WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: April 23 to 27, 2018

Date of Report: May 2, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust

On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Sheet Pile Installation

- Remove and replace 3.5 pairs of previously installed sheet piling with new sheet piling to complete installation at Station 6+25, fourth and final section finished with Giken Silent Press
- Complete placement granular backfill between installed sheet piling and existing bulkheads
- Disassemble, decontaminate, and demobilize Giken Silent Press

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 4/23/18:
  - Daily average for ambient buoy – 9.8 NTU
  - Daily average for sentinel buoy – 5.9 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – no instances where sentinel exceeded ambient.
- Measurements for 4/24/18:
  - Daily average for ambient buoy – 9.9 NTU
  - Daily average for sentinel buoy – 6.5 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 5.0 NTU at 0915.
- Measurements for 4/25/18:
  - Daily average for ambient buoy – 12.4 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 – 8.0 NTU at 0830.
- Measurements for 4/26/18:
  - Daily average for ambient buoy – 10.0 NTU
  - Daily average for sentinel buoy – 13.7 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 12.8 NTU at 1700.

- Measurements for 4/27/18:
    - Daily average for ambient buoy – 10.8 NTU
    - Daily average for sentinel buoy – 18.6 NTU
    - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 12.2 NTU at 1500.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM_{10}) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM_{10} in $\mu g/m^3$
    - Station 1 – 44 $\mu g/m^3$ recorded on 04/26/18
    - Station 2 – 48 $\mu g/m^3$ recorded on 04/26/18
    - Station 3 – 48 $\mu g/m^3$ recorded on 04/25/18
    - Station 4 – 54 $\mu g/m^3$ recorded on 04/26/18
    - Station 5 – 22 $\mu g/m^3$ recorded on 04/27/18
    - Station 6 – 17 $\mu g/m^3$ recorded on 04/23/18
    - Station 7 – <1 $\mu g/m^3$ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
    - Station 1 – 38 ppb recorded on 04/25/18
    - Station 2 – 25 ppb recorded on 04/26/18
    - Station 3 – 54 ppb recorded on 04/24 and 04/26/18
    - Station 4 – <1 ppb recorded throughout the week
    - Station 5 – 93 ppb recorded on 04/27/18
    - Station 6 – 43 ppb recorded on 04/26/18
    - Station 7 – 86 ppb recorded on 04/24/18
- All real-time readings of hydrogen sulfide, ammonia, or formaldehyde less than instrument reporting limit.
- 23-hour sample collected at ST-2 on 04/22 through 04/23 and ST-7 (collocated) on 04/24 through 04/25. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 23-hour sample collected at ST-2 on 04/10 through 04/11 and ST-7 on 04/12 through 04/13 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 at NM-2 during placement of granular backfill between installed sheet piling and existing bulkhead.
- . Greatest hourly Leq noise measurements
    - Northern monitor (NM-1) – 75.4 dBA during 1200-1300 on 04/27/18
    - Southern monitor (NM-2) – 82.3 dBA during 1400-1500 on 04/24/18
    - 3rd Avenue Bridge monitor (NM-3) – 75.5 dBA during 1200-1300 on 04/27/18

- 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) – 0.0568 in/sec event between 1000 and 1100 on 04/24/18
    - Southern monitor (VM-2) – 0.347 in/sec event between 1200 and 1300 (possibly due to human interference)

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

- No activities during the week.

Two-Week Look Ahead:

Sevenson:

- Recommence and continue Phase I dredging.
- Shipment of dredged sediment to Clean Earth Claremont for screening and stabilization prior to shipment to Waste Management Fairless Hills for beneficial reuse.
- Treatment and discharge of water decanted from dredged sediment.
- Perform optical monitoring of bulkheads and surrounding structures with autonomous total survey stations.

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

TRC CAMP Monitoring – Perform community air monitoring.

Wilson Ihrig – Perform noise and vibration monitoring,

Emilcott – No activities planned.

AHRS:

- Submit report of inspection of screened debris from Access Dredging in preparation for off-site disposal.
- Perform inspection of screened debris from Phase I dredging at Clean Earth Claremont.

Key Milestones:

- Installation of sheet piling for bulkhead support completed on 04/25/18.

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 (no activities during current week)

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

Photo No.	Date
001	04-23-2018

Description
Giken Silent Press sitting atop sheet pile wall.

Photo No.	Date
002	04-23-2018

Description
Feeding sheet pile pair into the Giken Silent Press for installation into the sheet pile wall.

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

Photo No.	Date
003	04-24-2018

Description
Pressing pair of sheet piles into place with the Giken Silent Press.

Photo No.	Date
004	04-24-2018

Description
Loading concrete bucket with mini excavator for placement of granular backfill between installed sheet piling and existing bulkhead.

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

Photo No.	Date
005	04-25-2018

Description
Installation of the last sheet pile of the bulkhead support.

Photo No.	Date
006	04-25-2018

Description
Installing the Giken Silent Press auger back into its housing.

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

Photo No.	Date
007	04-26-2018

Description
Disassembling the Giken Silent Press.

Photo No.	Date
008	04-26-2018

Description
Giken Silent Press demobilizing from TB-4.

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

Photo No.	Date
009	04-27-2018

Description
Backfilling east end of the south side of the installed bulkhead support.

Photo No.	Date
010	04-20-2018

Description
Backfilling installed bulkhead support adjacent to Whole Foods.

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 April 23rd, 2018

Report Contents

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

Prepared by

Geosyntec consultants
engineers | scientists | innovators

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

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of April 23rd, 2018. Two turbidity buoys were deployed to monitor turbidity during the pilot study. One turbidity buoy was deployed just outside of the 4th Street Turning Basin and is referred to as the sentinel buoy. A second turbidity buoy was deployed further upstream in RTA1 in order to monitor background turbidity unaffected by on-water construction activities. This turbidity buoy is referred to as the ambient buoy. A map indicating the approximate locations of the turbidity buoys is provided in Figure 1. Each turbidity buoy was equipped with a YSI 600 OMS water quality meter with optical turbidity sensor. The buoys were programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a FTP site via telemetry. This report provides the turbidity data collected every 15 minutes from both the ambient and sentinel buoys during each day between 7 AM and 5 PM during the week of April 23rd. Average and maximum turbidity are also presented. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4. The data provided in this summary report have not yet been validated and should be considered preliminary.


N
RTA 1
RTA 2
4th Street Turning Basin
bing
Legend
Ambient Buoy
Sentinel Buoy
RTA Boundary
300 150 0 300
Feet
Turbidity Buoy Locations
Gowanus Canal, Brooklyn, NY
Gowanus Canal Remedial Design Group
Geosyntec consultants
Beech and Bonaparte engineering p.c.
Figure
1
Ewing, NJ
October 2017

2. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from April 23rd to April 27th, 2018. Background data prior to the start of dredging is provided in Appendix A. No exceedances to the rolling average threshold criteria were observed during the reporting period. On April 26th maintenance was conducted on the water quality meters, resulting in data gaps between 10:30 and 14:15.

2.1 Monday, April 23rd, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
4/23/2018 7:00	6.5	3.8	N	4/23/2018 12:15	9.0	5.5	N
4/23/2018 7:15	6.4	4.3	N	4/23/2018 12:30	10.6	7.1	N
4/23/2018 7:30	6.9	4.3	N	4/23/2018 12:45	9.9	5.1	N
4/23/2018 7:45	7.8	3.7	N	4/23/2018 13:00	11.4	5.9	N
4/23/2018 8:00	8.9	4.2	N	4/23/2018 13:15	9.8	6.7	N
4/23/2018 8:15	10.6	5.1	N	4/23/2018 13:30	8.8	7.3	N
4/23/2018 8:30	10.9	4.3	N	4/23/2018 13:45	9.0	7.4	N
4/23/2018 8:45	10.0	6.6	N	4/23/2018 14:00	12.0	6.5	N
4/23/2018 9:00	10.8	6.7	N	4/23/2018 14:15	9.3	6.6	N
4/23/2018 9:15	11.3	7.6	N	4/23/2018 14:30	10.8	7.0	N
4/23/2018 9:30	10.0	6.5	N	4/23/2018 14:45	8.2	6.0	N
4/23/2018 9:45	9.6	6.2	N	4/23/2018 15:00	7.7	6.0	N
4/23/2018 10:00	9.7	6.2	N	4/23/2018 15:15	7.9	5.9	N
4/23/2018 10:15	10.9	6.0	N	4/23/2018 15:30	8.4	6.3	N
4/23/2018 10:30	9.2	6.2	N	4/23/2018 15:45	7.4	5.7	N
4/23/2018 10:45	12.9	6.6	N	4/23/2018 16:00	9.0	5.3	N
4/23/2018 11:00	10.4	6.9	N	4/23/2018 16:15	8.9	4.9	N
4/23/2018 11:15	10.6	5.8	N	4/23/2018 16:30	9.1	5.8	N
4/23/2018 11:30	10.8	6.3	N	4/23/2018 16:45	9.5	5.4	N
4/23/2018 11:45	12.6	6.7	N	4/23/2018 17:00	9.3	5.1	N
4/23/2018 12:00	18.2	7.1	N				

Average	9.8	5.9	N
Maximum	18.2	7.6	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

2.2 Tuesday, April 24th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
4/24/2018 7:00	8.8	5.4	N	4/24/2018 12:15	9.2	5.0	N
4/24/2018 7:15	9.0	5.7	N	4/24/2018 12:30	9.3	5.2	N
4/24/2018 7:30	7.8	5.1	N	4/24/2018 12:45	17.9	5.1	N
4/24/2018 7:45	7.7	5.6	N	4/24/2018 13:00	8.5	5.4	N
4/24/2018 8:00	8.0	5.3	N	4/24/2018 13:15	8.0	4.8	N
4/24/2018 8:15	8.6	5.4	N	4/24/2018 13:30	8.3	5.1	N
4/24/2018 8:30	8.8	5.6	N	4/24/2018 13:45	8.3	4.7	N
4/24/2018 8:45	10.3	5.8	N	4/24/2018 14:00	8.8	5.6	N
4/24/2018 9:00	10.0	5.8	N	4/24/2018 14:15	9.8	6.0	N
4/24/2018 9:15	11.9	16.9	Y	4/24/2018 14:30	8.8	5.7	N
4/24/2018 9:30	12.0	11.4	N	4/24/2018 14:45	10.1	6.2	N
4/24/2018 9:45	14.2	8.5	N	4/24/2018 15:00	10.2	6.1	N
4/24/2018 10:00	12.0	7.4	N	4/24/2018 15:15	10.1	5.6	N
4/24/2018 10:15	10.3	8.3	N	4/24/2018 15:30	11.2	6.9	N
4/24/2018 10:30	10.1	7.3	N	4/24/2018 15:45	9.2	8.6	N
4/24/2018 10:45	9.7	6.3	N	4/24/2018 16:00	9.8	8.7	N
4/24/2018 11:00	10.1	6.6	N	4/24/2018 16:15	8.9	6.2	N
4/24/2018 11:15	10.0	5.1	N	4/24/2018 16:30	9.3	8.9	N
4/24/2018 11:30	8.8	5.8	N	4/24/2018 16:45	10.3	6.6	N
4/24/2018 11:45	9.3	5.7	N	4/24/2018 17:00	11.1	6.0	N
4/24/2018 12:00	9.4	5.6	N				

Average	9.9	6.5	N
Maximum	17.9	16.9	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

2.3 Wednesday, April 25th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
4/25/2018 7:00	12.9	14.7	Y	4/25/2018 12:15	9.0	7.7	N
4/25/2018 7:15	12.5	10.0	N	4/25/2018 12:30	8.6	6.4	N
4/25/2018 7:30	11.2	7.8	N	4/25/2018 12:45	8.8	5.6	N
4/25/2018 7:45	24.5	8.5	N	4/25/2018 13:00	8.7	5.8	N
4/25/2018 8:00	21.5	16.4	N	4/25/2018 13:15	8.9	4.9	N
4/25/2018 8:15	23.8	22.4	N	4/25/2018 13:30	9.2	7.9	N
4/25/2018 8:30	17.6	25.6	Y	4/25/2018 13:45	8.4	4.6	N
4/25/2018 8:45	16.8	21.2	Y	4/25/2018 14:00	9.4	4.4	N
4/25/2018 9:00	15.9	19.5	Y	4/25/2018 14:15	14.2	4.8	N
4/25/2018 9:15	15.4	11.0	N	4/25/2018 14:30	9.6	5.8	N
4/25/2018 9:30	15.3	11.5	N	4/25/2018 14:45	9.7	4.8	N
4/25/2018 9:45	14.0	11.3	N	4/25/2018 15:00	9.6	5.9	N
4/25/2018 10:00	18.6	10.4	N	4/25/2018 15:15	10.3	6.5	N
4/25/2018 10:15	13.9	10.8	N	4/25/2018 15:30	10.2	5.9	N
4/25/2018 10:30	13.3	8.8	N	4/25/2018 15:45	10.2	4.8	N
4/25/2018 10:45	12.5	9.9	N	4/25/2018 16:00	11.7	6.0	N
4/25/2018 11:00	11.4	8.7	N	4/25/2018 16:15	12.3	6.3	N
4/25/2018 11:15	11.5	19.0	Y	4/25/2018 16:30	9.4	6.7	N
4/25/2018 11:30	10.6	8.9	N	4/25/2018 16:45	10.4	8.1	N
4/25/2018 11:45	9.3	8.1	N	4/25/2018 17:00	10.5	9.0	N
4/25/2018 12:00	8.2	7.4	N				

Average	12.4	9.6	N
Maximum	24.5	25.6	Y

Notes:

