WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: January 15 to 19, 2018

Date of Report: January 30, 2018

Rev: 1

Prepared For: Gowanus Environmental Remediation Trust

On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Sheet Pile Installation

- Installation of 17.5 pairs to approximate Station 1+30 with accepted method with vibratory and impact hammers
- Installation of falsework to approximate Station 1+00
- Drive seven (7) pairs to final toe elevation between approximate Station 2+11 to 1+75

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 installation.
- Measurements for 1/15/18:
  - Daily average for ambient buoy – 14.5 NTU
  - Daily average for sentinel buoy – 10.4 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 0.9 NTU at 1430.
- Measurements for 1/16/18:
  - Daily average for ambient buoy – 12.7 NTU
  - Daily average for sentinel buoy – 11.4 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 8.1 NTU at 1200.
- Measurements for 1/17/18:
  - Daily average for ambient buoy – 13.0 NTU
  - Daily average for sentinel buoy – 11.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 3.1 NTU at 1015.
- Measurements for 1/18/18:
  - Daily average for ambient buoy – 12.0 NTU
  - Daily average for sentinel buoy – 9.6 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 10.5 NTU at 1330.

- Measurements for 1/19/18:
    - Daily average for ambient buoy – 11.1 NTU
    - Daily average for sentinel buoy – 11.4 NTU
    - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 5.6 NTU at 1600.

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 – 24 $\mu g/m^3$ recorded on 01/19/18
    - Station 2 – 25 $\mu g/m^3$ recorded on 01/19/18
    - Station 3 – <1 $\mu g/m^3$ recorded throughout the week
    - Station 4 – 40 $\mu g/m^3$ recorded on 01/16/18
    - Station 5 – 49 $\mu g/m^3$ recorded on 01/19/18
    - Station 6 – 25 $\mu g/m^3$ recorded on 01/19/18
    - Station 7 – <1 $\mu g/m^3$ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
    - Station 1 – 29 ppb recorded on 01/15/18
    - Station 2 – 25 ppb recorded on 01/15, 1/16, 1/17, and 1/18/18
    - Station 3 – 133 ppb recorded on 01/16/18
    - Station 4 – 59 ppb recorded on 01/17/18
    - Station 5 – 100 ppb recorded on 01/16/18
    - Station 6 – 89 ppb recorded on 01/16/18
    - Station 7 – 154 ppb recorded on 01/16/18
- All real-time readings of hydrogen sulfide, ammonia, or formaldehyde less than instrument reporting limit.
- 24-hour sample collected at ST-1 on 01/16 through 01/17 and at ST-6 on 01/17 through 01/18. 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 sheet pile installation measured at all monitors during both installation of sheet piling with variable moment vibratory and hydraulic impact hammer. Mitigating measures being evaluated and implemented.
- Greatest hourly Leq noise measurements
    - Northern monitor (NM-1) – 78.6 dBA during 1500-1600 on 01/16/18
    - Southern monitor (NM-2) – 109.2 dBA during 1400-1500 on 01/18/18
    - 3rd Avenue Bridge monitor (NM-3) – 88.7 dBA during 1400-1500 on 01/19/18
- No exceedances of the commercial and industrial structures vibration criterion of 2.0 inches per second peak particle velocity.
- Greatest peak particle velocity measurements
    - Northern monitor (VM-1) – 0.050 in/sec event between 1200 and 1300 on 01/18/18
    - Southern monitor (VM-2) – 0.119 in/sec event between 1300 and 1400 on 01/18/18

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

Photo No.	Date
001	01-15-2018

Description
Moving man lift to thread sheet pile onto single sheet.

Photo No.	Date
002	01-15-2018

Description
Hydraulic hammer in operation. Notice slack cables. All of the hammer weight is being applied to the sheets.

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

Photo No.	Date
003	01-16-2018

Description
Hydraulic hammer in operation.

Photo No.	Date
004	01-16-2018

Description
Real time vibration monitoring during sheet pile installation.

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

Photo No.	Date
005	01-17-2018

Description
Setting and measuring a back sight used in the surveying.

Photo No.	Date
006	01-17-2018

Description
Swinging the vibratory hammer into position to drive the sheet pile.

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

Photo No.	Date
007	01-18-2018

Description
Using rope to turn hammer to align the pin pile during installation of the falsework.

Photo No.	Date
008	01-18-2018

Description
Surveyor surveying the bulkhead points after hydraulic hammering of the sheet pile.

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

Photo No.	Date
009	01-18-2018

Description
Driving sheet piles to grade.

Photo No.	Date
010	01-19-2018

Description
Starting hydraulic hammer.

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 January 15th, 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 January 15th, 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 January 15th. 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.

Geosyntec consultants

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

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.

Ewing, NJ | October 2017

Figure 1

2. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from January 15th to January 19th, 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. Routine maintenance was conducted on the buoys on Thursday, January 18th. During this period, no turbidity readings were recorded.

2.1 Monday, January 15th, 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)
1/15/2018 7:00	7.7	5.6	N	1/15/2018 12:15	14.5	11.1	N
1/15/2018 7:15	11.5	5.6	N	1/15/2018 12:30	16.8	11.0	N
1/15/2018 7:30	11.0	5.9	N	1/15/2018 12:45	19.1	10.0	N
1/15/2018 7:45	15.1	6.1	N	1/15/2018 13:00	17.4	9.8	N
1/15/2018 8:00	16.7	7.1	N	1/15/2018 13:15	20.2	14.7	N
1/15/2018 8:15	16.9	7.2	N	1/15/2018 13:30	19.2	12.8	N
1/15/2018 8:30	14.3	8.9	N	1/15/2018 13:45	16.2	12.7	N
1/15/2018 8:45	14.8	9.7	N	1/15/2018 14:00	15.1	11.4	N
1/15/2018 9:00	14.8	11.0	N	1/15/2018 14:15	14.3	13.4	N
1/15/2018 9:15	13.3	10.4	N	1/15/2018 14:30	13.3	14.2	Y
1/15/2018 9:30	11.3	10.7	N	1/15/2018 14:45	13.2	12.8	N
1/15/2018 9:45	13.2	10.3	N	1/15/2018 15:00	12.4	10.5	N
1/15/2018 10:00	14.3	11.5	N	1/15/2018 15:15	11.9	10.7	N
1/15/2018 10:15	14.9	10.1	N	1/15/2018 15:30	12.1	11.1	N
1/15/2018 10:30	14.6	12.0	N	1/15/2018 15:45	13.5	10.9	N
1/15/2018 10:45	13.8	12.0	N	1/15/2018 16:00	12.5	10.6	N
1/15/2018 11:00	16.5	11.2	N	1/15/2018 16:15	13.7	10.8	N
1/15/2018 11:15	14.0	11.2	N	1/15/2018 16:30	16.0	10.3	N
1/15/2018 11:30	13.6	10.4	N	1/15/2018 16:45	17.0	9.7	N
1/15/2018 11:45	13.5	10.6	N	1/15/2018 17:00	14.9	11.1	N
1/15/2018 12:00	15.7	9.8	N				

Average	14.5	10.4	N
Maximum	20.2	14.7	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, January 16th, 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)
1/16/2018 7:00	12.5	10.0	N	1/16/2018 12:15	9.5	13.6	Y
1/16/2018 7:15	12.8	9.3	N	1/16/2018 12:30	11.8	10.4	N
1/16/2018 7:30	12.4	9.9	N	1/16/2018 12:45	17.8	11.0	N
1/16/2018 7:45	12.6	11.3	N	1/16/2018 13:00	11.3	8.6	N
1/16/2018 8:00	14.2	17.5	Y	1/16/2018 13:15	13.2	9.4	N
1/16/2018 8:15	16.6	11.5	N	1/16/2018 13:30	14.3	11.2	N
1/16/2018 8:30	15.8	15.6	N	1/16/2018 13:45	12.9	10.1	N
1/16/2018 8:45	14.9	12.4	N	1/16/2018 14:00	13.3	12.2	N
1/16/2018 9:00	18.6	15.8	N	1/16/2018 14:15	11.5	11.0	N
1/16/2018 9:15	14.1	14.7	Y	1/16/2018 14:30	12.7	11.2	N
1/16/2018 9:30	14.9	13.0	N	1/16/2018 14:45	10.6	11.0	Y
1/16/2018 9:45	14.8	12.6	N	1/16/2018 15:00	10.6	9.7	N
1/16/2018 10:00	15.3	11.6	N	1/16/2018 15:15	11.5	8.5	N
1/16/2018 10:15	14.8	11.9	N	1/16/2018 15:30	11.2	9.0	N
1/16/2018 10:30	11.8	14.1	Y	1/16/2018 15:45	12.1	9.3	N
1/16/2018 10:45	12.2	11.4	N	1/16/2018 16:00	10.1	8.8	N
1/16/2018 11:00	11.6	12.1	Y	1/16/2018 16:15	10.4	9.2	N
1/16/2018 11:15	11.4	10.1	N	1/16/2018 16:30	10.3	9.6	N
1/16/2018 11:30	10.4	10.8	Y	1/16/2018 16:45	11.8	8.8	N
1/16/2018 11:45	9.3	9.2	N	1/16/2018 17:00	14.0	9.3	N
1/16/2018 12:00	10.7	18.8	Y				

Average	12.7	11.4	N
Maximum	18.6	18.8	Y

Notes:

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

2.3 Wednesday, January 17th, 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)
1/17/2018 7:00	12.8	10.2	N	1/17/2018 12:15	9.9	10.3	Y
1/17/2018 7:15	12.5	10.4	N	1/17/2018 12:30	10.0	9.0	N
1/17/2018 7:30	11.3	10.0	N	1/17/2018 12:45	9.6	9.0	N
1/17/2018 7:45	11.5	9.2	N	1/17/2018 13:00	9.5	9.9	Y
1/17/2018 8:00	9.8	9.5	N	1/17/2018 13:15	10.7	8.5	N
1/17/2018 8:15	12.5	9.0	N	1/17/2018 13:30	11.6	7.7	N
1/17/2018 8:30	13.0	8.5	N	1/17/2018 13:45	11.7	8.8	N
1/17/2018 8:45	20.9	8.8	N	1/17/2018 14:00	15.5	8.6	N
1/17/2018 9:00	18.4	12.6	N	1/17/2018 14:15	15.6	10.4	N
1/17/2018 9:15	15.8	14.5	N	1/17/2018 14:30	16.0	11.1	N
1/17/2018 9:30	15.0	12.2	N	1/17/2018 14:45	16.4	12.3	N
1/17/2018 9:45	14.0	13.1	N	1/17/2018 15:00	16.6	12.2	N
1/17/2018 10:00	12.7	15.0	Y	1/17/2018 15:15	13.9	12.4	N
1/17/2018 10:15	11.7	14.8	Y	1/17/2018 15:30	14.7	13.3	N
1/17/2018 10:30	11.8	12.2	Y	1/17/2018 15:45	13.4	13.7	Y
1/17/2018 10:45	10.4	12.9	Y	1/17/2018 16:00	13.7	12.1	N
1/17/2018 11:00	11.2	9.6	N	1/17/2018 16:15	14.6	12.1	N
1/17/2018 11:15	10.7	11.0	Y	1/17/2018 16:30	13.5	11.7	N
1/17/2018 11:30	10.9	11.6	Y	1/17/2018 16:45	13.8	11.1	N
1/17/2018 11:45	10.0	11.5	Y	1/17/2018 17:00	14.3	11.9	N
1/17/2018 12:00	10.7	11.2	Y				

Average	13.0	11.1	N
Maximum	20.9	15.0	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

2.4 Thursday, January 18th, 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)
1/18/2018 7:00	11.3	9.0	N	1/18/2018 12:15	--	--	N
1/18/2018 7:15	11.7	8.8	N	1/18/2018 12:30	--	8.3	N
1/18/2018 7:30	10.2	9.3	N	1/18/2018 12:45	--	8.3	N
1/18/2018 7:45	10.3	9.6	N	1/18/2018 13:00	--	8.4	N
1/18/2018 8:00	11.0	8.8	N	1/18/2018 13:15	--	9.9	N
1/18/2018 8:15	10.4	9.4	N	1/18/2018 13:30	--	10.5	N
1/18/2018 8:30	11.3	9.1	N	1/18/2018 13:45	--	10.0	N
1/18/2018 8:45	11.7	8.4	N	1/18/2018 14:00	--	9.8	N
1/18/2018 9:00	13.7	8.2	N	1/18/2018 14:15	--	8.6	N
1/18/2018 9:15	13.8	8.8	N	1/18/2018 14:30	--	9.8	N
1/18/2018 9:30	12.6	9.3	N	1/18/2018 14:45	12.9	10.3	N
1/18/2018 9:45	12.9	10.1	N	1/18/2018 15:00	12.3	11.9	N
1/18/2018 10:00	11.9	11.0	N	1/18/2018 15:15	11.9	10.1	N
1/18/2018 10:15	11.8	11.0	N	1/18/2018 15:30	12.0	9.0	N
1/18/2018 10:30	--	10.1	N	1/18/2018 15:45	12.7	8.9	N
1/18/2018 10:45	--	9.1	N	1/18/2018 16:00	11.6	10.9	N
1/18/2018 11:00	--	--	N	1/18/2018 16:15	13.1	9.7	N
1/18/2018 11:15	--	--	N	1/18/2018 16:30	11.8	10.8	N
1/18/2018 11:30	--	--	N	1/18/2018 16:45	12.3	10.2	N
1/18/2018 11:45	--	--	N	1/18/2018 17:00	11.8	8.9	N
1/18/2018 12:00	--	--	N				

Average	12.0	9.6	N
Maximum	13.8	11.9	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

