

WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: October 23 to October 27, 2017

Date of Report: November 2, 2017

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust

On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Sheet Pile Installation

- Personnel, materials, and equipment mobilized to the Site for sheet pile installation
- Falsework installed from 2+11 to 3+57
- Property damage incident involving steel sheet piling rotating around the falsework where it was anchored and tipped over while being set to drive occurred at approximately on 0805 on 10/27/17. Incident analysis and corrective measures are being completed and may be provided under separate cover. As part of the Pilot Study, further evaluation will be conducted regarding alternate means and methods of sheet pile installation.

Water Treatment and Monitoring

- Discharged 1,137 and 15,708 gallons of treated backwash water on 10/24/17 and 10/25/17, respectively.
- No exceedances of continuous monitoring.

Air Curtain System

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

Turbidity Monitoring

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

Vibration Monitoring (subcontractor – Vibra-Tech)

- Operated and maintained three (3) stationary vibration monitors. Two (2) stationary monitors located on the south side of the canal and one (1) stationary monitor located on the north side of the canal. Additionally, employed two (2) portable vibration monitors to measure vibration levels within 15 feet of the sheet pile installation work. On 10/25/17, a portable vibration monitor was placed on the deck of the 3rd Avenue Bridge due to work being performed within 50' of the bridge.
- No exceedances of the peak particle velocity level specified in the Contract Documents (0.40 inches per second) during the week.
- Only exceedance of the acceleration level specified in the Contract Documents (0.1 g) occurred when the sheet pile rotated and struck the bulkhead on 10/27/17. Vibra-Tech provided the following statement regarding the exceedance: "Even though the acceleration level is technically exceeding the criteria it is our professional opinion due to the short duration and high frequency content of the waveform, the stress wave induced by the vibration would not have any affect on the surrounding above ground structures."

Quality Assurance and Control - Geosyntec

- Perform post-access dredging bathymetric survey.
- No exceedance of turbidity trigger level of a measurement over a one-hour period of the sentinel buoy 20 nephelometric turbidity units (NTUs) greater than the ambient buoy during access dredging.
- Measurements for 10/23/17:
 - Daily average for ambient buoy – 6.2 NTU
 - Daily average for sentinel buoy – 6.3 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval – 11.6 NTU at 1430.
- Measurements for 10/24/17:
 - Daily average for ambient buoy – 5.3 NTU
 - Daily average for sentinel buoy – 4.2 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval – 1.3 NTU at 1245
- Measurements for 10/25/17:
 - Daily average for ambient buoy – 6.9 NTU
 - Daily average for sentinel buoy – 5.6 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval – 1.5 NTU at 0945

- Measurements for 10/26/17:
 - Daily average for ambient buoy – 5.0 NTU
 - Daily average for sentinel buoy – 6.7 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval – 4.5 NTU at 1200
- Measurements for 10/27/17:
 - Daily average for ambient buoy – 6.1 NTU
 - Daily average for sentinel buoy – 7.8 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval – 4.7 NTU at 1330
- Water treatment system sampling performed on 10/24/17. Laboratory turnaround time is 10 business days. Tabulated analytical data from sample collected on 10/17/17 attached.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM₁₀) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM₁₀ in µg/m³
 - Station 1 – 46 µg/m³ recorded on 10/25/17
 - Station 2 – 34 µg/m³ recorded on 10/25/17
 - Station 3 – <1 µg/m³ recorded throughout week
 - Station 4 – 25 µg/m³ recorded on 10/24/17
 - Station 5 – 26 µg/m³ recorded on 10/24/17
 - Station 6 – 33 µg/m³ recorded on 10/24/17
 - Station 7 – <1 µg/m³ recorded throughout week
- Maximum weekly measurements of TVOC in ppb
 - Station 1 – 33 ppb recorded on 10/23/17, 10/24/17, 10/25/17, and 10/27/17
 - Station 2 – 21 ppb recorded on 10/23/17
 - Station 3 – 57 ppb recorded on 10/23/17
 - Station 4 – 90 ppb recorded on 10/24/17
 - Station 5 – 81 ppb recorded on 10/24/17
 - Station 6 – 23 ppb recorded on 10/24/17
 - Station 7 – 28 ppb recorded on 10/23/17
- All real-time readings of hydrogen sulfide, ammonia, or formaldehyde less than instrument reporting limit except for the following hydrogen sulfide readings on 10/25/17.
 - ST-1 at 0810 – 1.14 ppb
 - ST-5 at 0835 – 1.97 ppb
- 24-hour sample collected at ST-7 on 10/25 through 10/26. Laboratory turnaround time is 10 business days.

Noise and Vibration Monitoring – Wilson-Ihrig

- Operated and maintained one (1) noise monitor on each side of the canal. Cellular connectivity issues prevent noise monitor on north side of canal from transmitting real-time data. Real-time measurements by technician with handheld instrument collected during installation of sheet piling until northern noise monitor was replaced. Handheld instrument employed at the southeast corner of Whole Foods and 3rd Avenue Bridge between 10/25/17 and 10/27/17 prior to installation of permanent monitor on 10/27/17.



- Exceedances measured at each noise monitor during installation of sheet pile due to encountering obstruction with sheet pile and measures to clear obstruction on 10/25/17 of the hourly Leq noise limit of 80 dBA for daytime and evening time periods.
- Greatest hourly Leq noise measurements
 - Northern monitor (NM-1) – 83.9 dBA during 1300-1400 on 10/25/17
 - Southern monitor (NM-2) – 85.4 dBA during 1100-1200 on 10/25/17
 - Northeast monitor (NM-3) – 94 dBA during 1300-1400 on 10/25/17
- 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 (NM-1) – 0.0394 in/sec event between 1500 and 1600 on 10/26/17
 - Southern monitor (NM-2) – 0.0236 in/sec event between 0800 and 0900 on 10/27/17

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

- Conducted on-site inspection of debris on 10/23/17. Identified four (4) objects (i.e., tree trunk with saw and adze marks, bow piece of wooden boat, fire box for steam engine boiler, and metal tank) that may require additional coordination with SHPO and EPA.

Two-Week Look Ahead:

- Severson:
 - Continue installation of steel sheet pile bulkhead supports.
 - Perform vibration, benchmark, and optical monitoring of bulkheads and surrounding structures.
 - Transfer loaded barges from Hughes Marine to Clean Earth Claremont pending EPA approval of 10-day exemption and PADEP acceptance of material based on waste characterization data.
 - Install swing gate along Huntington Street pending NYCDOT permit approval.
- Geosyntec – Perform construction quality assurance responsibilities.
- TRC CAMP Monitoring – Perform community air monitoring.
- Wilson-Ihrig – Perform noise and vibration monitoring
- Emilcott – Perform incident analysis of 10/27 sheet pile incident.
- AHRS – No activities planned.

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

- Mobilization of personnel, materials, and equipment on 10/23/17.

Attachments:

1. Geosyntec Water Quality Monitoring Weekly Data Summary
2. TRC Weekly CAMP Report
3. Wilson-Ihrig Weekly Noise and Vibration Monitoring Report
4. AHRS Weekly Report
5. Water Treatment System Monitoring Analytical Laboratory Data (data from 10/17/17 sampling)
6. Cumulative Dredged Material Chart (not included due to no change)



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

| | |
|-------------------------|---------------------------|
| Photo No. 001 | Date 10-23-2107 |
|-------------------------|---------------------------|

Description
Crane arriving at the Citizens site, under the 9th Street Bridge (elevated).



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|-------------------------|---------------------------|
| Photo No. 002 | Date 10-23-2017 |
|-------------------------|---------------------------|

Description
Crane barge pulling into turning basin #4.



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

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|-------------------------|---------------------------|
| Photo No. 003 | Date 10-24-2107 |
|-------------------------|---------------------------|

Description
Moving vibratory hammer on the crane barge, preparing to drive the "H" beam "falsework".



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| Photo No. 004 | Date 10-25-2017 |
|-------------------------|---------------------------|

Description
Vibration monitoring while driving second "H" beam.



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

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| Photo No. 005 | Date 10-26-2107 |
|-------------------------|---------------------------|

Description
Pulling spud prior to tug move of the sheet pile and crane barge.



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|-------------------------|---------------------------|
| Photo No. 006 | Date 10-26-2017 |
|-------------------------|---------------------------|

Description
View of the first leg of the falsework being installed.



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

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|-------------------------|---------------------------|
| Photo No. 007 | Date 10-26-2107 |
|-------------------------|---------------------------|

Description
Metal post being used as a “guide” to ensure the “H” beam is placed at the correct distance from the bulkheads.



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|-------------------------|---------------------------|
| Photo No. 008 | Date 10-26-2017 |
|-------------------------|---------------------------|

Description
Setting additional falsework.



GEOSYNTEC 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

October 23rd, 2017

Report Contents

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

Prepared by

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

engineers | scientists | innovators

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Project Number HPH106A (52)

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of October 23rd, 2017. 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 taken 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 October 23rd. Average and maximum turbidity are also presented. No dredging occurred during this reporting period. Onsite activities included moving the crane barge in position for sheet pile driving and the beginning of sheet pile driving. Preliminary analysis of the turbidity data suggests that turbidity was not significantly elevated during operations. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4. The data provided in this summary report have not yet been validated and should be considered preliminary.



2.2 Tuesday, October 24th, 2017

| Time (Local) | Ambient Turbidity (NTU) | Sentinel Turbidity (NTU) | Sentinel> Ambient (Y/N) | Time (Local) | Ambient Turbidity (NTU) | Sentinel Turbidity (NTU) | Sentinel> Ambient (Y/N) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/24/2017 7:00 | 3.9 | 3.1 | N | 10/24/2017 12:15 | 5.4 | 4.9 | N |
| 10/24/2017 7:15 | 3.9 | 2.5 | N | 10/24/2017 12:30 | 6 | 5.3 | N |
| 10/24/2017 7:30 | 4 | 2.8 | N | 10/24/2017 12:45 | 5.9 | 7.2 | Y |
| 10/24/2017 7:45 | 4 | 2.5 | N | 10/24/2017 13:00 | 5.3 | 5.8 | Y |
| 10/24/2017 8:00 | 3.7 | 2.5 | N | 10/24/2017 13:15 | 5.5 | 5.9 | Y |
| 10/24/2017 8:15 | 4.2 | 3.6 | N | 10/24/2017 13:30 | 6 | 5.6 | N |
| 10/24/2017 8:30 | 3.7 | 4.4 | Y | 10/24/2017 13:45 | 6.2 | 5.1 | N |
| 10/24/2017 8:45 | 4.1 | 4.2 | Y | 10/24/2017 14:00 | 6.4 | 4.2 | N |
| 10/24/2017 9:00 | 4.2 | 3.1 | N | 10/24/2017 14:15 | 6.6 | 4.5 | N |
| 10/24/2017 9:15 | 4.9 | 3.7 | N | 10/24/2017 14:30 | 5.8 | 4.1 | N |
| 10/24/2017 9:30 | 4.8 | 3.3 | N | 10/24/2017 14:45 | 6.8 | 4 | N |
| 10/24/2017 9:45 | 5.1 | 3.7 | N | 10/24/2017 15:00 | 5.8 | 3.8 | N |
| 10/24/2017 10:00 | 5.4 | 3.8 | N | 10/24/2017 15:15 | 6 | 3.7 | N |
| 10/24/2017 10:15 | 5.6 | 3.9 | N | 10/24/2017 15:30 | 5.8 | 4.6 | N |
| 10/24/2017 10:30 | 5.9 | 4.5 | N | 10/24/2017 15:45 | 5.1 | 3.3 | N |
| 10/24/2017 10:45 | 6.1 | 3.9 | N | 10/24/2017 16:00 | 5.1 | 4.3 | N |
| 10/24/2017 11:00 | 5.7 | 4.1 | N | 10/24/2017 16:15 | 5.3 | 3.4 | N |
| 10/24/2017 11:15 | 6.3 | 3.7 | N | 10/24/2017 16:30 | 5.4 | 4.3 | N |
| 10/24/2017 11:30 | 6 | 5.4 | N | 10/24/2017 16:45 | 5.5 | 3.5 | N |
| 10/24/2017 11:45 | 6.2 | 5.4 | N | 10/24/2017 17:00 | 5.2 | 4.2 | N |
| 10/24/2017 12:00 | 5.6 | 5.2 | N | | | | |
| | | | | | | | |
| | | | | | | | |
| Average | 5.3 | 4.2 | N | | | | |
| Maximum | 6.8 | 7.2 | 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, October 27th, 2017

| Time (Local) | Ambient Turbidity (NTU) | Sentinel Turbidity (NTU) | Sentinel> Ambient (Y/N) | Time (Local) | Ambient Turbidity (NTU) | Sentinel Turbidity (NTU) | Sentinel> Ambient (Y/N) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/27/2017 7:00 | 3.8 | 4.1 | Y | 10/27/2017 12:15 | 6 | 7.9 | Y |
| 10/27/2017 7:15 | 4.4 | 4.7 | Y | 10/27/2017 12:30 | 6 | 7.9 | Y |
| 10/27/2017 7:30 | 4.6 | 5.3 | Y | 10/27/2017 12:45 | 6.1 | 6.9 | Y |
| 10/27/2017 7:45 | 4.8 | 5.4 | Y | 10/27/2017 13:00 | 6.2 | 8 | Y |
| 10/27/2017 8:00 | 6.5 | 6.2 | N | 10/27/2017 13:15 | 6.7 | 10.7 | Y |
| 10/27/2017 8:15 | 7.5 | 7.8 | Y | 10/27/2017 13:30 | 6.5 | 10 | Y |
| 10/27/2017 8:30 | 6.4 | 7.6 | Y | 10/27/2017 13:45 | 5.4 | 8.5 | Y |
| 10/27/2017 8:45 | 7.4 | 7.8 | Y | 10/27/2017 14:00 | 5.4 | 8.9 | Y |
| 10/27/2017 9:00 | 6.9 | 8.2 | Y | 10/27/2017 14:15 | 5.5 | 9.6 | Y |
| 10/27/2017 9:15 | 7.1 | 9.1 | Y | 10/27/2017 14:30 | 5.2 | 8.1 | Y |
| 10/27/2017 9:30 | 6.7 | 9.5 | Y | 10/27/2017 14:45 | 4.7 | 7.8 | Y |
| 10/27/2017 9:45 | 8.4 | 8 | N | 10/27/2017 15:00 | 4.5 | 7.8 | Y |
| 10/27/2017 10:00 | 6.6 | 8.4 | Y | 10/27/2017 15:15 | 5.1 | 7.3 | Y |
| 10/27/2017 10:15 | 6.5 | 6.9 | Y | 10/27/2017 15:30 | 5.3 | 10 | Y |
| 10/27/2017 10:30 | 6.8 | 6.5 | N | 10/27/2017 15:45 | 5.7 | 9.2 | Y |
| 10/27/2017 10:45 | 6.9 | 7.5 | Y | 10/27/2017 16:00 | 6 | 7.5 | Y |
| 10/27/2017 11:00 | 7.9 | 9 | Y | 10/27/2017 16:15 | 5.7 | 8.5 | Y |
| 10/27/2017 11:15 | 7.5 | 7.2 | N | 10/27/2017 16:30 | 5.8 | 6.5 | Y |
| 10/27/2017 11:30 | 7.3 | 8.5 | Y | 10/27/2017 16:45 | 4.8 | 6.4 | Y |
| 10/27/2017 11:45 | 7 | 9.6 | Y | 10/27/2017 17:00 | 4.7 | 6.3 | Y |
| 10/27/2017 12:00 | 6.2 | 7.8 | Y | | | | |
| | | | | | | | |
| | | | | | | | |
| Average | 6.1 | 7.8 | Y | | | | |
| Maximum | 8.4 | 10.7 | 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