No exceedances to rolling average threshold criteria during reporting period

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

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

2.4 Thursday, April 26th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
4/26/2018 7:00	15.1	9.1	N	4/26/2018 12:15	--	--	N
4/26/2018 7:15	14.7	8.3	N	4/26/2018 12:30	--	--	N
4/26/2018 7:30	14.3	9.5	N	4/26/2018 12:45	--	--	N
4/26/2018 7:45	13.7	8.0	N	4/26/2018 13:00	--	--	N
4/26/2018 8:00	13.1	6.7	N	4/26/2018 13:15	--	--	N
4/26/2018 8:15	11.3	8.7	N	4/26/2018 13:30	--	--	N
4/26/2018 8:30	11.0	17.2	Y	4/26/2018 13:45	--	17.5	N
4/26/2018 8:45	11.2	10.3	N	4/26/2018 14:00	7.1	17.6	Y
4/26/2018 9:00	10.6	7.6	N	4/26/2018 14:15	--	17.6	N
4/26/2018 9:15	11.1	8.9	N	4/26/2018 14:30	6.5	19.0	Y
4/26/2018 9:30	12.2	8.6	N	4/26/2018 14:45	6.6	19.1	Y
4/26/2018 9:45	10.2	8.0	N	4/26/2018 15:00	7.5	19.2	Y
4/26/2018 10:00	11.4	8.7	N	4/26/2018 15:15	7.6	19.1	Y
4/26/2018 10:15	14.8	11.2	N	4/26/2018 15:30	7.6	19.1	Y
4/26/2018 10:30	--	8.4	N	4/26/2018 15:45	6.5	19.1	Y
4/26/2018 10:45	--	7.7	N	4/26/2018 16:00	6.6	19.1	Y
4/26/2018 11:00	--	--	N	4/26/2018 16:15	6.9	19.2	Y
4/26/2018 11:15	--	--	N	4/26/2018 16:30	7.2	19.2	Y
4/26/2018 11:30	--	--	N	4/26/2018 16:45	7.9	19.2	Y
4/26/2018 11:45	--	--	N	4/26/2018 17:00	6.5	19.3	Y
4/26/2018 12:00	--	--	N				

Average	10.0	13.7	Y
Maximum	15.1	19.3	Y

Notes:

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

2.5 Friday, April 27th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
4/27/2018 7:00	23.2	18.4	N	4/27/2018 12:15	8.8	18.0	Y
4/27/2018 7:15	21.6	19.3	N	4/27/2018 12:30	10.1	18.0	Y
4/27/2018 7:30	20.1	19.5	N	4/27/2018 12:45	10.0	18.1	Y
4/27/2018 7:45	17.1	19.6	Y	4/27/2018 13:00	10.1	18.2	Y
4/27/2018 8:00	15.9	19.3	Y	4/27/2018 13:15	10.3	18.5	Y
4/27/2018 8:15	16.5	18.9	Y	4/27/2018 13:30	9.5	18.7	Y
4/27/2018 8:30	18.5	18.8	Y	4/27/2018 13:45	8.8	18.7	Y
4/27/2018 8:45	18.0	19.0	Y	4/27/2018 14:00	7.7	18.7	Y
4/27/2018 9:00	14.0	19.0	Y	4/27/2018 14:15	7.7	18.8	Y
4/27/2018 9:15	11.7	19.0	Y	4/27/2018 14:30	7.6	18.7	Y
4/27/2018 9:30	9.8	18.9	Y	4/27/2018 14:45	8.6	18.7	Y
4/27/2018 9:45	8.2	18.6	Y	4/27/2018 15:00	6.5	18.7	Y
4/27/2018 10:00	7.7	18.3	Y	4/27/2018 15:15	7.3	18.7	Y
4/27/2018 10:15	7.5	18.1	Y	4/27/2018 15:30	7.1	18.7	Y
4/27/2018 10:30	7.6	17.9	Y	4/27/2018 15:45	8.3	18.7	Y
4/27/2018 10:45	7.9	17.9	Y	4/27/2018 16:00	8.3	18.7	Y
4/27/2018 11:00	7.8	17.9	Y	4/27/2018 16:15	9.6	18.6	Y
4/27/2018 11:15	8.1	17.8	Y	4/27/2018 16:30	8.6	18.6	Y
4/27/2018 11:30	9.0	17.9	Y	4/27/2018 16:45	9.8	18.6	Y
4/27/2018 11:45	8.8	17.9	Y	4/27/2018 17:00	9.6	18.5	Y
4/27/2018 12:00	9.2	18.0	Y				

Average	10.8	18.6	Y
Maximum	23.2	19.6	N

Notes:

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

3. HANDHELD MEASURMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

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

Legend

- Ambient Buoy
- Sentinel Buoy
- RTA Boundary

300 150 0 300 Feet

Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group

Geosyntec consultants

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

Figure 1

Ewing, NJ | October 2017

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

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

PRELIMINARY DATA
NOT YET SUBJECT TO QC REVIEW

Geosyntec consultants

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

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

Average	7.5	6.0	N
Maximum	11.1	16.7	Y

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT

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

(TRC Project No.274286-0000-00000)

Community Air Monitoring Project
29th Weekly Monitoring Period
Summary Report:

April 23rd through April 27th, 2018

Report Contents

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

Executive Summary – Week 29 Monitoring Period
April 23rd through April 27th, 2018

The following report summarizes site air monitoring activities for the Week 29 monitoring period from April 23rd through April 27th, 2018. The start and stop times associated with each daily monitoring period are listed on the respective daily reports.

TRC continued to operate two (2) air monitoring stations on the Citizen Property or Staging Area, and five (5) air monitoring stations in the 4th St Turning Basin Area using the equipment specified previously in the *Gowanus Canal TB-4 Dredging and Pilot Study Executive Summary – Background Monitoring Period Report*. During the Week 29 monitoring period there were no PM_{10} or TVOC exceedances of the action level of 150 ug/m^3 or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017.*

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM_{10}) daily averages and maximums. Figure 3 depicts the station locations along the Gowanus Canal.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 29 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 29 monitoring period of April 23rd through April 27th, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 2 and 7. The ST-2 sample was collected on April 22nd, through April 23rd, 2018. Co-located samples (ST-7A and ST-7B) were collected at Station 7 on April 24th, through April 25th, 2018.

The samples were collected over a 23-hour period. The samples were 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 24-hour samples collected at Stations 2 and 7 during Week 27. The ST-2 sample was collected on April 10th through 11th, 2018. The ST-7 sample was collected on April 12th through 13th, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Site activities which were conducted at the Citizen Property on April 23rd through April 27th, 2018 included the following:

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

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

- Remove and replace 3.5 pairs of previously installed sheet piling with new sheet piling at Station 6+25 (approximate).
- The fourth and final section of sheet piling was completed with the Giken Silent Press.
- Complete placement of granular backfill between installed sheet piling and existing bulkheads
- Disassemble and decontaminate Giken Silent Press
- Demobilize Giken Silent Press

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
04/23/2018 06:30 AM - 04/23/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	24	ug/m^3
Avg.	6	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

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

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	27	ppb	Max.	26	ug/m^3
Avg.	1	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	26	ug/m^3
Avg.	<1	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	17	ug/m^3
Avg.	<1	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM_{10}		
Max.	44	ppb	Max.	<1	ug/m^3
Avg.	1	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
04/24/2018 00:00 AM - 04/24/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

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

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	9	ppb	Max.	11	ug/m^3
Avg.	<1	ppb	Avg.	5	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	54	ppb	Max.	<1	ug/m^3
Avg.	3	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

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

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

TVOC			PM_{10}		
Max.	32	ppb	Max.	12	ug/m^3
Avg.	8	ppb	Avg.	6	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

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

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM_{10}		
Max.	86	ppb	Max.	<1	ug/m^3
Avg.	10	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
04/25/2018 00:00 AM - 04/25/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	38	ppb	Max.	38	ug/m^3
Avg.	20	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	14	ppb	Max.	40	ug/m^3
Avg.	1	ppb	Avg.	16	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	48	ug/m^3
Avg.	<1	ppb	Avg.	20	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

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

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

TVOC			PM_{10}		
Max.	<1	ppb	Max.	16	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.	2	ug/m^3
Avg.	14	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

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

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
04/26/2018 00:00 AM - 04/26/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	33	ppb	Max.	44	ug/m^3
Avg.	16	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	25	ppb	Max.	48	ug/m^3
Avg.	1	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	54	ppb	Max.	37	ug/m^3
Avg.	2	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	54	ug/m^3
Avg.	<1	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

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

TVOC			PM_{10}		
Max.	7	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.	43	ppb	Max.	3	ug/m^3
Avg.	18	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

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

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
04/27/2018 00:00 AM - 04/27/2018 16:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	32	ppb	Max.	11	ug/m^3
Avg.	9	ppb	Avg.	5	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	2	ppb	Max.	20	ug/m^3
Avg.	<1	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM_{10}		
Max.	27	ppb	Max.	28	ug/m^3
Avg.	3	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	15	ug/m^3
Avg.	<1	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

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

TVOC			PM_{10}		
Max.	93	ppb	Max.	22	ug/m^3
Avg.	3	ppb	Avg.	2	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM_{10}		
Max.	23	ppb	Max.	16	ug/m^3
Avg.	3	ppb	Avg.	1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

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

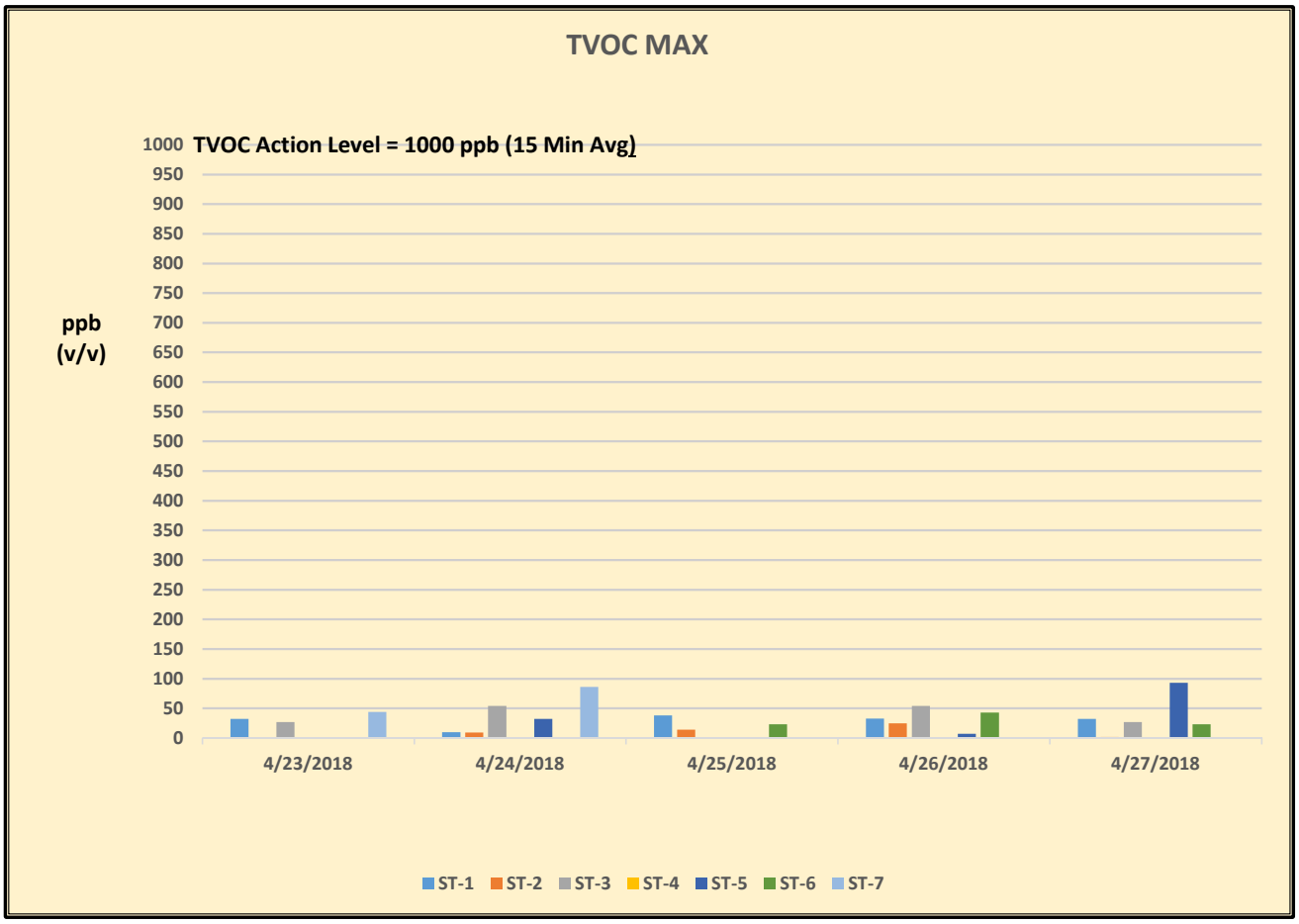
TVOC – Total Volatile Organic Compounds PM_{10} – Particulates as PM_{10}