2.5 Friday, January 19th, 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)
1/19/2018 7:00	9.7	7.1	N	1/19/2018 12:15	9.7	9.4	N
1/19/2018 7:15	11.0	7.6	N	1/19/2018 12:30	9.1	9.7	Y
1/19/2018 7:30	11.2	9.6	N	1/19/2018 12:45	8.3	9.3	Y
1/19/2018 7:45	10.6	11.2	Y	1/19/2018 13:00	8.2	8.4	Y
1/19/2018 8:00	12.0	9.5	N	1/19/2018 13:15	8.5	7.0	N
1/19/2018 8:15	12.9	13.3	Y	1/19/2018 13:30	10.0	10.9	Y
1/19/2018 8:30	12.9	15.2	Y	1/19/2018 13:45	9.4	12.2	Y
1/19/2018 8:45	11.8	15.0	Y	1/19/2018 14:00	9.8	11.5	Y
1/19/2018 9:00	13.0	11.9	N	1/19/2018 14:15	9.2	12.7	Y
1/19/2018 9:15	11.9	12.2	Y	1/19/2018 14:30	9.3	11.4	Y
1/19/2018 9:30	12.4	13.4	Y	1/19/2018 14:45	9.6	14.1	Y
1/19/2018 9:45	13.3	11.3	N	1/19/2018 15:00	11.6	13.3	Y
1/19/2018 10:00	13.6	14.0	Y	1/19/2018 15:15	13.0	12.3	N
1/19/2018 10:15	13.7	11.9	N	1/19/2018 15:30	12.2	13.2	Y
1/19/2018 10:30	14.0	12.0	N	1/19/2018 15:45	11.0	13.7	Y
1/19/2018 10:45	12.0	13.2	Y	1/19/2018 16:00	11.2	16.8	Y
1/19/2018 11:00	11.1	12.3	Y	1/19/2018 16:15	11.0	11.8	Y
1/19/2018 11:15	10.6	10.9	Y	1/19/2018 16:30	10.9	10.9	N
1/19/2018 11:30	10.6	10.1	N	1/19/2018 16:45	11.0	10.9	N
1/19/2018 11:45	10.9	8.5	N	1/19/2018 17:00	11.4	7.9	N
1/19/2018 12:00	9.9	9.6	N				

Average	11.1	11.4	Y
Maximum	14.0	16.8	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

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

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 TB-4 Dredging and Pilot Study
Brooklyn, New York
Weekly Report

(TRC Project No.274286-0000-00000)

Community Air Monitoring Project
15th Weekly Monitoring Period
Summary Report:

January 15th through January 19th, 2018

Report Contents

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

Executive Summary – Week 15 Monitoring Period
January 15th through January 18th, 2018

The following report summarizes site air monitoring activities for the Week 15 monitoring period from January 15th through January 19th, 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 15 monitoring period there were no PM_{10} or TVOC exceedances of the action level of 150ug/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 2018.*

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM_{10}) daily averages and maximums for Week 15.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 15 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 15 monitoring period of January 15th, through January 19th, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 1 and 6. ST-1 sample was collected on January 16th, through January 17th, 2018 and ST-6 sample was collected on January 17th, through January 18th, 2018. All samples were collected over a 24-hour period. Samples were 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 January 15th through January 19th, 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
- Construction of dredge water treatment plant enclosure

Site activities which were conducted at the 4th St Turning Basin Area of the Canal on January 15th through January 19th, 2018 included the following:

- Installation of false work (i.e., vertical and horizontal alignment guide) in preparation for Sheet Piling west of approximate Station 1+50
- Installation of 17.5 pairs of Sheet Piling south side of canal starting at Station 2+11 installing to the west (up to approximate Station 1+30)
- Drive previously installed Sheet Piling to final tip elevation between approximate Station 2+11 to 1+75

Gowanus Canal TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)

01/15/2018 06:30 AM - 01/15/2018 23:45 PM

Station 1

TVOC			PM_{10}		
Max.	29	ppb	Max.	11	ug/m^3
Avg.	2	ppb	Avg.	8	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM_{10}		
Max.	25	ppb	Max.	11	ug/m^3
Avg.	21	ppb	Avg.	8	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3

TVOC			PM_{10}		
Max.	81	ppb	Max.	<1	ug/m^3
Avg.	19	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4

TVOC			PM_{10}		
Max.	1	ppb	Max.	18	ug/m^3
Avg.	<1	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM_{10}		
Max.	47	ppb	Max.	13	ug/m^3
Avg.	11	ppb	Avg.	8	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM_{10}		
Max.	47	ppb	Max.	12	ug/m^3
Avg.	5	ppb	Avg.	9	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM_{10}		
Max.	35	ppb	Max.	<1	ug/m^3
Avg.	22	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 TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)

01/16/18 00:00 AM - 01/16/18 23:45 PM

Station 1

TVOC			PM_{10}		
Max.	11	ppb	Max.	19	ug/m^3
Avg.	<1	ppb	Avg.	13	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM_{10}		
Max.	25	ppb	Max.	19	ug/m^3
Avg.	6	ppb	Avg.	13	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3

TVOC			PM_{10}		
Max.	133	ppb	Max.	<1	ug/m^3
Avg.	57	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 4

TVOC			PM_{10}		
Max.	1	ppb	Max.	40	ug/m^3
Avg.	<1	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM_{10}		
Max.	100	ppb	Max.	27	ug/m^3
Avg.	40	ppb	Avg.	16	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM_{10}		
Max.	89	ppb	Max.	19	ug/m^3
Avg.	28	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM_{10}		
Max.	154	ppb	Max.	<1	ug/m^3
Avg.	15	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 TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)

01/17/2018 00:00 AM - 01/17/2018 23:45 PM

Station 1

TVOC			PM_{10}		
Max.	2	ppb	Max.	22	ug/m^3
Avg.	<1	ppb	Avg.	15	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM_{10}		
Max.	25	ppb	Max.	23	ug/m^3
Avg.	6	ppb	Avg.	15	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.	59	ppb	Max.	28	ug/m^3
Avg.	5	ppb	Avg.	11	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM_{10}		
Max.	73	ppb	Max.	44	ug/m^3
Avg.	11	ppb	Avg.	17	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM_{10}		
Max.	22	ppb	Max.	21	ug/m^3
Avg.	1	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM_{10}		
Max.	93	ppb	Max.	<1	ug/m^3
Avg.	22	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 TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)

01/18/2018 00:00 AM - 01/18/2018 23:45 PM

Station 1

TVOC			PM_{10}		
Max.	27	ppb	Max.	21	ug/m^3
Avg.	5	ppb	Avg.	13	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM_{10}		
Max.	25	ppb	Max.	16	ug/m^3
Avg.	20	ppb	Avg.	12	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3

TVOC			PM_{10}		
Max.	18	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.	<1	ppb	Max.	19	ug/m^3
Avg.	<1	ppb	Avg.	5	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM_{10}		
Max.	20	ppb	Max.	13	ug/m^3
Avg.	3	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM_{10}		
Max.	46	ppb	Max.	14	ug/m^3
Avg.	3	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM_{10}		
Max.	32	ppb	Max.	<1	ug/m^3
Avg.	20	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

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

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

Gowanus Canal TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)

01/19/2018 00:00 AM - 01/19/2018 16:00 PM

Station 1

TVOC			PM_{10}		
Max.	2	ppb	Max.	24	ug/m^3
Avg.	<1	ppb	Avg.	18	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2

TVOC			PM_{10}		
Max.	7	ppb	Max.	25	ug/m^3
Avg.	2	ppb	Avg.	18	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 3

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

Station 4

TVOC			PM_{10}		
Max.	2	ppb	Max.	27	ug/m^3
Avg.	<1	ppb	Avg.	18	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 5

TVOC			PM_{10}		
Max.	47	ppb	Max.	49	ug/m^3
Avg.	15	ppb	Avg.	19	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 6

TVOC			PM_{10}		
Max.	47	ppb	Max.	25	ug/m^3
Avg.	17	ppb	Avg.	18	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 7

TVOC			PM_{10}		
Max.	31	ppb	Max.	<1	ug/m^3
Avg.	16	ppb	Avg.	<1	ug/m^3
Exc.	0	total	Exc.	0	Total

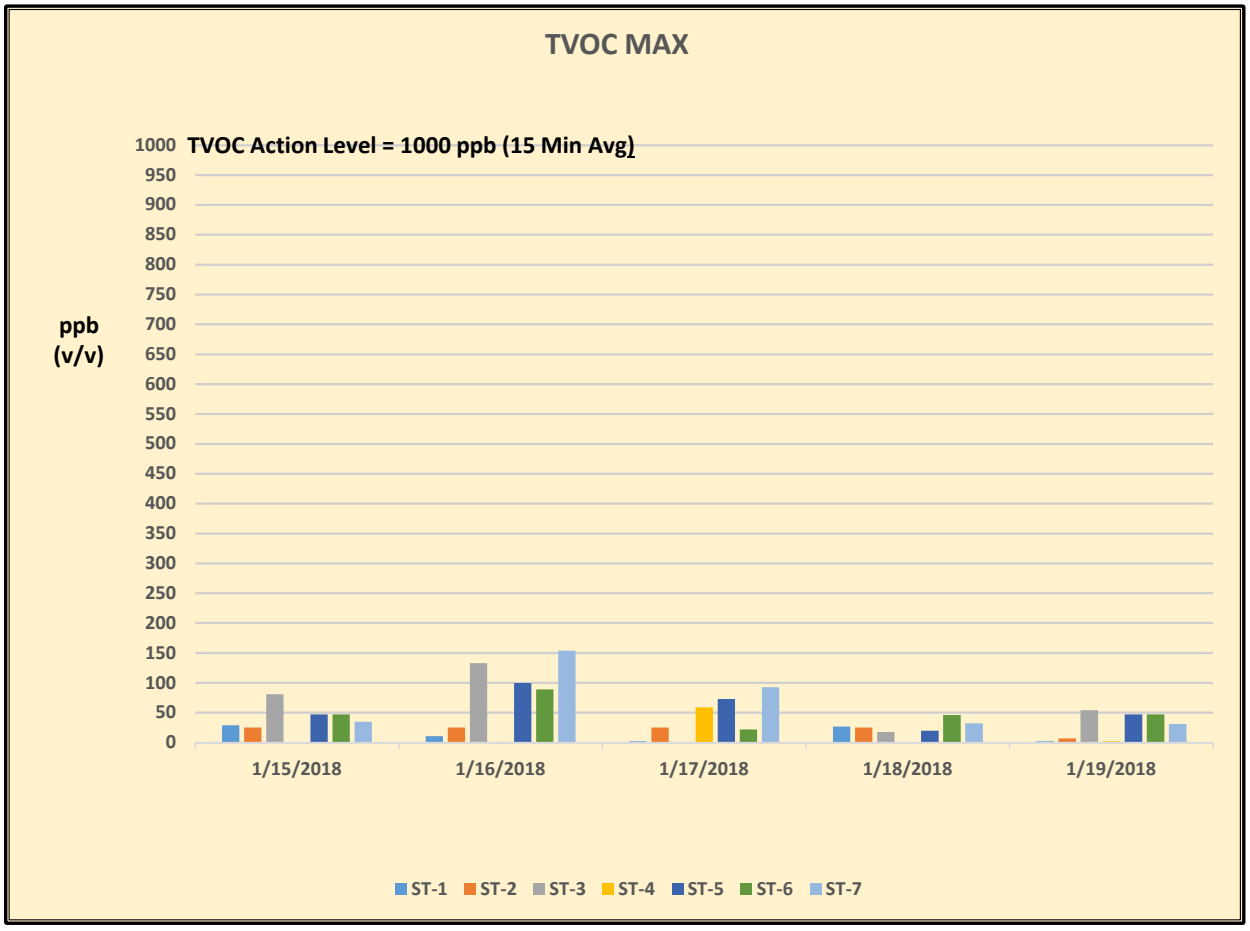
TVOC – Total Volatile Organic Compounds PM_{10} – Particulates as PM_{10}

