

**WEEKLY PROGRESS REPORT – TRC SOLUTIONS**

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

**Project number: 283126**

**Period: October 16 to October 20, 2017**

**Date of Report: October 30, 2017**

**Rev: 1**

**Prepared For: Gowanus Environmental Remediation Trust**



## **On-Site Activities Conducted During Week:**

### *Sevenson Environmental Services (SES)*

#### Access Dredging:

- Access dredging activities continued and was completed on 10/18/17
  - 689 cubic yards of sediment were dredged during this week
- Performed seven (7) test pits in locations depicted on Contract Drawings to elevation -6 in areas identified where known or suspected cultural resource are located nearby.
- Bathymetric survey performed on 10/20/17 following completion of access dredging

#### Water Treatment and Monitoring

- Discharged 9,276 and 48,759 gallons of treated dredge water on 10/17/17 and 10/18/17, 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 4<sup>th</sup> Street Turning Basin.

#### Odor and Vapor Suppression

- Odor and vapor suppression foam not deployed.

#### Debris Screening Activities at Citizens Site

- Screened approximately 689 cubic yards of material utilizing on-site 6-inch grizzly bar vibrator screener. Screening and stabilization of dredged material completed on 10/18/17.
- Culturally significant debris not observed during dredging operations by dredge supervisor trained by AHRS. Accumulated material retained by screener removed and segregated daily for inspection by AHRS. Debris mainly unidentifiable prior to segregation and cleaning. Tires, timbers, and concrete majority of debris.

#### Sediment Stabilization Activities

- Placed and mixed 63 tons of Portland cement in 2,225 cubic yard hopper scow #3 (Weeks 80).
- Placed and mixed 125 of Portland cement in 2,225 cubic yard hopper scow #4 (Weeks 83).
- Paint filter testing of stabilized sediment not required – material not leaving site via truck.

#### *Quality Assurance and Control - Geosyntec*

- 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 10/16/17:
  - Daily average for ambient buoy – 12.4 NTU
  - Daily average for sentinel buoy – 47.9 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval – 40.3 NTU at 1100 due to momentary prop wash from barge movements.
- Measurements for 10/17/17:
  - Daily average for ambient buoy – 7.4 NTU
  - Daily average for sentinel buoy – 8.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval – 8.7 NTU at 1330

- Measurements for 10/18/17:
  - Daily average for ambient buoy – 8.2 NTU
  - Daily average for sentinel buoy – 9.0 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval – 13.4 NTU at 1230
- Measurements for 10/19/17:
  - Daily average for ambient buoy – 8.4 NTU
  - Daily average for sentinel buoy – 6.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval – 0.3 NTU at 1415
- Measurements for 10/20/17:
  - Daily average for ambient buoy – 8.8 NTU
  - Daily average for sentinel buoy – 6.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval – 0.6 NTU at 0930 and 1645
- Water treatment system sampling performed on 10/18/17 and 10/19/17. Laboratory turnaround time is 5 business days.

*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 4<sup>th</sup> Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM<sub>10</sub>) 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<sub>10</sub> in µg/m<sup>3</sup>
  - Station 1 – 87 µg/m<sup>3</sup> recorded on 10/18/17
  - Station 2 – 49 µg/m<sup>3</sup> recorded on 10/18/17
  - Station 3 – <1 µg/m<sup>3</sup> recorded throughout week
  - Station 4 – 37 µg/m<sup>3</sup> recorded on 10/19/17
  - Station 5 – 14 µg/m<sup>3</sup> recorded on 10/18/17
  - Station 6 – 18 µg/m<sup>3</sup> recorded on 10/18/17
  - Station 7 – 10 µg/m<sup>3</sup> recorded on 10/17/17
- Maximum weekly measurements of TVOC in ppb
  - Station 1 – 33 ppb recorded on 10/18/17 and 10/19/17
  - Station 2 – 25 ppb recorded on 10/19/17
  - Station 3 – 89 ppb recorded on 10/16/17
  - Station 4 – 45 ppb recorded on 10/20/17
  - Station 5 – 73 ppb recorded on 10/17/17
  - Station 6 – 47 ppb recorded on 10/16/17 and 10/18/17
  - Station 7 – 110 ppb recorded on 10/16/17
- All real-time readings of hydrogen sulfide, ammonia, or formaldehyde less than instrument reporting limit except for the following hydrogen sulfide readings on 10/18/17.
  - ST-2 at 0905 – 1.15 ppb
  - ST-4 at 0935 – 2.75 ppb
  - ST-4 at 1605 – 7.18 ppb



- 24-hour sample collected at ST-6 on 10/17 through 10/18 and at ST-4 on 10/18 through 10/19. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 24-hour sample collected at ST-4 on 10/5 through 10/6 presented in weekly CAMP report.