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

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

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

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 29



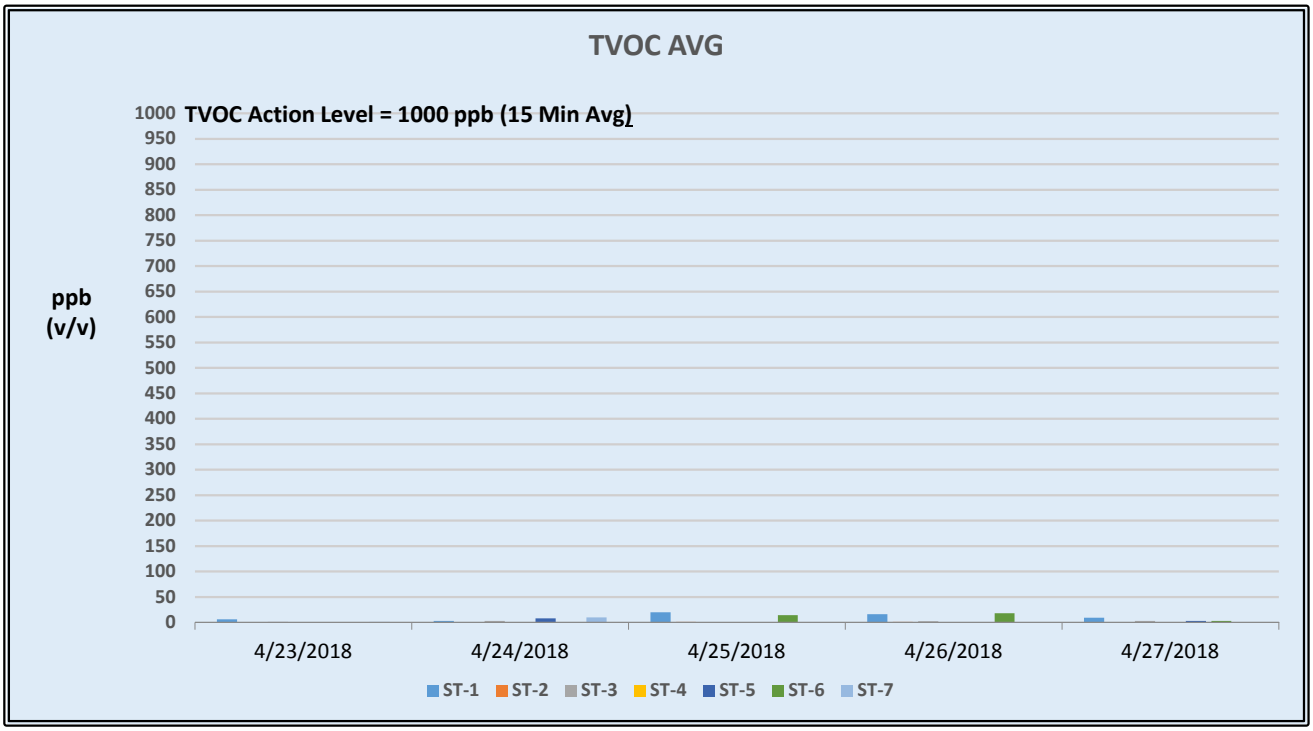
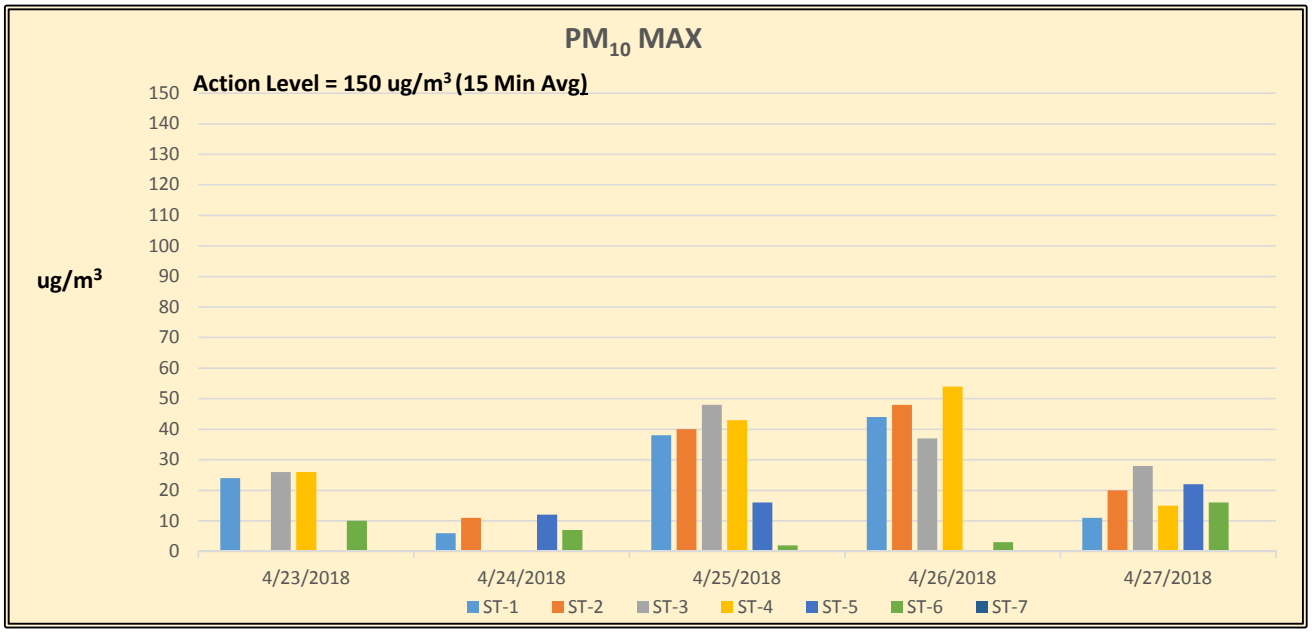
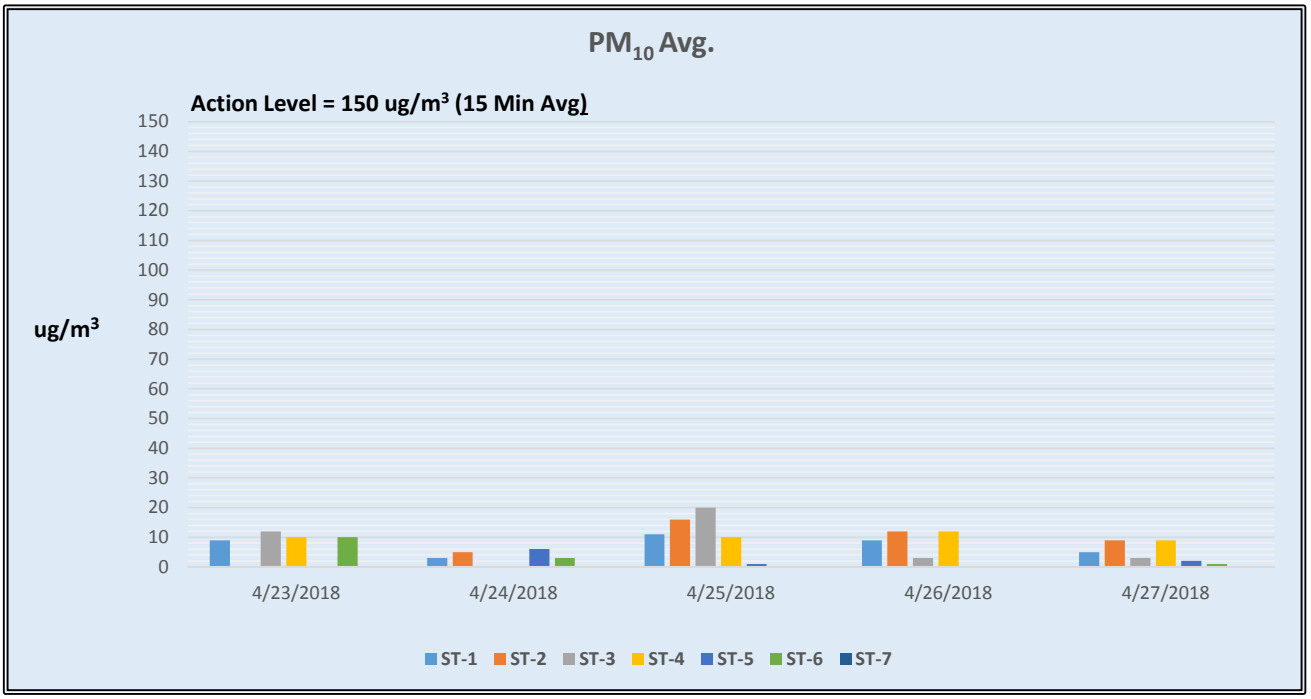
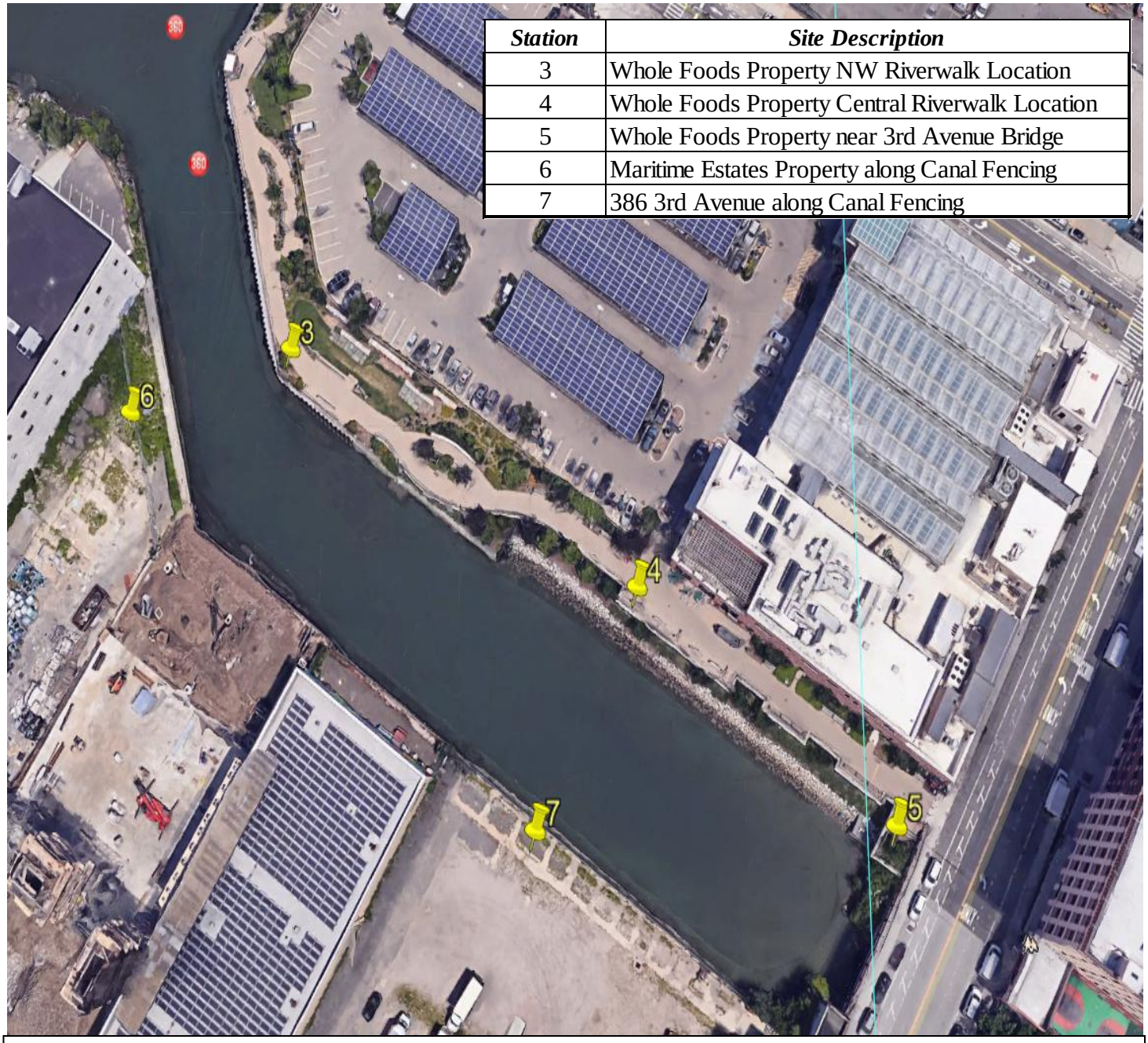


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM_{10} Monitoring Data - Week 29







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

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

Table 1

Week 29
Summary of Additional Periodic (Daily) Monitoring Data

April 23rd, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	8:00	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-2	8:15	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-4	8:35	<50	<3	<1.0
	14:10	<50	<3	<1.0
ST-5	8:45	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-6	9:10	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-7	9:40	<50	<3	<1.0
	15:00	<50	<3	<1.0

April 24th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	7:30	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-3	8:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-5	8:20	<50	<3	<1.0
	15:15	<50	<3	<1.0
ST-6	8:45	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-7	9:00	<50	<3	<1.0
	15:45	<50	<3	<1.0

Table 1

Week 29
Summary of Additional Periodic (Daily) Monitoring Data

April 25th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	8:00	<50	<3	<1.0
	13:00	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	13:05	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-4	8:35	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-5	8:40	<50	<3	<1.0
	13:45	<50	<3	<1.0
ST-6	9:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-7	9:30	<50	<3	<1.0
	14:30	<50	<3	<1.0

April 26th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	8:15	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:20	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	8:40	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-4	8:45	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-5	8:45	<50	<3	<1.0
	14:45	<50	<3	<1.0
ST-6	9:15	<50	<3	<1.0
	14:55	<50	<3	<1.0
ST-7	9:45	<50	<3	<1.0
	15:15	<50	<3	<1.0

Table 1

Week 29
Summary of Additional Periodic (Daily) Monitoring Data

April 27th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	9:00	<50	<3	<1.0
	13:00	<50	<3	<1.0
ST-2	9:05	<50	<3	<1.0
	13:05	<50	<3	<1.0
ST-3	9:15	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-4	9:20	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-5	9:25	<50	<3	<1.0
	13:40	<50	<3	<1.0
ST-6	9:40	<50	<3	<1.0
	13:45	<50	<3	<1.0
ST-7	10:00	<50	<3	<1.0
	14:00	<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 27 VOCs Results: April 10th through 11th and April 12th through April 13th

