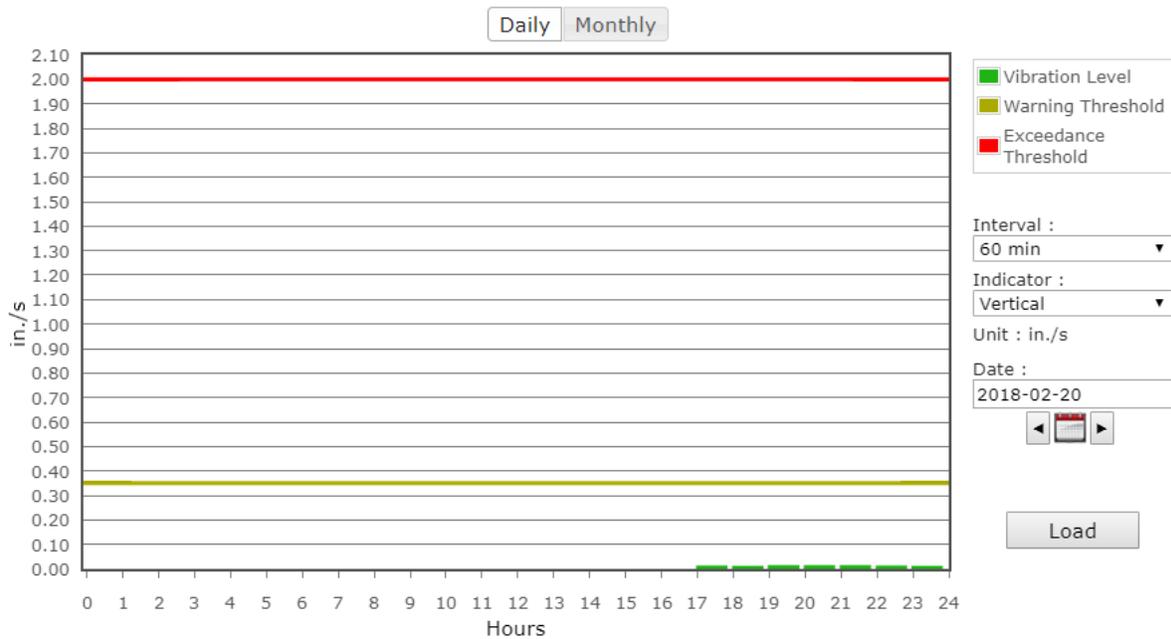


Figure 18: North Vibration Monitor VM-1 on Tuesday*

*Monitor VM-1 was reset and resumed normal function on Tuesday February 20 2018 at 5:00 PM.