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 15



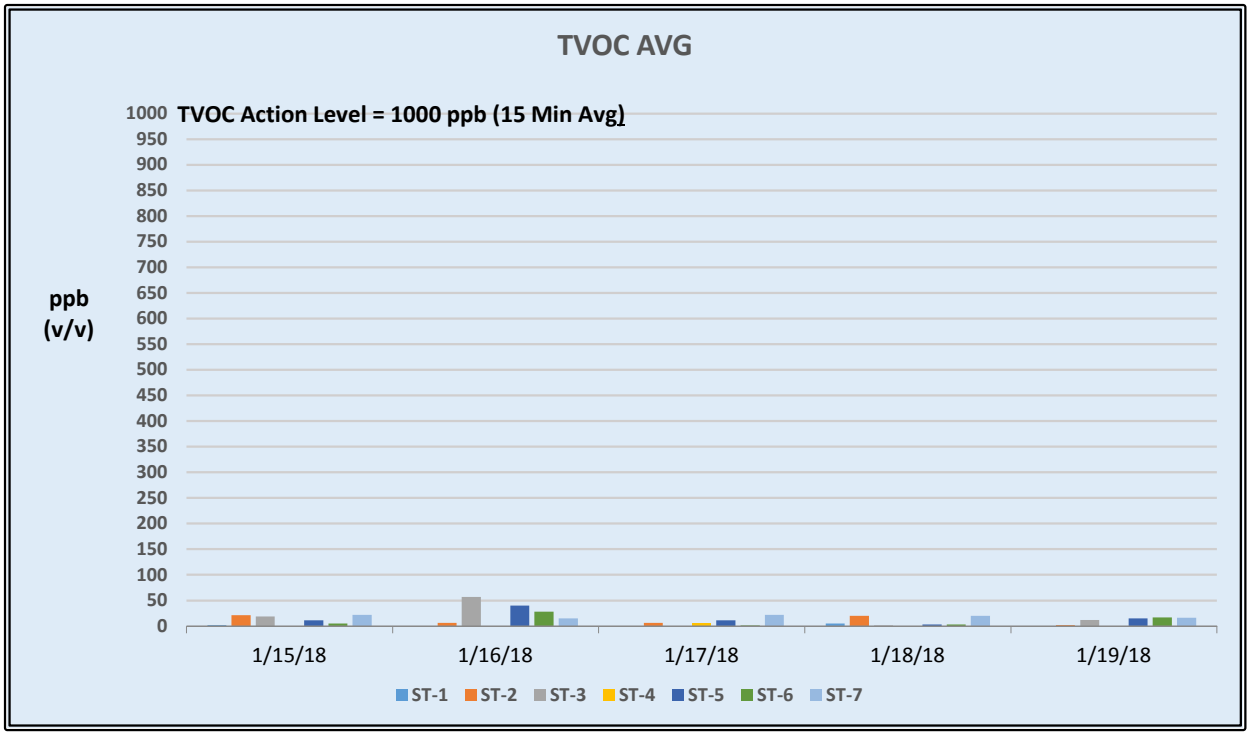
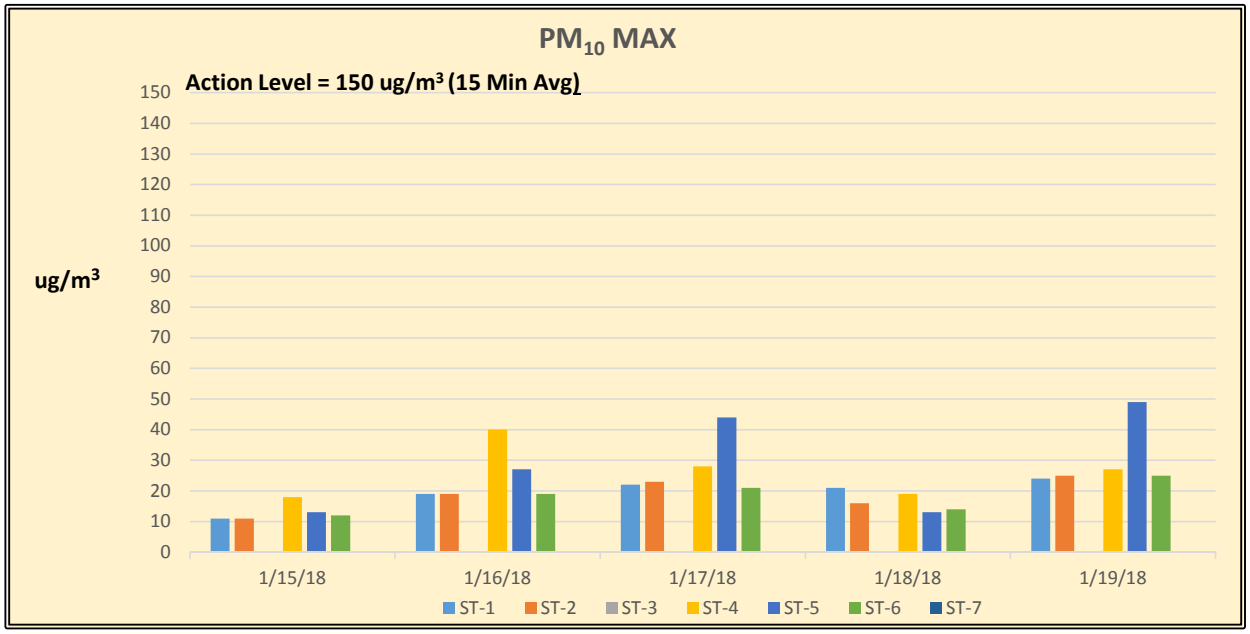


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM_{10} Monitoring Data - Week 15



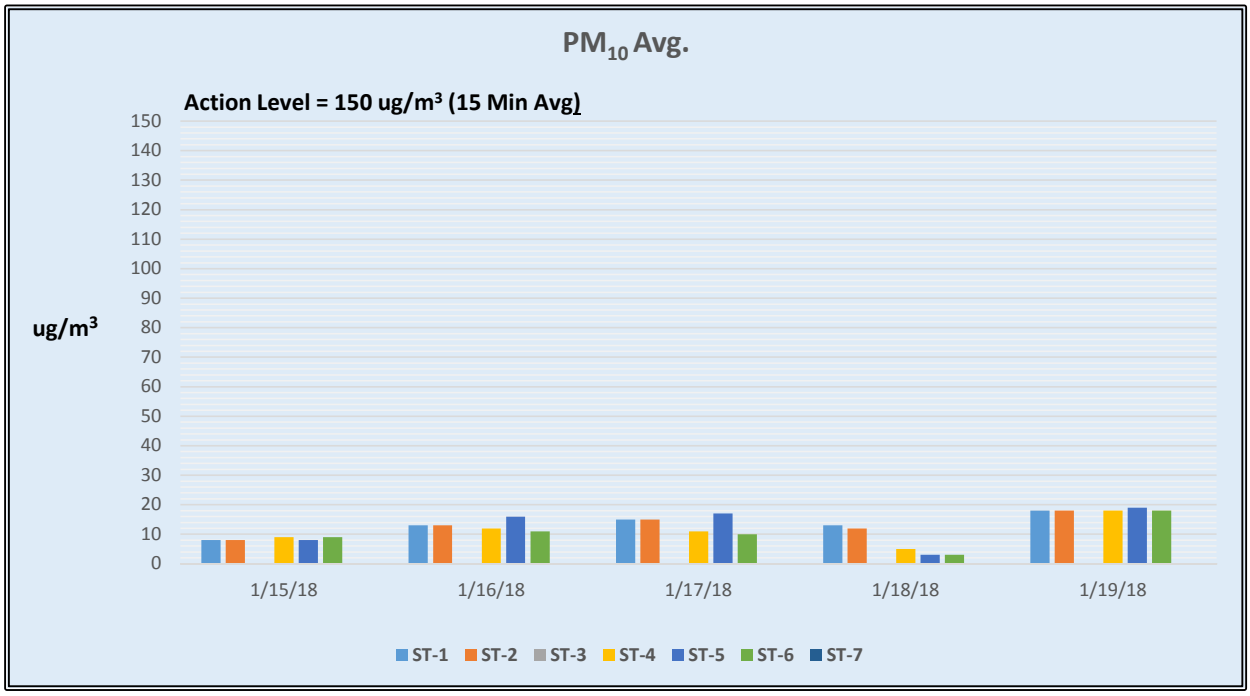


Table 1

Week 15
Summary of Additional Periodic (Daily) Monitoring Data

January 15th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H_2S) (ppb)	Ammonia (NH_3) (ppm)
ST-1	8:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:05	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	8:20	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-4	8:25	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-5	8:30	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-6	8:50	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-7	9:10	<50	<3	<1.0
	15:15	<50	<3	<1.0

January 16th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H_2S) (ppb)	Ammonia (NH_3) (ppm)
ST-1	8:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	8:05	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	8:20	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-4	8:25	<50	<3	<1.0
	15:25	<50	<3	<1.0
ST-5	8:30	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-6	8:45	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-7	8:55	<50	<3	<1.0
	15:55	<50	<3	<1.0

Table 1

Week 15
Summary of Additional Periodic (Daily) Monitoring Data

January 17th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H_2S) (ppb)	Ammonia (NH_3) (ppm)
ST-1	9:00	<50	<3	<1.0
	13:15	<50	<3	<1.0
ST-2	9:05	<50	<3	<1.0
	13:20	<50	<3	<1.0
ST-3	9:25	<50	<3	<1.0
	13:40	<50	<3	<1.0
ST-4	9:30	<50	<3	<1.0
	13:45	<50	<3	<1.0
ST-5	9:35	<50	<3	<1.0
	13:50	<50	<3	<1.0
ST-6	9:45	<50	<3	<1.0
	14:10	<50	<3	<1.0
ST-7	9:55	<50	<3	<1.0
	14:20	<50	<3	<1.0

January 18th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)	Hydrogen Sulfide (H_2S) (ppb)	Ammonia (NH_3) (ppm)
ST-1	7:30	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-2	7:35	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-3	7:55	<50	<3	<1.0
	15:50	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-5	8:15	<50	<3	<1.0
	16:10	<50	<3	<1.0
ST-6	8:25	<50	<3	<1.0
	16:40	<50	<3	<1.0
ST-7	8:35	<50	<3	<1.0
	17:00	<50	<3	<1.0

Table 1

Week 15
Summary of Additional Periodic (Daily) Monitoring Data

January 19th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)**	**Hydrogen Sulfide (H_2S) (ppb)**	**Ammonia (NH_3) (ppm)**
ST-1	10:00	<50	.	<1.0
	15:00	<50	<3	<1.0
ST-2	10:05	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	10:20	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-4	10:25	<50	<3	<1.0
	15:25	<50	<3	<1.0
ST-5	10:30	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-6	10:45	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-7	11:00	<50	<3	<1.0
	15:55	<50	<3	<1.0

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

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

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

Meteorological Summary

January 15th through January 19th, 2018

January 15th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
NNE	**8.37**	**21.5**

January 16th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ENE	**3.61**	**30.7**

January 17th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SSW	**2.98**	**32.4**

January 18th, 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
W	**3.33**	**25.8**

January 19th , 2018		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
WSW	**1.54**	**22.7**

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

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

*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

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #15-081

MEMORANDUM

January 22, 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, 15 January – 19 January, 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]. Noise level data for Northeast Monitor NM-3 on Monday, 15 January over intervals 18:00 to 19:00, and on Thursday, 18 January for the 16:00 interval, are incomplete due to intermittent equipment issues.

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

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

Vibration Monitoring Results

Figures 17 through 26 present the maximum peak particle velocity (PPV) vibration events compared with the thresholds discussed in the vibration monitoring plan[3]. Commercial and Industrial structures are assigned a PPV vibration criterion of 2.0 inches/second

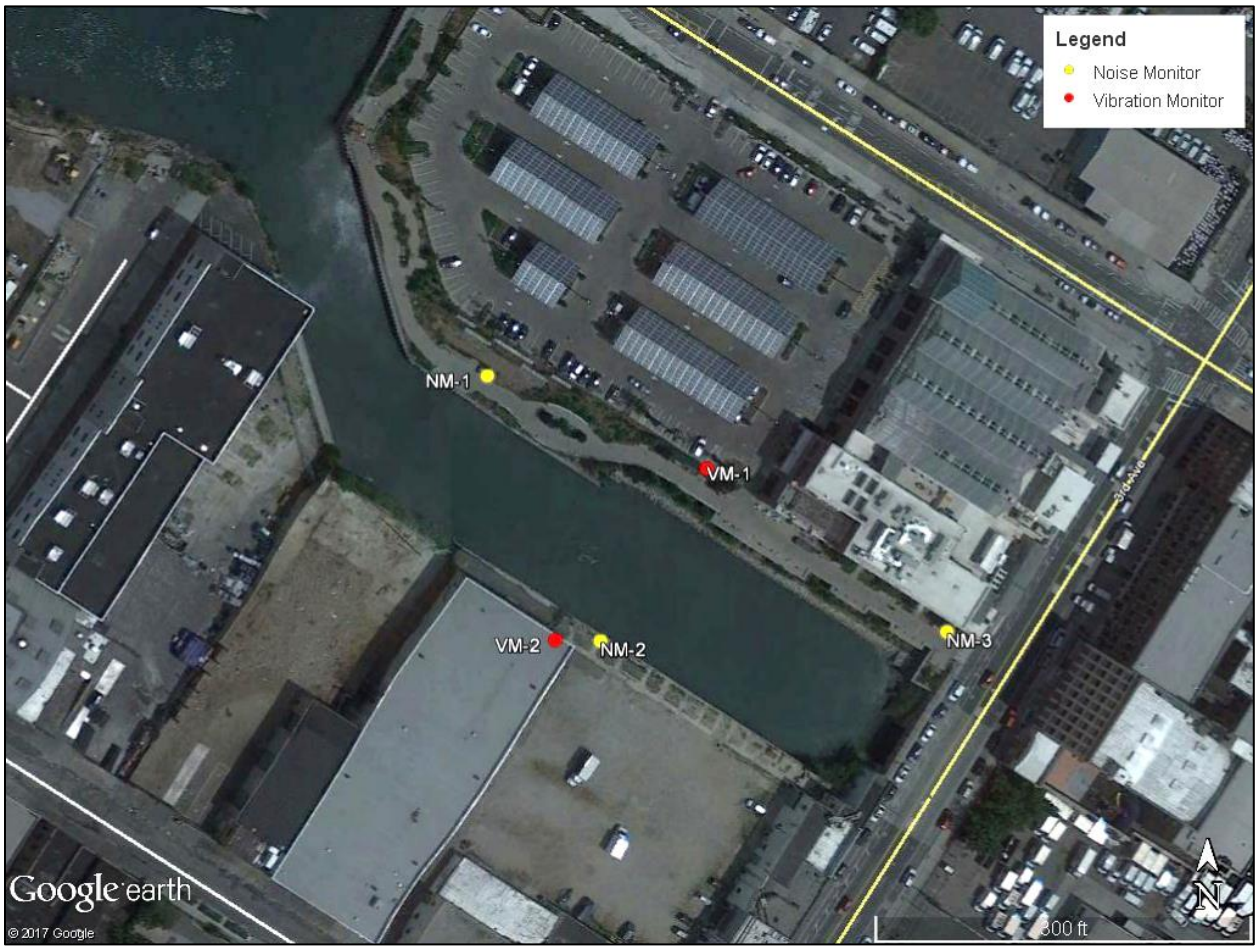


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

[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

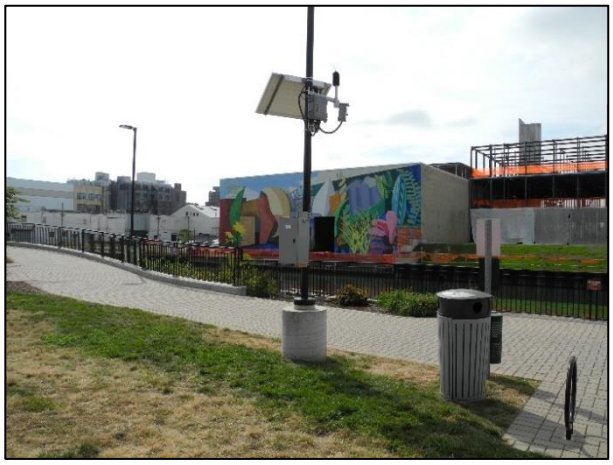


Photo 1: Noise Monitoring Location NM-1 (26 September 2017)