Sample ID	ST-2-VOC-041018		ST-7-VOC-041218	
Laboratory ID	18D0835-01		18D0835-02	
Date Sampled	4/10/18 09:00 - 4/11/18 08:00		4/12/18 16:00 - 4/13/18 15:00	
Location	Station 2		Station 7	
	ppbV	ug/m3	ppbV	ug/m3
VOCs - TO-15				
Acetone	**6.1**	**14**	**4**	**9.5**
Benzene	**0.2**	**0.64**	**0.27**	**0.85**
Benzyl chloride	<0.035	<0.18	<0.035	<0.18
Bromodichloromethane	<0.035	<0.24	<0.035	<0.24
Bromoform	<0.035	<0.36	<0.035	<0.36
Bromomethane	<0.035	<0.14	<0.035	<0.14
1,3-Butadiene	<0.035	<0.078	<0.035	<0.078
2-Butanone (MEK)	<1.4	<4.1	<1.4	<4.1
Carbon Disulfide	<0.35	<1.1	<0.35	<1.1
Carbon Tetrachloride	**0.074**	**0.46**	**0.075**	**0.47**
Chlorobenzene	<0.035	<0.16	<0.035	<0.16
Chloroethane	<0.035	<0.093	<0.035	<0.093
Chloroform	<0.035	<0.17	<0.035	<0.17
Chloromethane	**0.64**	**1.3**	**0.63**	**1.3**
Cyclohexane	<0.035	<0.12	**0.11**	**0.36**
Dibromochloromethane	<0.035	<0.30	<0.035	<0.30
1,2-Dibromoethane (EDB)	<0.035	<0.27	<0.035	<0.27
1,2-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21
1,3-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21
1,4-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21
Dichlorodifluoromethane (Freon 12)	**0.35**	**1.7**	**0.33**	**1.7**
1,1-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,2-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,1-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
cis-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
trans-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
1,2-Dichloropropane	<0.035	<0.16	<0.035	<0.16
cis-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
trans-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.035	<0.25	<0.035	<0.25
1,4-Dioxane	<0.35	<1.3	<0.35	<1.3
Ethanol	**7.9**	**15**	**6.1**	**11**
Ethyl Acetate	**0.25**	**0.91**	**0.17**	**0.62**
Ethylbenzene	**0.06**	**0.26**	**0.083**	**0.36**
4-Ethyltoluene	<0.035	<0.17	<0.035	<0.17
Heptane	**0.1**	**0.41**	**0.15**	**0.6**
Hexachlorobutadiene	<0.035	<0.37	<0.035	<0.37
Hexane	<1.4	<4.9	<1.4	<4.9
2-Hexanone (MBK)	<0.035	<0.14	<0.035	<0.14
Isopropanol	**1.6**	**4**	<1.4	<3.4
Methyl tert-Butyl Ether (MTBE)	<0.035	<0.13	<0.035	<0.13
Methylene Chloride	**0.49**	**1.7**	<0.35	<1.2
4-Methyl-2-pentanone (MIBK)	<0.035	<0.14	**0.058**	**0.24**
Naphthalene	**0.072**	**0.38**	**0.078**	**0.41**
Propene	<1.4	<2.4	<1.4	<2.4
Styrene	<0.035	<0.15	<0.035	<0.15
1,1,2,2-Tetrachloroethane	<0.035	<0.24	<0.035	<0.24
Tetrachloroethylene	**0.45**	**3**	**0.4**	**2.7**
Tetrahydrofuran	<0.035	<0.10	<0.035	<0.21
Toluene	**0.5**	**1.9**	**1.1**	**4.1**
1,2,4-Trichlorobenzene	<0.14	<0.10	<0.14	<0.10
1,1,1-Trichloroethane	<0.035	<0.19	<0.035	<0.19
1,1,2-Trichloroethane	<0.035	<0.19	<0.035	<0.19
Trichloroethylene	<0.035	<0.19	<0.035	<0.19
Trichlorofluoromethane (Freon 11)	**0.25**	**1.4**	**0.27**	**1.5**
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.14	<1.1	<0.14	<1.1
1,2,4-Trimethylbenzene	**0.082**	**0.4**	**0.093**	**0.46**
1,3,5-Trimethylbenzene	<0.035	<0.17	<0.035	<0.17
Vinyl Acetate	<0.70	<2.5	<0.70	<2.5
Vinyl Chloride	<0.035	<0.90	<0.035	<0.090
m&p-Xylene	**0.18**	**0.78**	**0.26**	**1.1**
o-Xylene	**0.067**	**0.29**	**0.092**	**0.4**

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

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

Meteorological Summary
April 23rd through April 27th, 2018

April 23rd, 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
E	**5.39**	**54.8**

April 24th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
E	**6.23**	**54.4**

April 25th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
E	**7.52**	**55.1**

April 26th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SW	**2.54**	**62.3**

April 27th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ENE	**5.80**	**61.7**

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

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

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

WILSON IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #15-081

MEMORANDUM

April 40, 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, 23 April – 27 April, 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 plan[1]. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference[2].

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

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

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 plan[3]. Commercial and Industrial structures are assigned a PPV vibration criterion of 2.0 inches/second.

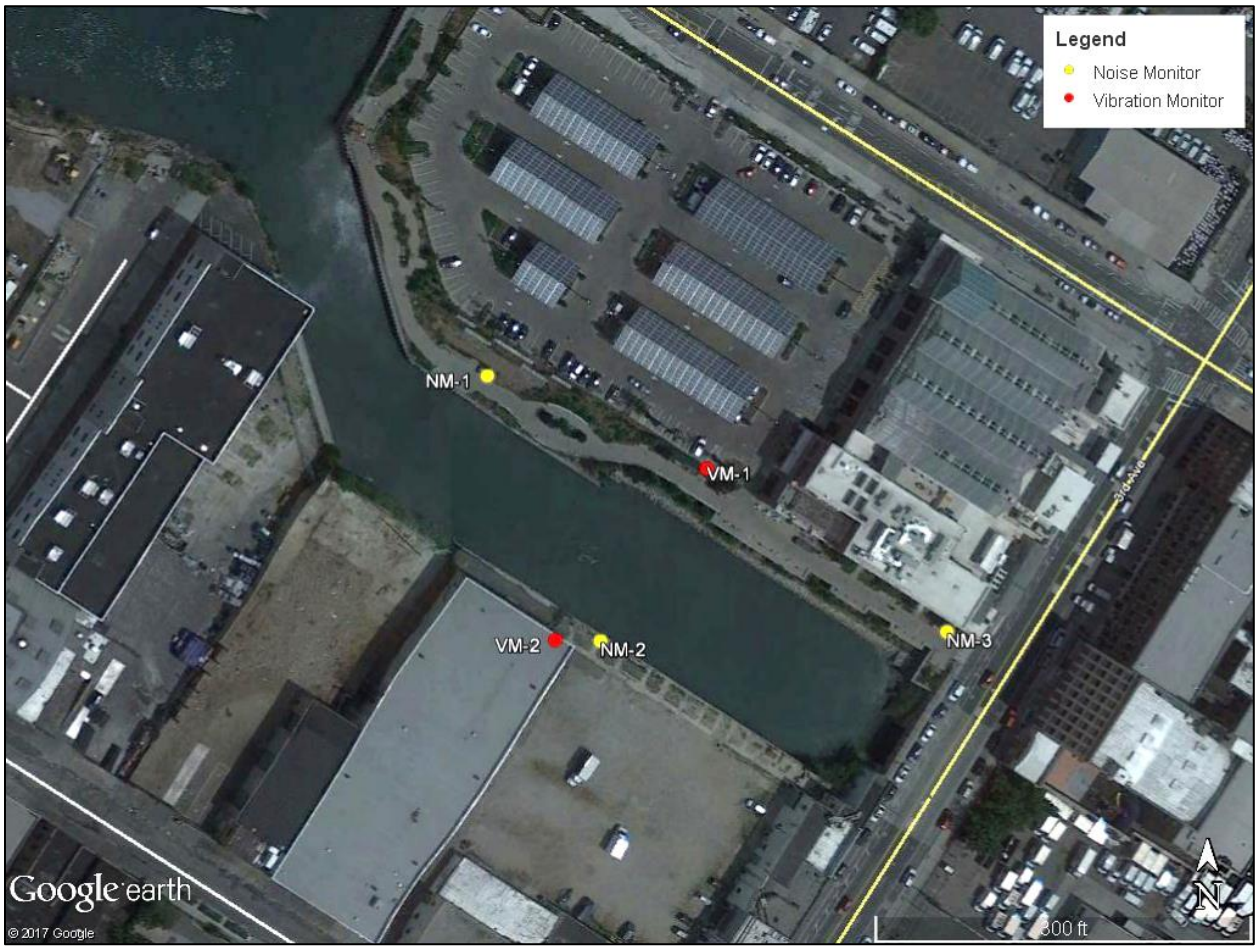


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

[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

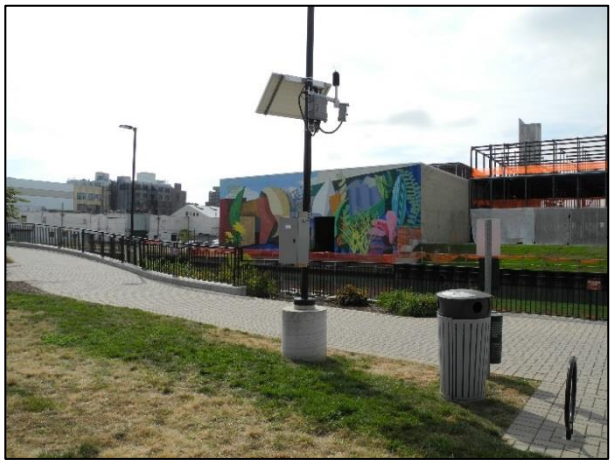


Photo 1: Noise Monitoring Location NM-1 (26 September 2017)

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

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

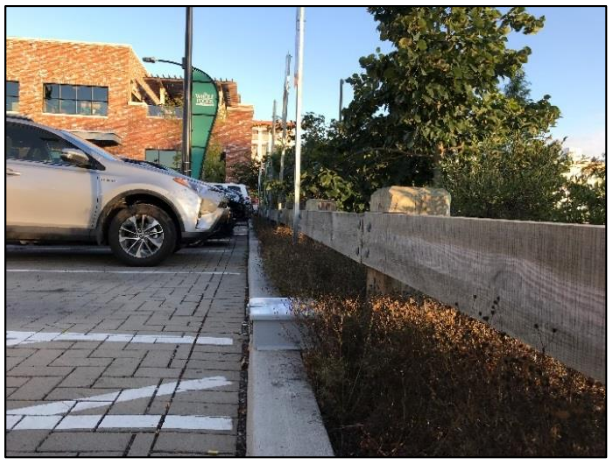


Photo 4: Vibration Monitoring Location VM-1 (12 October 2017)