*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 to be collected during installation of sheet piling until northern noise monitor is replaced.
- No exceedances of the hourly Leq noise limit of 80 dBA for daytime and evening time periods for the noise monitor on the south side of the canal.
- Greatest hourly Leq noise measurements
  - Northern monitor (NM-1) – 75.0 dBA during 0700-0800 on 10/16/17
  - Southern monitor (NM-2) – 73.1 dBA during 1000-1100 on 10/17/17
- No exceedances of the commercial and industrial structures vibration criterion of 2.0 inches per second peak particle velocity.
- Greatest peak particle velocity measurements (measurements due to Vibra-Tech installing monitors adjacently)
  - Northern monitor (NM-1) – 0.524 in/sec event between 1100 and 1200 on 10/16/17
  - Southern monitor (NM-2) – 0.435 in/sec event between 1300 and 1400 on 10/16/17

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

- Observed the excavation of seven (7) test pits to determine if timber cribbing existed below elevation -6 feet based on the North American Vertical Datum of 1988. No items of cultural significance identified during the dredging or the placement of material in scows.

**Two-Week Look Ahead:**

- Severson:
  - Mobilize steel sheeting, equipment, and personnel in preparation of installation of bulkhead supports.
  - Commence and 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. Perform post-access dredging bathymetric survey.
- TRC CAMP Monitoring – Perform community air monitoring.
- Wilson-Ihrig – Perform noise and vibration monitoring
- Emilcott – Perform on-site audit.
- AHRS – Conduct on-site inspection of debris.

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

- Access dredging completed on 10/18/17.
- Screening and stabilization of dredged material completed on 10/18/17.



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 to be received next week)
6. Cumulative Dredged Material Chart

|                                    |   |   |
|------------------------------------|---|---|
| <b>Client Name:</b><br>Gowanus ERT | <b>Site Location:</b><br>TB-4 Pilot Study | <b>Project No.:</b><br>283126.0000.0001 |
|------------------------------------|---|---|

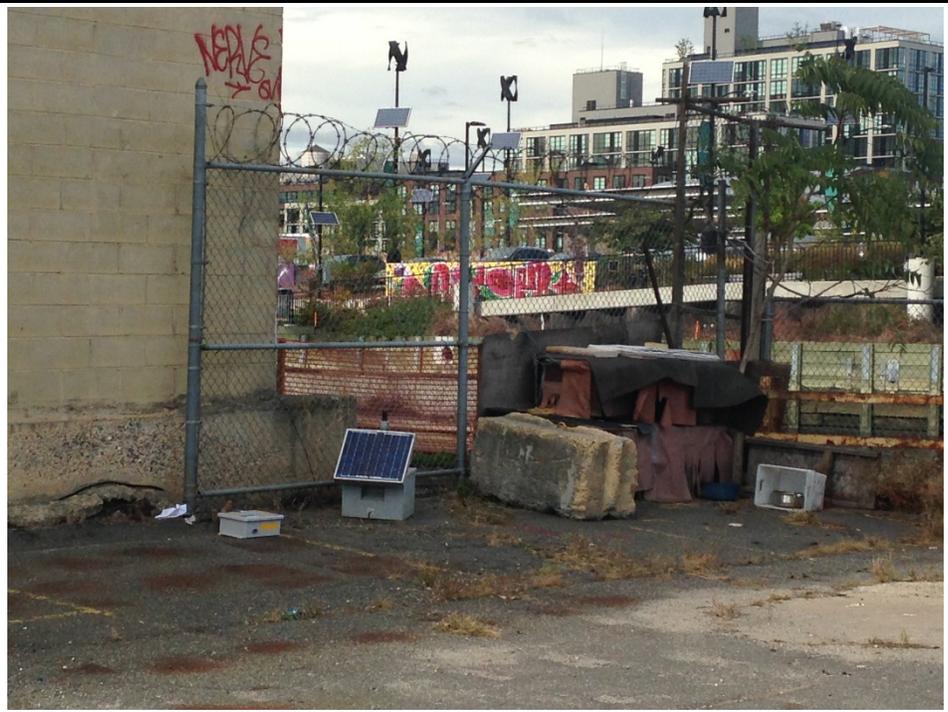
|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>001 | <b>Date</b><br>10-16-2107 |
|-------------------------|---------------------------|