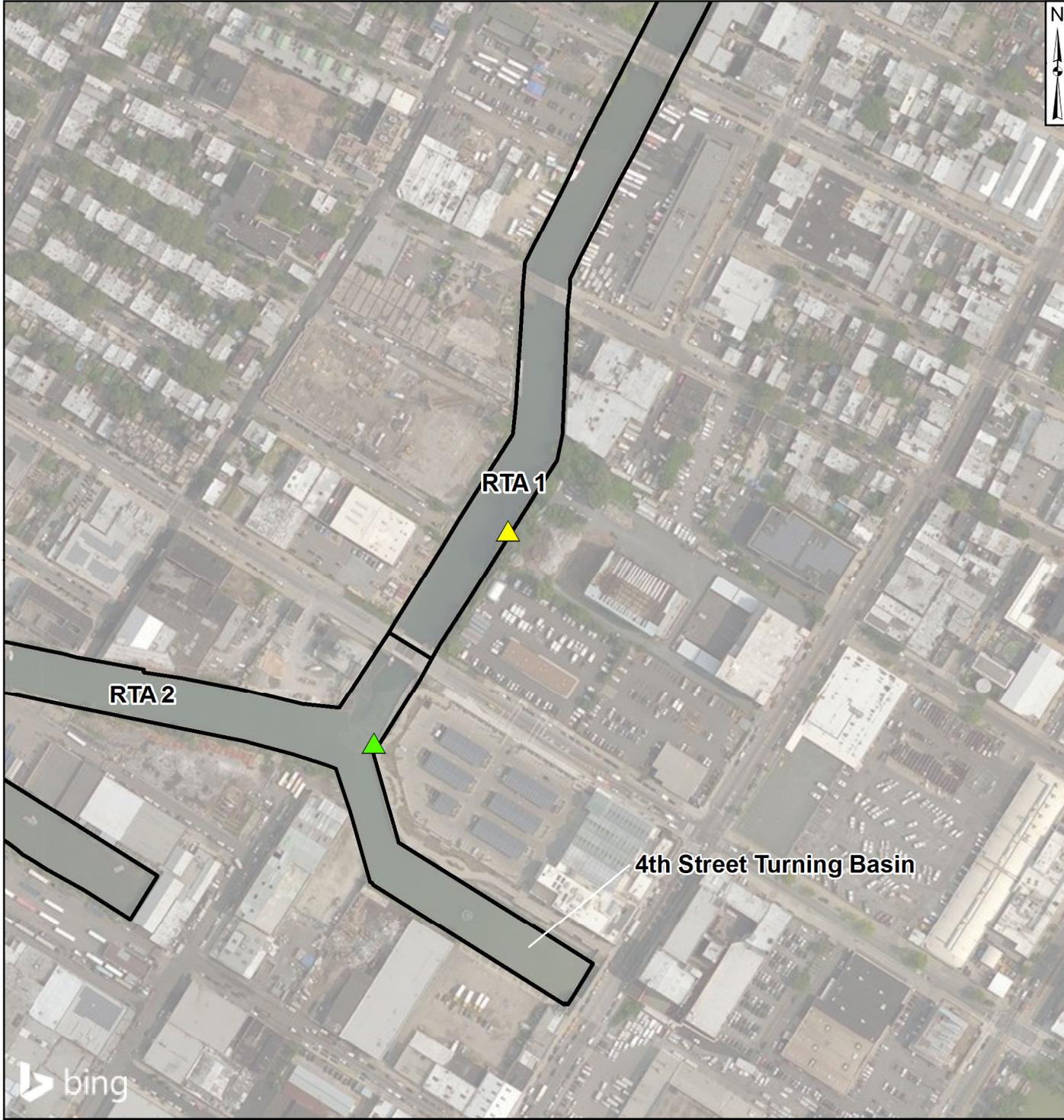
Minimal waterway work occurred for the reporting period that would impact water quality. On October 23rd turbidity plumes within the turning basin were visible in the afternoon due to barge movements.

5. REPORT OF EXCEEDANCES

No exceedances of the water quality monitoring threshold criteria were met during the reporting period. Refer to the Water Quality Monitoring Plan for In-waterway Construction Activities (Geosyntec 2017) for further information regarding the Trigger and Action Criteria. Threshold criteria are summarized as follows:

- **Trigger criterion** – Any of the following:
 - The rolling average of the sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 20 NTU excluding any eliminated outlier measurements; or
 - Either an oil sheen or a turbidity plume is visually observed outside of engineering controls and in-waterway construction activities cannot be immediately excluded as the source.
- **Action criterion** – Any of the following:
 - The rolling average of the sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements; or
 - Either an oil sheen or a turbidity plume is visually observed outside of engineering controls and in-waterway construction activities are readily identified as the source.

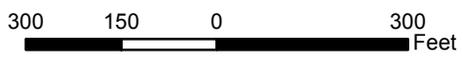
FIGURES



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

Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

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

Ewing, NJ

October 2017

Figure

1

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

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

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT





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

**Community Air Monitoring Project
4th Weekly Monitoring Period
Summary Report:
October 23rd through October 27th, 2017**

Report Contents

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

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

Executive Summary – Week 4 Monitoring Period October 23rd through October 27th, 2017

The following report summarizes site air monitoring activities for the Week 4 monitoring period from October 23rd, through October 27th, 2017. 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 4 monitoring period of October 23rd through October 27th, 2017, there were no PM₁₀ or TVOC exceedances of the action level of 150ug/m³ or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017*.

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM₁₀) daily averages and maximums for Week 4.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 4 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 4 monitoring period of October 23rd through October 27th, 2017, TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Station 7. The ST-7 sample was collected on October 25th, through October 26th, 2017 over a 24-hour sampling period. Samples were shipped to Con-Test Analytical Laboratory for analyses. The results of the summa canister sampling are pending lab analyses.

Site activities were conducted at the Citizen Property on October 23rd through October 27th, 2017 which included the following:

- Material and equipment deliveries on Citizen Property
- General vehicular traffic site-wide throughout the monitoring period
- Operation of water treatment plant

Site activities were conducted at the 4th St Turning Basin Area of the Canal on October 23rd through October 27th, 2017 which included the following:

- Staging and maneuvering of work barges in preparation of sheet piling
- Installation of false work in preparation for sheet piling

Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)

10/23/2017 06:30 AM - 10/23/17 23:45 AM

Station 1

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb | Max. | 13 | ug/m ³ |
| Avg. | 12 | ppb | Avg. | 8 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 2

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 21 | ppb | Max. | 12 | ug/m ³ |
| Avg. | 3 | ppb | Avg. | 8 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 3

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 57 | ppb | Max. | <1 | ug/m ³ |
| Avg. | 5 | ppb | Avg. | <1 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 4

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 48 | ppb | Max. | 16 | ug/m ³ |
| Avg. | 14 | ppb | Avg. | 9 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 5

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb | Max. | 14 | ug/m ³ |
| Avg. | 10 | ppb | Avg. | 7 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 6

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb | Max. | 15 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 10 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 7

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 28 | ppb | Max. | <1 | ug/m ³ |
| Avg. | 25 | ppb | Avg. | <1 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)

10/24/2017 00:00 AM - 10/24/17 23:45 AM

Station 1

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb | Max. | 26 | ug/m ³ |
| Avg. | 4 | ppb | Avg. | 17 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 2

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 3 | ppb | Max. | 21 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 16 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 3

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 27 | ppb | Max. | <1 | ug/m ³ |
| Avg. | 6 | ppb | Avg. | <1 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 4

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb | Max. | 25 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 12 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 5

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb | Max. | 26 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 14 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 6

| TVOC | | | PM ₁₀ | | |
|------|---|-------|------------------|----|-------------------|
| Max. | 5 | ppb | Max. | 33 | ug/m ³ |
| Avg. | 2 | ppb | Avg. | 15 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 7

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

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)

10/25/2017 00:00 AM - 10/25/17 23:45 AM

Station 1

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb | Max. | 46 | ug/m ³ |
| Avg. | 4 | ppb | Avg. | 9 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 2

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 15 | ppb | Max. | 34 | ug/m ³ |
| Avg. | 1 | ppb | Avg. | 8 | 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. | <1 | ppb | Max. | 18 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 6 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 5

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb | Max. | 17 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 3 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 6

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

Station 7

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

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)

10/26/2017 00:00 AM - 10/26/17 23:45 AM

Station 1

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 10 | ppb | Max. | 11 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 5 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 2

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

Station 3

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 27 | ppb | Max. | <1 | ug/m ³ |
| Avg. | 8 | ppb | Avg. | <1 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 4

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 1 | ppb | Max. | 16 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 5 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 5

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

Station 6

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb | Max. | 11 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 5 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 7

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

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)

10/27/2017 00:00 AM - 10/27/17 17:00 AM

Station 1

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb | Max. | 14 | ug/m ³ |
| Avg. | 3 | ppb | Avg. | 7 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 2

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 16 | ppb | Max. | 12 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 6 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 3

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 54 | ppb | Max. | <1 | ug/m ³ |
| Avg. | 23 | ppb | Avg. | <1 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 4

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 30 | ppb | Max. | 21 | ug/m ³ |
| Avg. | 2 | ppb | Avg. | 8 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 5

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | 32 | ppb | Max. | 12 | ug/m ³ |
| Avg. | 6 | ppb | Avg. | 7 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 6

| TVOC | | | PM ₁₀ | | |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb | Max. | 14 | ug/m ³ |
| Avg. | <1 | ppb | Avg. | 7 | ug/m ³ |
| Exc. | 0 | total | Exc. | 0 | Total |

Station 7

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

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

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

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

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

Table 1
Summary of Additional Periodic (Daily) Monitoring Data - Week 4

| October 23, 2017 | | | | |
|------------------|-------|--------------------------|------------------------------|---------------------|
| Station Id | Time | Formaldehyde (CHO) (ppb) | Hydrogen Sulfide (H2S) (ppb) | Ammonia (NH3) (ppm) |
| ST-1 | 9:00 | <50 | <3 | <1 |
| | 14:50 | <50 | <3 | <1 |
| ST-2 | 9:05 | <50 | <3 | <1 |
| | 14:55 | <50 | <3 | <1 |
| ST-3 | 9:15 | <50 | <3 | <1 |
| | 15:15 | <50 | <3 | <1 |
| ST-4 | 9:20 | <50 | <3 | <1 |
| | 15:20 | <50 | <3 | <1 |
| ST-5 | 9:30 | <50 | <3 | <1 |
| | 15:25 | <50 | <3 | <1 |
| ST-6 | 9:50 | <50 | <3 | <1 |
| | 15:50 | <50 | <3 | <1 |
| ST-7 | 10:00 | <50 | <3 | <1 |
| | 16:00 | <50 | <3 | <1 |

| October 24, 2017 | | | | |
|------------------|-------|--------------------------|------------------------------|---------------------|
| Station Id | Time | Formaldehyde (CHO) (ppb) | Hydrogen Sulfide (H2S) (ppb) | Ammonia (NH3) (ppm) |
| ST-1 | 7:30 | <50 | <3 | <1 |
| | 13:50 | <50 | <3 | <1 |
| ST-2 | 7:35 | <50 | <3 | <1 |
| | 13:55 | <50 | <3 | <1 |
| ST-3 | 7:50 | <50 | <3 | <1 |
| | 14:15 | <50 | <3 | <1 |
| ST-4 | 7:55 | <50 | <3 | <1 |
| | 14:20 | <50 | <3 | <1 |
| ST-5 | 8:15 | <50 | <3 | <1 |
| | 14:25 | <50 | <3 | <1 |
| ST-6 | 8:40 | <50 | <3 | <1 |
| | 14:35 | <50 | <3 | <1 |
| ST-7 | 8:50 | <50 | <3 | <1 |
| | 14:40 | <50 | <3 | <1 |

Table 1
Summary of Additional Periodic (Daily) Monitoring Data - Week 4

| October 25, 2017 | | | | |
|------------------|-------|--------------------------|------------------------------|---------------------|
| Station Id | Time | Formaldehyde (CHO) (ppb) | Hydrogen Sulfide (H2S) (ppb) | Ammonia (NH3) (ppm) |
| ST-1 | 8:00 | <50 | <3 | <1 |
| | 15:10 | <50 | <3 | <1 |
| ST-2 | 8:10 | <50 | <3 | <1 |
| | 15:20 | <50 | <3 | <1 |
| ST-3 | 8:25 | <50 | <3 | <1 |
| | 15:50 | <50 | <3 | <1 |
| ST-4 | 8:30 | <50 | <3 | <1 |
| | 15:55 | <50 | <3 | <1 |
| ST-5 | 8:35 | <50 | <3 | <1 |
| | 16:00 | <50 | <3 | <1 |
| ST-6 | 8:50 | <50 | <3 | <1 |
| | 16:30 | <50 | <3 | <1 |
| ST-7 | 8:55 | <50 | <3 | <1 |
| | 16:50 | <50 | <3 | <1 |

| October 26, 2017 | | | | |
|------------------|-------|--------------------------|------------------------------|---------------------|
| Station Id | Time | Formaldehyde (CHO) (ppb) | Hydrogen Sulfide (H2S) (ppb) | Ammonia (NH3) (ppm) |
| ST-1 | 9:00 | <50 | <3 | <1 |
| | 14:00 | <50 | <3 | <1 |
| ST-2 | 9:10 | <50 | <3 | <1 |
| | 14:10 | <50 | <3 | <1 |
| ST-3 | 9:20 | <50 | <3 | <1 |
| | 14:25 | <50 | <3 | <1 |
| ST-4 | 9:25 | <50 | <3 | <1 |
| | 14:30 | <50 | <3 | <1 |
| ST-5 | 9:30 | <50 | <3 | <1 |
| | 14:35 | <50 | <3 | <1 |
| ST-6 | 9:45 | <50 | <3 | <1 |
| | 14:45 | <50 | <3 | <1 |
| ST-7 | 9:55 | <50 | <3 | <1 |
| | 15:00 | <50 | <3 | <1 |