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

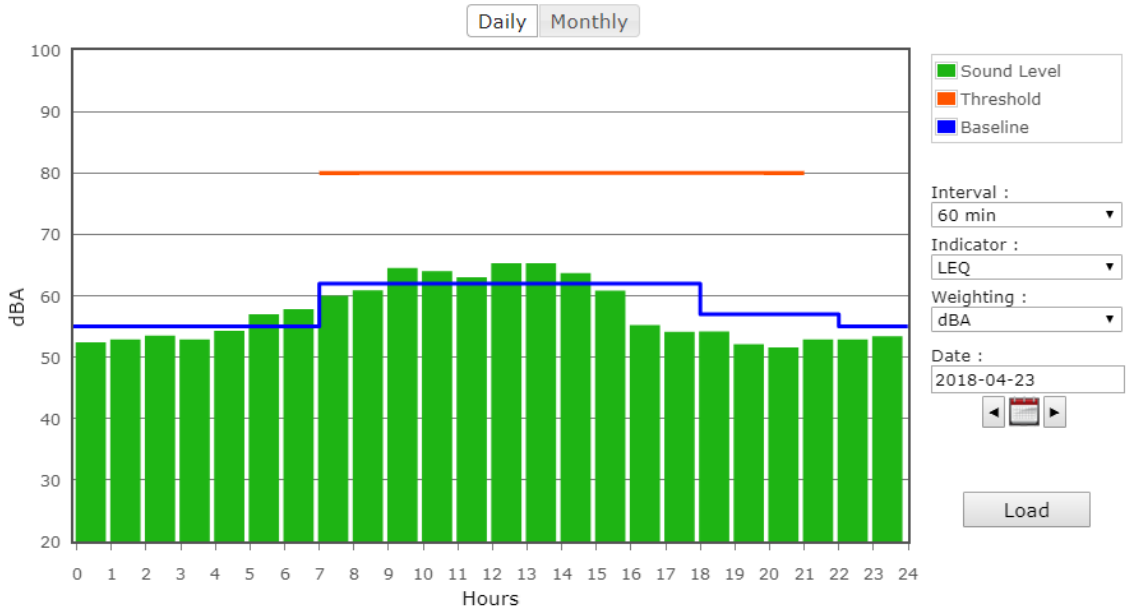


Figure 2: North Monitor NM-1 on Monday

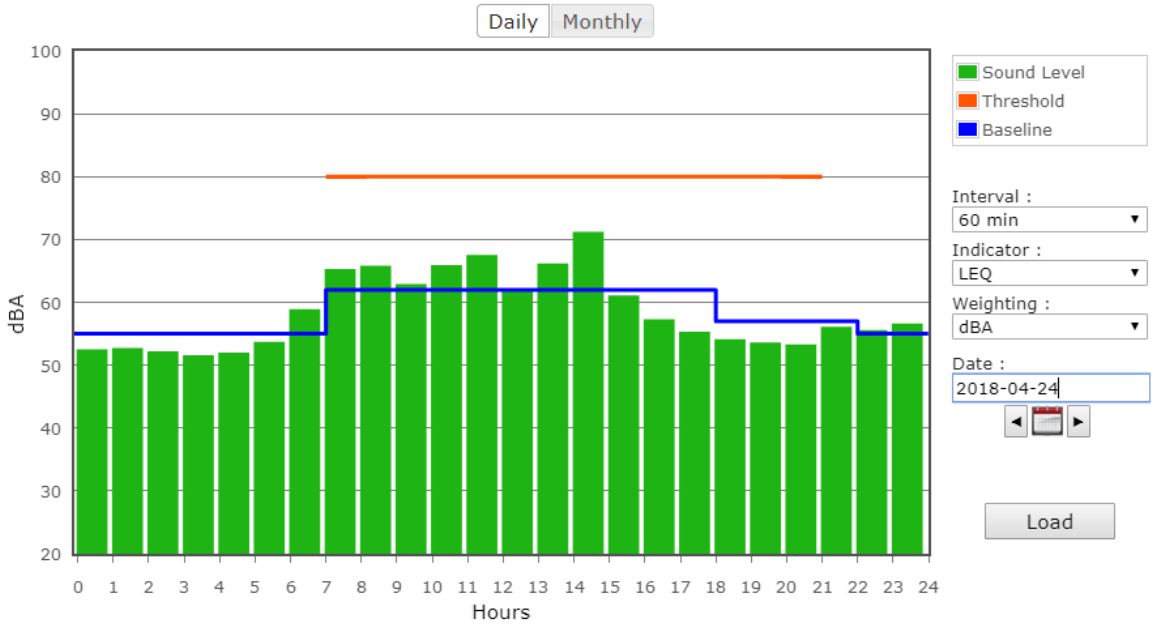


Figure 3: North Monitor NM-1 on Tuesday

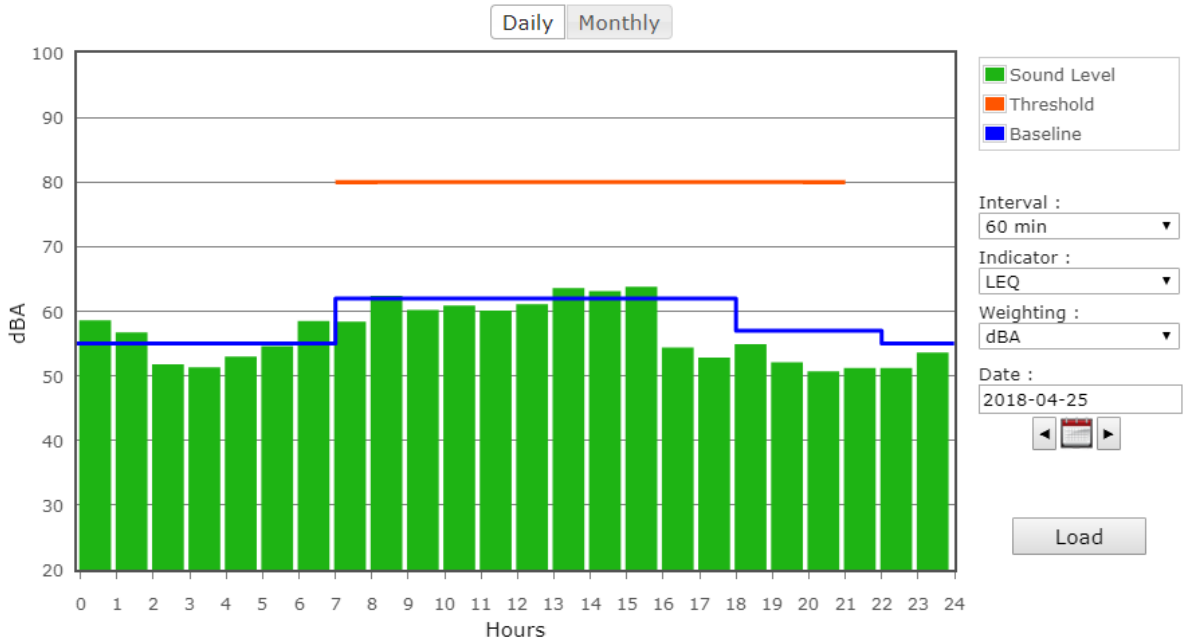


Figure 4: North Monitor NM-1 on Wednesday

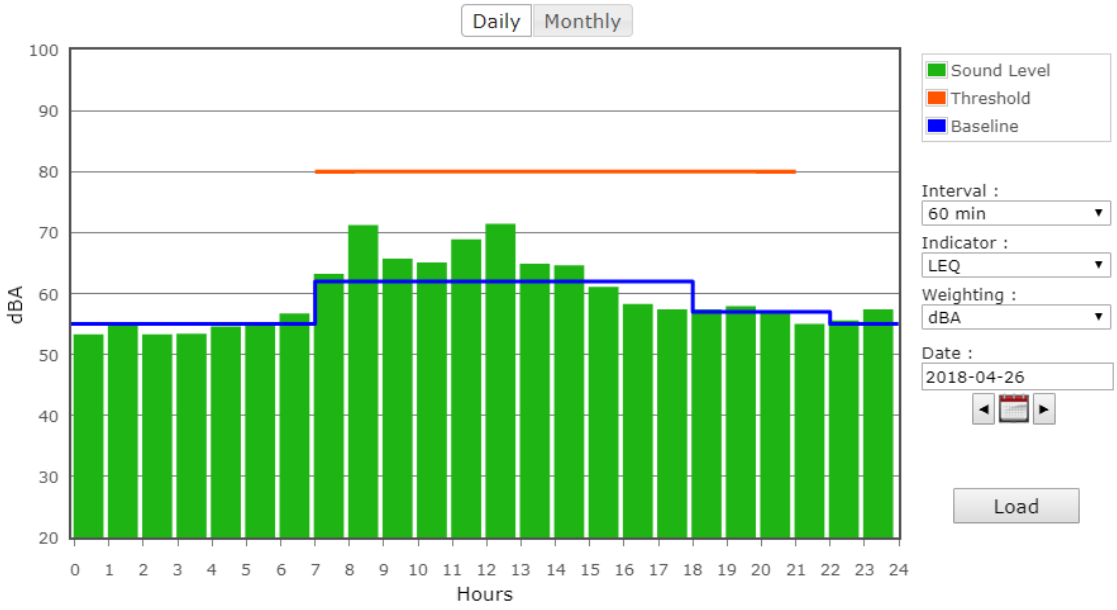


Figure 5: North Monitor NM-1 on Thursday

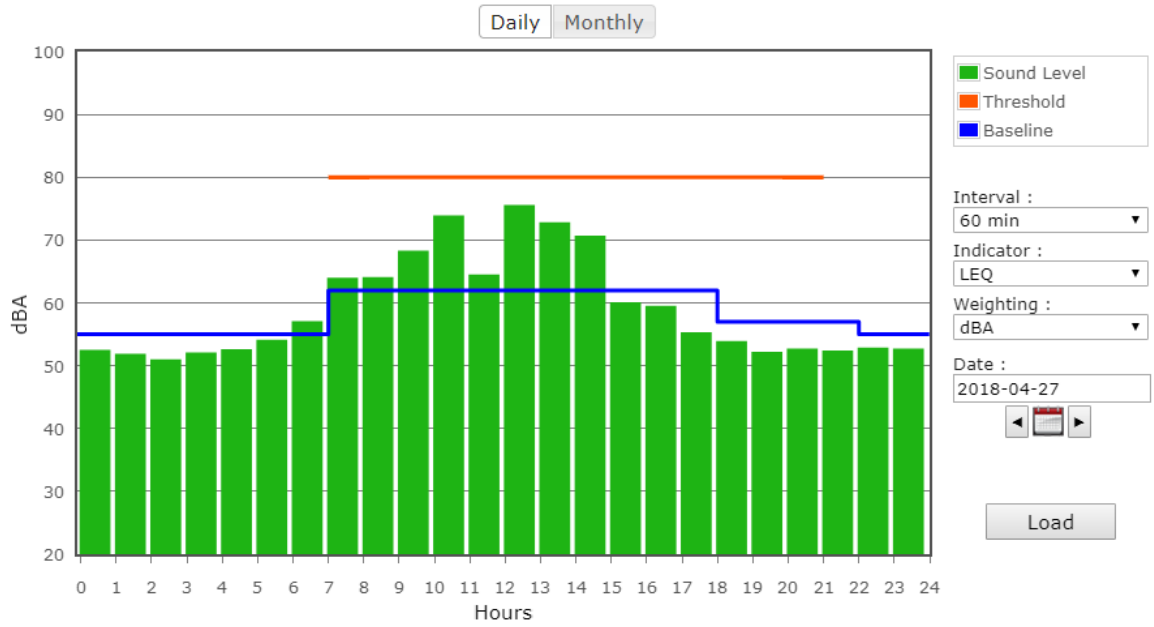


Figure 6: North Monitor NM-1 on Friday

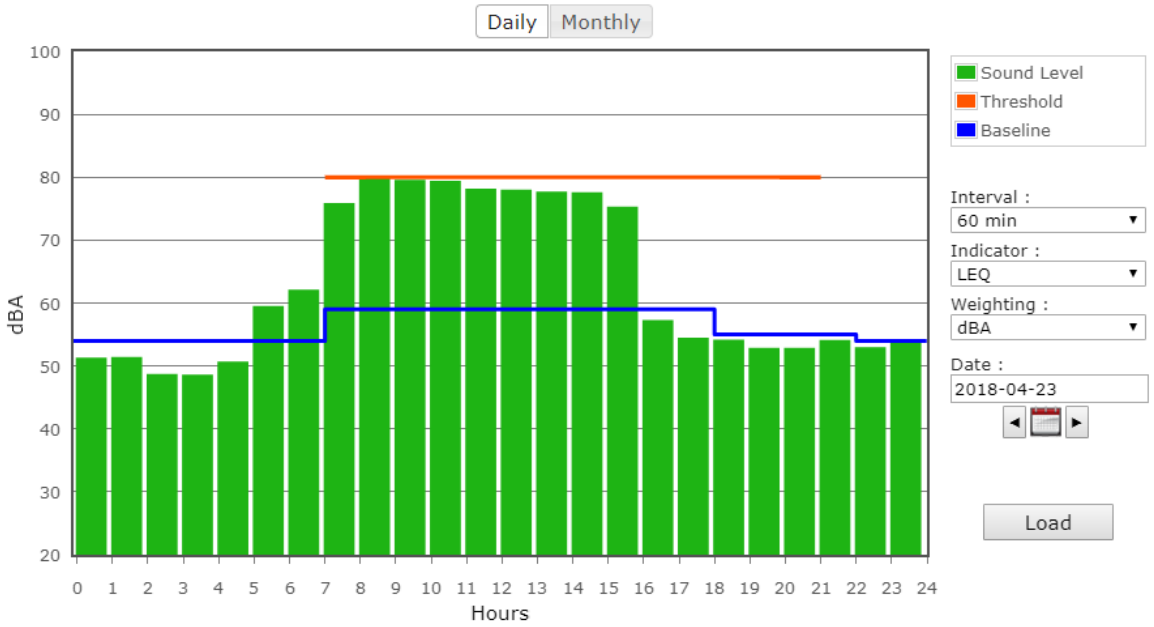


Figure 7: South Monitor NM-2 on Monday

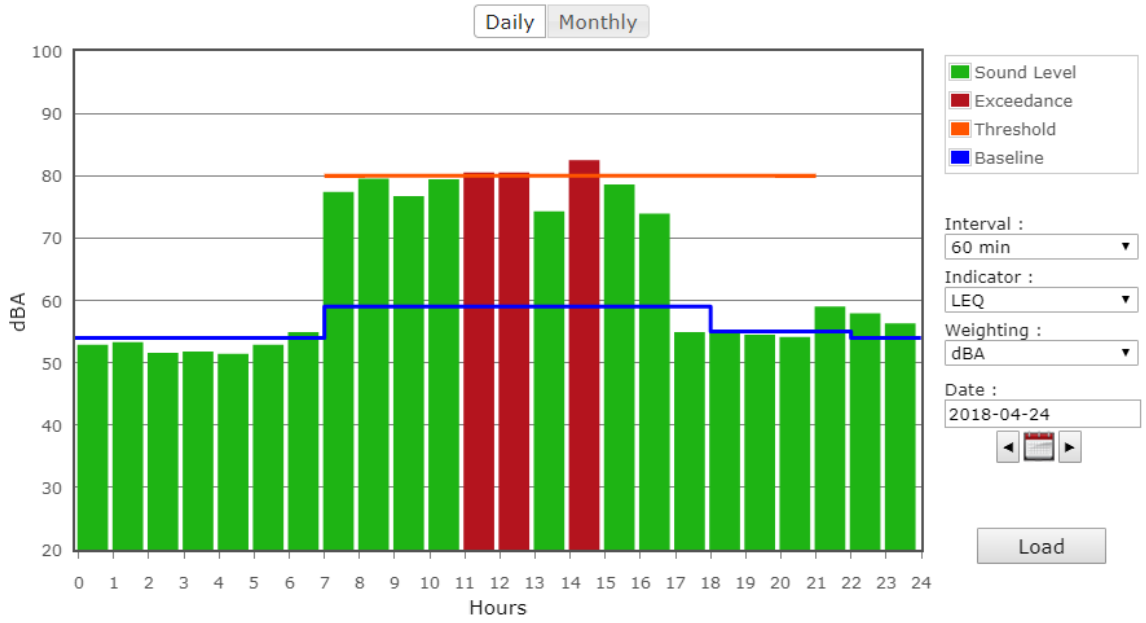


Figure 8: South Monitor NM-2 on Tuesday