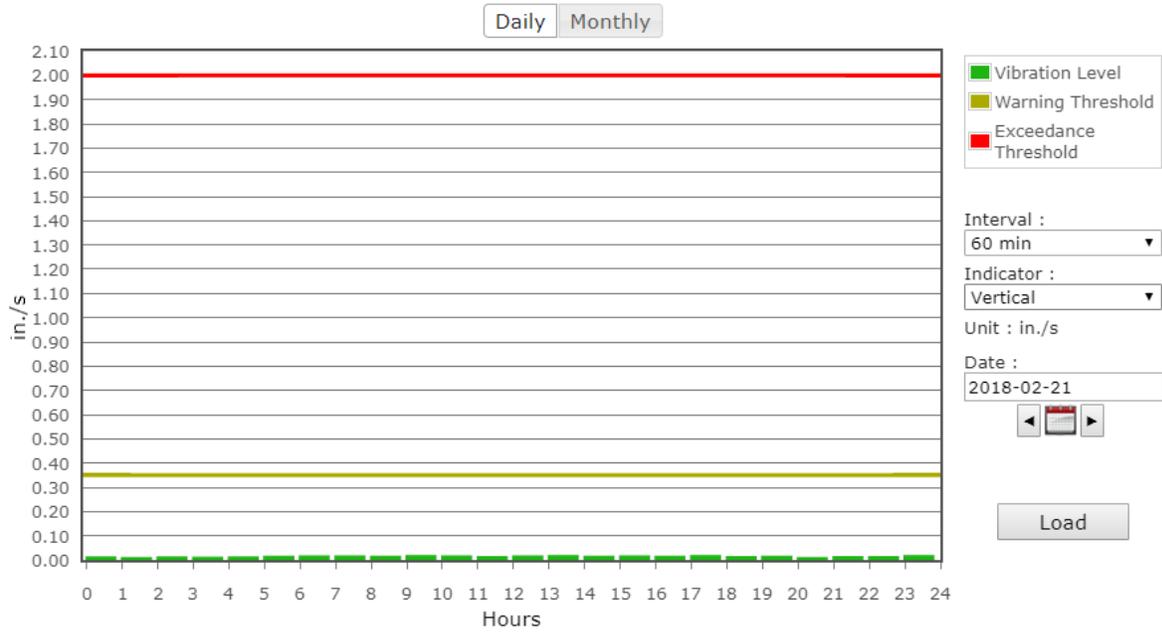


Figure 19: North Vibration Monitor VM-1 on Wednesday

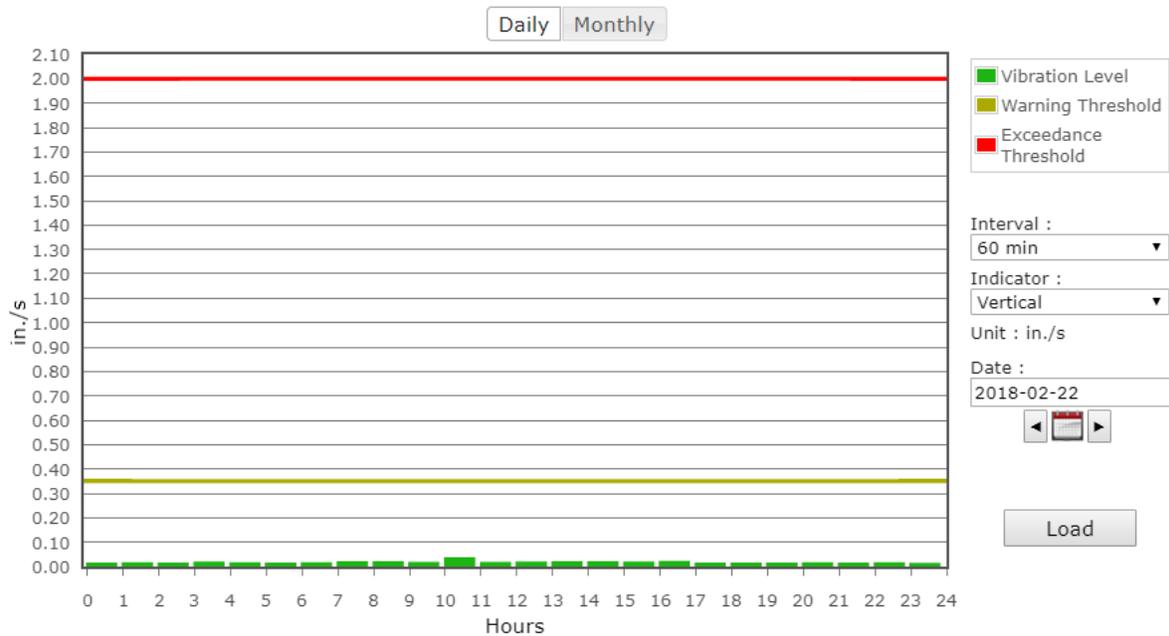


Figure 20: North Vibration Monitor VM-1 on Thursday

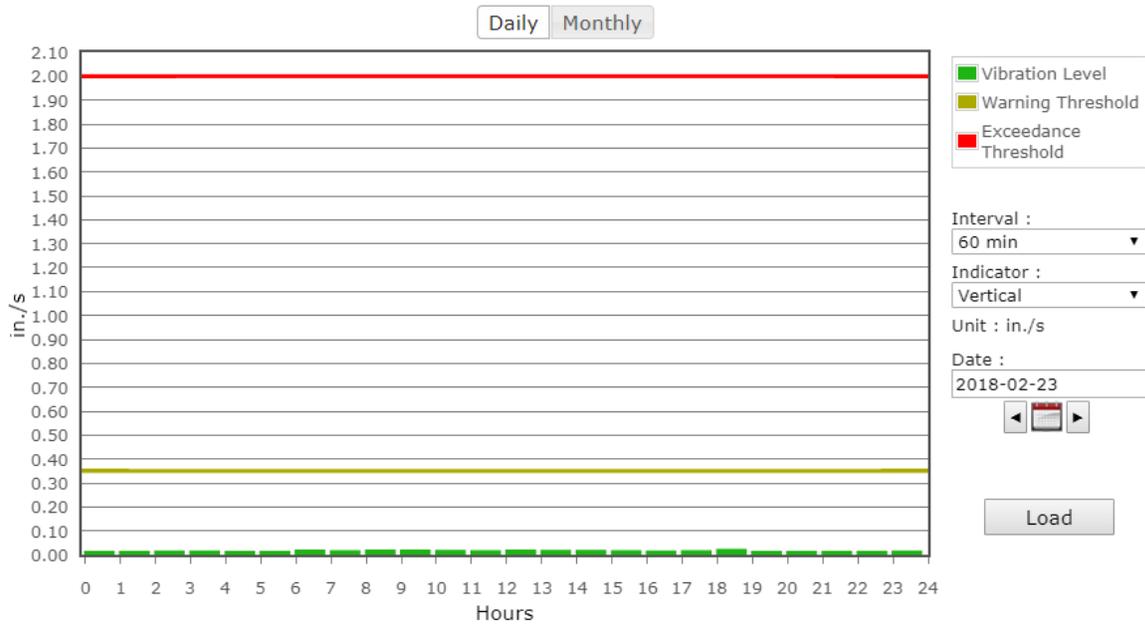