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

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

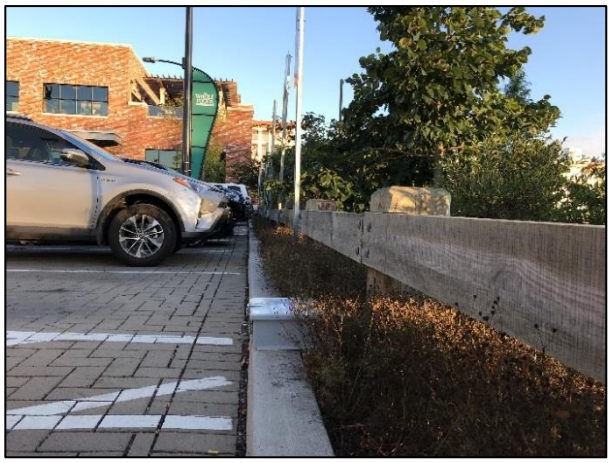


Photo 4: Vibration Monitoring Location VM-1 (12 October 2017)

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

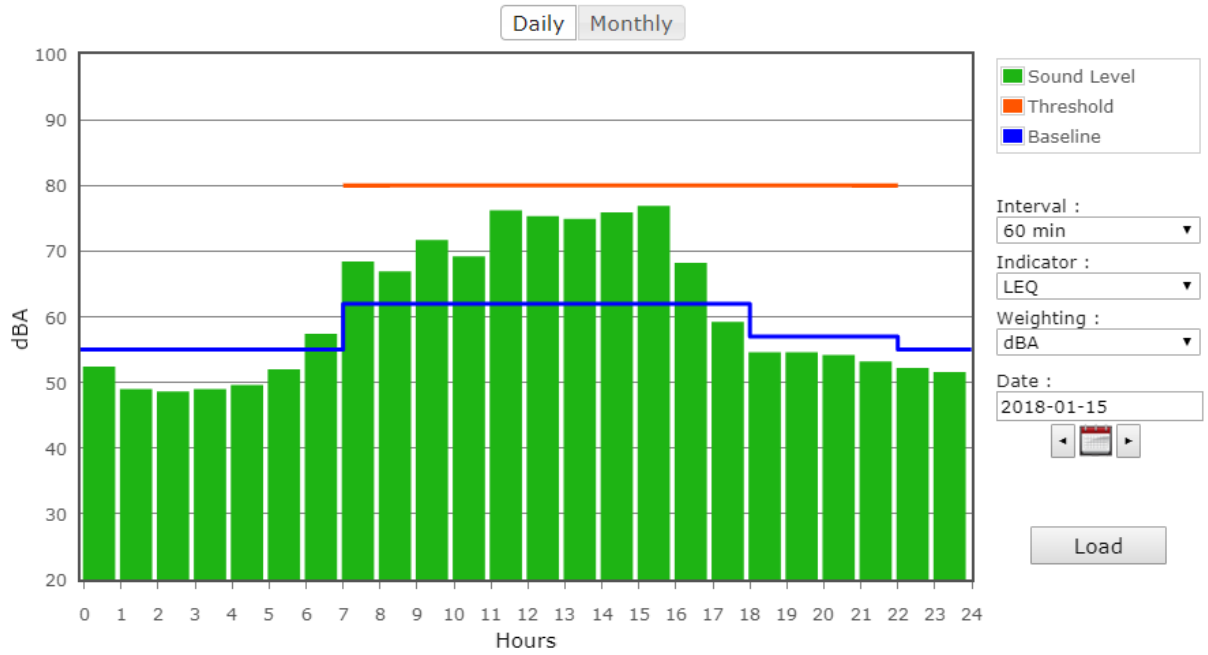


Figure 2: North Monitor NM-1 on Monday

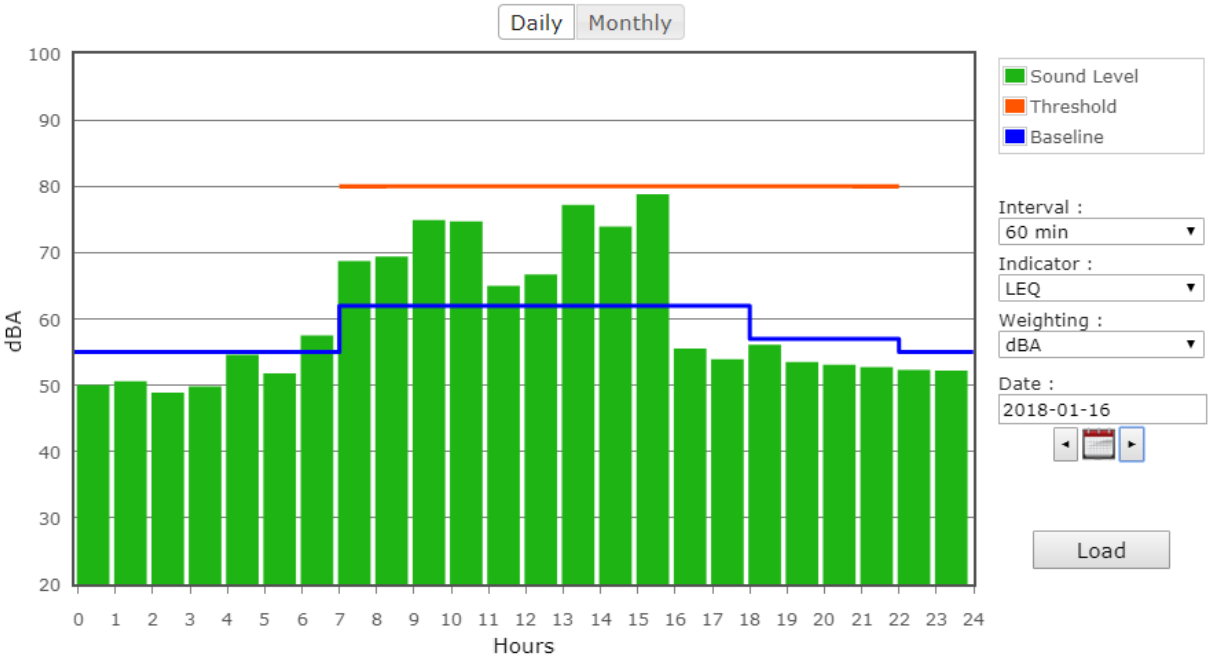


Figure 3: North Monitor NM-1 on Tuesday

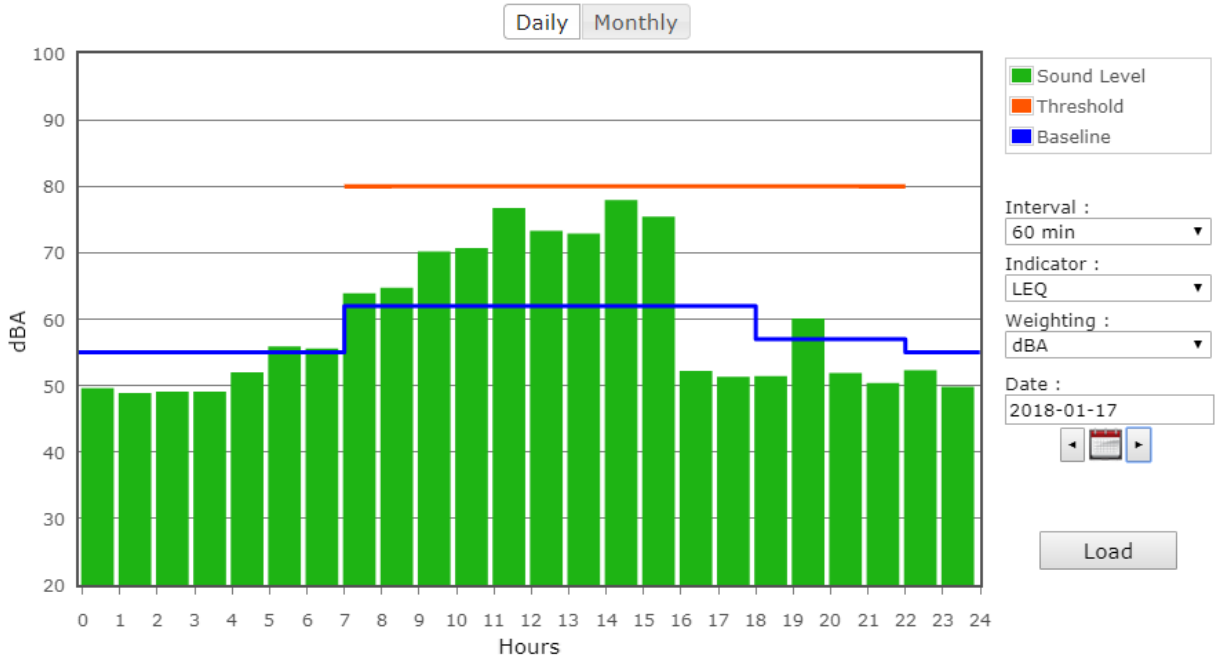


Figure 4: North Monitor NM-1 on Wednesday

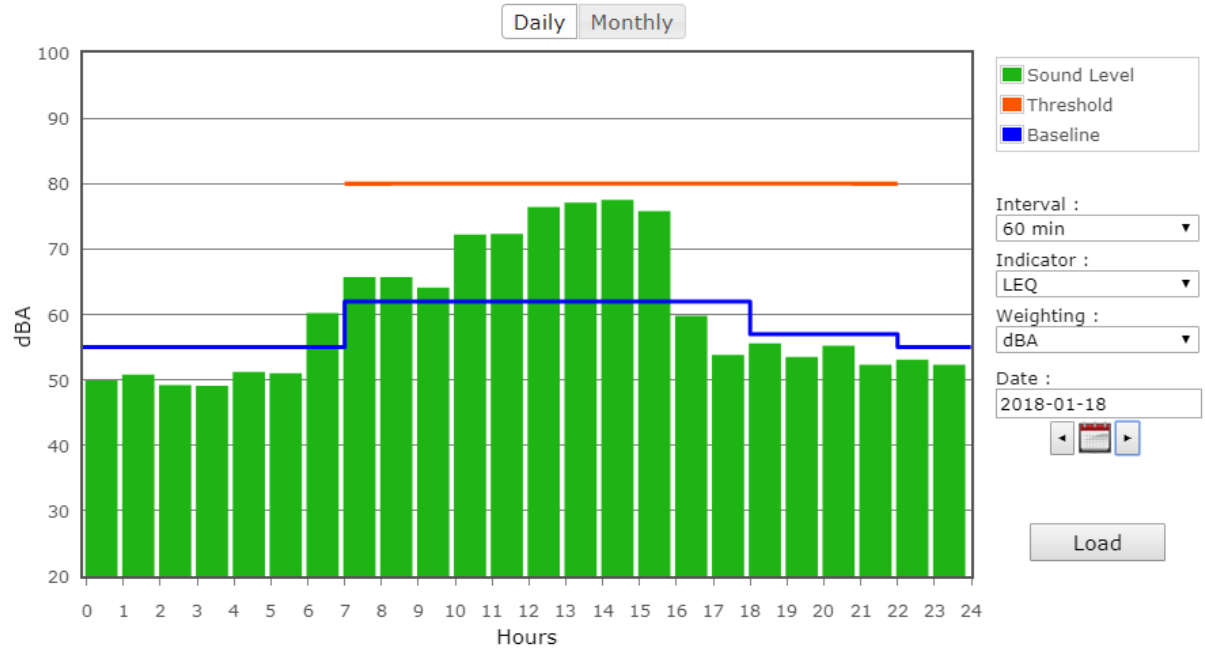


Figure 5: North Monitor NM-1 on Thursday

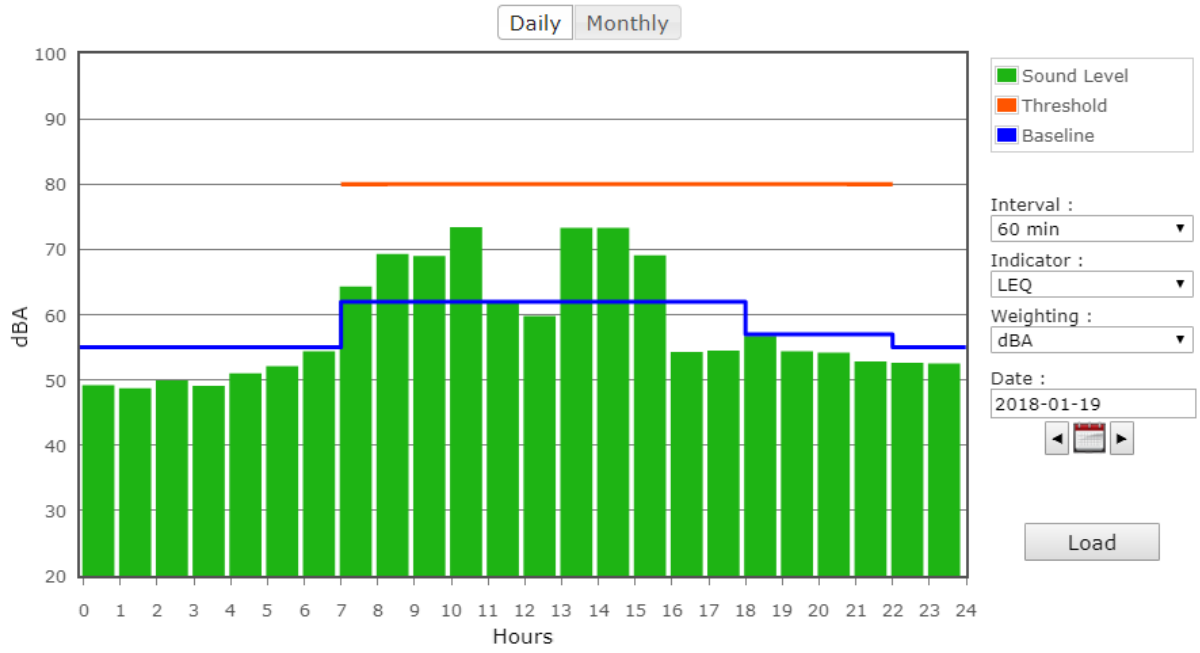


Figure 6: North Monitor NM-1 on Friday

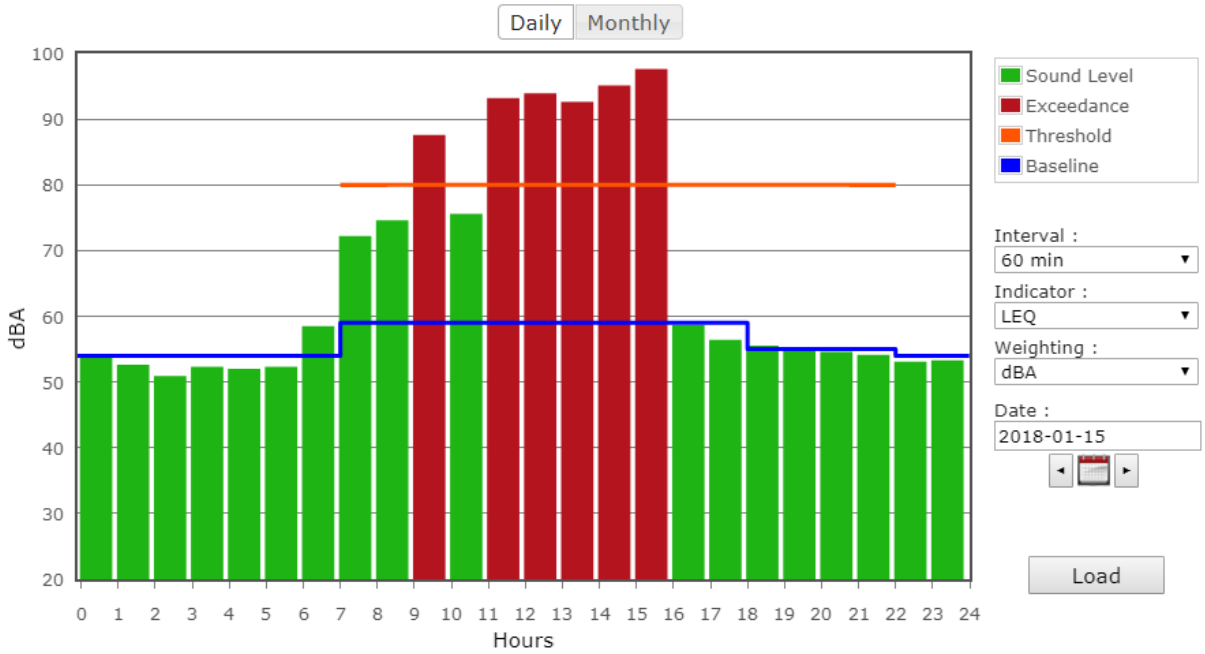


Figure 7: South Monitor NM-2 on Monday