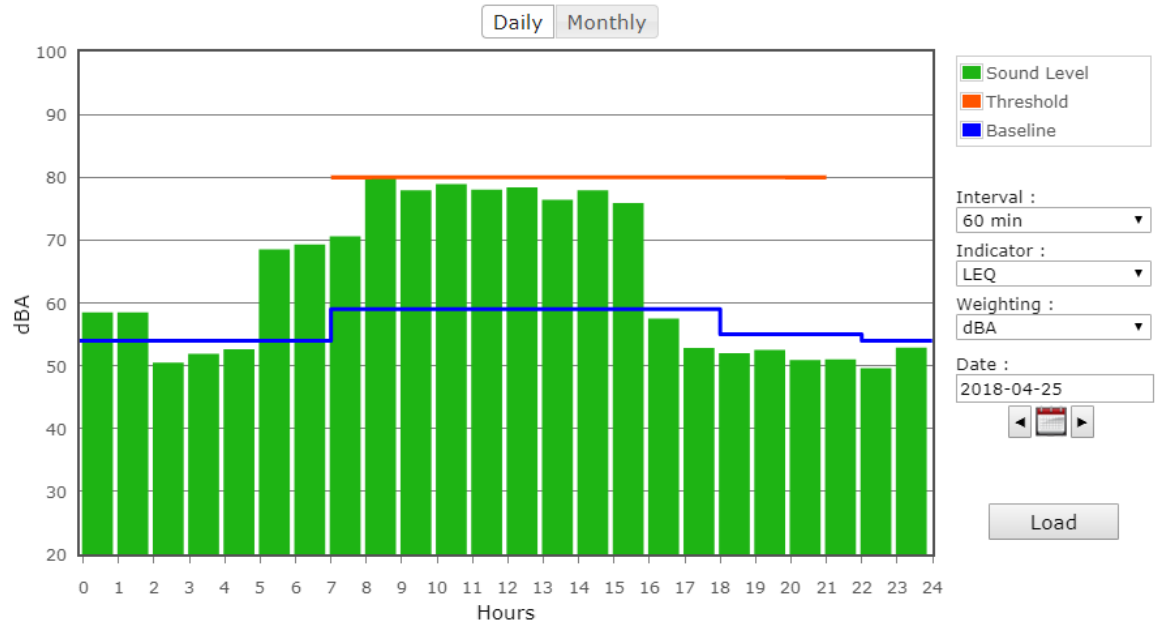


Figure 9: South Monitor NM-2 on Wednesday

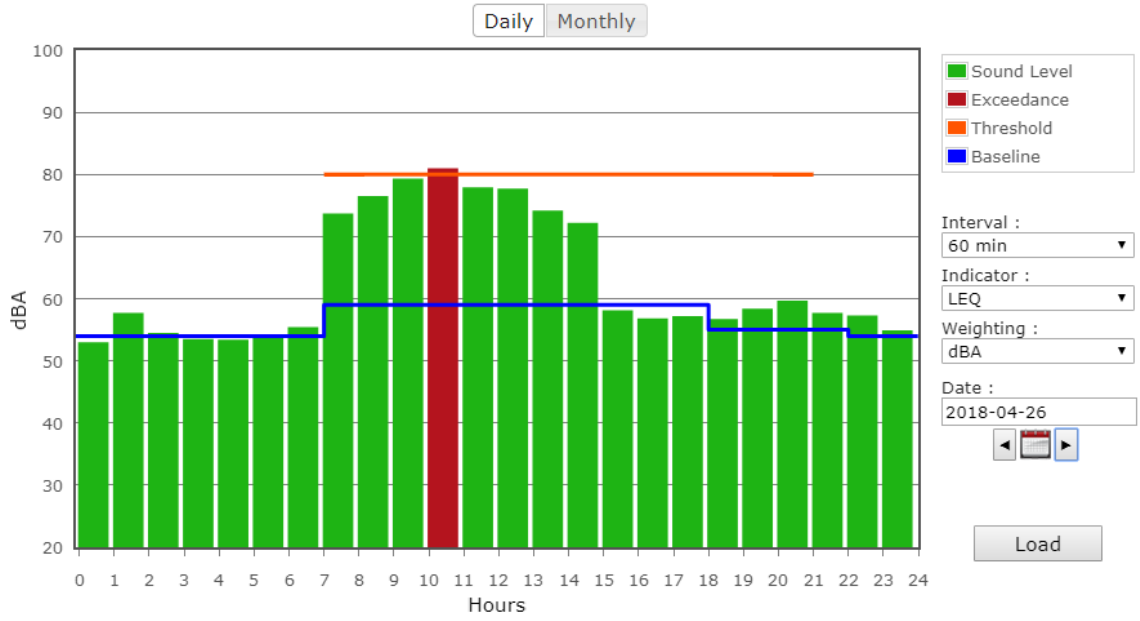


Figure 10: South Monitor NM-2 on Thursday

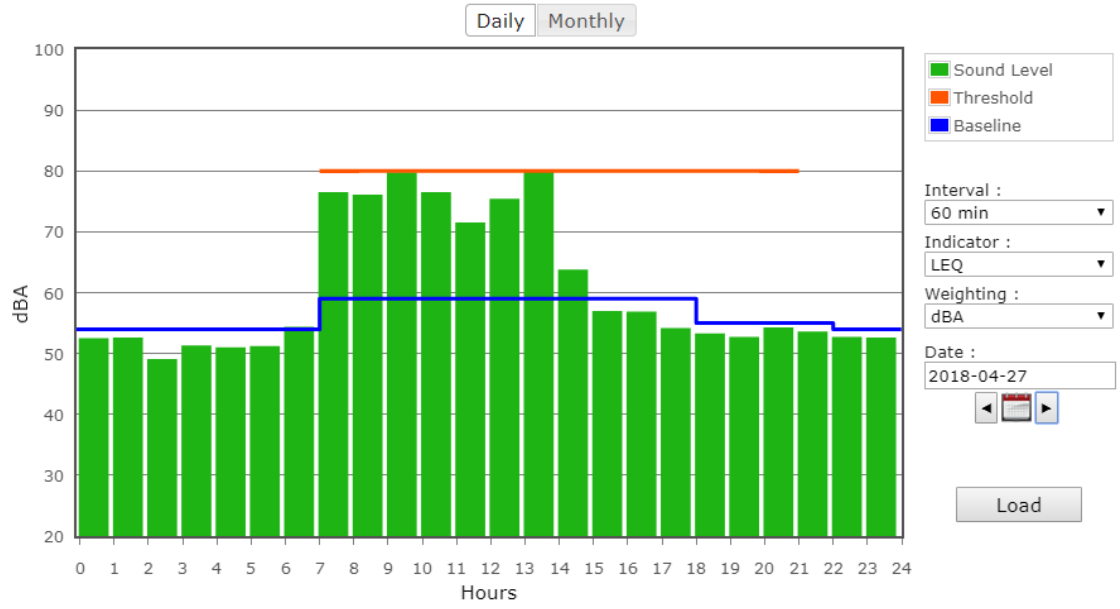


Figure 11: South Monitor NM-2 on Friday

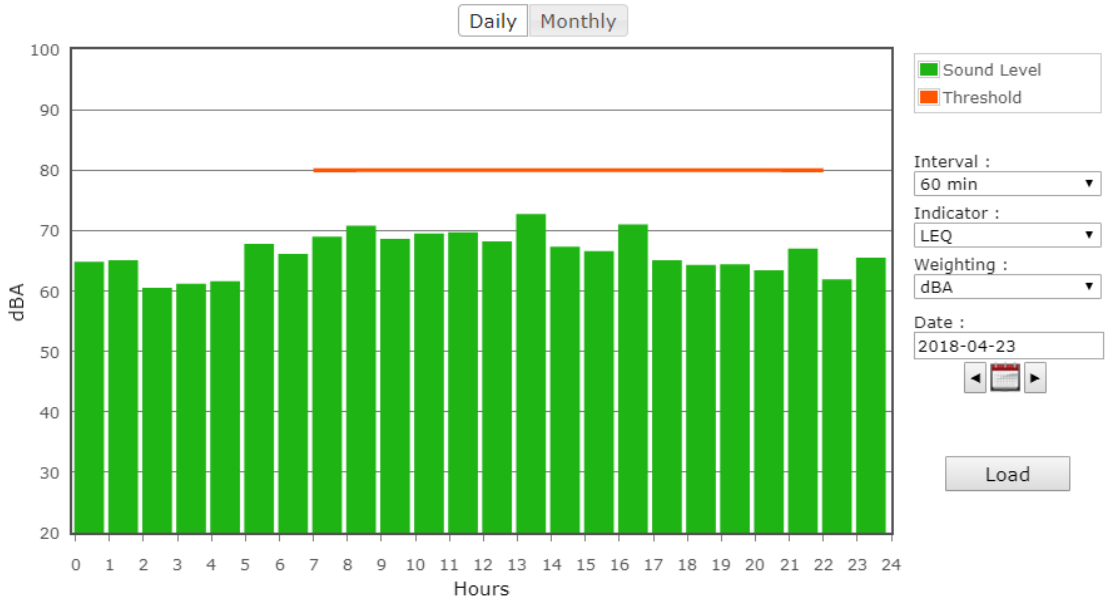


Figure 12: Northeast Monitor NM-3 on Monday

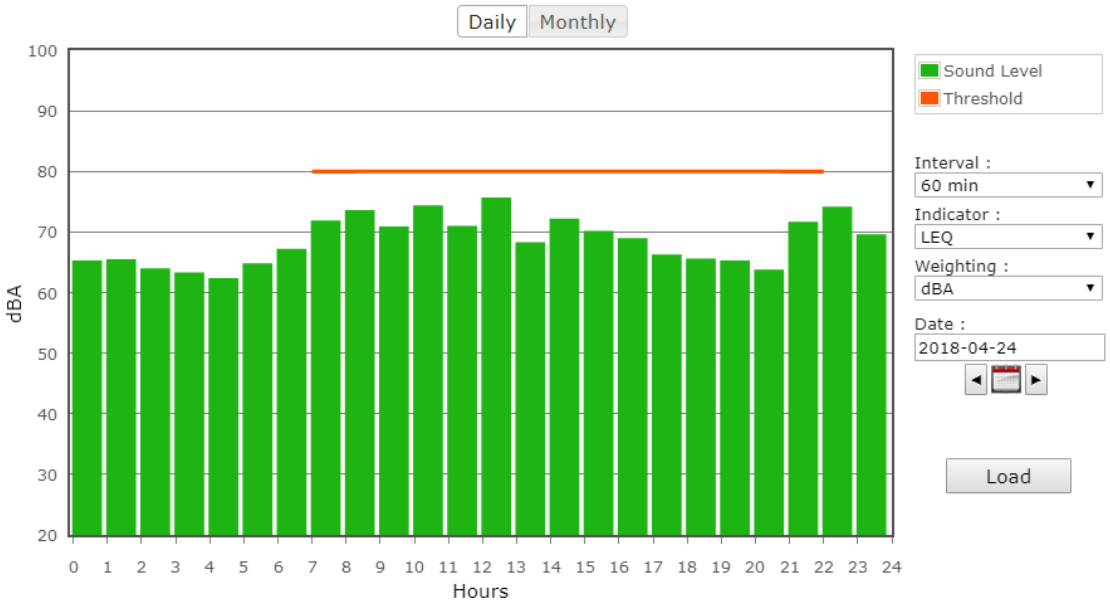


Figure 13: Northeast Monitor NM-3 on Tuesday

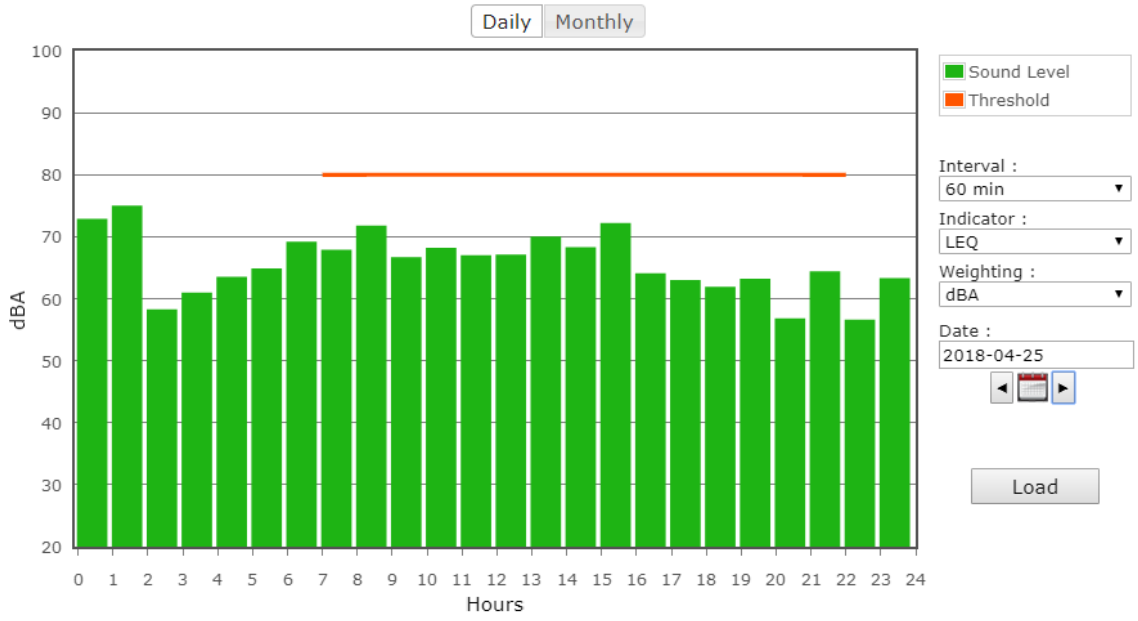


Figure 14: Northeast Monitor NM-3 on Wednesday

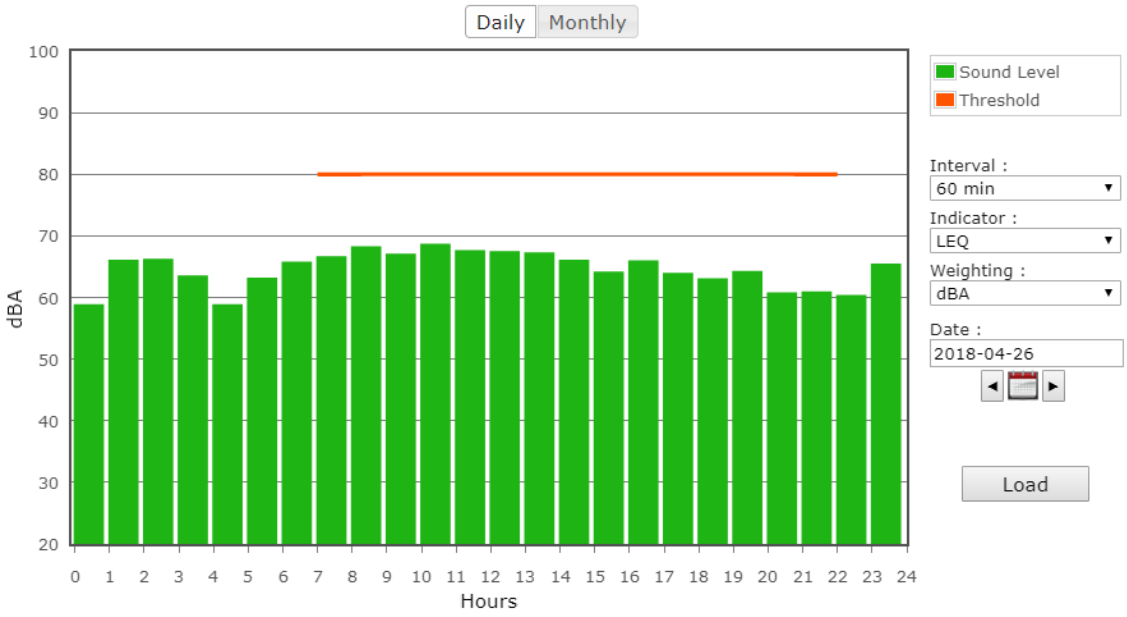


Figure 15: Northeast Monitor NM-3 on Thursday

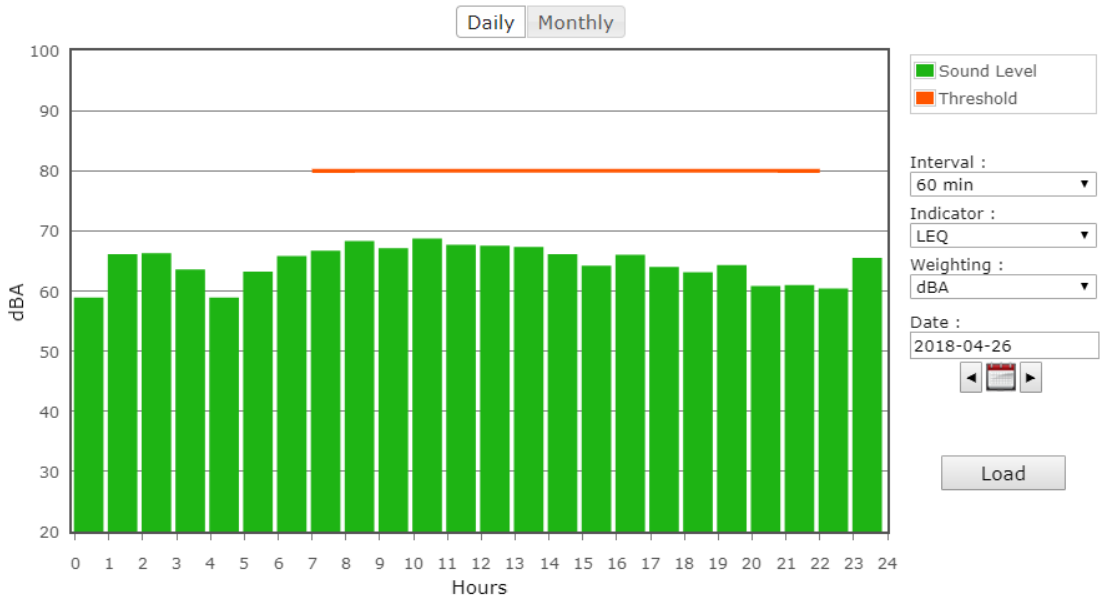