Table 1
Summary of Additional Periodic (Daily) Monitoring Data - Week 4

| October 27, 2017 | | | | |
|------------------|-------|--------------------------------|---|-------------------------------------|
| Station Id | Time | Formaldehyde (CHO) (ppb) | Hydrogen Sulfide (H ₂ S) (ppb) | Ammonia (NH ₃) (ppm) |
| ST-1 | 8:00 | <50 | <3 | <1 |
| | 14:00 | <50 | <3 | <1 |
| ST-2 | 8:05 | <50 | <3 | <1 |
| | 14:05 | <50 | <3 | <1 |
| ST-3 | 8:15 | <50 | <3 | <1 |
| | 14:15 | <50 | <3 | <1 |
| ST-4 | 8:20 | <50 | <3 | <1 |
| | 14:20 | <50 | <3 | <1 |
| ST-5 | 8:25 | <50 | <3 | <1 |
| | 14:25 | <50 | <3 | <1 |
| ST-6 | 8:40 | <50 | <3 | <1 |
| | 14:40 | <50 | <3 | <1 |
| ST-7 | 8:55 | <50 | <3 | <1 |
| | 14:50 | <50 | <3 | <1 |

*(ppb) Indicates results reported in parts per billion

* (ppm) Indicates results reported in parts per million

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week #4

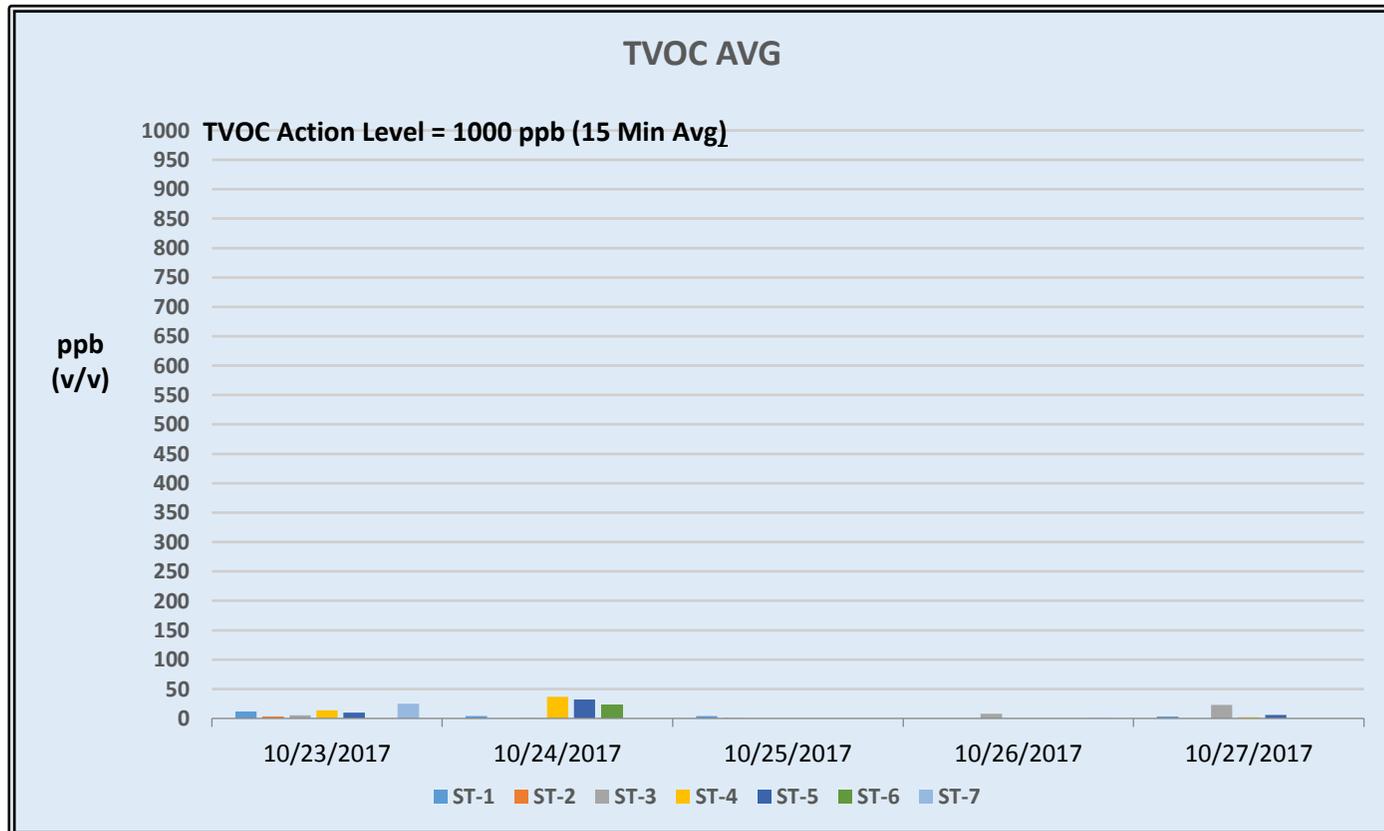
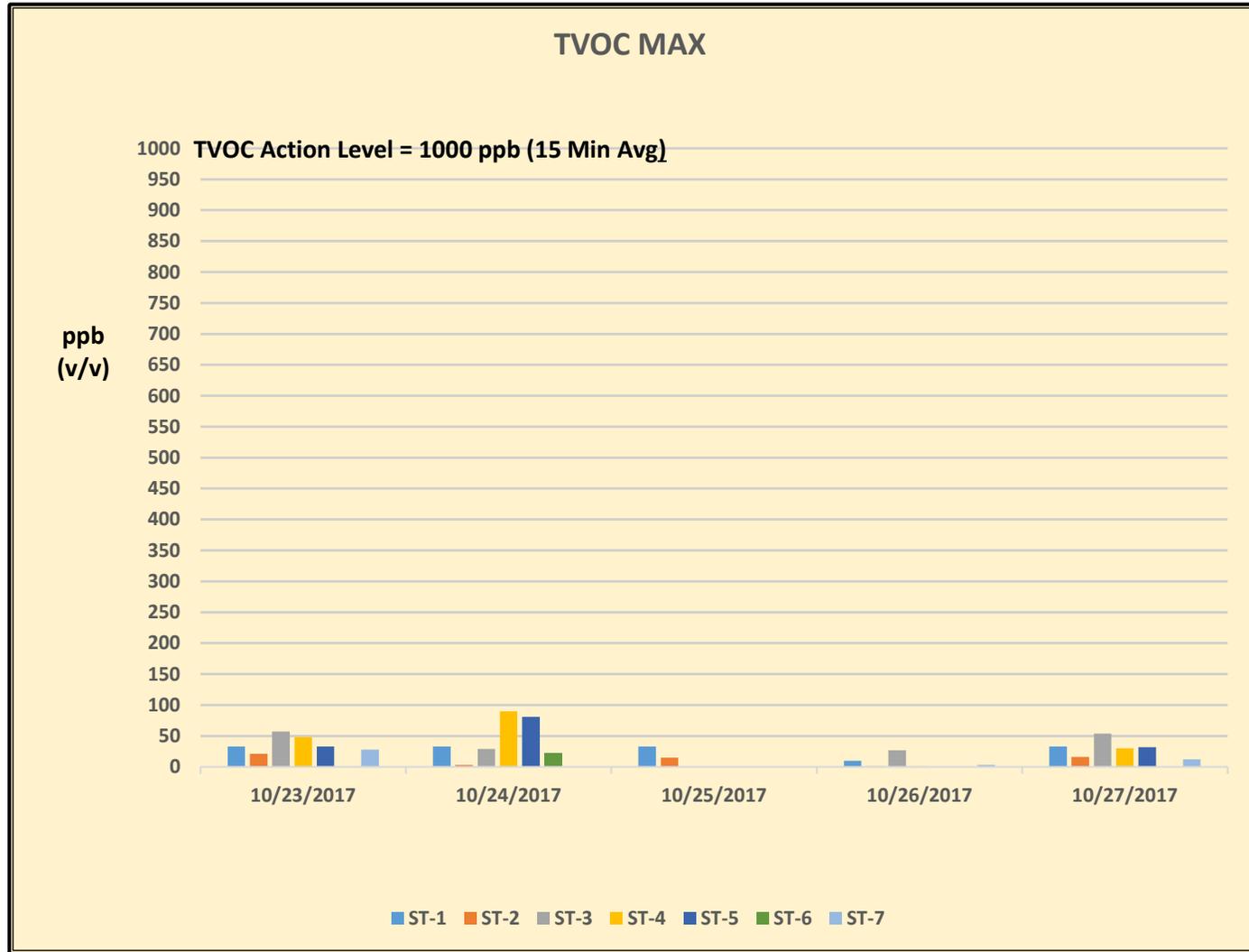
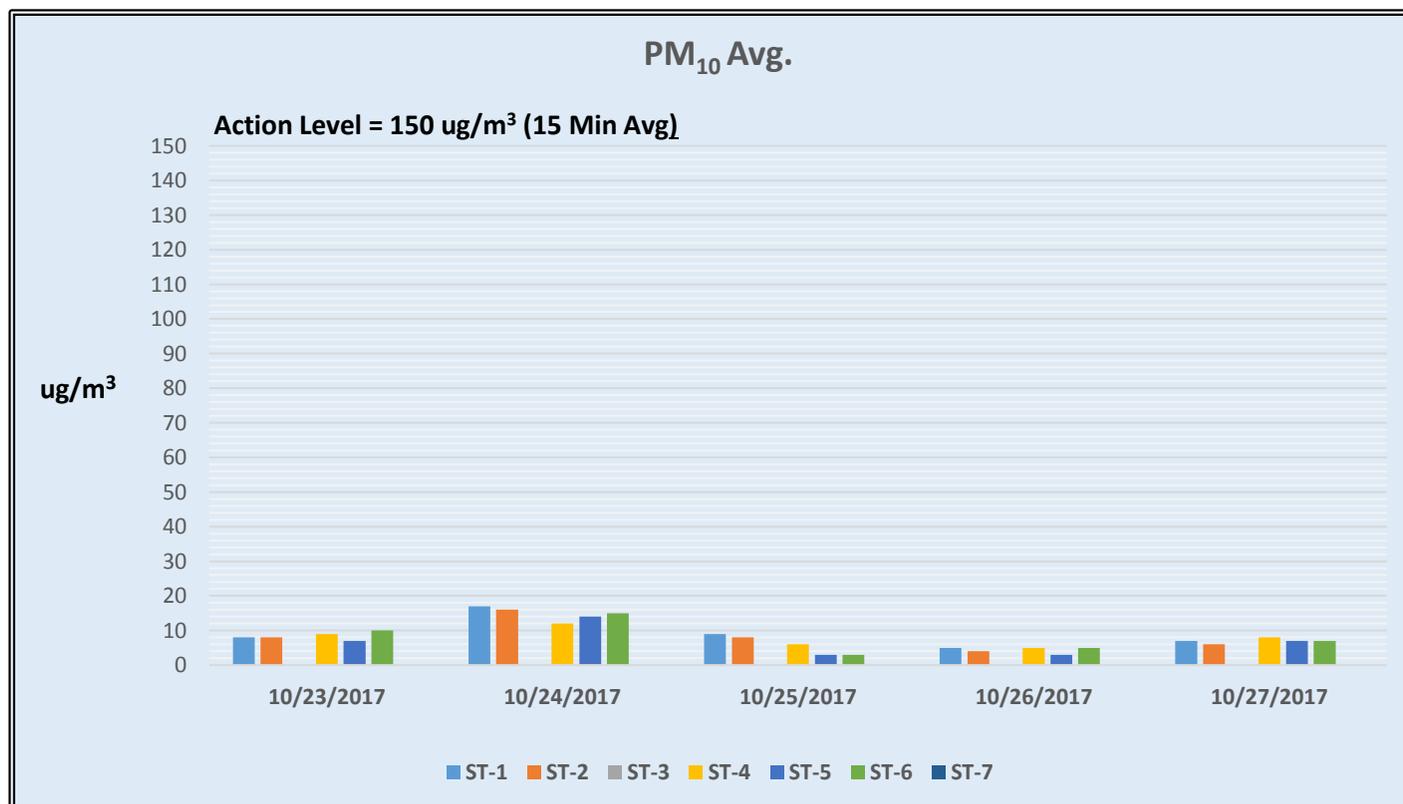
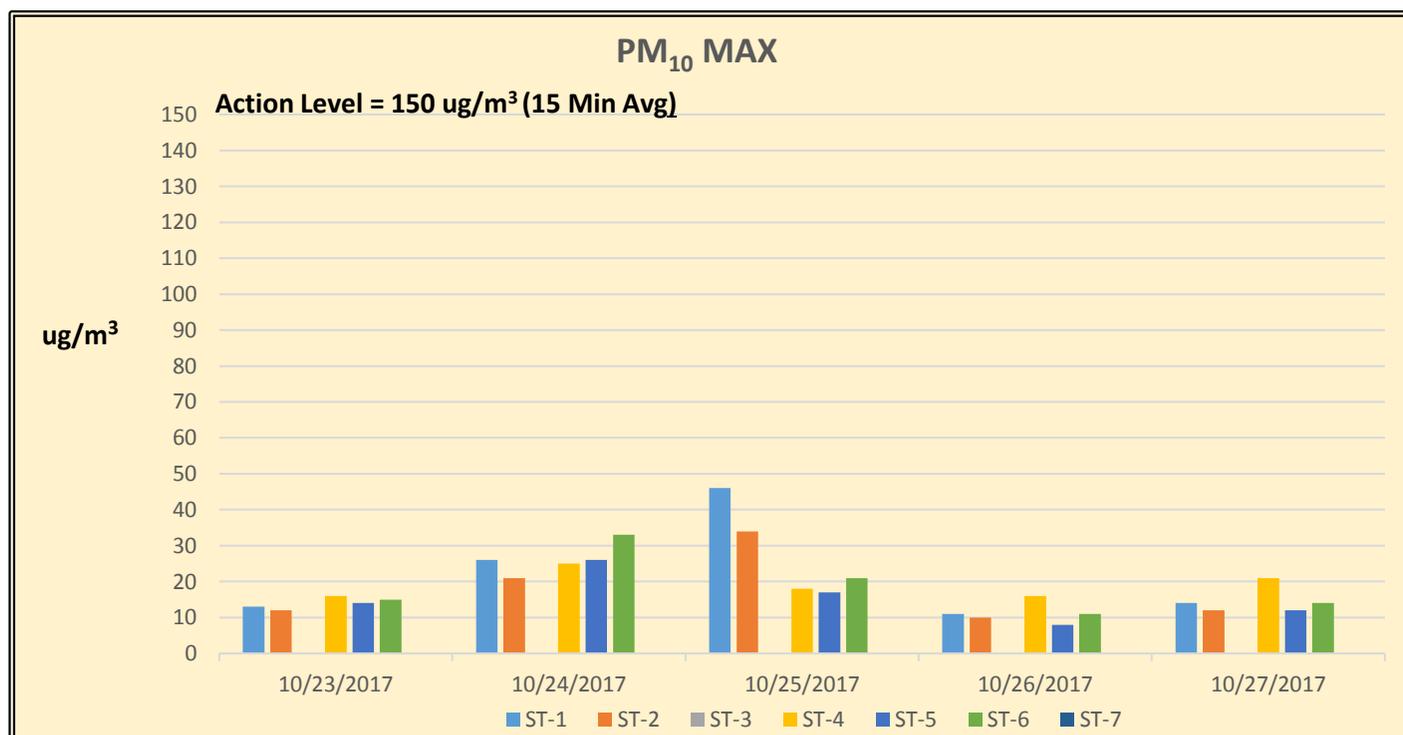


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM₁₀ Monitoring Data - Week #4





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

Meteorological Summary

October 23rd, through October 27th, 2017

| October 23 rd , 2017 | | |
|---------------------------------|------------------|------------------|
| Wind Direction (°) | Wind Speed (mph) | Temperature (°F) |
| ESE | 5.00 | 67.0 |

| October 24 th , 2017 | | |
|---------------------------------|------------------|------------------|
| Wind Direction (°) | Wind Speed (mph) | Temperature (°F) |
| ESE | 7.44 | 68.9 |

| October 25 th , 2017 | | |
|---------------------------------|------------------|------------------|
| Wind Direction (°) | Wind Speed (mph) | Temperature (°F) |
| WSW | 1.43 | 63.0 |

| October 26 th , 2017 | | |
|---------------------------------|------------------|------------------|
| Wind Direction (°) | Wind Speed (mph) | Temperature (°F) |
| W | 2.46 | 55.9 |

| October 27 th , 2017 | | |
|---------------------------------|------------------|------------------|
| Wind Direction (°) | Wind Speed (mph) | Temperature (°F) |
| SSW | 1.50 | 54.3 |

*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, Wednesday, and Thursday.