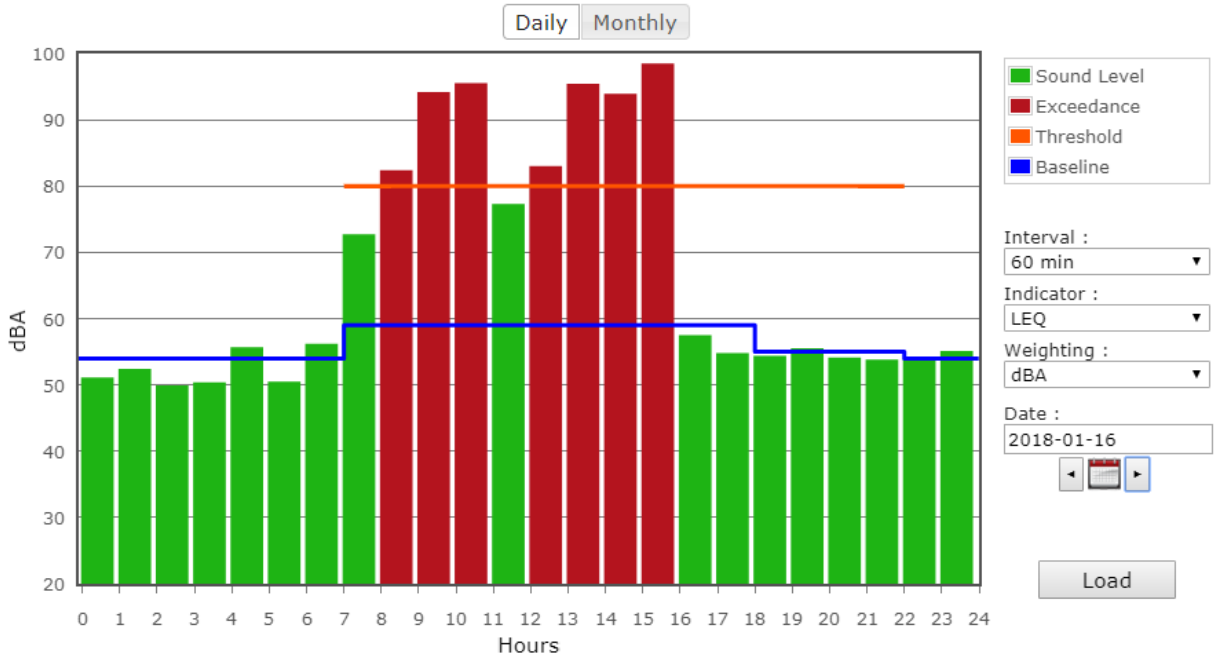


Figure 8: South Monitor NM-2 on Tuesday

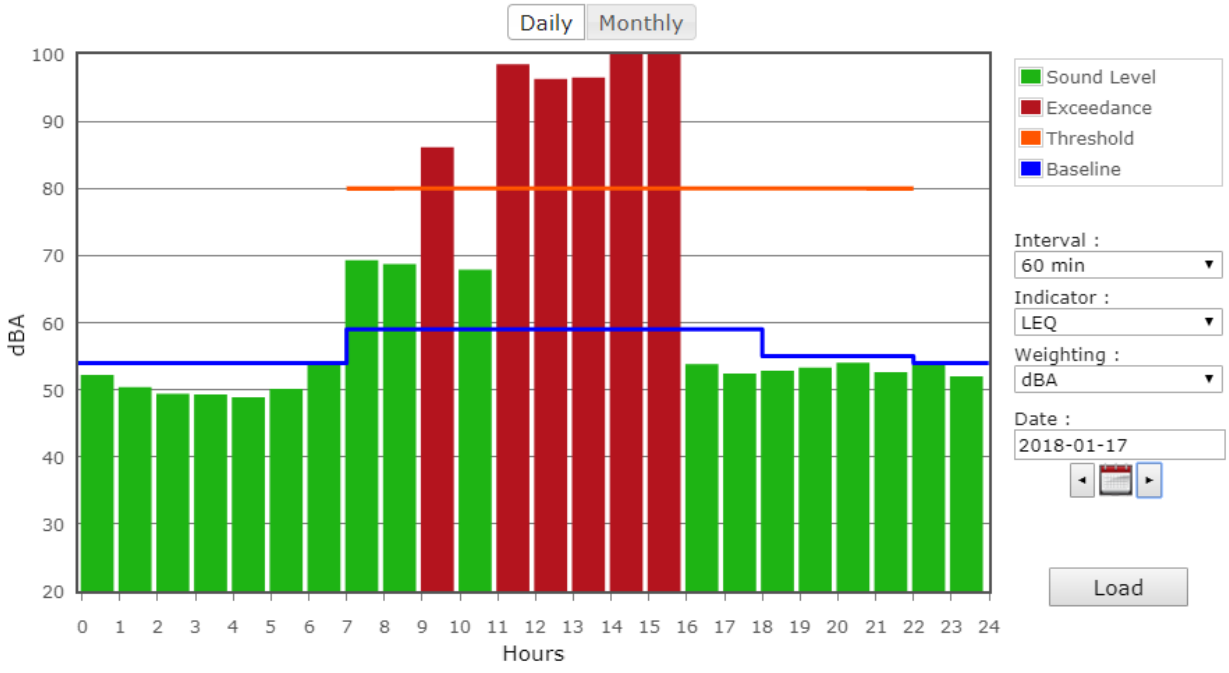


Figure 9: South Monitor NM-2 on Wednesday*

**Noise Level (Leq) for the 14:00 interval is 101.8 dBA. Noise Level (Leq) for the 15:00 interval is 100.3 dBA*

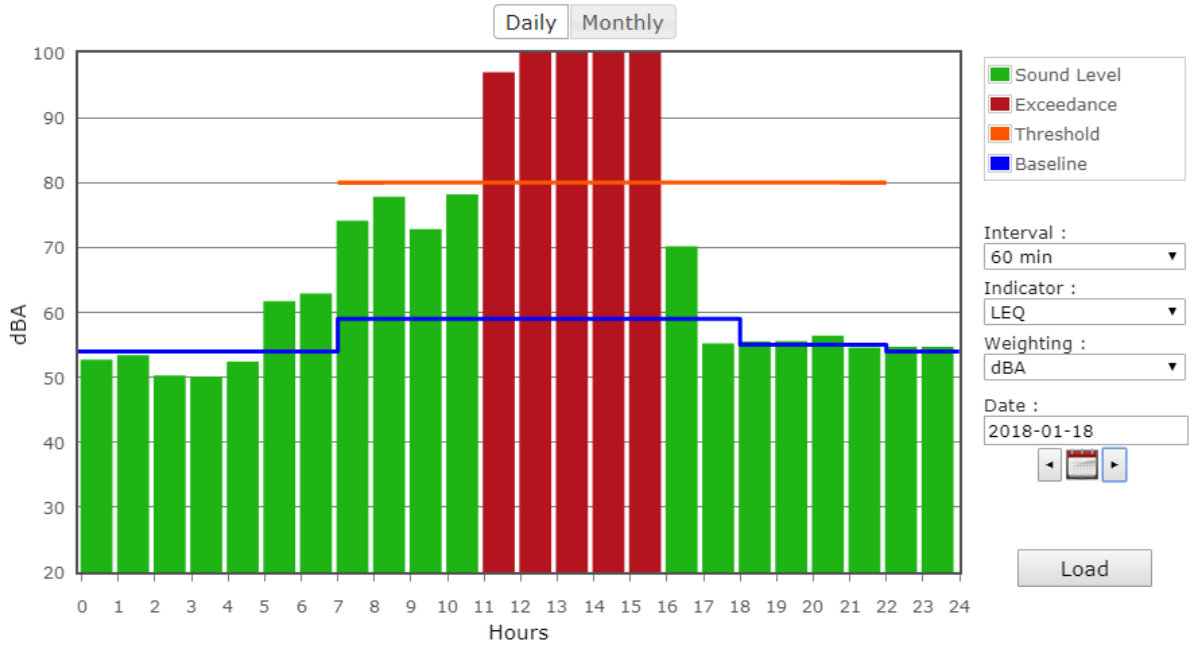


Figure 10: South Monitor NM-2 on Thursday*

**Noise Level (Leq) for the 11:00 interval is 105.3 dBA. Noise Level (Leq) for the 12:00 interval is 107.7 dBA. Noise Level (Leq) for the 13:00 interval is 109.2 dBA. Noise Level (Leq) for the 14:00 interval is 104.4 dBA.*

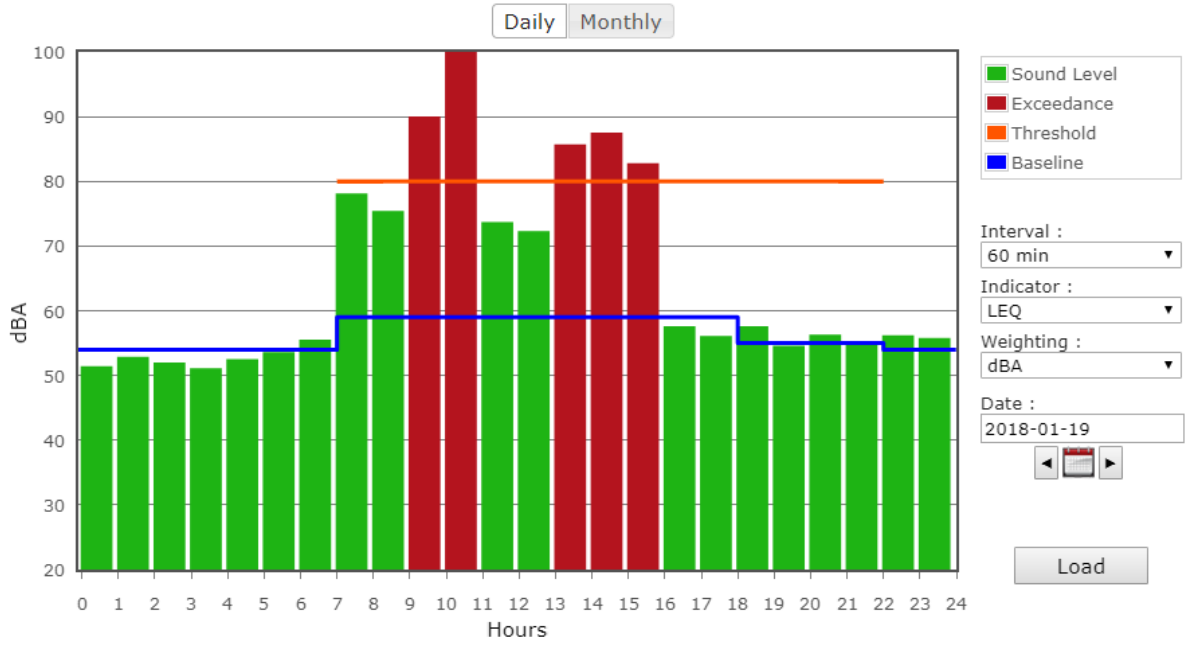


Figure 11: South Monitor NM-2 on Friday*

*Noise Level (Leq) for the 10:00 interval is 101.1 dBA.