**Description**  
Loaded scow readying for transfer to Citizens Site.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>002 | <b>Date</b><br>10-16-2017 |
|-------------------------|---------------------------|

**Description**  
Vibration monitors installed near Dykes Lumber (solar panel unit property of Vibra-Tech).



|                                    |   |   |
|------------------------------------|---|---|
| <b>Client Name:</b><br>Gowanus ERT | <b>Site Location:</b><br>TB-4 Pilot Study | <b>Project No.:</b><br>283126.0000.0001 |
|------------------------------------|---|---|

|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>003 | <b>Date</b><br>10-17-2107 |
|-------------------------|---------------------------|

**Description**  
Excavating material from test pit #7. Notice white flagged location stake on bank.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>004 | <b>Date</b><br>10-18-2017 |
|-------------------------|---------------------------|

**Description**  
Pushing excavator barge into position for final excavation of access dredging material.



|                                    |   |   |
|------------------------------------|---|---|
| <b>Client Name:</b><br>Gowanus ERT | <b>Site Location:</b><br>TB-4 Pilot Study | <b>Project No.:</b><br>283126.0000.0001 |
|------------------------------------|---|---|

|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>005 | <b>Date</b><br>10-18-2107 |
|-------------------------|---------------------------|

**Description**  
Last scow of access dredging material leaving turning basin #4, heading to Citizens property for processing.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>006 | <b>Date</b><br>10-19-2017 |
|-------------------------|---------------------------|

**Description**  
Pressure washing grizzly bars on the asphalt pad.



|                                    |   |   |
|------------------------------------|---|---|
| <b>Client Name:</b><br>Gowanus ERT | <b>Site Location:</b><br>TB-4 Pilot Study | <b>Project No.:</b><br>283126.0000.0001 |
|------------------------------------|---|---|

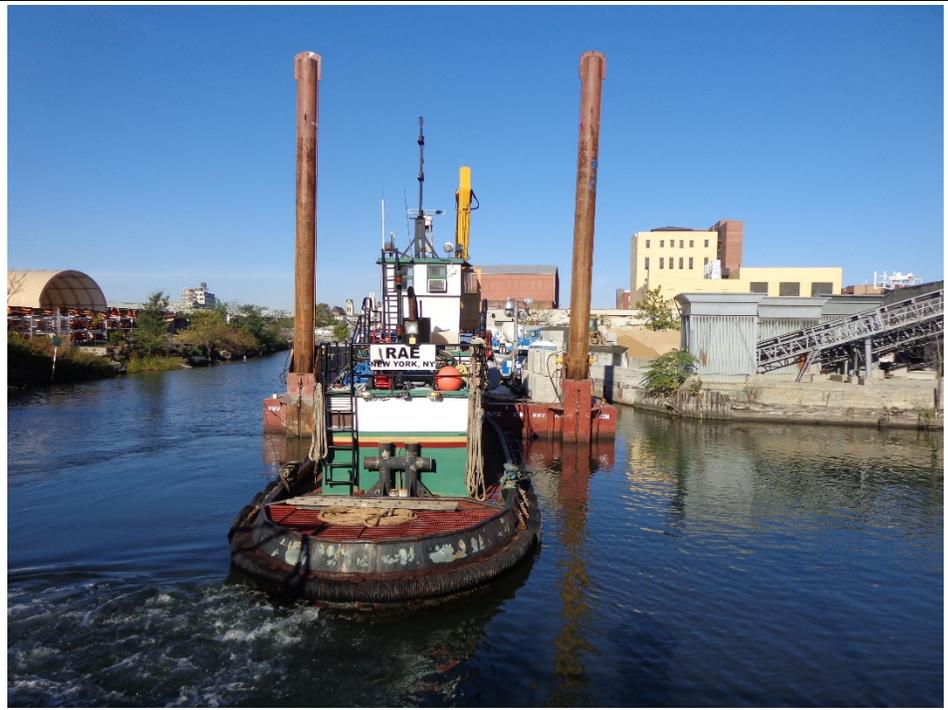
|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>007 | <b>Date</b><br>10-20-2107 |
|-------------------------|---------------------------|