*All meteorological data represents an average for the time period of 00:00 to 17:00 for Friday.

WILSON-IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT





WI #15-081

MEMORANDUM

October 30, 2017

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 – 27 October, 2017

Noise Monitoring Locations

Figure 1 shows the noise monitoring locations. One monitor is installed at a light pole on the north side of TB4, labeled NM-1. A second noise monitor is installed at the existing guard rail on the south side of TB4, labeled NM-2. NM-1 is approximately 25 feet from the north edge of the canal and NM-2 is approximately 4 feet from the south edge of the canal. Photos 1 and 2 show the recent field conditions at the monitors.

Vibration Monitoring Locations

Figure 1 shows the vibration monitoring locations. One monitor is installed at the parking lot curb on the north side of TB4, labeled VM-1. A second vibration monitor is installed near the corner of existing building on the south side of TB4, labeled VM-2. VM-1 is approximately 45 feet from the north edge of the canal and VM-2 is approximately 24 feet from the south edge of the canal. Photos 3 and 4 show the recent field conditions at the monitors.

Noise Monitoring Results

Figures 2 through 11 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring plan¹. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference². Due to equipment issues, and the maintenance work that was conducted to address the issues, some hourly interval data are not available at NM-1.

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 12 and 21 present the maximum peak particle velocity (PPV) vibration events compared with the thresholds discussed in the vibration monitoring plan³. Commercial and Industrial structures are assigned a PPV vibration criterion of 2.0 inches/second.



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

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



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



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

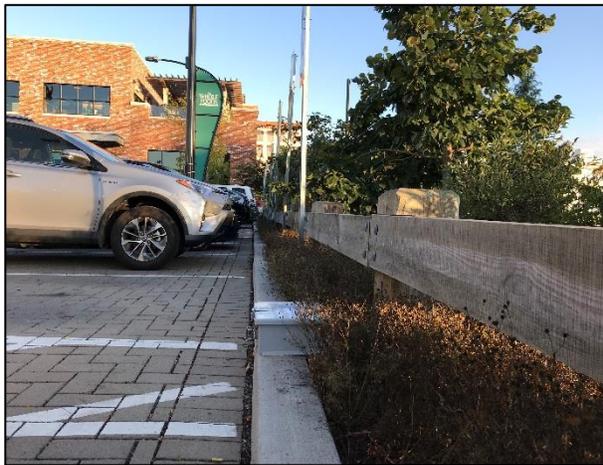


Photo 3: Vibration Monitoring Location VM-1
(12 October 2017)



Photo 4: Vibration Monitoring Location VM-2
(12 October 2017)