Figure 21: North Vibration Monitor VM-1 on Friday

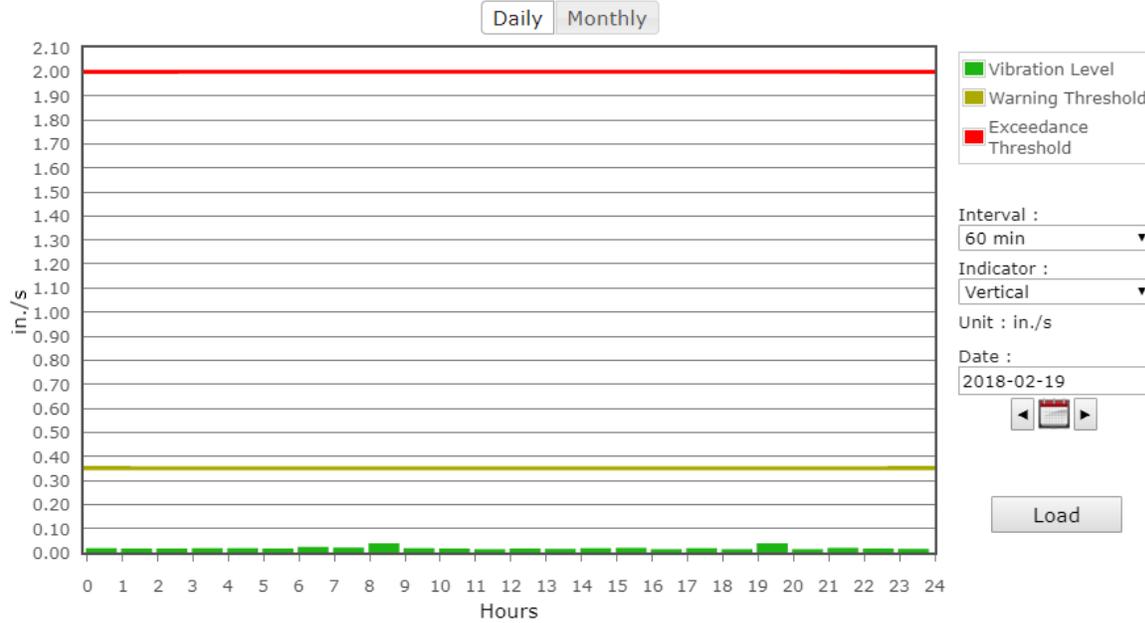


Figure 22: South Vibration Monitor VM-2 on Monday

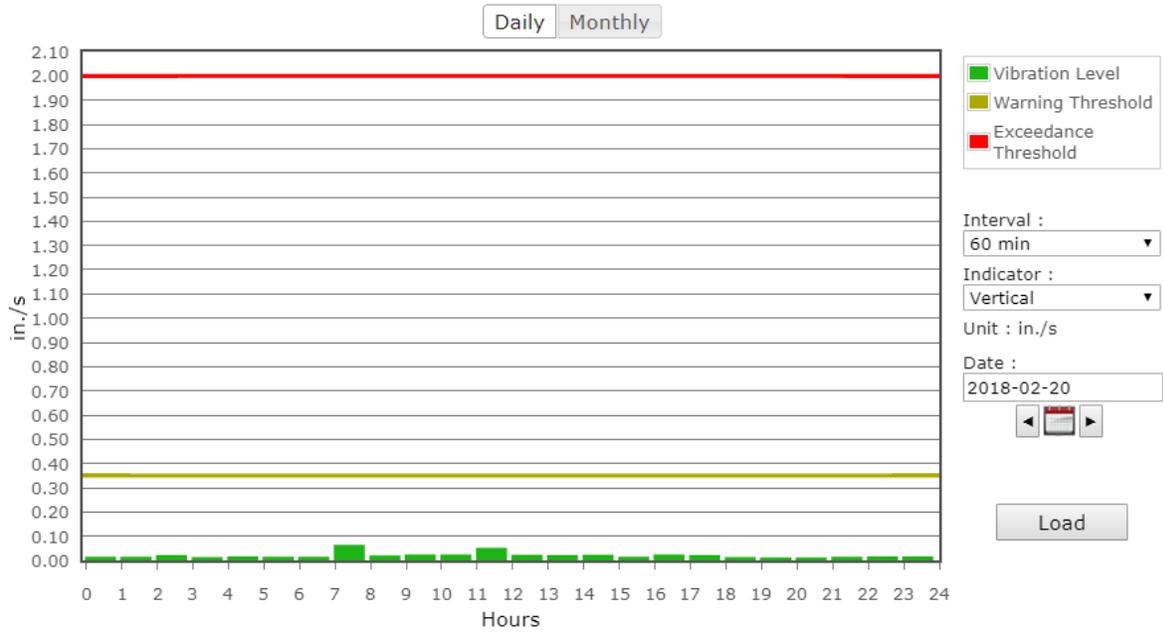


Figure 23: South Vibration Monitor VM-2 on Tuesday