**Description**  
Hydrographic survey of Turning Basin #4 (post access dredging) in progress.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>008 | <b>Date</b><br>10-20-2017 |
|-------------------------|---------------------------|

**Description**  
Excavator barge being moved from the site via tug boat "Rae".



**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 16<sup>th</sup>, 2017

## **Report Contents**

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

*Prepared by*

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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 16<sup>th</sup>, 2017. Two turbidity buoys were deployed to monitor turbidity during the pilot study. One turbidity buoy was deployed just outside of the 4<sup>th</sup> 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 of dredging between 7 AM and 5 PM during the week of October 16<sup>th</sup>. Average and maximum turbidity are also presented. Preliminary analysis of the turbidity data suggests that turbidity was not significantly elevated during operations. In addition to the turbidity buoy data, data from handheld measurements collected on October 18<sup>th</sup> are provided Section 3. 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. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM during dredge operations on October 16<sup>th</sup> to October 20<sup>th</sup>, 2017. 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. One-time spikes in turbidity at the sentinel buoy were due to momentary prop wash from barge movements.

### 2.1 Monday, October 16<sup>th</sup>, 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) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/16/2017 7:00  | 5.9                     | 4.3                      | N                       | 10/16/2017 12:15 | 9                       | 11.2                     | Y                       |
| 10/16/2017 7:15  | 6.9                     | 3.8                      | N                       | 10/16/2017 12:30 | 8.6                     | 27.3                     | Y                       |
| 10/16/2017 7:30  | 7.6                     | 5.8                      | N                       | 10/16/2017 12:45 | 8.8                     | 14.6                     | Y                       |
| 10/16/2017 7:45  | 8                       | 8                        | Y                       | 10/16/2017 13:00 | 9.1                     | 11.4                     | Y                       |
| 10/16/2017 8:00  | 7.9                     | 11                       | Y                       | 10/16/2017 13:15 | 8.8                     | 13                       | Y                       |
| 10/16/2017 8:15  | 8.6                     | 8.9                      | Y                       | 10/16/2017 13:30 | 8.6                     | 13.9                     | Y                       |
| 10/16/2017 8:30  | 8.2                     | 9.3                      | Y                       | 10/16/2017 13:45 | 8.7                     | 9.3                      | Y                       |
| 10/16/2017 8:45  | 8.5                     | 9.3                      | Y                       | 10/16/2017 14:00 | 7.9                     | 8.8                      | Y                       |
| 10/16/2017 9:00  | 9.4                     | 6.7                      | N                       | 10/16/2017 14:15 | 7.9                     | 6.9                      | N                       |
| 10/16/2017 9:15  | 7.9                     | 11.3                     | Y                       | 10/16/2017 14:30 | 8                       | 6.6                      | N                       |
| 10/16/2017 9:30  | 11                      | 11.7                     | Y                       | 10/16/2017 14:45 | 6.9                     | 6.7                      | N                       |
| 10/16/2017 9:45  | 8                       | 9.1                      | N                       | 10/16/2017 15:00 | 7.5                     | 6.4                      | N                       |
| 10/16/2017 10:00 | 6.5                     | 10                       | Y                       | 10/16/2017 15:15 | 6.3                     | 5.3                      | N                       |
| 10/16/2017 10:15 | 7                       | 8.7                      | Y                       | 10/16/2017 15:30 | 6.8                     | 6.2                      | N                       |
| 10/16/2017 10:30 | 7.5                     | 12.2                     | Y                       | 10/16/2017 15:45 | 6.6                     | 6.4                      | N                       |
| 10/16/2017 10:45 | 7.4                     | 13.6                     | Y                       | 10/16/2017 16:00 | 6.3                     | 5.1                      | N                       |
| 10/16/2017 11:00 | 7.6                     | 47.9                     | Y                       | 10/16/2017 16:15 | 6.7                     | 5.3                      | N                       |
| 10/16/2017 11:15 | 9.2                     | 10.1                     | Y                       | 10/16/2017 16:30 | 7                       | 5                        | N                       |
| 10/16/2017 11:30 | 8.3                     | 11.9                     | Y                       | 10/16/2017 16:45 | 7.3                     | 5                        | N                       |
| 10/16/2017 11:45 | 8.6                     | 15.1                     | Y                       | 10/16/2017 17:00 | 7                       | 5.6                      | N                       |
| 10/16/2017 12:00 | 12.4                    | 12.1                     | Y                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
| Average          | 8.0                     | 10.3                     | Y                       |                  |                         |                          |                         |
| Maximum          | 12.4                    | 47.9                     | 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