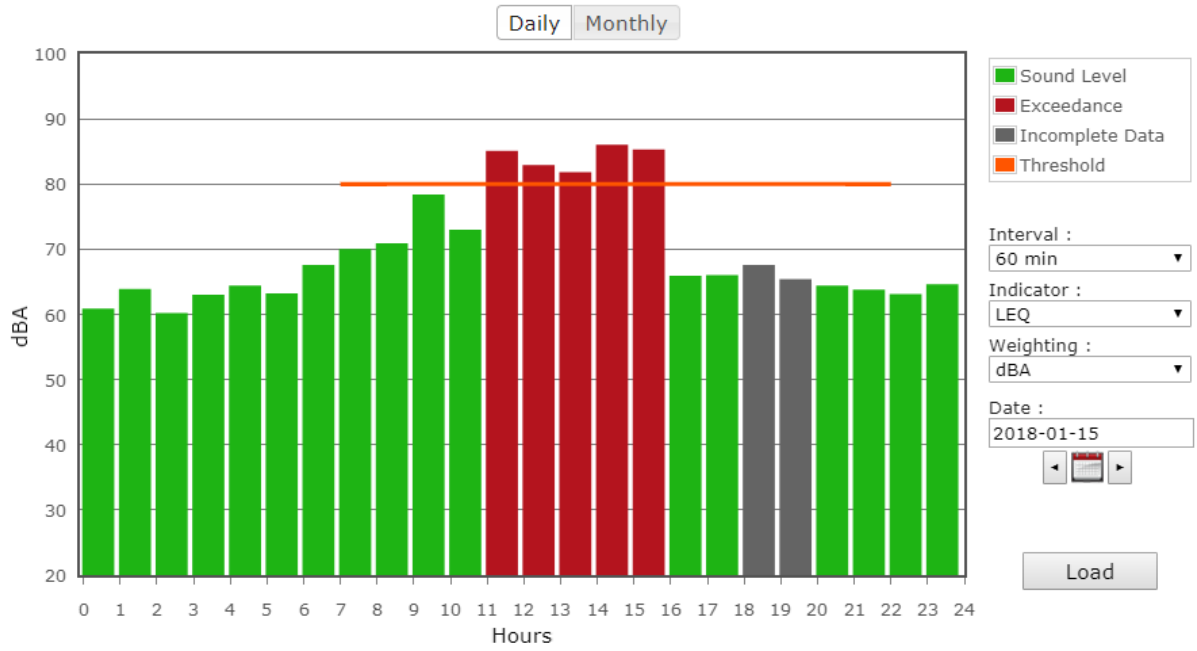


Figure 12: Northeast Monitor NM-3 on Monday*

**Noise Levels for the 18:00-19:00 intervals are incomplete.*

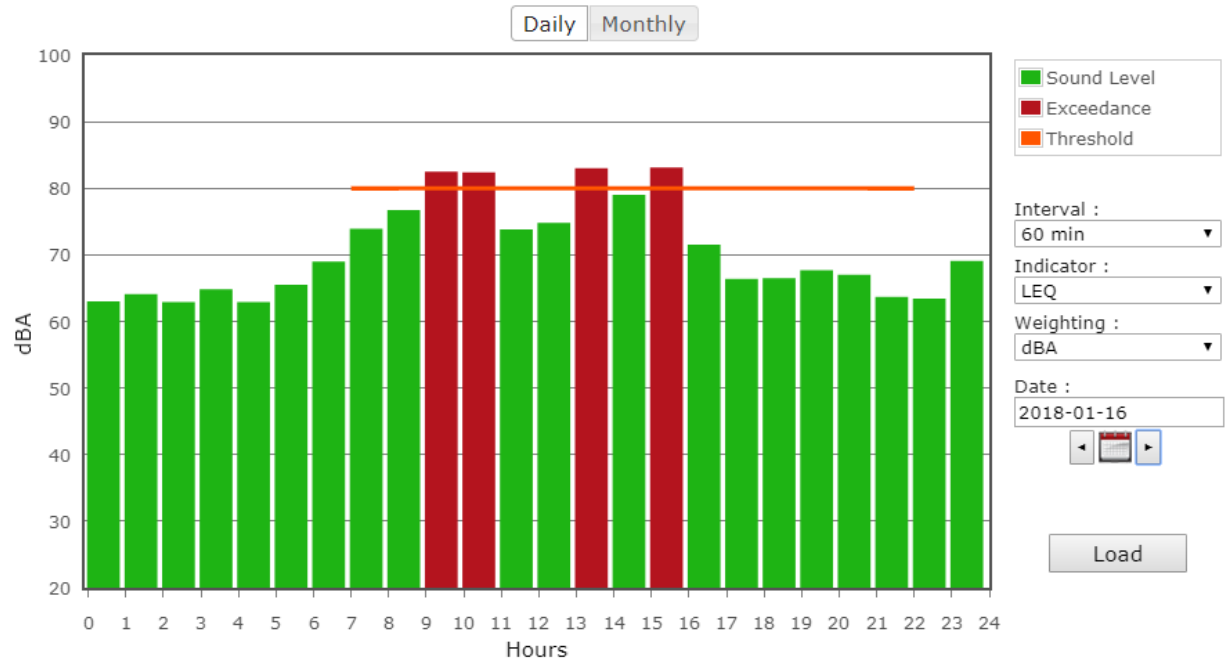


Figure 13: Northeast Monitor NM-3 on Tuesday

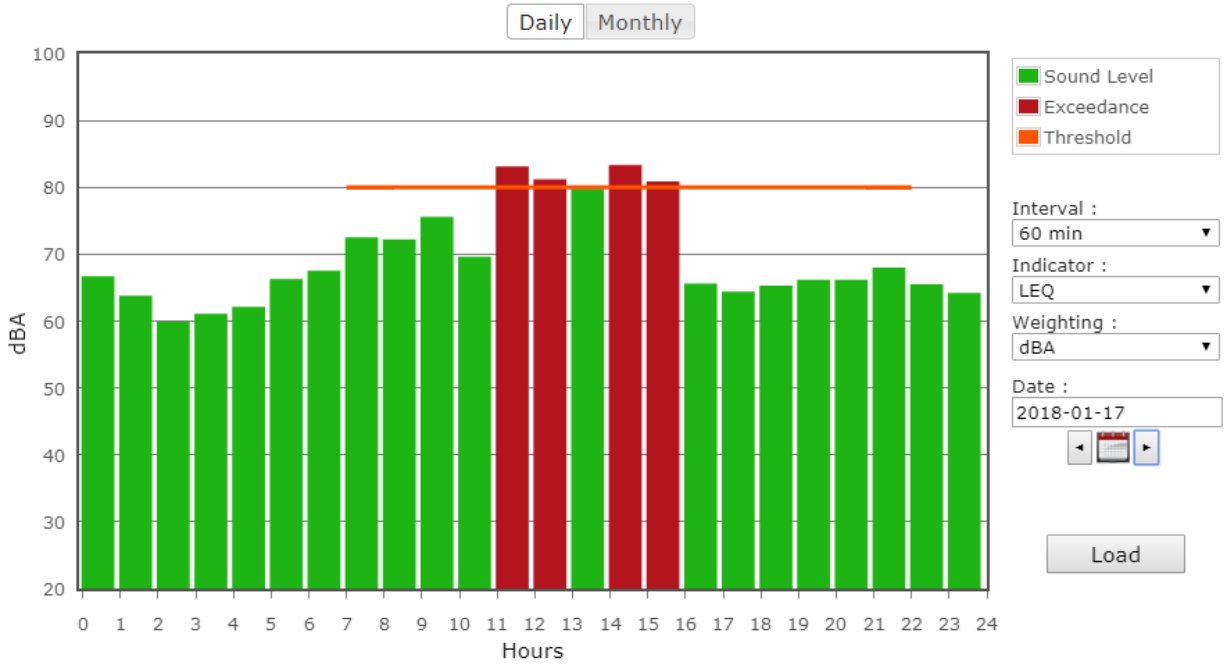


Figure 14: Northeast Monitor NM-3 on Wednesday

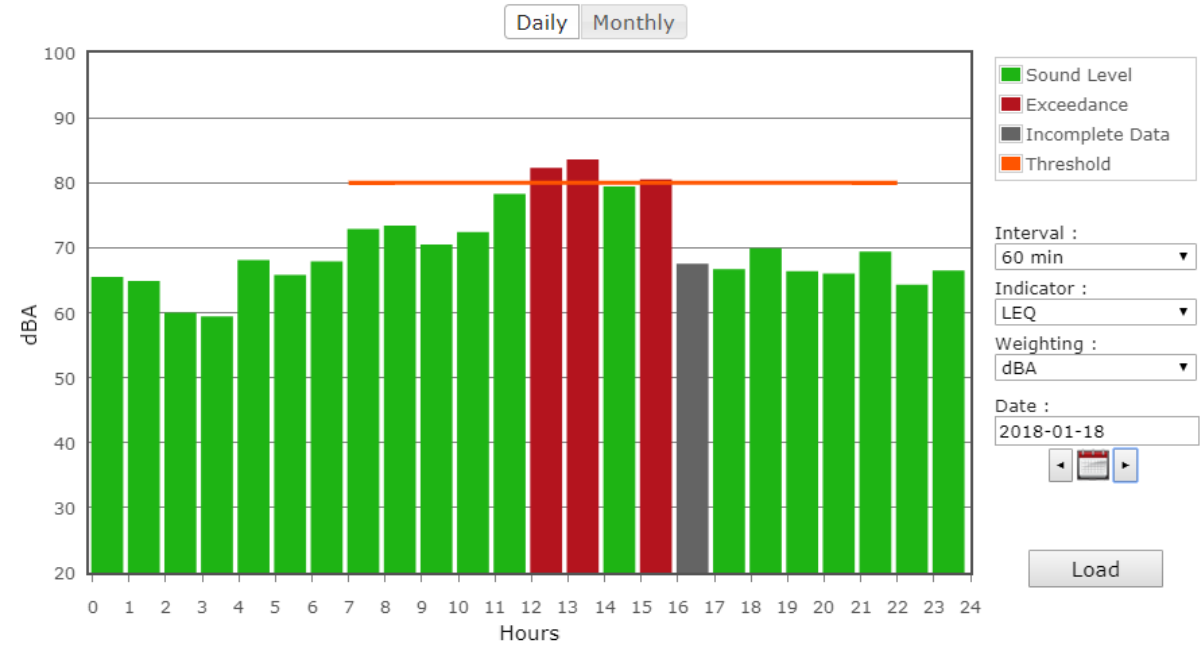


Figure 15: Northeast Monitor NM-3 on Thursday*

**Noise Levels for the 16:00 interval are incomplete.*

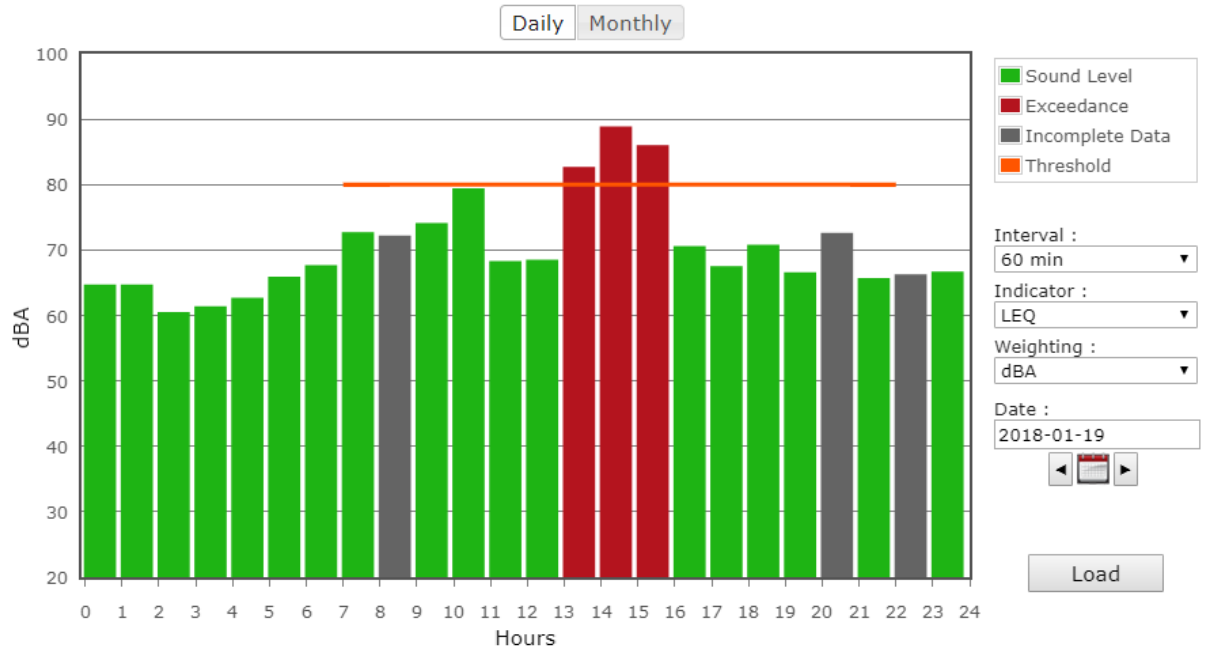


Figure 16: Northeast Monitor NM-3 on Friday*

**Noise Levels for the 8:00 interval are incomplete. Noise Levels for the 20:00 interval are incomplete. Noise Levels for the 22:00 interval are incomplete.*