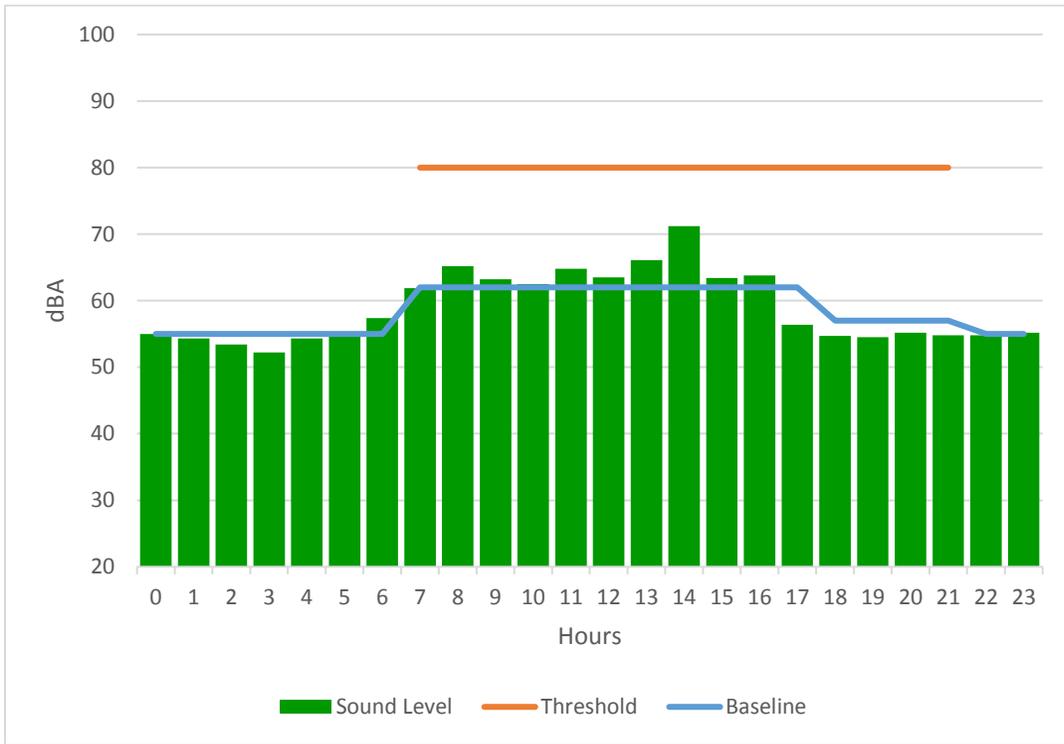


Figure 2: North Monitor NM-1 on Monday

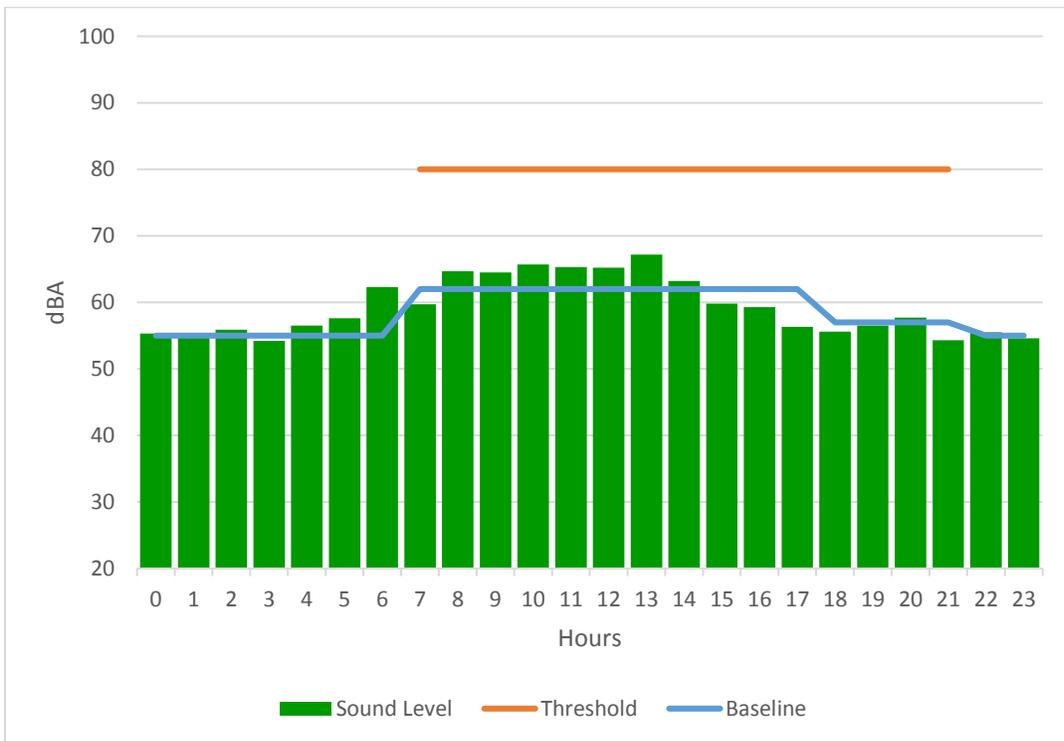


Figure 3: North Monitor NM-1 on Tuesday

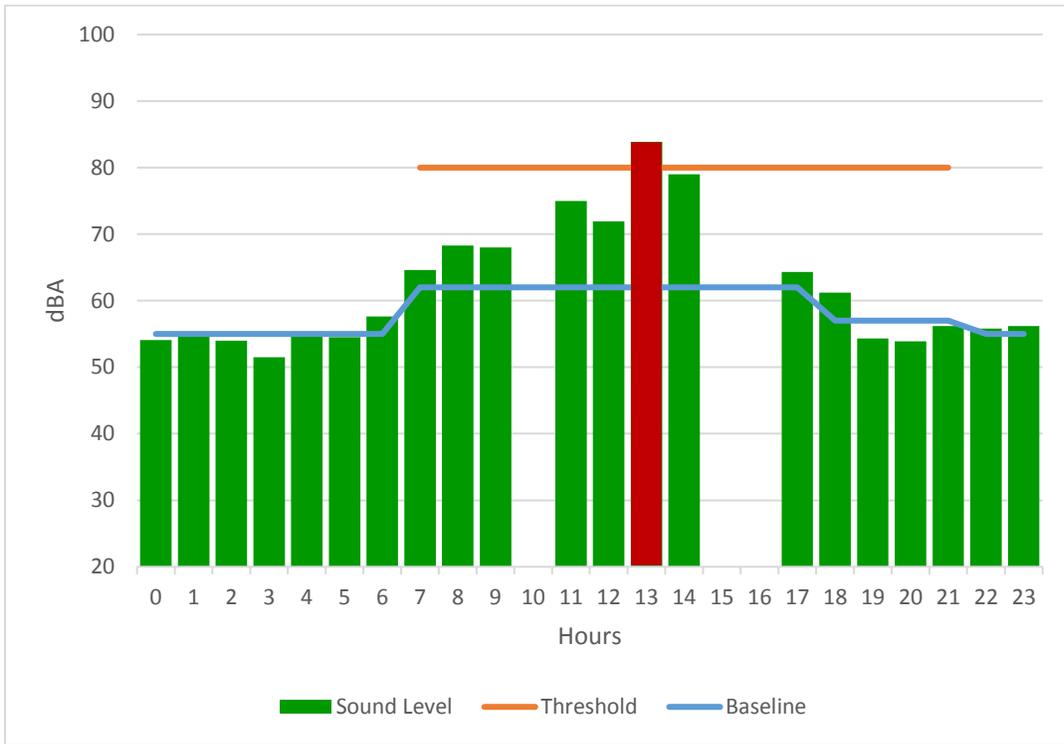


Figure 4: North Monitor NM-1 on Wednesday



Figure 5: North Monitor NM-1 on Thursday

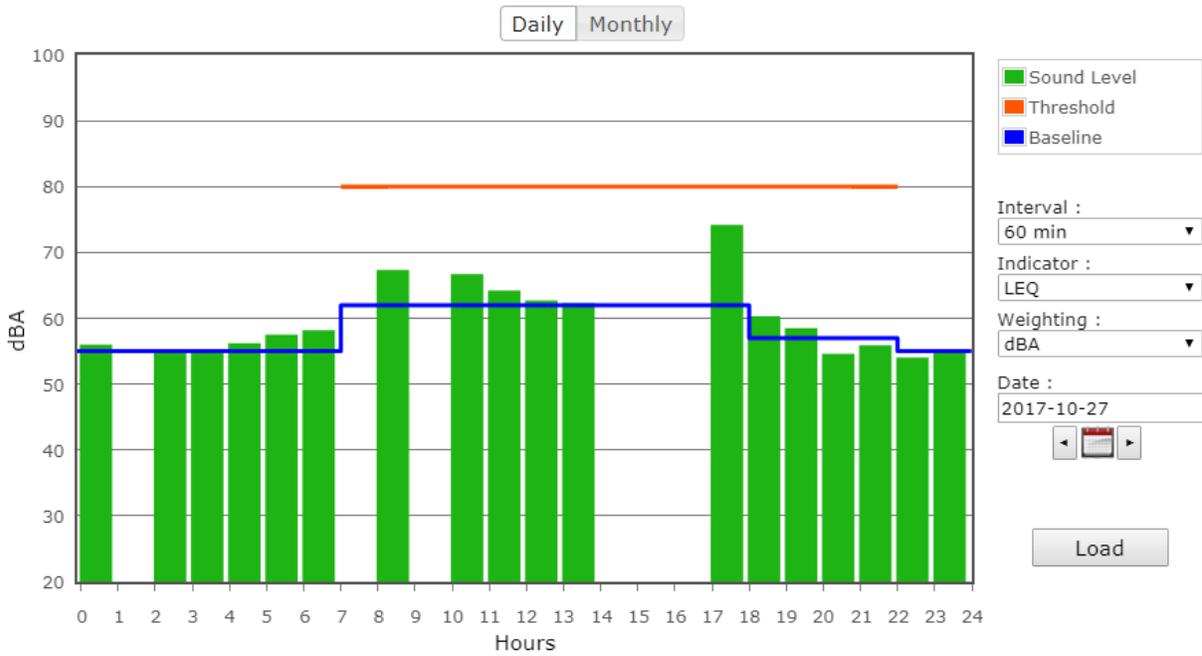


Figure 6: North Monitor NM-1 on Friday

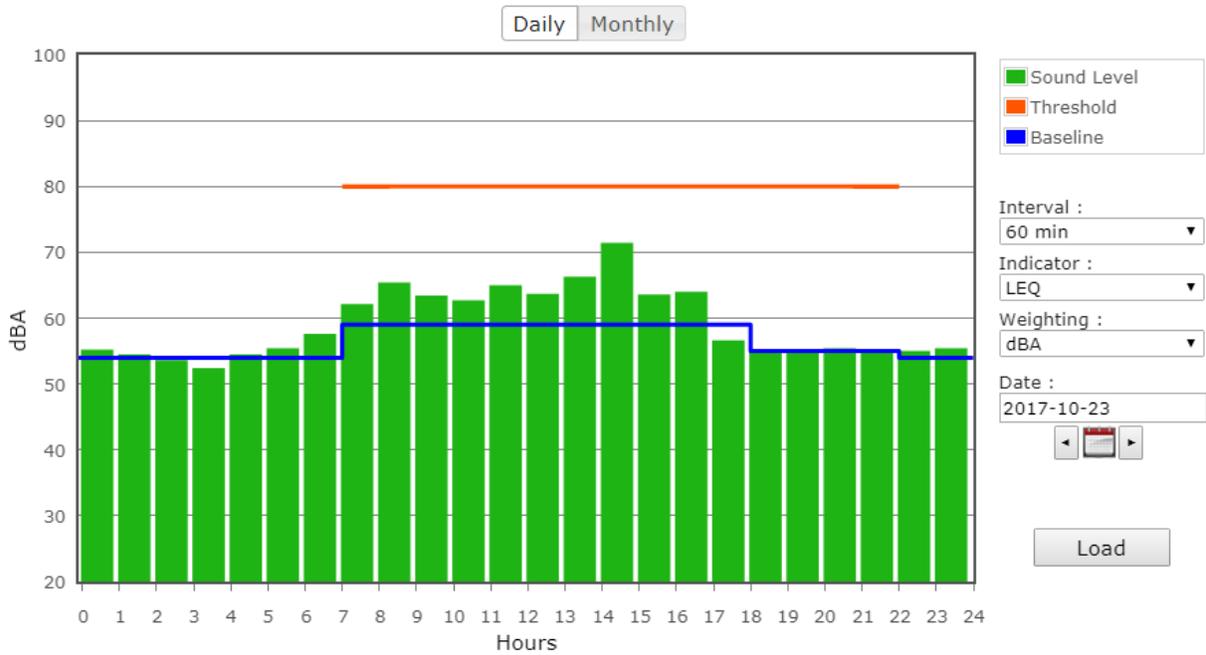


Figure 7: South Monitor NM-2 on Monday

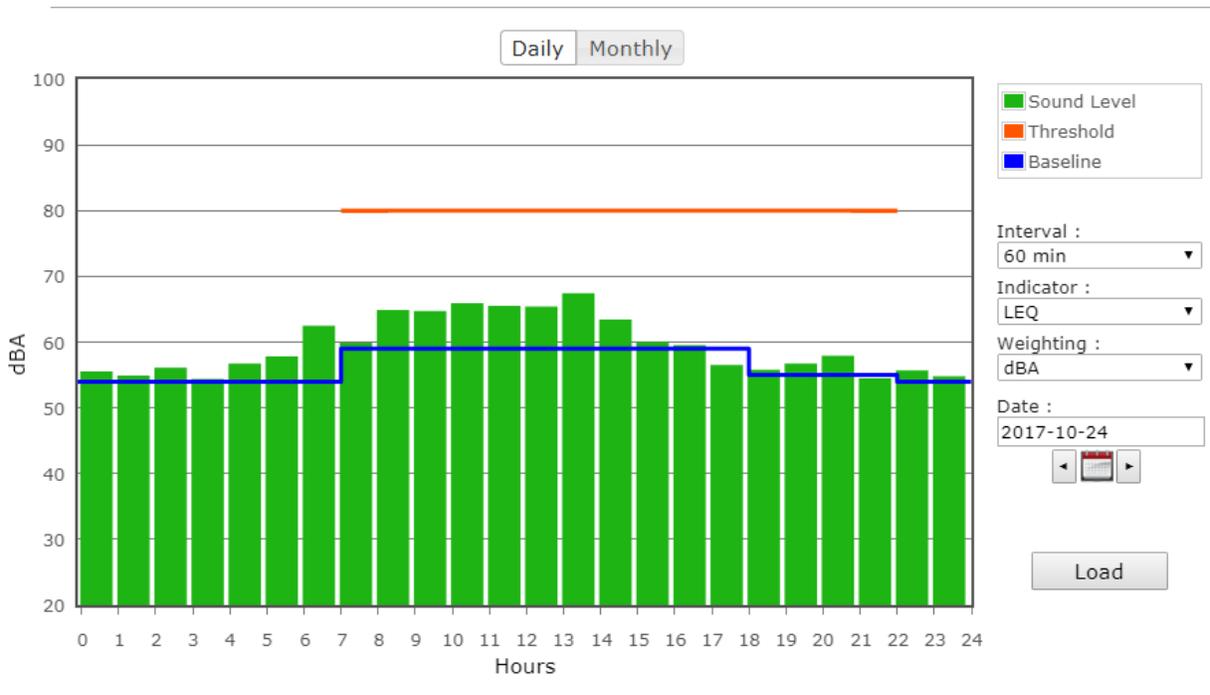


Figure 8: South Monitor NM-2 on Tuesday

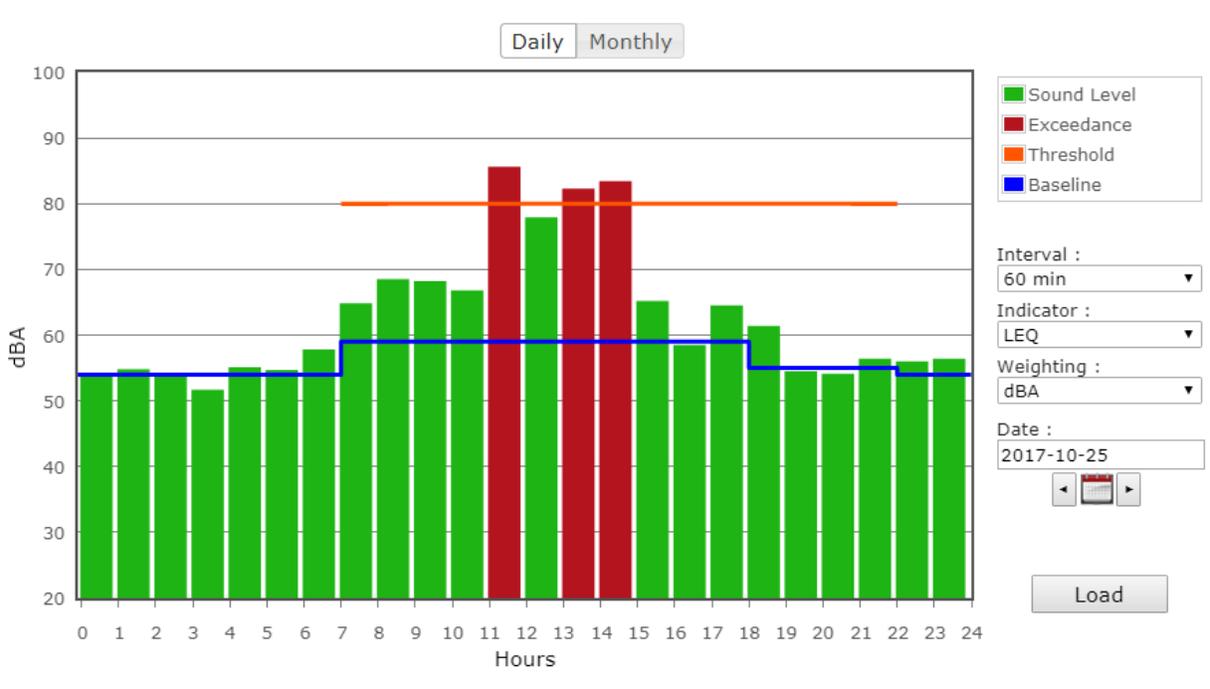


Figure 9: South Monitor NM-2 on Wednesday

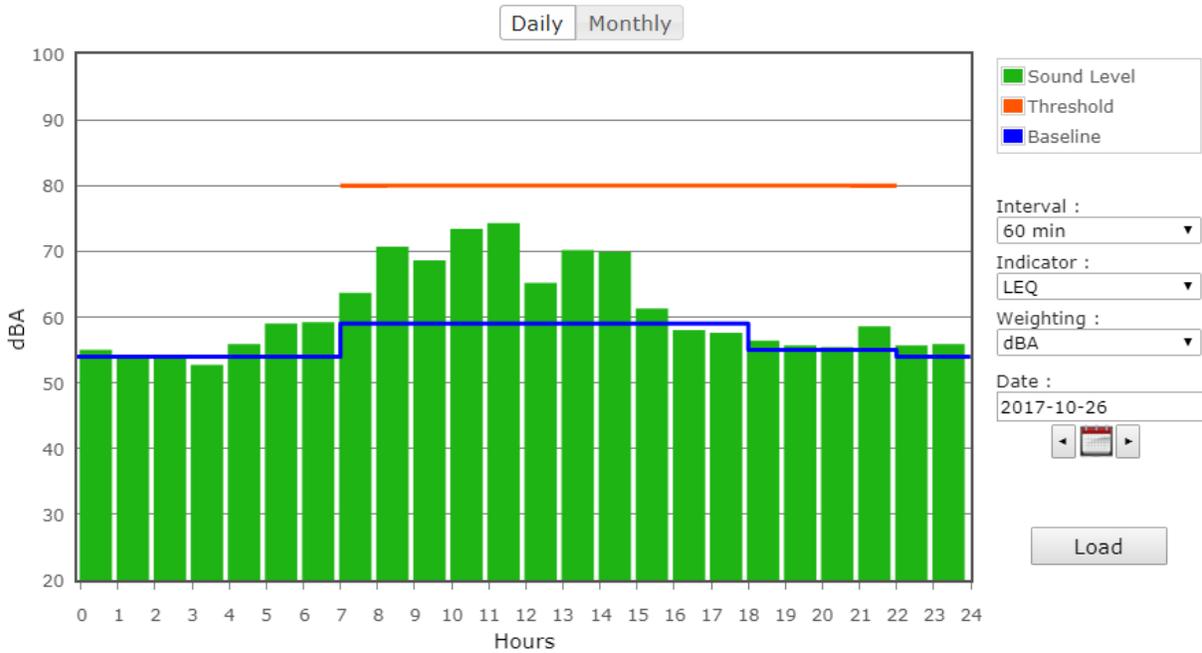


Figure 10: South Monitor NM-2 on Thursday

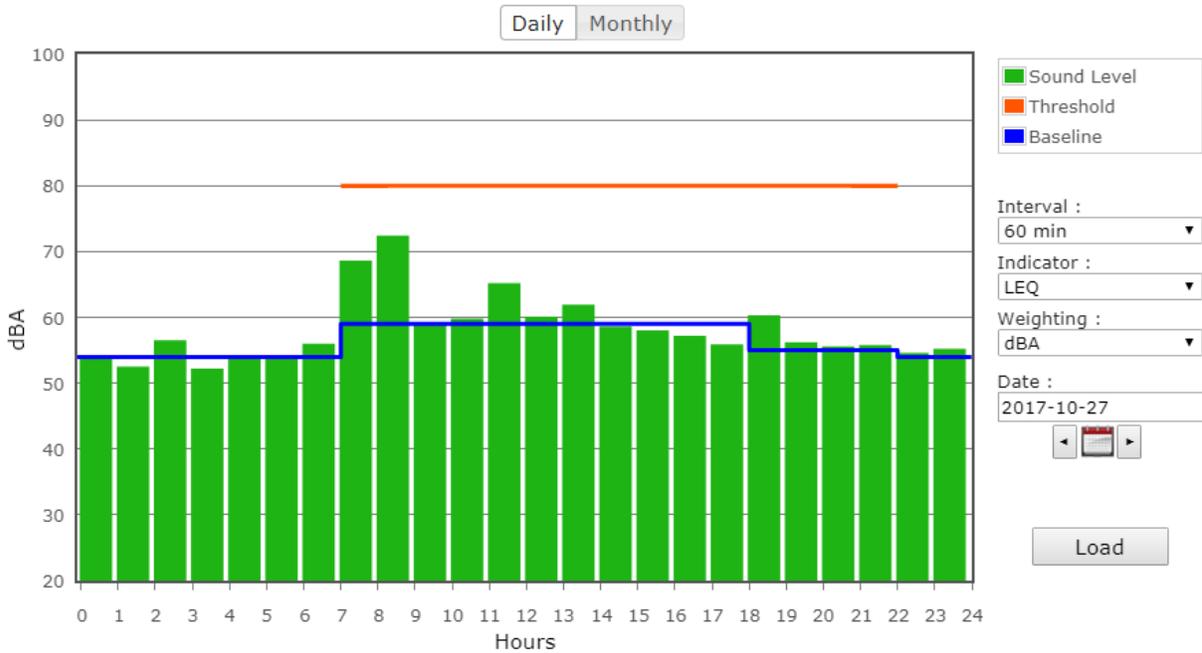


Figure 11: South Monitor NM-2 on Friday

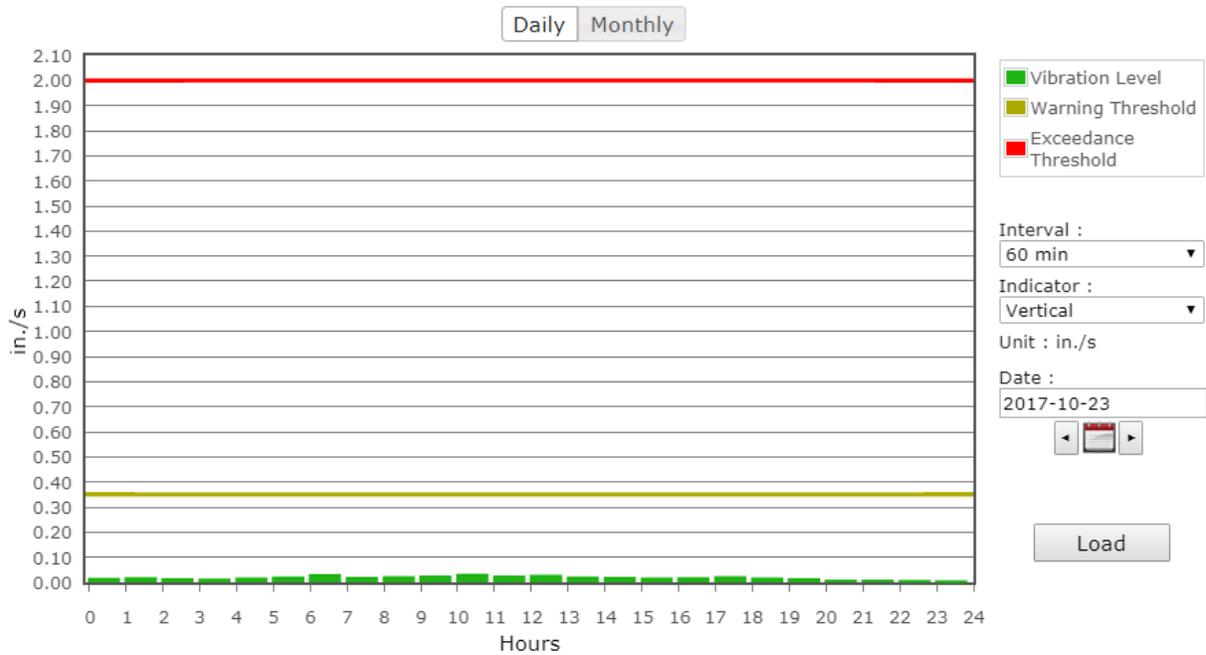


Figure 12: North Vibration Monitor VM-1 on Monday

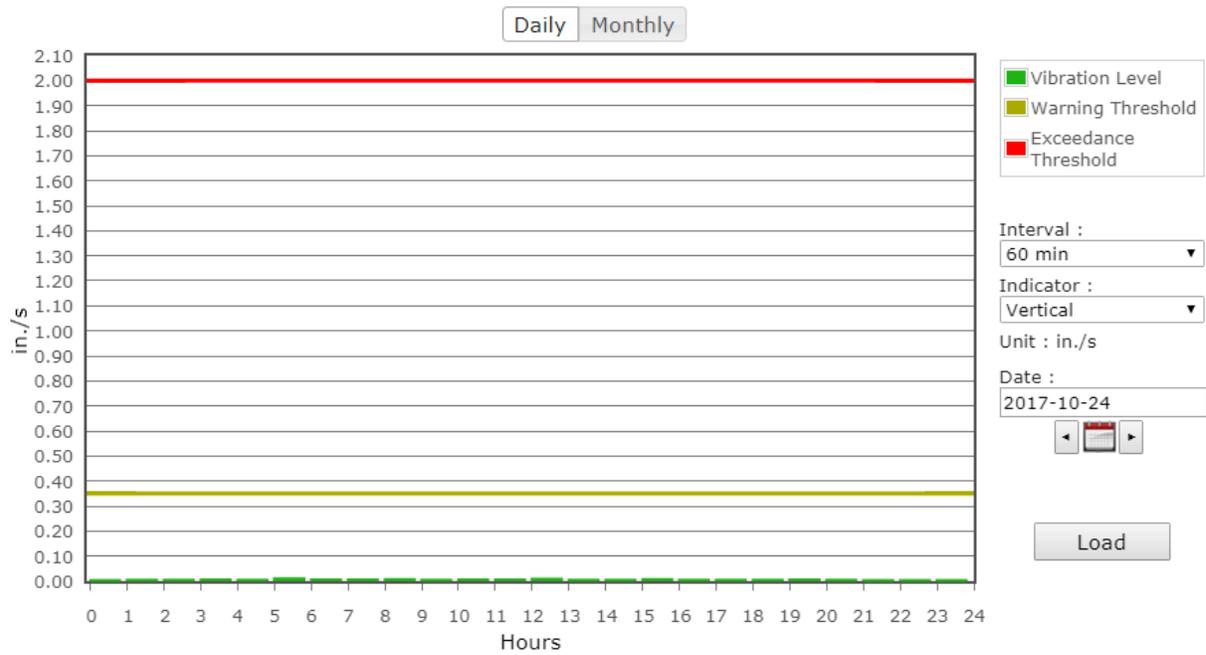


Figure 13: North Vibration Monitor VM-1 on Tuesday

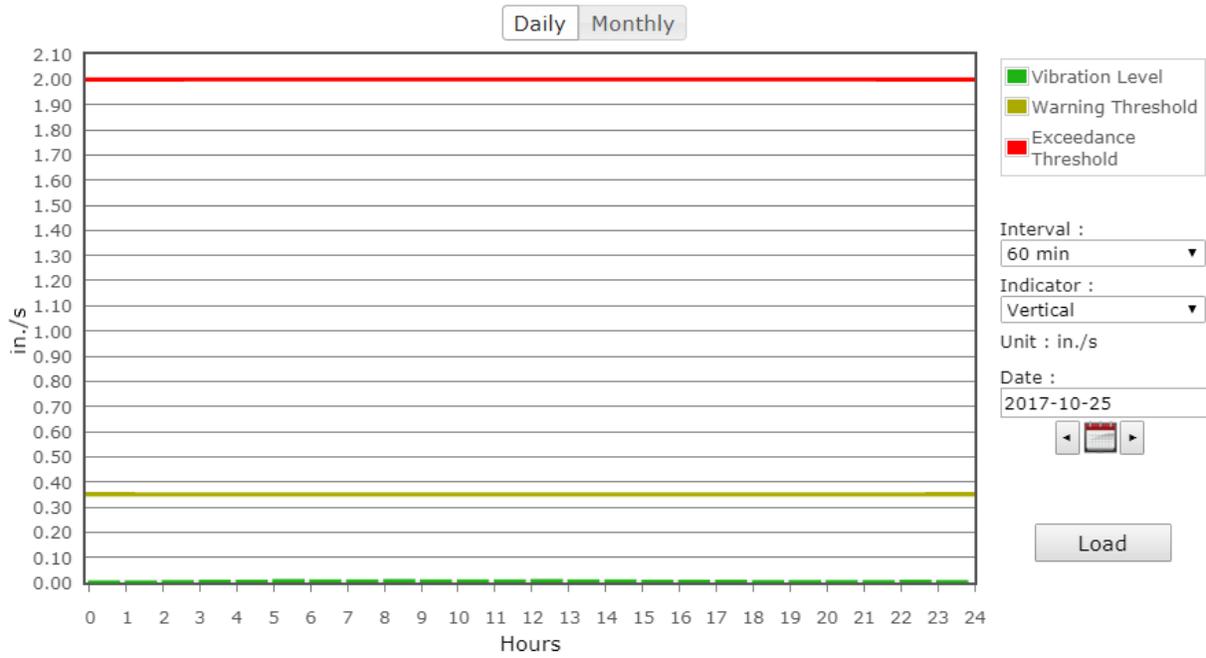


Figure 14: North Vibration Monitor VM-1 on Wednesday

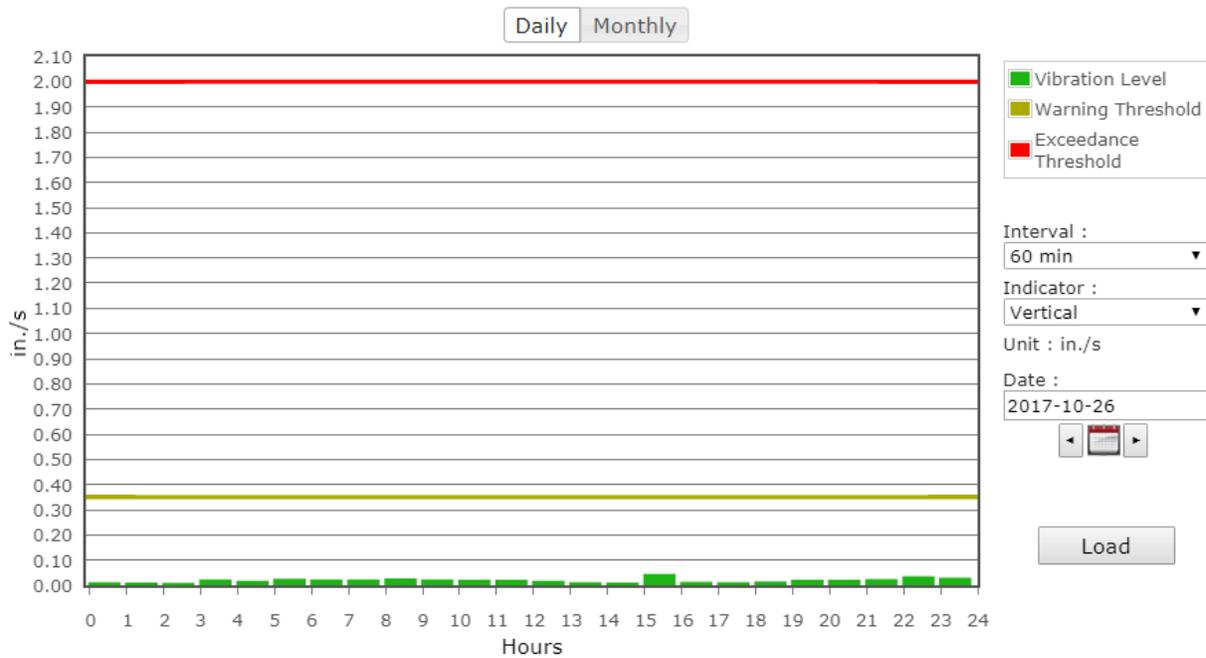


Figure 15: North Vibration Monitor VM-1 on Thursday

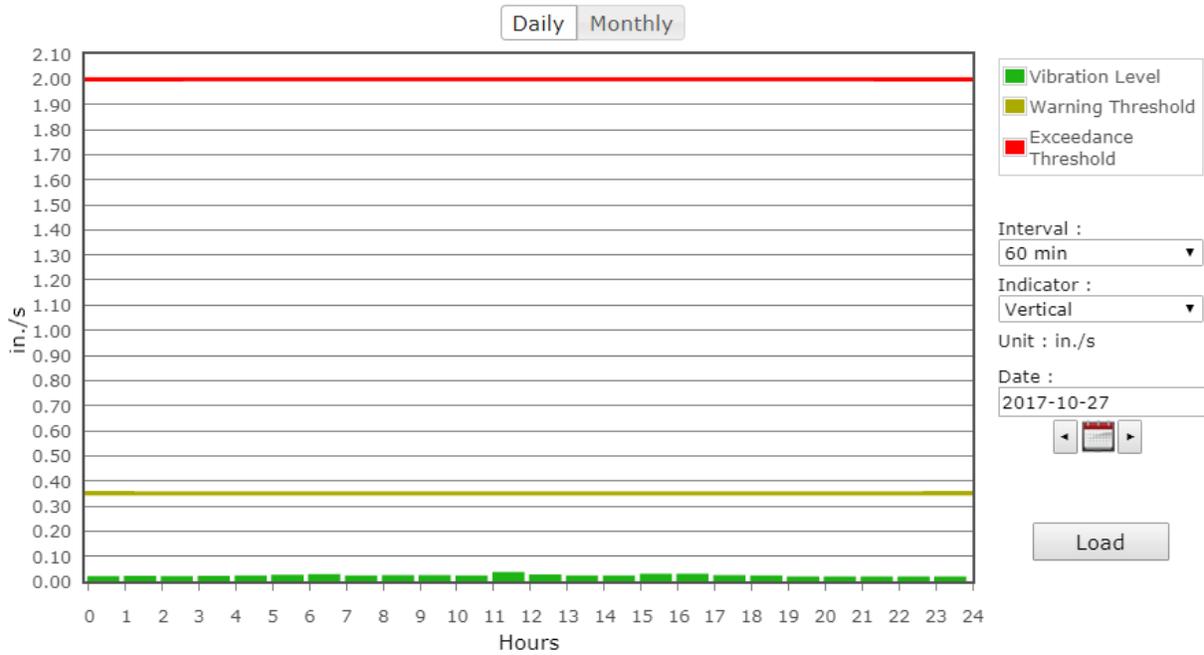


Figure 16: North Vibration Monitor VM-1 on Friday

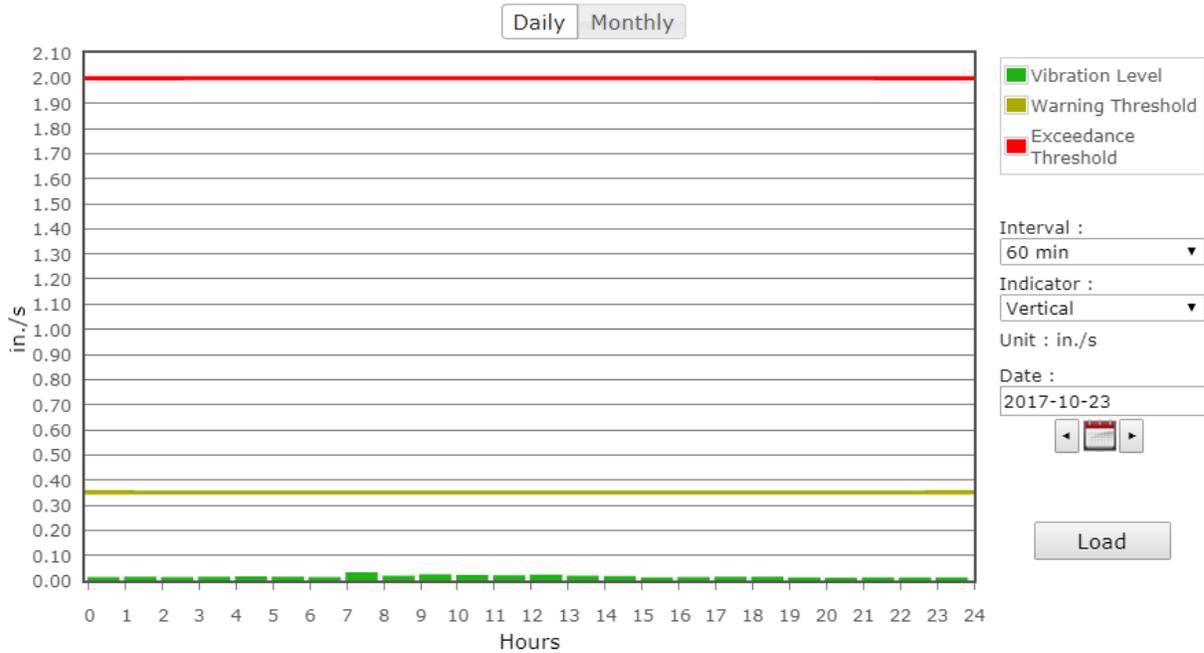


Figure 17: South Vibration Monitor VM-2 on Monday

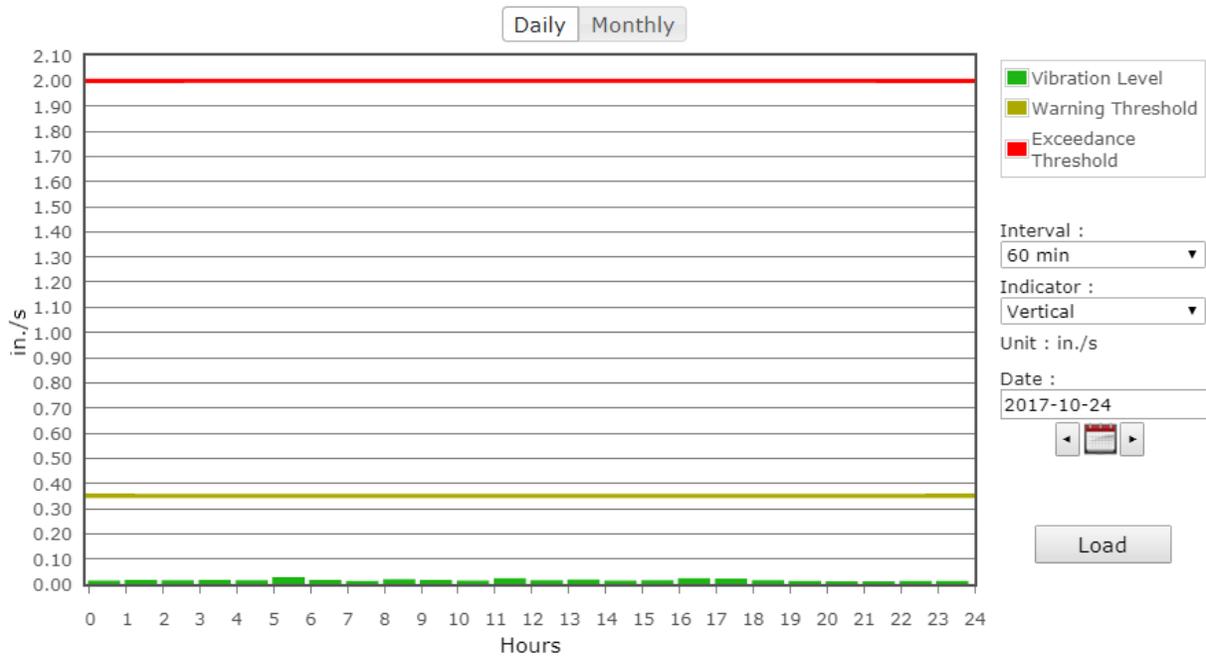


Figure 18: South Vibration Monitor VM-2 on Tuesday

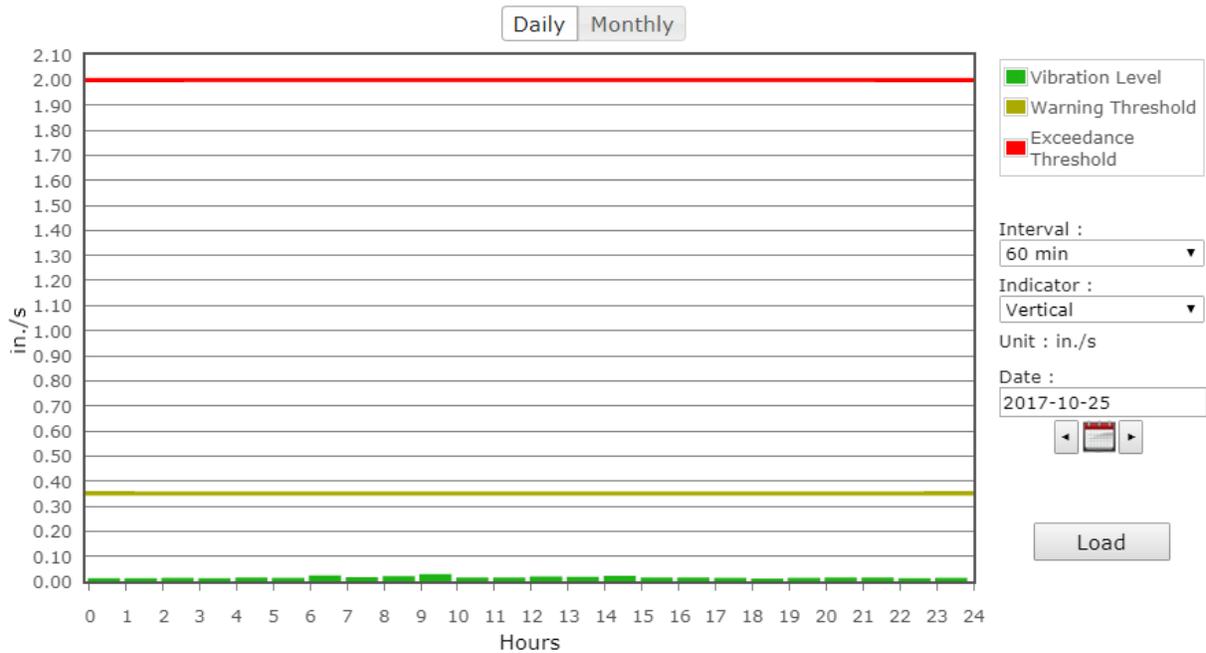


Figure 19: South Vibration Monitor VM-2 on Wednesday

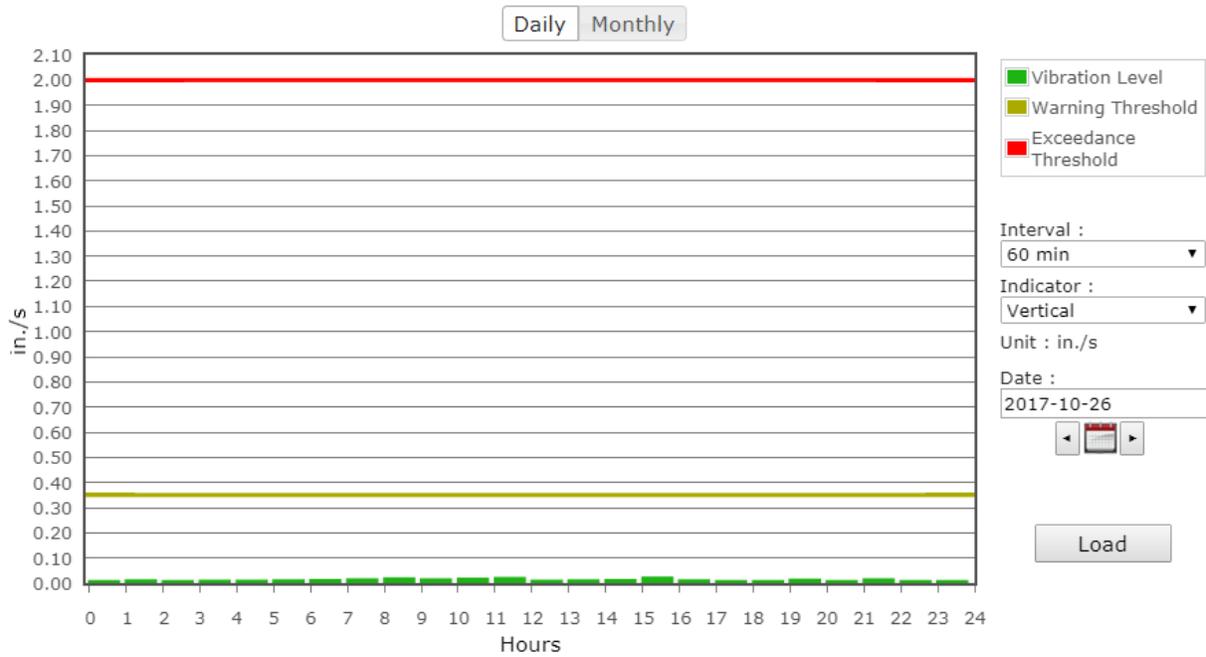


Figure 20: South Vibration Monitor VM-2 on Thursday

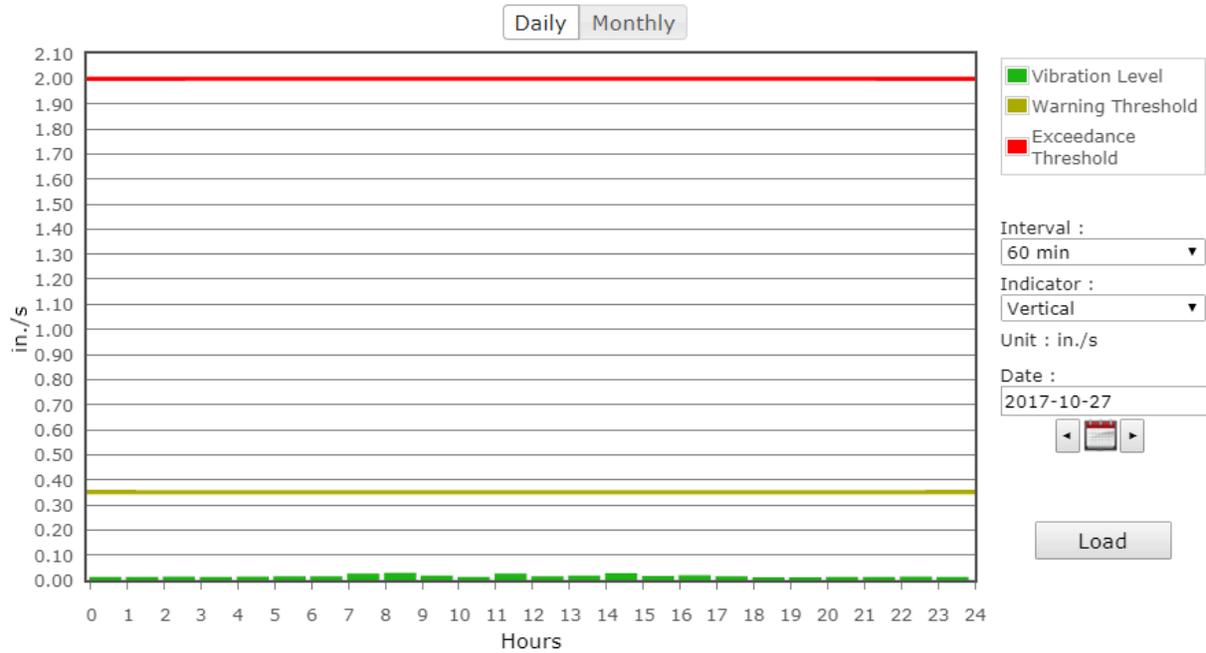


Figure 21: South Vibration Monitor VM-2 on Friday