**2.2 Tuesday, October 17<sup>th</sup>, 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) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/17/2017 7:00  | 9.1                     | 4.5                      | N                       | 10/17/2017 12:15 | 7.9                     | 10.1                     | Y                       |
| 10/17/2017 7:15  | 8.1                     | 4.4                      | N                       | 10/17/2017 12:30 | 7.6                     | 13.6                     | Y                       |
| 10/17/2017 7:30  | 6.9                     | 6.7                      | N                       | 10/17/2017 12:45 | 8.3                     | 11                       | Y                       |
| 10/17/2017 7:45  | 7.5                     | 5.6                      | N                       | 10/17/2017 13:00 | 8                       | 10                       | Y                       |
| 10/17/2017 8:00  | 7.2                     | 6.8                      | N                       | 10/17/2017 13:15 | 8.2                     | 10.7                     | Y                       |
| 10/17/2017 8:15  | 8.2                     | 7.4                      | Y                       | 10/17/2017 13:30 | 7.9                     | 16.6                     | Y                       |
| 10/17/2017 8:30  | 8.7                     | 7.2                      | N                       | 10/17/2017 13:45 | 8.6                     | 14.3                     | Y                       |
| 10/17/2017 8:45  | 8.6                     | 7.1                      | N                       | 10/17/2017 14:00 | 7.1                     | 12.9                     | Y                       |
| 10/17/2017 9:00  | 8.2                     | 7.4                      | N                       | 10/17/2017 14:15 | 8.3                     | 9.5                      | Y                       |
| 10/17/2017 9:15  | 7.3                     | 6.4                      | N                       | 10/17/2017 14:30 | 6.8                     | 6.9                      | Y                       |
| 10/17/2017 9:30  | 7                       | 11.4                     | Y                       | 10/17/2017 14:45 | 6.7                     | 5.1                      | N                       |
| 10/17/2017 9:45  | 6.9                     | 5.5                      | N                       | 10/17/2017 15:00 | 7.2                     | 6.6                      | N                       |
| 10/17/2017 10:00 | 8.1                     | 9                        | Y                       | 10/17/2017 15:15 | 6.9                     | 5.5                      | N                       |
| 10/17/2017 10:15 | 6.4                     | 8.7                      | Y                       | 10/17/2017 15:30 | 7                       | 5.6                      | N                       |
| 10/17/2017 10:30 | 7                       | 8.9                      | Y                       | 10/17/2017 15:45 | 6.5                     | 5.3                      | N                       |
| 10/17/2017 10:45 | 7.1                     | 7.1                      | Y                       | 10/17/2017 16:00 | 5.8                     | 5.7                      | N                       |
| 10/17/2017 11:00 | 7.5                     | 8.2                      | Y                       | 10/17/2017 16:15 | 6.3                     | 5.2                      | N                       |
| 10/17/2017 11:15 | 7.3                     | 9                        | Y                       | 10/17/2017 16:30 | 5.8                     | 3.6                      | N                       |
| 10/17/2017 11:30 | 7.5                     | 10.7                     | Y                       | 10/17/2017 16:45 | 6.2                     | 4.4                      | N                       |
| 10/17/2017 11:45 | 7.5                     | 10.3                     | Y                       | 10/17/2017 17:00 | 6.4                     | 4.4                      | N                       |
| 10/17/2017 12:00 | 7.8                     | 12.1                     | Y                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
| Average          | 7.4                     | 8.1                      | Y                       |                  |                         |                          |                         |
| Maximum          | 9.1                     | 16.6                     | Y                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |