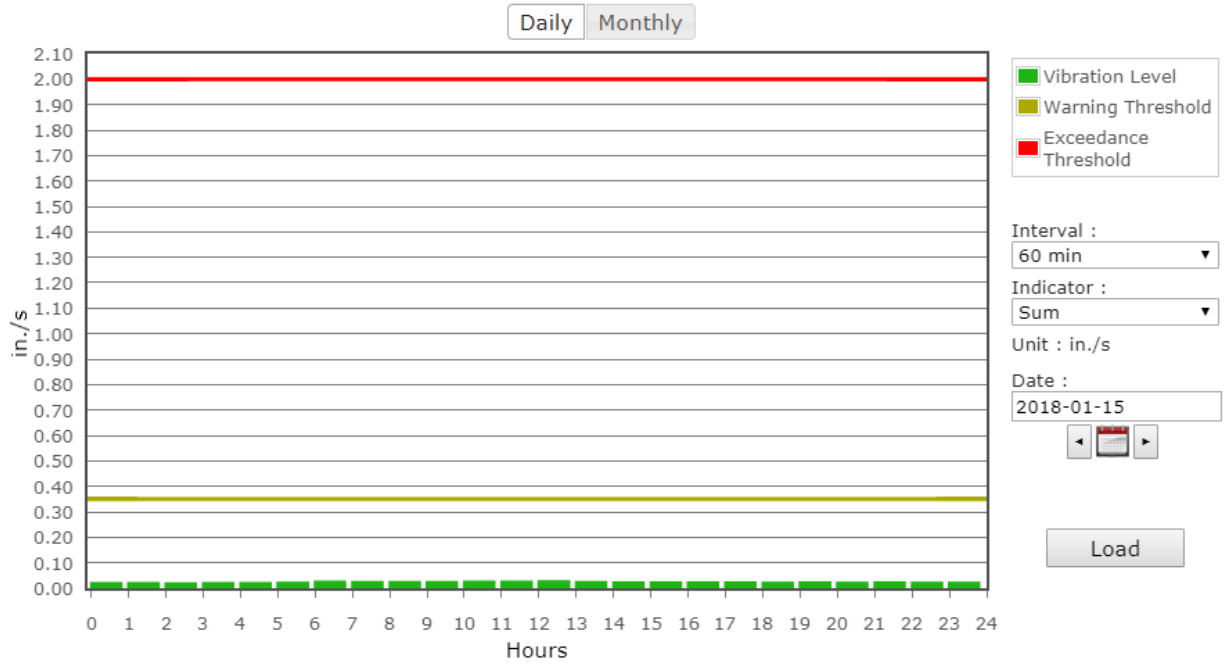


Figure 17: North Vibration Monitor VM-1 on Monday

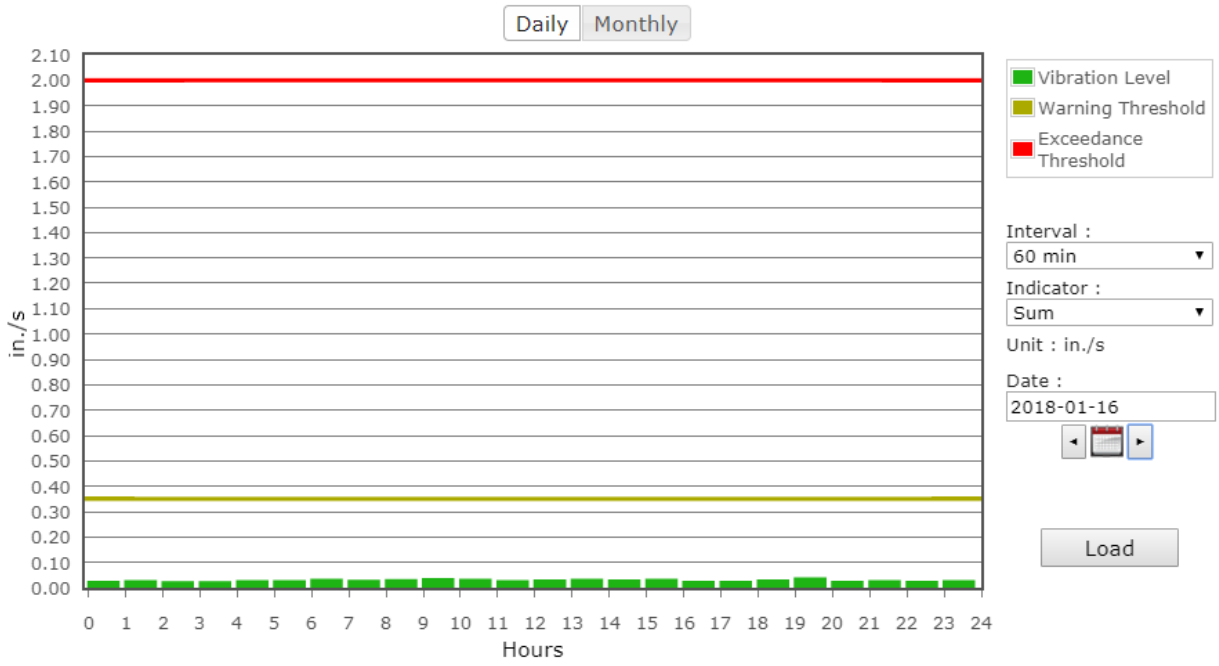


Figure 18: North Vibration Monitor VM-1 on Tuesday

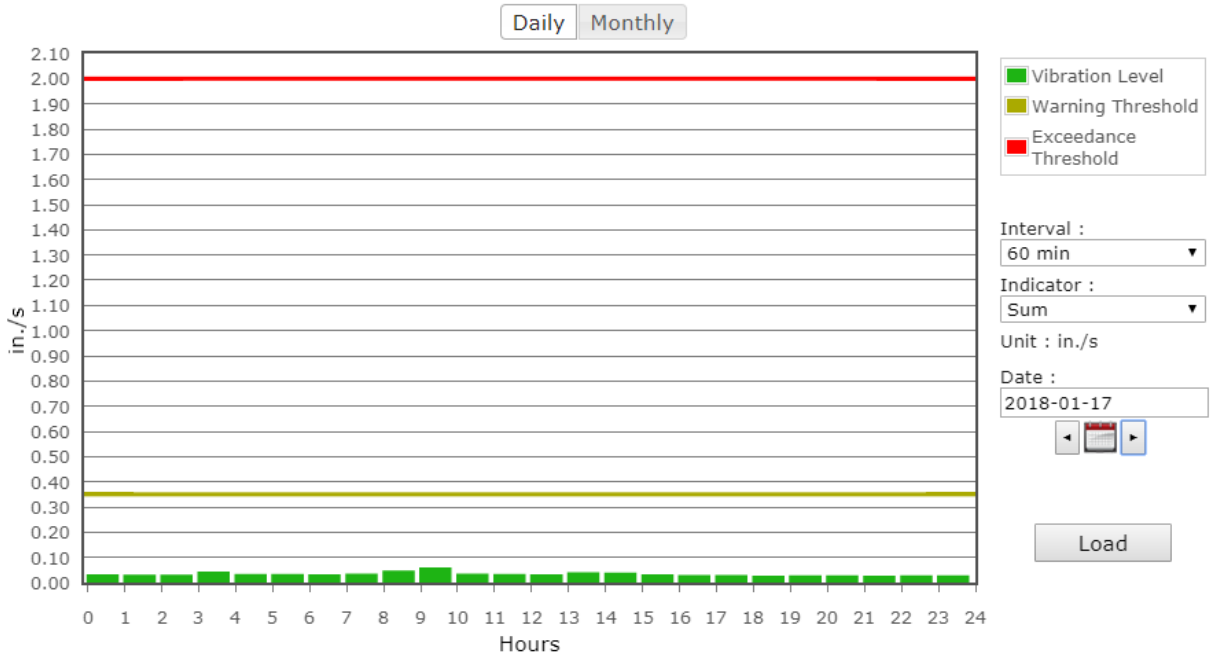


Figure 19: North Vibration Monitor VM-1 on Wednesday

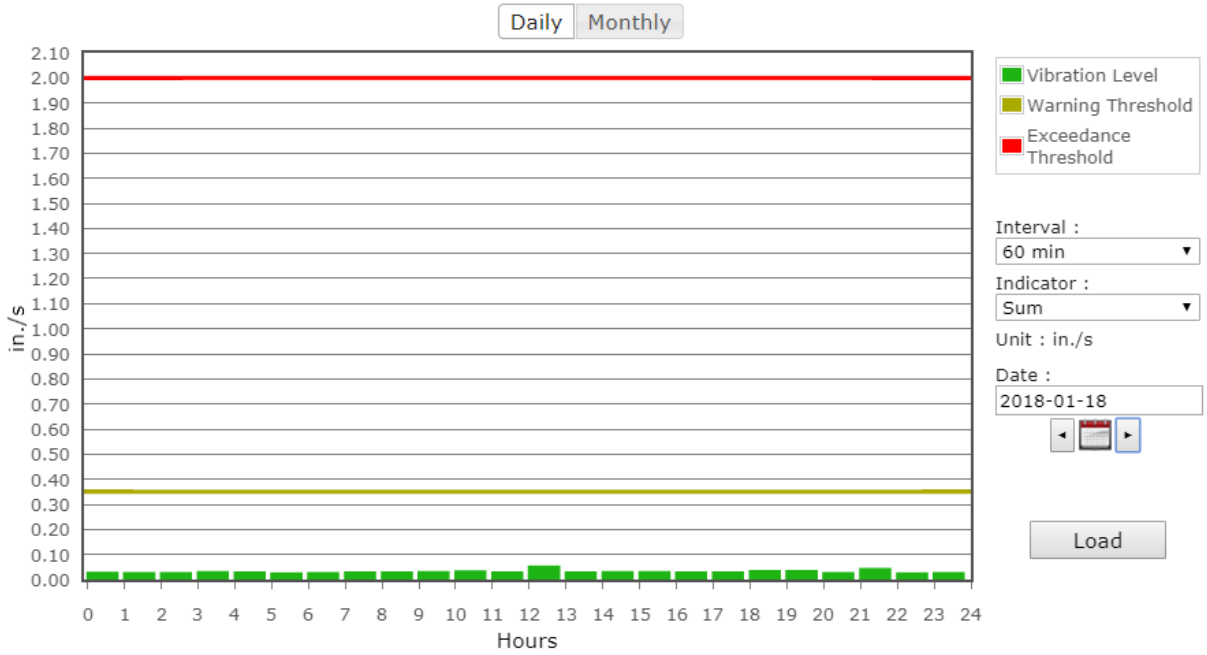


Figure 20: North Vibration Monitor VM-1 on Thursday

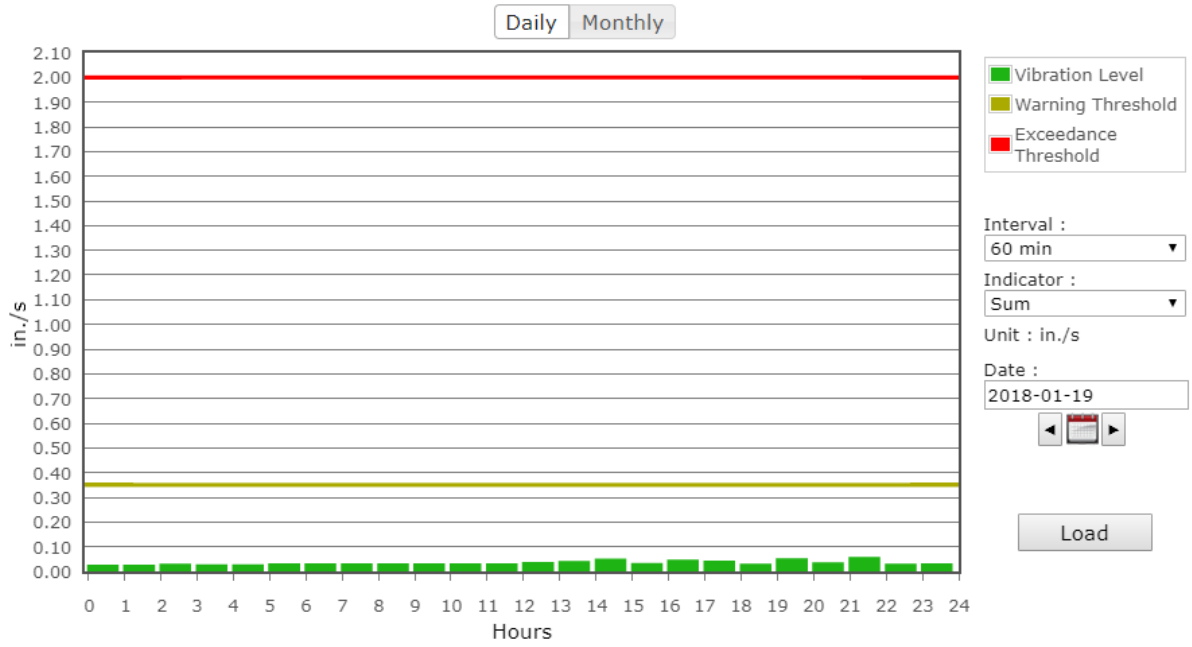


Figure 21: North Vibration Monitor VM-1 on Friday

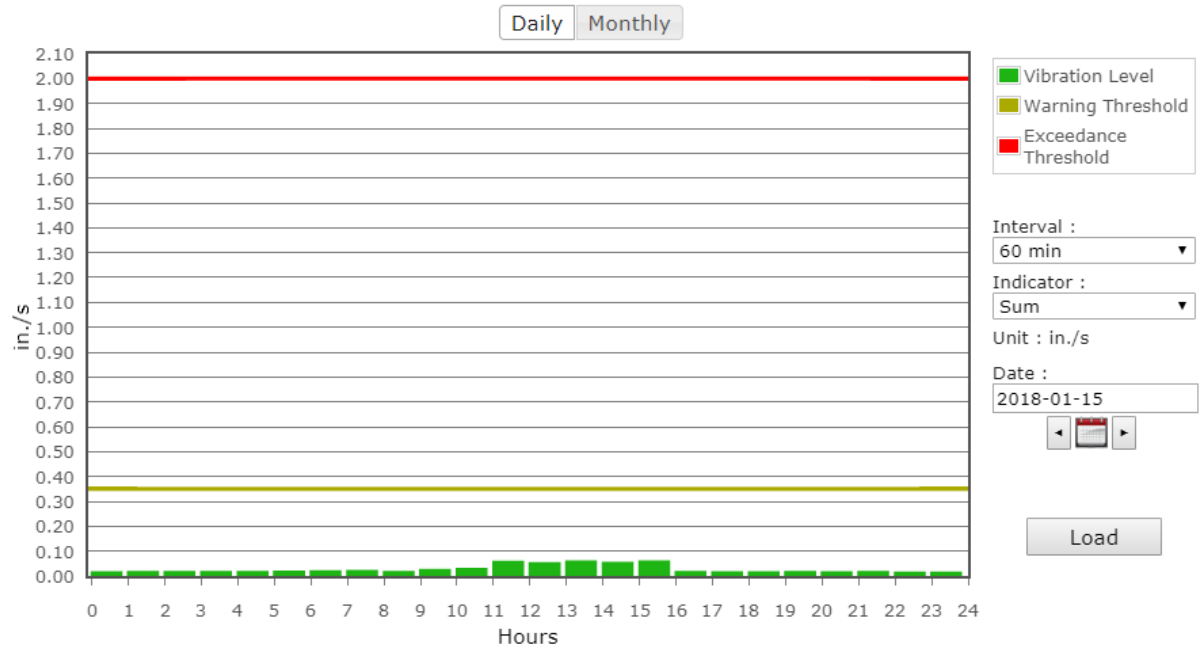


Figure 22: South Vibration Monitor VM-2 on Monday

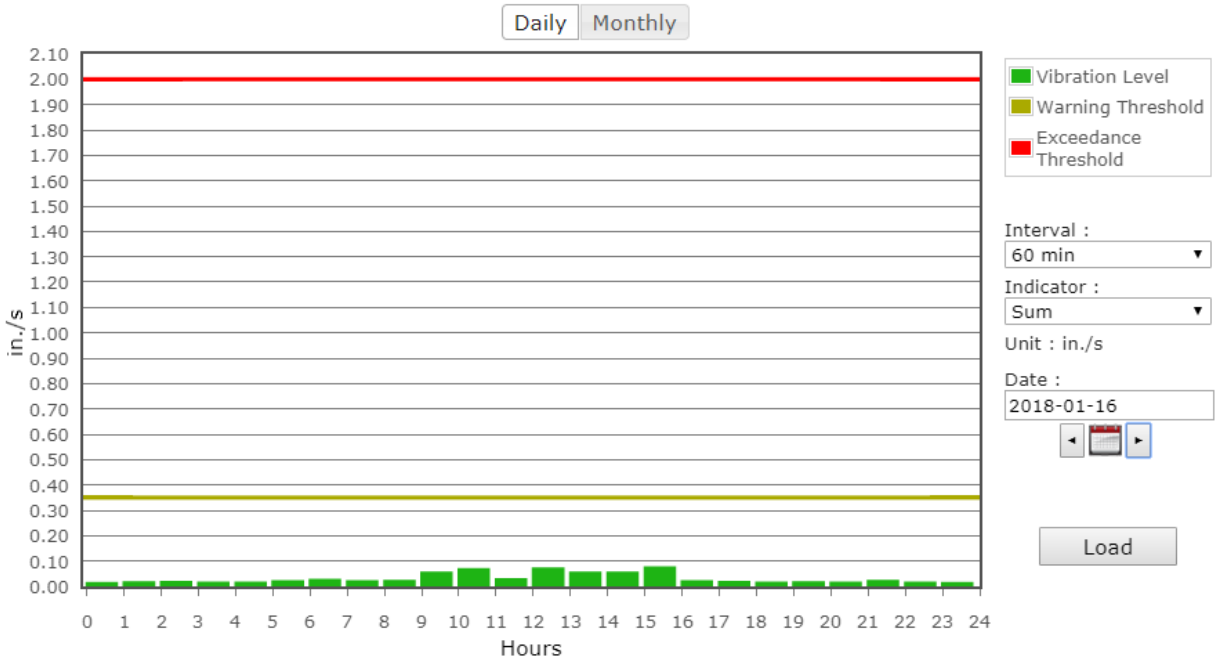