WI #15-081

MEMORANDUM

October 30, 2017

To: William Lee/ de maximis, inc.
Kirsten Meyers / TRC

From: Silas Bensing / Wilson Ihrig

Subject: Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study, Supplemental Noise Monitoring Conducted 25 - 27 October, 2017

As requested by National Grid and TRC, Wilson Ihrig conducted additional noise readings near the Third Avenue bridge on the north side of the canal. Noise readings were performed between 1:15-4:00pm on 25 October, 8:00am-1:45pm on 26 October, and 8:00-11:30 am on 27 October. Periods with high noise levels were communicated by phone to TRC throughout the monitoring.

The noise measurements were conducted using a Norsonic Nor140 sound level meter mounted on a tripod at a height of 5 feet above the ground with appropriate windscreen on the microphone. **Figure 1** shows the measurement location. Measurements were conducted at the corner railing on Whole Foods' property near Third Avenue. This location is referred to as Location A-1 for this report.

For information, the following 20-minute noise levels were read from the SLM in the field. Hourly levels were calculated where full 60-min data are available.

| Date | Interval (start time) | 20-min L _{eq} dBA | 20-min L _{max} dBA | 60-min L _{eq} dBA | 60-min L _{max} dBA | Notes on high level events |
|--------|-----------------------|----------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|
| 25-Oct | 1:30 PM | 83 (10-min Leq) | 91 | | | Beam driven |
| | 1:40 PM | 97 | 107 | | | Sheet pile extracted/driven |
| | 2:00 PM | 74 | 76 | 94 | 107 | |
| | 2:20 PM | 98 | 107 | | | Sheet pile extracted |
| | 2:40 PM | 76 | 84 | | | |
| | 3:00 PM | 84 | 103 | 80 | 103 | Sheet pile driven |
| | 3:20 PM | 65 | 83 | | | |