Figure 16: Northeast Monitor NM-3 on Friday

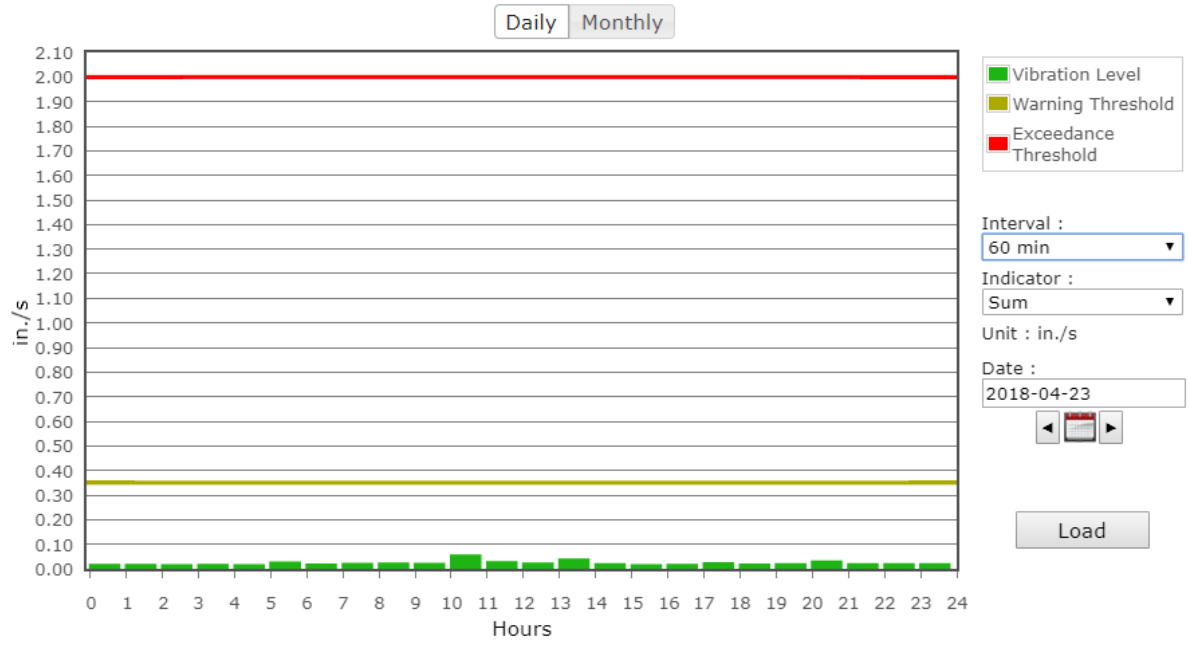


Figure 17: North Vibration Monitor VM-1 on Monday

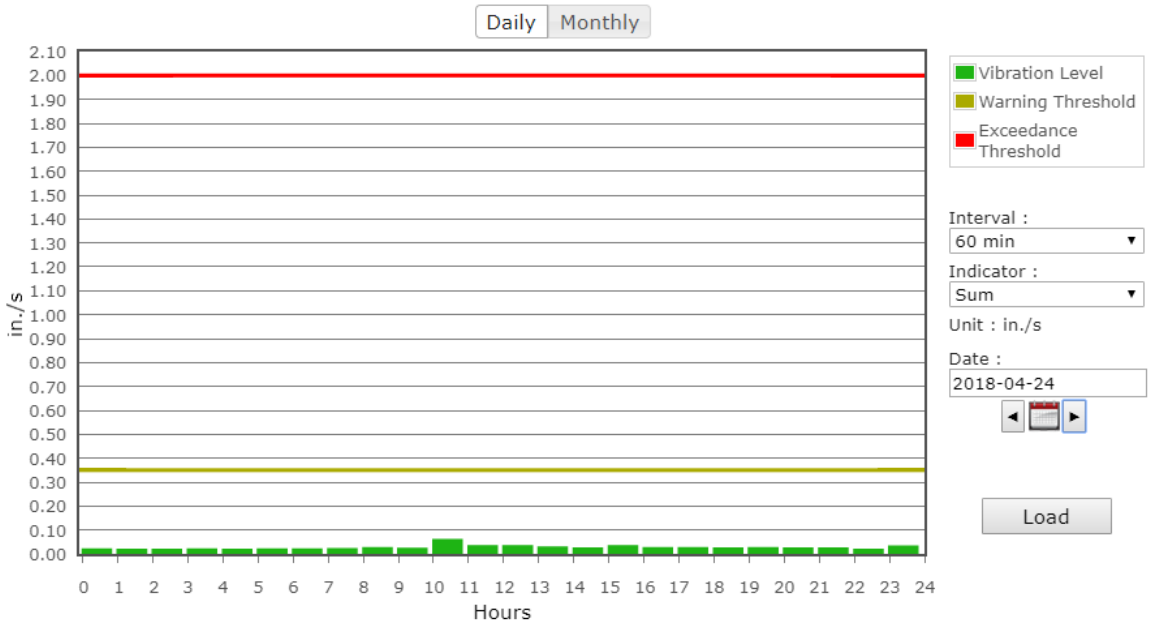


Figure 18: North Vibration Monitor VM-1 on Tuesday

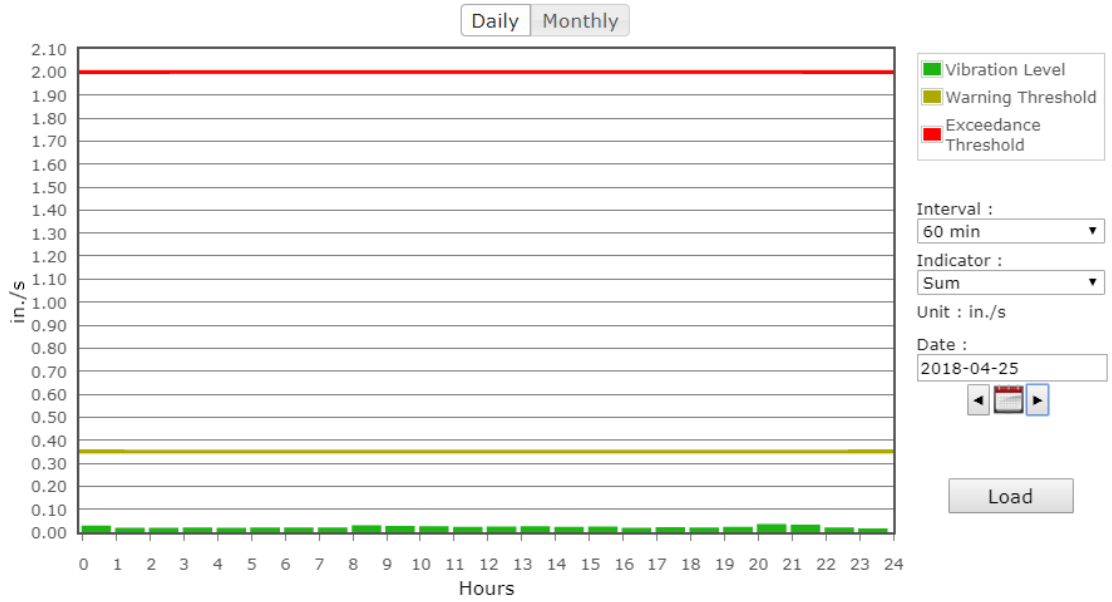


Figure 19: North Vibration Monitor VM-1 on Wednesday

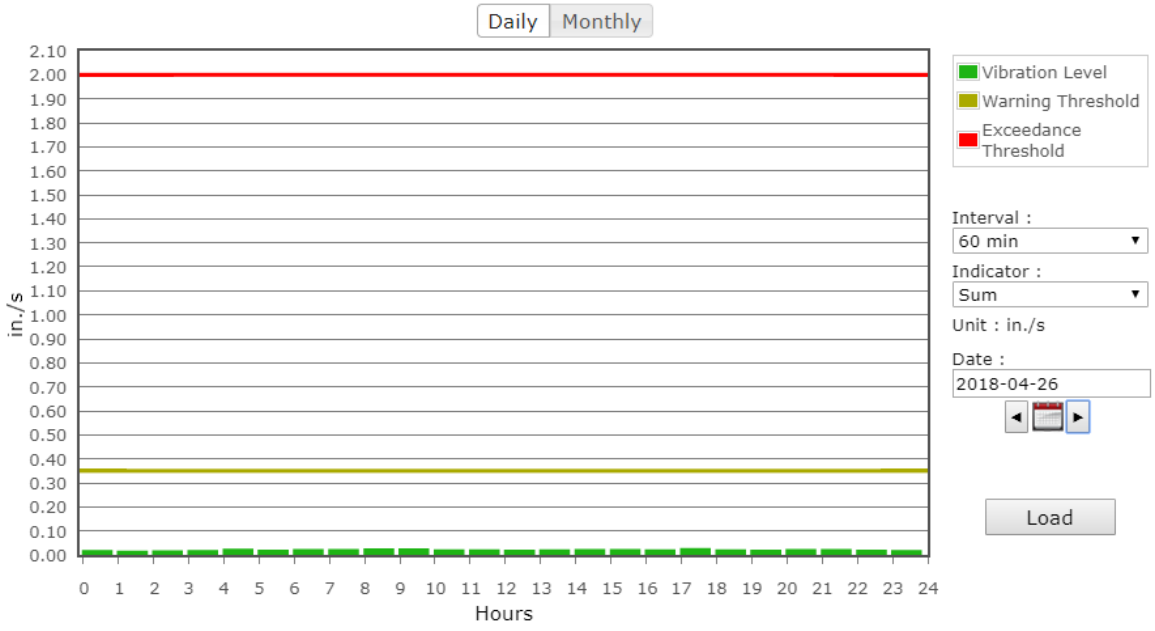


Figure 20: North Vibration Monitor VM-1 on Thursday

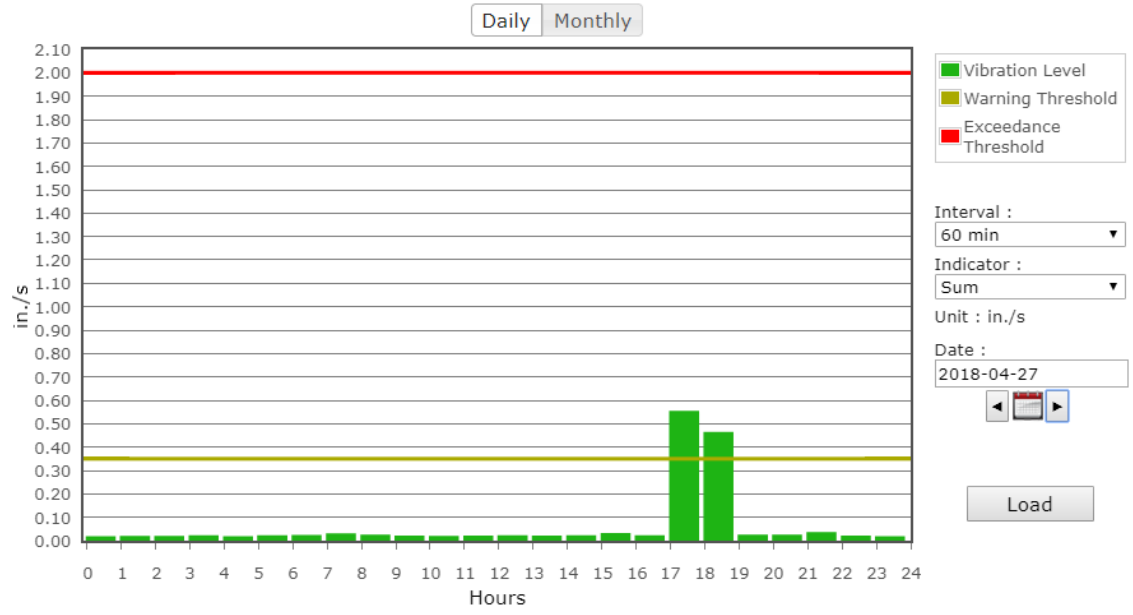


Figure 21: North Vibration Monitor VM-1 on Friday

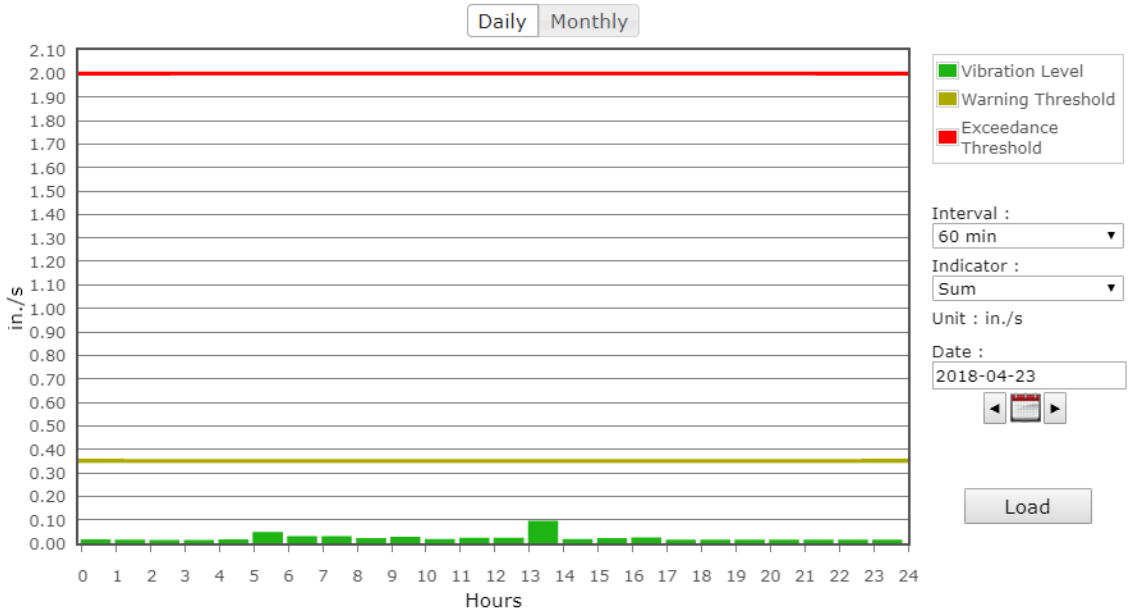


Figure 22: South Vibration Monitor VM-2 on Monday