**Notes:**

No exceedances to rolling average threshold criteria during reporting period

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

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

**2.3 Wednesday, October 18<sup>th</sup>, 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) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/18/2017 7:00  | 5.7                     | 3                        | N                       | 10/18/2017 12:15 | 7.3                     | 19.6                     | Y                       |
| 10/18/2017 7:15  | 6.7                     | 3.4                      | N                       | 10/18/2017 12:30 | 7.5                     | 20.9                     | Y                       |
| 10/18/2017 7:30  | 5.6                     | 3.1                      | N                       | 10/18/2017 12:45 | 8.4                     | 11.3                     | Y                       |
| 10/18/2017 7:45  | 6.1                     | 4.8                      | N                       | 10/18/2017 13:00 | 8.1                     | 9.9                      | Y                       |
| 10/18/2017 8:00  | 7.3                     | 7.2                      | Y                       | 10/18/2017 13:15 | 11.1                    | 8.7                      | N                       |
| 10/18/2017 8:15  | 8                       | 8.1                      | Y                       | 10/18/2017 13:30 | 9.6                     | 7.3                      | N                       |
| 10/18/2017 8:30  | 8.1                     | 9.9                      | Y                       | 10/18/2017 13:45 | 9.7                     | 9.7                      | N                       |
| 10/18/2017 8:45  | 8.2                     | 7.9                      | N                       | 10/18/2017 14:00 | 9.7                     | 8.5                      | N                       |
| 10/18/2017 9:00  | 9.2                     | 12.2                     | Y                       | 10/18/2017 14:15 | 10                      | 8.3                      | N                       |
| 10/18/2017 9:15  | 8.8                     | 7.9                      | N                       | 10/18/2017 14:30 | 9.4                     | 11.3                     | Y                       |
| 10/18/2017 9:30  | 9                       | 9.6                      | Y                       | 10/18/2017 14:45 | 10.1                    | 13                       | Y                       |
| 10/18/2017 9:45  | 9.2                     | 8.1                      | N                       | 10/18/2017 15:00 | 9.4                     | 8.1                      | N                       |
| 10/18/2017 10:00 | 8.8                     | 8.1                      | N                       | 10/18/2017 15:15 | 9.7                     | 7.8                      | N                       |
| 10/18/2017 10:15 | 8.4                     | 8.7                      | N                       | 10/18/2017 15:30 | 8.5                     | 7.6                      | N                       |
| 10/18/2017 10:30 | 7.9                     | 9.6                      | Y                       | 10/18/2017 15:45 | 8.6                     | 7.5                      | N                       |
| 10/18/2017 10:45 | 8.3                     | 9.1                      | Y                       | 10/18/2017 16:00 | 8.1                     | 6.6                      | N                       |
| 10/18/2017 11:00 | 9.2                     | 12.7                     | Y                       | 10/18/2017 16:15 | 7.1                     | 4.9                      | N                       |
| 10/18/2017 11:15 | 8.5                     | 9.7                      | Y                       | 10/18/2017 16:30 | 6.3                     | 5                        | N                       |
| 10/18/2017 11:30 | 7.1                     | 12.1                     | Y                       | 10/18/2017 16:45 | 7.5                     | 4.6                      | N                       |
| 10/18/2017 11:45 | 7.5                     | 10.7                     | Y                       | 10/18/2017 17:00 | 6.6                     | 3.8                      | N                       |
| 10/18/2017 12:00 | 7.6                     | 17.3                     | Y                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
| Average          | 8.2                     | 9.0                      | Y                       |                  |                         |                          |                         |
| Maximum          | 11.1                    | 20.9                     | Y                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |

**Notes:**

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

**2.4 Thursday, October 19<sup>th</sup>, 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) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/19/2017 7:00  | 6.3                     | 2.7                      | N                       | 10/19/2017 12:15 | 6.8                     | 6.6                      | N                       |
| 10/19/2017 7:15  | 6.7                     | 3                        | N                       | 10/19/2017 12:30 | 7.4                     | 5.5                      | N                       |
| 10/19/2017 7:30  | 6.5                     | 3.3                      | N                       | 10/19/2017 12:45 | 8                       | 5.1                      | N                       |
| 10/19/2017 7:45  | 7.4                     | 3.3                      | N                       | 10/19/2017 13:00 | 7.6                     | 5.4                      | N                       |
| 10/19/2017 8:00  | 8.1                     | 3.8                      | N                       | 10/19/2017 13:15 | 7.9                     | 7.8                      | N                       |
| 10/19/2017 8:15  | 7.5                     | 3.1                      | N                       | 10/19/2017 13:30 | 7.9                     | 6.8                      | N                       |
| 10/19/2017 8:30  | 8.7                     | 3.6                      | N                       | 10/19/2017 13:45 | 8.2                     | 7.3                      | N                       |
| 10/19/2017 8:45  | 9.2                     | 6.4                      | N                       | 10/19/2017 14:00 | 8.5                     | 6.2                      | N                       |
| 10/19/2017 9:00  | 9.3                     | 4.5                      | N                       | 10/19/2017 14:15 | 8.3                     | 8.6                      | Y                       |
| 10/19/2017 9:15  | 9.3                     | 4.5                      | N                       | 10/19/2017 14:30 | 8.9                     | 8.5                      | N                       |
| 10/19/2017 9:30  | 10.5                    | 4.4                      | N                       | 10/19/2017 14:45 | 8.7                     | 7.5                      | N                       |
| 10/19/2017 9:45  | 11.4                    | 4.8                      | N                       | 10/19/2017 15:00 | 9.6                     | 8.9                      | N                       |
| 10/19/2017 10:00 | 11.3                    | 5                        | N                       | 10/19/2017 15:15 | 8.8                     | 8.5                      | N                       |
| 10/19/2017 10:15 | 9.3                     | 7.3                      | N                       | 10/19/2017 15:30 | 9.9                     | 8.5                      | N                       |
| 10/19/2017 10:30 | 10                      | 7.4                      | N                       | 10/19/2017 15:45 | 9.7                     | 9.2                      | N                       |
| 10/19/2017 10:45 | 9                       | 8.3                      | N                       | 10/19/2017 16:00 | 7.9                     | 6.2                      | N                       |
| 10/19/2017 11:00 | 9.1                     | 6.6                      | N                       | 10/19/2017 16:15 | 8.1                     | 8.3                      | Y                       |
| 10/19/2017 11:15 | 8.1                     | 7.2                      | N                       | 10/19/2017 16:30 | 7.7                     | 6.4                      | N                       |
| 10/19/2017 11:30 | 8.2                     | 6.4                      | N                       | 10/19/2017 16:45 | 7.5                     | 6.5                      | N                       |
| 10/19/2017 11:45 | 7.6                     | 6.5                      | N                       | 10/19/2017 17:00 | 7.8                     | 5.4                      | N                       |
| 10/19/2017 12:00 | 7.1                     | 5.9                      | N                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
| Average          | 8.4                     | 6.1                      | N                       |                  |                         |                          |                         |
| Maximum          | 11.4                    | 9.2                      | N                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |

**Notes:**

No exceedances to rolling average threshold criteria during reporting period

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

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

**2.5 Friday, October 20<sup>th</sup>, 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) |
|------------------|-------------------------|--------------------------|-------------------------|------------------|-------------------------|--------------------------|-------------------------|
| 10/20/2017 7:00  | 5.4                     | 3.1                      | N                       | 10/20/2017 12:15 | 7.6                     | 5.5                      | N                       |
| 10/20/2017 7:15  | 5.6                     | 3.7                      | N                       | 10/20/2017 12:30 | 10.1                    | 6.9                      | N                       |
| 10/20/2017 7:30  | 5.6                     | 4.2                      | N                       | 10/20/2017 12:45 | 7.9                     | 4.5                      | N                       |
| 10/20/2017 7:45  | 5.7                     | 4.2                      | N                       | 10/20/2017 13:00 | 7.3                     | 4                        | N                       |
| 10/20/2017 8:00  | 5.6                     | 4.3                      | N                       | 10/20/2017 13:15 | 7.4                     | 3.9                      | N                       |
| 10/20/2017 8:15  | 5.9                     | 4.3                      | N                       | 10/20/2017 13:30 | 7.4                     | 5.1                      | N                       |
| 10/20/2017 8:30  | 7.4                     | 6.3                      | Y                       | 10/20/2017 13:45 | 8                       | 4.8                      | N                       |
| 10/20/2017 8:45  | 7.8                     | 5.4                      | N                       | 10/20/2017 14:00 | 8.5                     | 5.6                      | N                       |
| 10/20/2017 9:00  | 8.3                     | 4.9                      | N                       | 10/20/2017 14:15 | 10.9                    | 5.5                      | N                       |
| 10/20/2017 9:15  | 8.4                     | 5.5                      | N                       | 10/20/2017 14:30 | 11.8                    | 7.5                      | N                       |
| 10/20/2017 9:30  | 8.8                     | 9.4                      | Y                       | 10/20/2017 14:45 | 16.5                    | 7.2                      | N                       |
| 10/20/2017 9:45  | 9.7                     | 6.8                      | N                       | 10/20/2017 15:00 | 12.9                    | 6.8                      | N                       |
| 10/20/2017 10:00 | 8.9                     | 5.4                      | N                       | 10/20/2017 15:15 | 12.2                    | 6.8                      | N                       |
| 10/20/2017 10:15 | 9.2                     | 6.5                      | N                       | 10/20/2017 15:30 | 10.5                    | 7.8                      | N                       |
| 10/20/2017 10:30 | 9.6                     | 7.8                      | N                       | 10/20/2017 15:45 | 11                      | 6.2                      | N                       |
| 10/20/2017 10:45 | 9.2                     | 7.7                      | N                       | 10/20/2017 16:00 | 9.8                     | 6.5                      | N                       |
| 10/20/2017 11:00 | 9.6                     | 7.8                      | N                       | 10/20/2017 16:15 | 9.6                     | 7.4                      | N                       |
| 10/20/2017 11:15 | 8.9                     | 7.5                      | N                       | 10/20/2017 16:30 | 9.3                     | 7.3                      | N                       |
| 10/20/2017 11:30 | 9.1                     | 8.1                      | N                       | 10/20/2017 16:45 | 9.2                     | 9.8                      | Y                       |
| 10/20/2017 11:45 | 7.6                     | 5                        | N                       | 10/20/2017 17:00 | 8.6                     | 7.2                      | N                       |
| 10/20/2017 12:00 | 8.2                     | 6                        | N                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
| Average          | 8.8                     | 6.1                      | N                       |                  |                         |                          |                         |
| Maximum          | 16.5                    | 9.8                      | N                       |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |
|                  |                         |                          |                         |                  |                         |                          |                         |