| | 3:40 PM | 61 (12-min Leq) | 71 | | | |
| | | | | | | |
| 26-Oct | 8:20 AM | 91 | 106 | | | Sheet pile extracted/driven |
| | 8:40 AM | 79 | 85 | | | |
| | 9:00 AM | 79 | 87 | 75 | 88 | Beam driven |
| | 9:20 AM | 66 | 79 | | | |
| | 9:40 AM | 73 | 88 | | | Barge moved west |
| | 10:00 AM | 71 | 77 | 77 | 83 | |
| | 10:20 AM | 74 | 82 | | | |
| | 10:40 AM | 80 | 83 | | | |
| | 11:00 AM | 80 | 92 | 76 | 92 | Beam driven |
| | 11:20 AM | 74 | 90 | | | |
| | 11:40 AM | 70 | 85 | | | |
| | 12:00 PM | n/a break | | | | |
| | 12:20 PM | n/a break | | | | |
| | 12:40 PM | 70 | 79 | | | |
| | 1:00 PM | 69 | 84 | | | |
| | 1:20 PM | 71 | 85 | | | |
| | | | | | | |
| 27-Oct | 8:00 AM | 75 | 99 | 73 | 99 | |
| | 8:20 AM | 72 | 81 | | | |
| | 8:40 AM | 69 | 78 | | | |
| | 9:00 AM | 65 | 75 | 66 | 89 | |
| | 9:20 AM | 65 | 77 | | | |
| | 9:40 AM | 67 | 89 | | | |
| | 10:00 AM | 66 | 80 | 66 | 80 | |
| | 10:20 AM | 66 | 75 | | | |
| | 10:40 AM | 65 | 79 | | | |
| | 11:00 AM | 64 | 77 | | | |

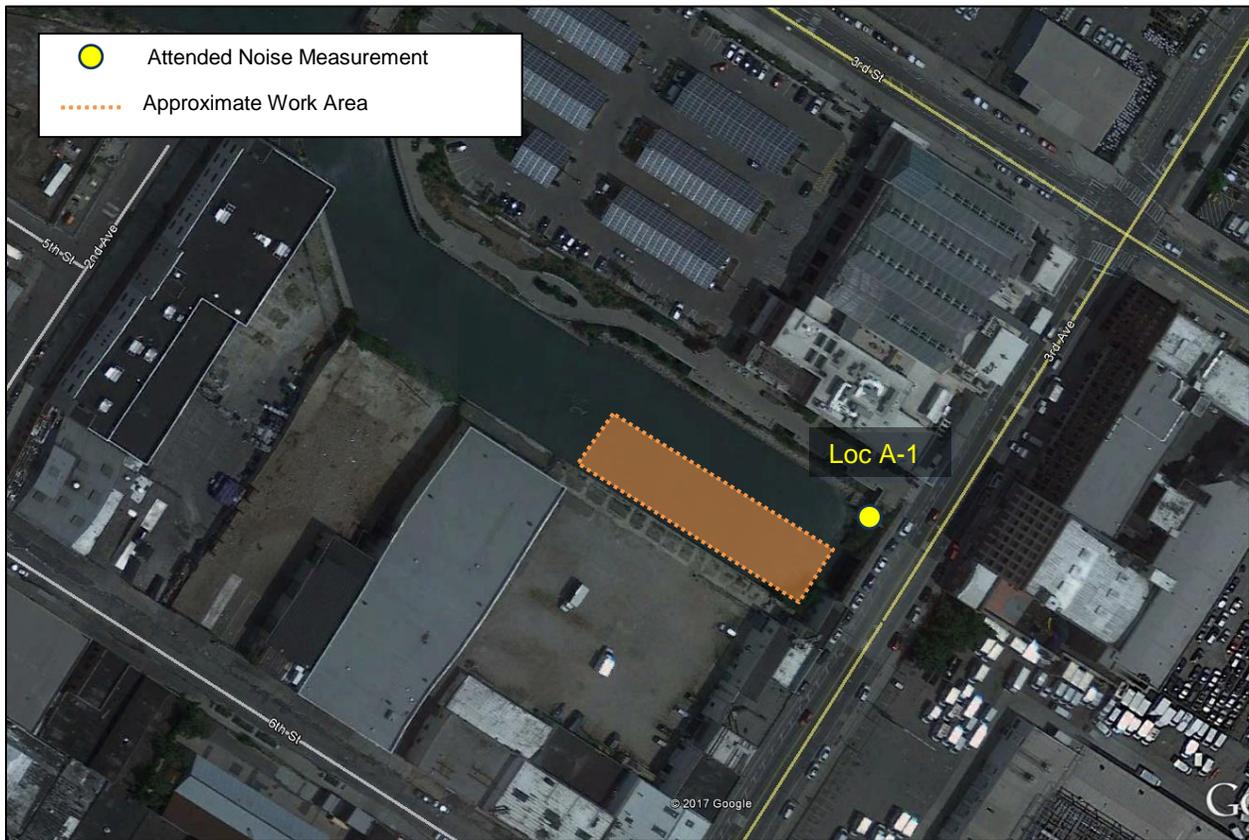


Figure 1: Attended Noise Measurement Location 25 - 27 October 2017

AHRS WEEKLY REPORT



Weekly Report

October 27, 2017

Jonathan Bream of AHRS conducted the second inspection of the objects recovered from the sediments screened from the Access Dredging activities. The inspection took place on Monday, October 23, 2017. Noted objects retained from last inspection were still present: Metal gantry truck, (object 1); Wood beam with two metal pulleys (object 2); two tree trunks (object 3); and Metal support beam (object 6). Severson crew had the objects separated into like objects (e.g. wood, tires). The objects had been powerwashed and clean. The piles of objects were photographed and noted.