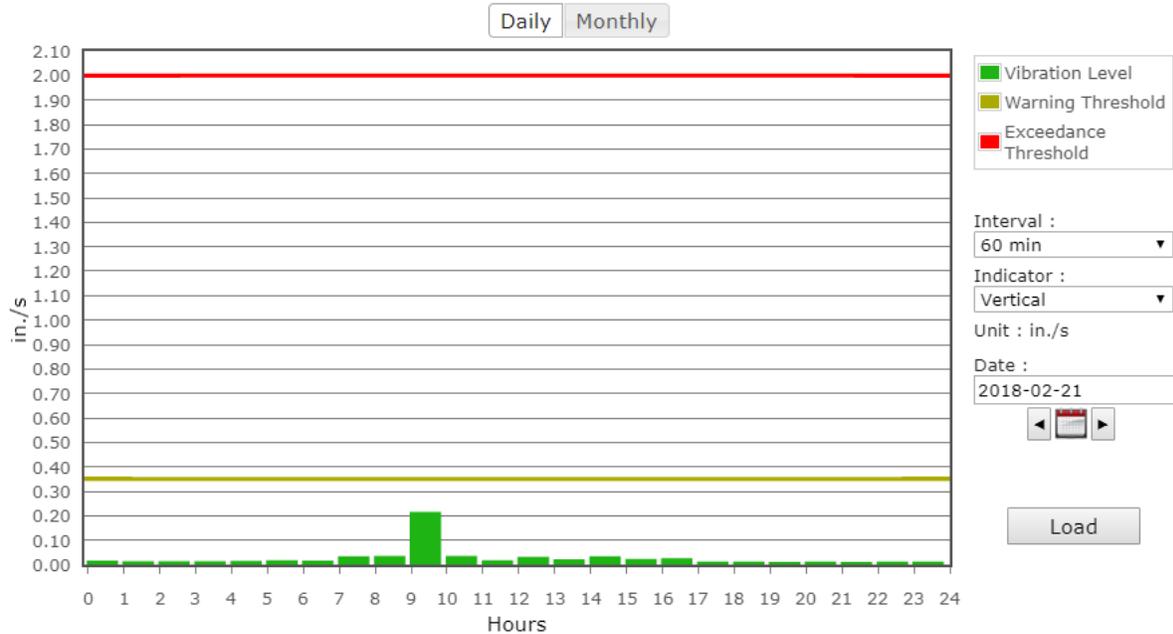


Figure 24: South Vibration Monitor VM-2 on Wednesday

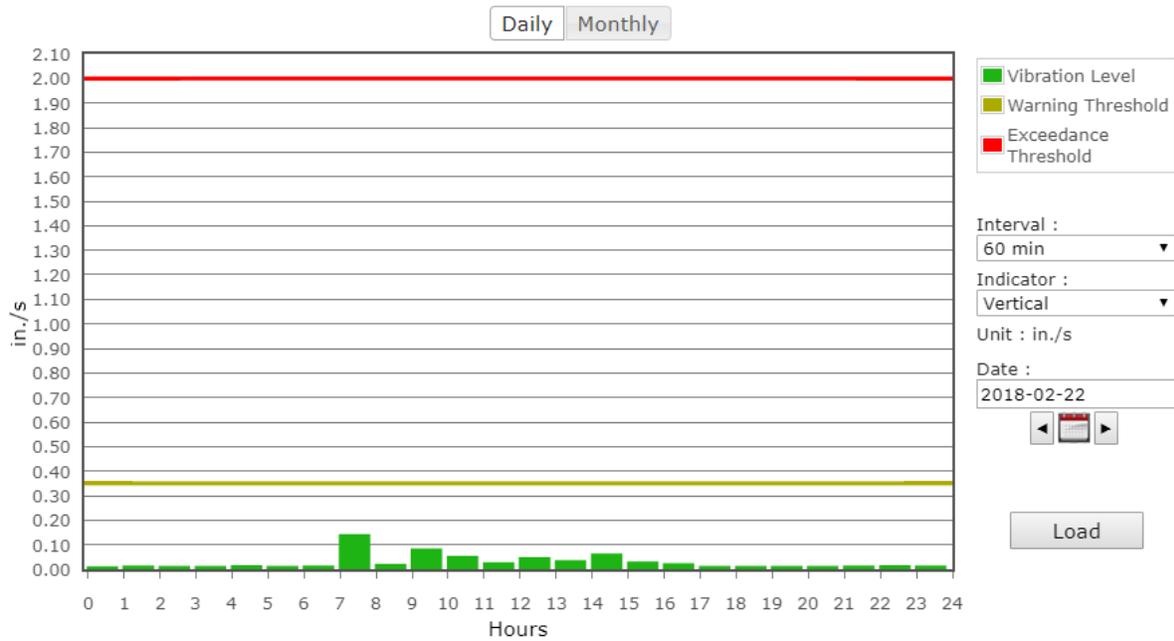


Figure 25: South Vibration Monitor VM-2 on Thursday

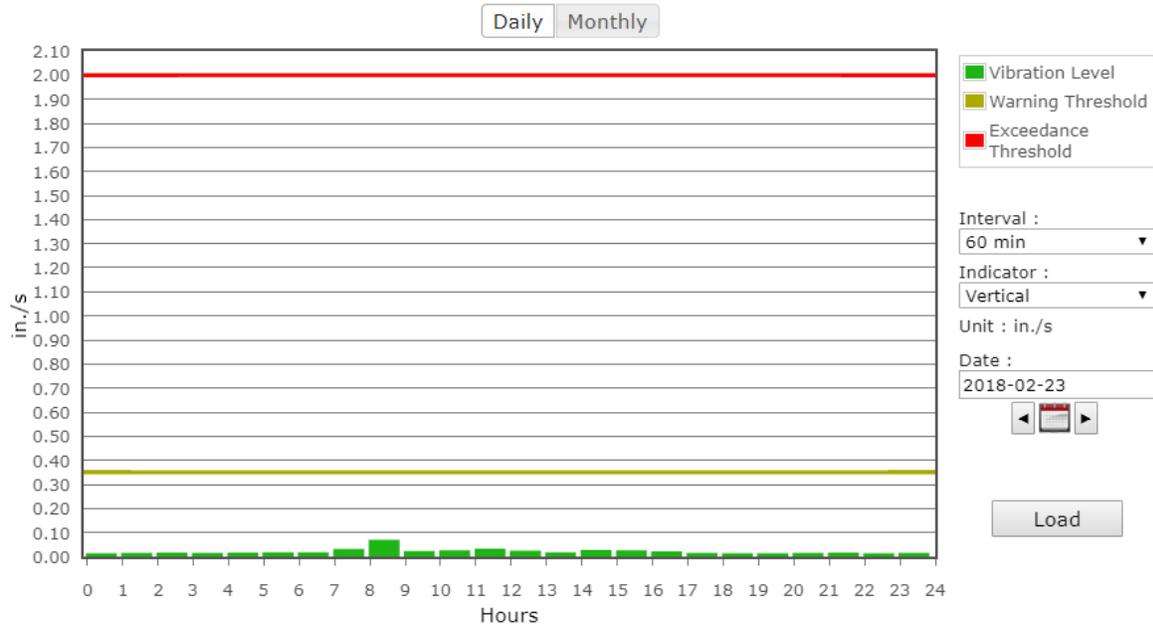


Figure 26: South Vibration Monitor VM-2 on Friday

AHRS WEEKLY REPORT
(NO ACTIVITIES DURING CURENT WEEK)



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



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