Figure 23: South Vibration Monitor VM-2 on Tuesday

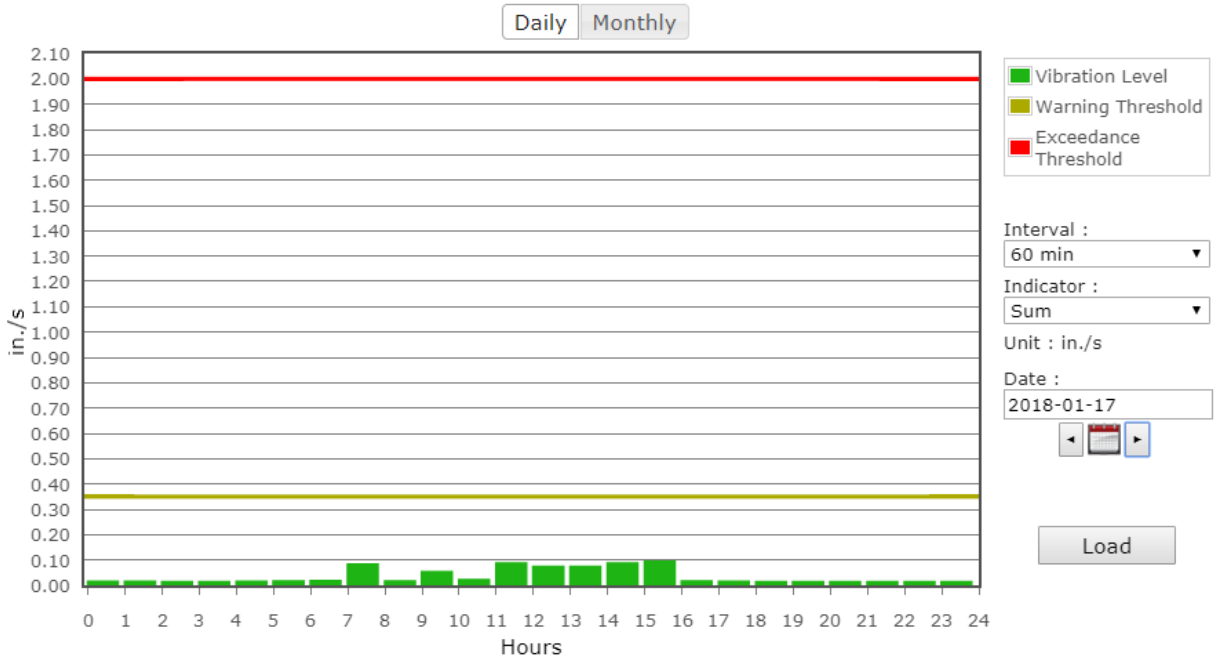


Figure 24: South Vibration Monitor VM-2 on Wednesday

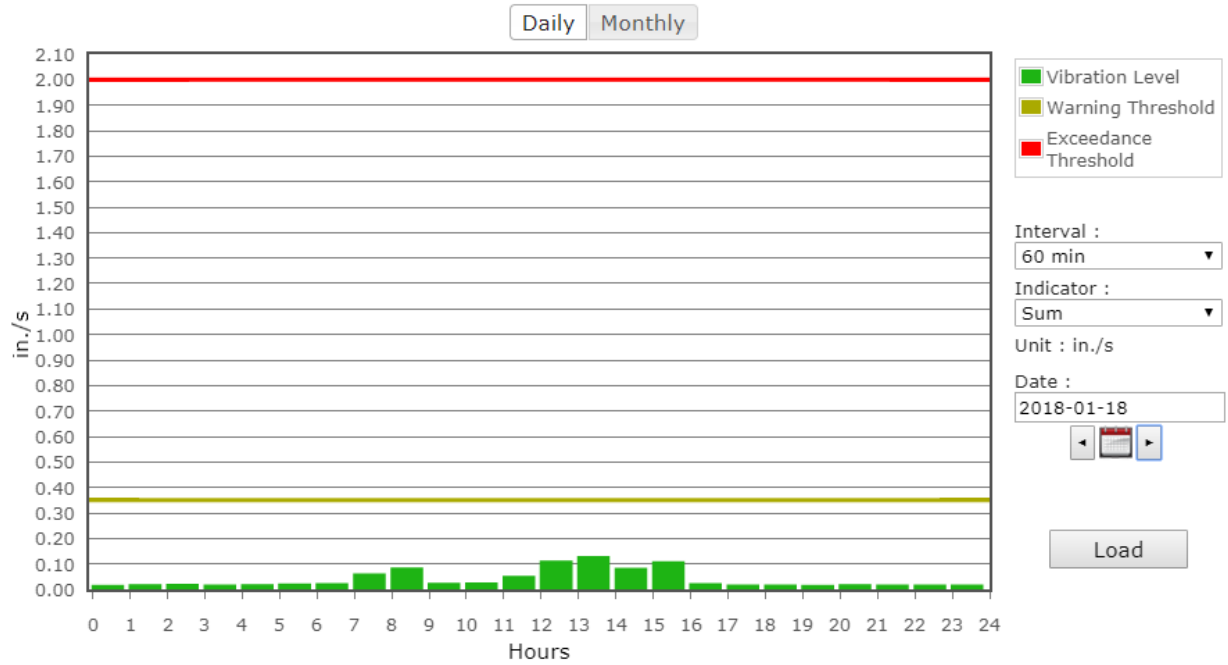


Figure 25: South Vibration Monitor VM-2 on Thursday

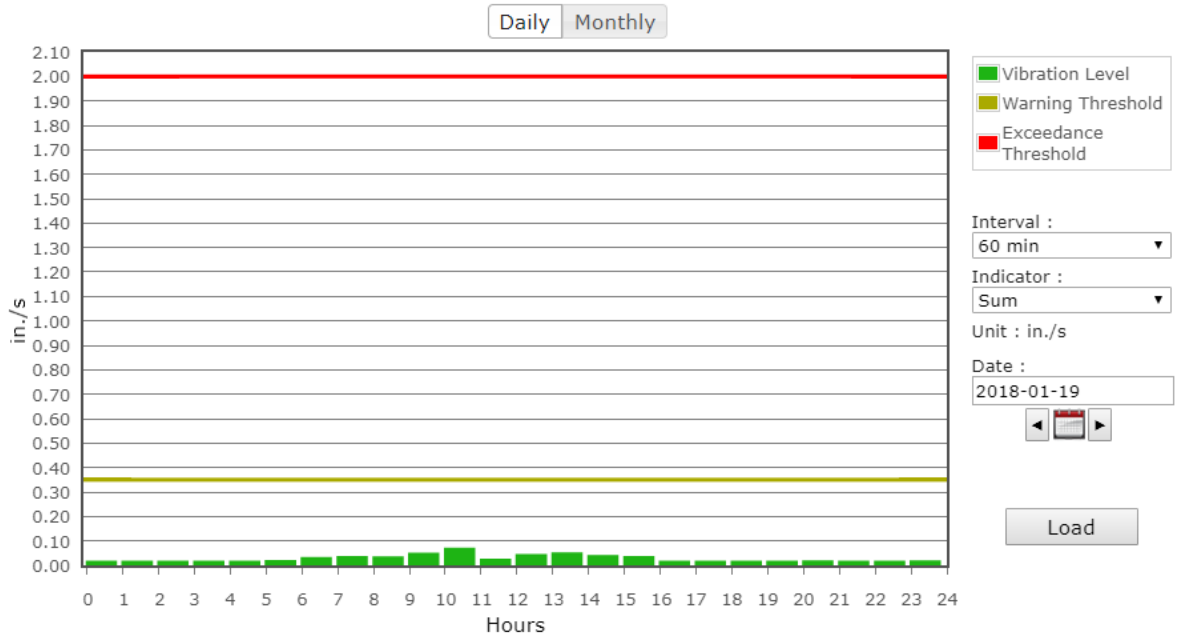


Figure 26: South Vibration Monitor VM-2 on Friday

20180122 Wilson Ihrig Weekly Noise and Vibration Report 15 Jan - 19 Jan 2018

AHRS WEEKLY REPORT

(NO ACTIVITIES DURING CURENT WEEK)

WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA

(NO ACTIVITIES DURING CURRENT WEEK)

CUMULATIVE DREDGED MATERIAL CHART

(NO ACTIVITIES DURING CURENT WEEK)