A fire box for a steam engine boiler and possible associated tank had been separated into individual piles. In the wood piles were a tree trunk and a bow piece of a wooden boat. A very crumpled aluminum hull of a small boat was also noted. Several objects were given seven separate field numbers/object numbers. They are:

- Object 7: tree trunk with saw and adze marks
- Object 8: Engine block (possible diesel) set in concrete block
- Object 9: Bow piece of wooden boat (224cm X 30 cm X 13 cm)
- Object 10: Fire box for steam engine boiler (178cm X 183cm X 107cm)
- Object 11: Aluminum boat (crumpled, unable to get any reasonable measurements)
- Object 12: Electric motor
- Object 13: Metal tank (crumpled, unable to get a reasonable measurement, possibly related to fire box)

AHRS recommends that object numbers 7, 9, 10, and 13 be quarantined on the sorting pad as potential cultural resources and be retained for consultation with the USEPA and SHPO. Below are photographs of these objects. The remainder of the objects recovered and separated can be disposed of.

This inspection completes the inspections for this phase of work. Severson did not upload any photographs onto the portal for review before the field inspection. As we move forward, we need photos of whatever is found each day. If no screening completed or no objects found, this needs to be so noted on the portal. It would be beneficial if objects were power washed but photos need to be taken and uploaded whether cleaned or not.



Photograph 1 – *GERT TB4 AD 7-1*: Tree trunk with saw and adze marks.



Photograph 2 - *GERT TB4 AD 9-6*: Bow piece of wooden boat

**WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA
(ANALYTICAL RESULTS FROM 10/17/17 SAMPLING)**



**Effluent Monitoring Results
4th Street Turning Basin Pilot Study Dredge Water Treatment System**

PERMIT EQUIVALENCY DISCHARGE MONITORING RESULTS

| Analyte | Analytical Results | | | |
|--------------------------|--------------------|-----------|-----------------|-------|
| | 10/17/17 Result | Qualifier | Discharge Limit | Units |
| pH | 8.21 | -- | Monitor | s.u. |
| Ammonia | 18 | -- | Monitor | mg/L |
| Biological Oxygen Demand | ND | * | 20 | mg/L |
| Dissolved oxygen | 6.00 | -- | Monitor | mg/L |
| Oil & grease | ND | -- | 15 | mg/L |
| Total suspended solids | 5.7 | -- | 20 | mg/L |
| Copper | ND | -- | 79 | ug/L |
| Lead | ND | -- | 200 | ug/L |
| Benzo[a]pyrene | ND | -- | 0.090 | ug/L |
| PCB-1016 | ND | -- | 0.200 | ug/L |
| PCB-1221 | ND | -- | 0.200 | ug/L |
| PCB-1232 | ND | -- | 0.200 | ug/L |
| PCB-1242 | ND | -- | 0.200 | ug/L |
| PCB-1248 | ND | -- | 0.200 | ug/L |
| PCB-1254 | ND | -- | 0.200 | ug/L |
| PCB-1260 | ND | -- | 0.200 | ug/L |

Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

ng/L = nanograms per liter

ND = not detected

MDL = method detection limit

RL = reporting limit

NA = not applicable

s.u. = standard units

J-qualifier means the result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B-qualifier means the compound was found in the blank and the sample. Sometimes an indicator of contamination during sample preparation.

*-qualifier means the LCS or LCSD is outside the acceptance limits.

p-qualifier means the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Effluent Monitoring Results
4th Street Turning Basin Pilot Study Dredge Water Treatment System

ADDITIONAL MONITORING CRITERIA - METALS, MERCURY, SULFIDES

| Analyte | Analytical Results | | Discharge Limit | Units |
|----------|--------------------|-----------|-----------------|-------|
| | 10/17/17 Result | Qualifier | | |
| Arsenic | ND | -- | 100 | ug/L |
| Cadmium | ND | -- | 100 | ug/L |
| Chromium | ND | -- | 370 | ug/L |
| Mercury | 4.8 | B | 50 | ng/L |
| Nickel | 23 | J | 370 | ug/L |
| Silver | ND | -- | 23 | ug/L |
| Zinc | 19 | J | 400 | ug/L |
| Sulfide | 0.85 | J | NA | mg/L |

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p-qualifier means the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

**Effluent Monitoring Results
4th Street Turning Basin Pilot Study Dredge Water Treatment System**

ADDITIONAL MONITORING CRITERIA - PESTICIDES/METHOD 608

| Analyte | Analytical Results | | Discharge Limit | Units |
|---------------------|--------------------|-----------|-----------------|-------|
| | 10/17/17 Result | Qualifier | | |
| Chlordane | ND | -- | 0.060 | ug/L |
| 4,4'-DDD | 0.00033 | J p | 0.040 | ug/L |
| 4,4'-DDE | ND | -- | 0.020 | ug/L |
| 4,4'-DDT | ND | -- | 0.050 | ug/L |
| Dieldrin | ND | -- | 0.008 | ug/L |
| Endosulfan I | ND | -- | 0.340 | ug/L |
| Endosulfan II | ND | -- | 0.034 | ug/L |
| Aldrin | ND | -- | 1 | ug/L |
| alpha-BHC | ND | -- | 1 | ug/L |
| beta-BHC | ND | -- | 1 | ug/L |
| delta-BHC | ND | -- | 1 | ug/L |
| Endosulfan sulfate | ND | -- | 1 | ug/L |
| Endrin | ND | -- | 1 | ug/L |
| Endrin aldehyde | ND | -- | 1 | ug/L |
| gamma-BHC (Lindane) | ND | -- | 1 | ug/L |
| Heptachlor | ND | -- | 1 | ug/L |
| Heptachlor epoxide | ND | -- | 1 | ug/L |
| Toxaphene | ND | -- | 1 | ug/L |

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p-qualifier means the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

**Effluent Monitoring Results
4th Street Turning Basin Pilot Study Dredge Water Treatment System**

ADDITIONAL MONITORING CRITERIA - VOCS/METHOD 624

| Analyte | Analytical Results | | Discharge Limit | Units |
|---------------------------|--------------------|-----------|-----------------|-------|
| | 10/17/17 Result | Qualifier | | |
| Acrolein | ND | -- | 10 | ug/L |
| Acrylonitrile | ND | -- | 10 | ug/L |
| Benzene | ND | -- | 10 | ug/L |
| Bromodichloromethane | ND | -- | 10 | ug/L |
| Bromoform | ND | -- | 10 | ug/L |
| Bromomethane | ND | -- | 10 | ug/L |
| Carbon tetrachloride | ND | -- | 10 | ug/L |
| Chlorobenzene | ND | -- | 10 | ug/L |
| Chlorodibromomethane | ND | -- | 10 | ug/L |
| Chloroethane | ND | -- | 10 | ug/L |
| 2-Chloroethyl vinyl ether | ND | -- | 10 | ug/L |
| Chloroform | ND | -- | 10 | ug/L |
| Chloromethane | ND | -- | 10 | ug/L |
| cis-1,3-Dichloropropene | ND | -- | 10 | ug/L |
| 1,2-Dichlorobenzene | ND | -- | 10 | ug/L |
| 1,3-Dichlorobenzene | ND | -- | 10 | ug/L |
| 1,4-Dichlorobenzene | ND | -- | 10 | ug/L |
| 1,1-Dichloroethane | ND | -- | 10 | ug/L |
| 1,2-Dichloroethane | ND | -- | 10 | ug/L |
| 1,1-Dichloroethene | ND | -- | 10 | ug/L |
| 1,2-Dichloropropane | ND | -- | 10 | ug/L |
| Ethylbenzene | ND | -- | 10 | ug/L |
| Methylene Chloride | ND | -- | 10 | ug/L |
| 1,1,2,2-Tetrachloroethane | ND | -- | 10 | ug/L |
| Tetrachloroethene | ND | -- | 10 | ug/L |
| Toluene | ND | -- | 10 | ug/L |
| trans-1,2-Dichloroethene | ND | -- | 10 | ug/L |
| trans-1,3-Dichloropropene | ND | -- | 10 | ug/L |
| 1,1,1-Trichloroethane | ND | -- | 10 | ug/L |
| 1,1,2-Trichloroethane | ND | -- | 10 | ug/L |
| Trichloroethene | ND | -- | 10 | ug/L |
| Vinyl chloride | ND | -- | 10 | ug/L |

Notes:

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*-qualifier means the LCS or LCS/D is outside the acceptance limits.

p-qualifier means the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Effluent Monitoring Results
4th Street Turning Basin Pilot Study Dredge Water Treatment System

ADDITIONAL MONITORING CRITERIA - SVOCS/METHOD 625

| Analyte | Analytical Results | | Discharge Limit | Units |
|--------------------------------------|--------------------|-----------|-----------------|-------|
| | 10/17/17 Result | Qualifier | | |
| Acenaphthene | ND | -- | 10 | ug/L |
| Benzidine | ND | -- | 10 | ug/L |
| Acenaphthylene | ND | -- | 10 | ug/L |
| Anthracene | ND | -- | 10 | ug/L |
| Bis(2-chloroethoxy)methane | ND | -- | 10 | ug/L |
| Benzo[a]anthracene | ND | -- | 10 | ug/L |
| Bis(2-ethylhexyl) phthalate | 2.4 | -- | 10 | ug/L |
| 4-Bromophenyl phenyl ether | ND | -- | 10 | ug/L |
| Benzo[b]fluoranthene | ND | -- | 10 | ug/L |
| Benzo[g,h,i]perylene | ND | -- | 10 | ug/L |
| Butyl benzyl phthalate | 1.3 | -- | 10 | ug/L |
| 4-Chloro-3-methylphenol | ND | -- | 10 | ug/L |
| Benzo[k]fluoranthene | ND | -- | 10 | ug/L |
| 2-Chlorophenol | ND | -- | 10 | ug/L |
| Bis(2-chloroethyl)ether | ND | -- | 10 | ug/L |
| 2-Chloronaphthalene | ND | -- | 10 | ug/L |
| 4-Chlorophenyl phenyl ether | ND | -- | 10 | ug/L |
| 3,3'-Dichlorobenzidine | ND | -- | 10 | ug/L |
| Chrysene | ND | -- | 10 | ug/L |
| Dibenzo(a,h)-anthracene | ND | -- | 10 | ug/L |
| Diethyl phthalate | 0.26 | J | 10 | ug/L |
| 2,4-Dichlorophenol | ND | -- | 10 | ug/L |
| 2,4-Dimethylphenol | ND | -- | 10 | ug/L |
| Dimethyl phthalate | ND | -- | 10 | ug/L |
| Fluoranthene | ND | -- | 10 | ug/L |
| Di-n-butyl phthalate | 0.49 | J | 10 | ug/L |
| Fluorene | ND | -- | 10 | ug/L |
| 4,6-Dinitro-2-methylphenol | ND | -- | 10 | ug/L |
| 2,4-Dinitrophenol | ND | -- | 10 | ug/L |
| 2,4-Dinitrotoluene | ND | -- | 10 | ug/L |
| Hexachlorobenzene | ND | -- | 10 | ug/L |
| 2,6-Dinitrotoluene | ND | -- | 10 | ug/L |
| Hexachlorobutadiene | ND | -- | 10 | ug/L |
| Di-n-octyl phthalate | ND | -- | 10 | ug/L |
| Indeno[1,2,3-cd]pyrene | ND | -- | 10 | ug/L |
| 1,2-Diphenylhydrazine(as Azobenzene) | ND | -- | 10 | ug/L |
| Naphthalene | ND | -- | 10 | ug/L |
| N-Nitrosodi-n-propylamine | ND | -- | 10 | ug/L |
| 2,2'-oxybis[1-chloropropane] | ND | -- | 10 | ug/L |
| Hexachlorocyclopentadiene | ND | -- | 10 | ug/L |
| Hexachloroethane | ND | -- | 10 | ug/L |
| Phenanthrene | ND | -- | 10 | ug/L |
| Isophorone | ND | -- | 10 | ug/L |
| Nitrobenzene | ND | -- | 10 | ug/L |
| Pyrene | ND | -- | 10 | ug/L |
| 2-Nitrophenol | ND | -- | 10 | ug/L |
| 4-Nitrophenol | ND | -- | 10 | ug/L |

Effluent Monitoring Results
4th Street Turning Basin Pilot Study Dredge Water Treatment System

| | | | | |
|------------------------|----|----|----|------|
| N-Nitrosodimethylamine | ND | -- | 10 | ug/L |
| N-Nitrosodiphenylamine | ND | -- | 10 | ug/L |
| Pentachlorophenol | ND | -- | 10 | ug/L |
| Phenol | ND | -- | 10 | ug/L |
| 1,2,4-Trichlorobenzene | ND | -- | 10 | ug/L |
| 2,4,6-Trichlorophenol | ND | -- | 10 | ug/L |

Notes:

MDL = method detection limit

µg/L = micrograms per liter

mg/L = milligrams per liter

NA = not applicable

ng/L = nanograms per liter

RL = reporting limit

s.u. = standard units

J-qualifier means the result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B-qualifier means the compound was found in the blank and the sample. Sometimes an indicator of contamination during sample preparation.

*-qualifier means the LCS or LCSD is outside the acceptance limits.

p-qualifier means the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

**CUMULATIVE DREDGED MATERIAL CHART
(NOT INCLUDED DUE TO NO CHANGE)**