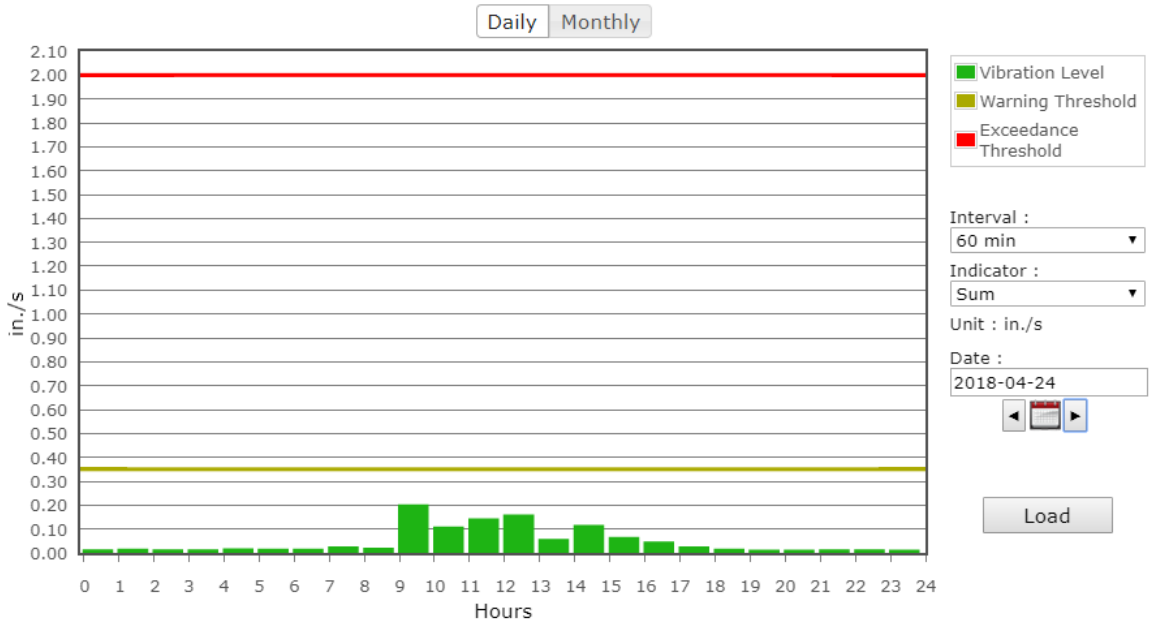


Figure 23: South Vibration Monitor VM-2 on Tuesday

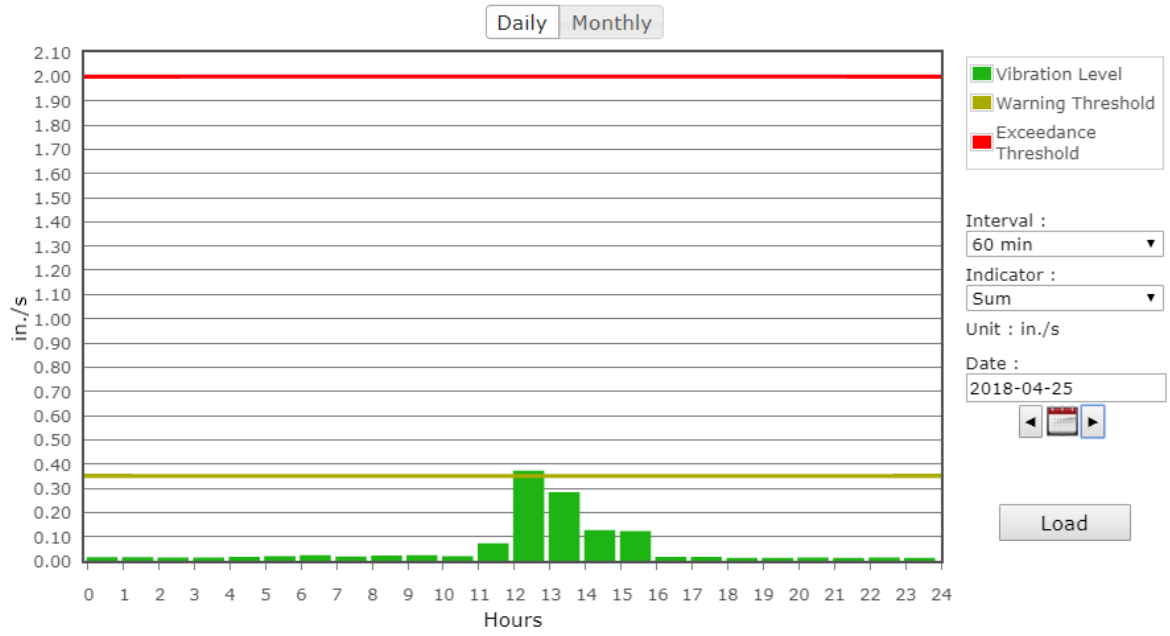


Figure 24: South Vibration Monitor VM-2 on Wednesday

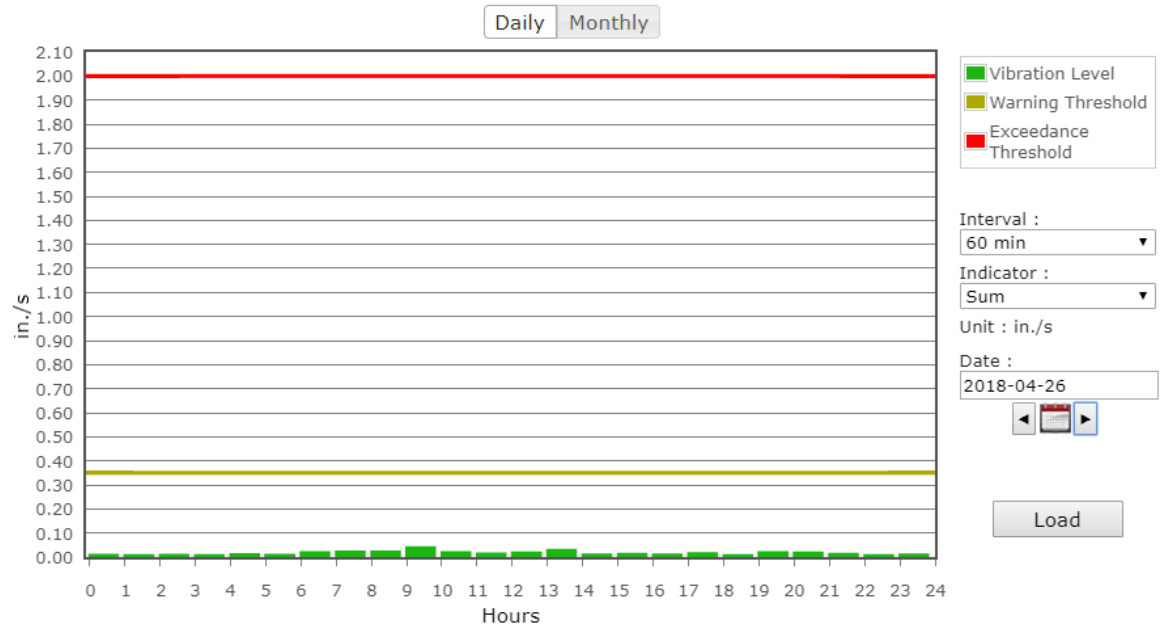


Figure 25: South Vibration Monitor VM-2 on Thursday

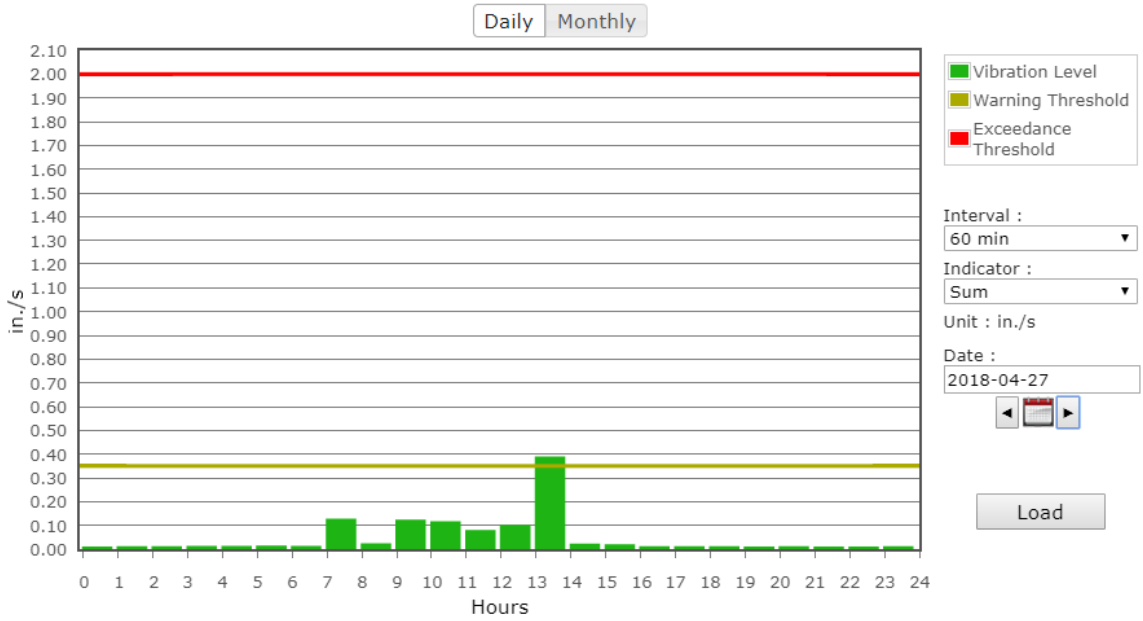


Figure 26: South Vibration Monitor VM-2 on Friday

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AHRS WEEKLY REPORT

(NO ACTIVITIES DURING CURENT WEEK)

WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA

(NO ACTIVITIES DURING CURENT WEEK)

CUMULATIVE DREDGED MATERIAL CHART

(NO ACTIVITIES THIS WEEK)