**Notes:**

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

### 3. HANDHELD MEASUREMENTS

Handheld measurements were collected on Wednesday, October 18<sup>th</sup> from 13:50 to 14:10 just after predicted low tide. These handheld measurements were collected approximately two hours after the completion of access channel dredging at 11:55. Dredging occurred between Station 150 and Station 350 inside the turning basin. A water quality meter equipped with a turbidity sensor was placed off the side of the water sampling skiff and set to a depth of 3 feet below water surface. The sampling team then made several passes up and down the turning basin and recorded turbidity readings approximately every ten feet. The sampling team then made two sweeps up and down the main channel of the canal from the mouth of TB4 to the ambient buoy location. The average turbidity inside the turning basin was 25.5 NTU. The maximum turbidity measured inside the turning basin was 34.6 NTU. The average turbidity outside of the turning basin was 8.6 NTU. The maximum turbidity measured outside of the turning basin was 9.5 NTU.

### 4. SUMMARY OF VISUAL OBSERVATIONS

Visible turbidity plumes generated from dredging during the week of October 16<sup>th</sup> were limited in size and only seen in the vicinity of the dredge grabs and the loading scow. Visible turbidity plumes did not reach the air curtain. Although no floatables or sheen was observed passing through the air curtain, Geosyntec advised that the gap between the end of the air curtain and the Whole Foods bulkhead be addressed using oil booms.

### 5. REPORT OF EXCEEDANCES

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

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

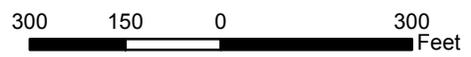
# **FIGURES**



X:\03\_GIS\mxd\Canal\_Wide\_Turbidity\_Buoy\_Locations.mxd; acarnes; 10/19/2017

**Legend**

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



**Turbidity Buoy Locations**

Gowanus Canal, Brooklyn, NY

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

Ewing, NJ

October 2017

**Figure**

**1**

**APPENDIX A**  
**PRE-DREDGE TURBIDITY BUOY DATA**

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

**TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT**





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

**Community Air Monitoring Project  
3<sup>rd</sup> Weekly Monitoring Period  
Summary Report:  
October 16<sup>th</sup>, through October 20<sup>th</sup>, 2017**

**Report Contents**

- Executive Summary
- Daily Data Summary Report – PM<sub>10</sub>/TVOC
- Daily Meteorological Summary Report
  - Periodic Monitoring Results
  - Volatile Organic Results  
(USEPA Method TO-15)

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

**Executive Summary – Week 3 Monitoring Period  
October 16<sup>th</sup>, through October 20<sup>th</sup>, 2017**

The following report summarizes site air monitoring activities for the Week 3 monitoring period from October 16<sup>th</sup>, through October 20<sup>th</sup>, 2017. The start and stop times associated with each daily monitoring period are listed on the respective daily data reports.

Daily data reports including graphical displays of TVOC and PM<sub>10</sub> data are provided herein. TVOC and PM<sub>10</sub> data are plotted on a daily basis for each of the stations in the network. Daily average and maximum concentrations are shown and compared to the respective TVOC and PM<sub>10</sub> action levels

TRC continued to operate two (2) air monitoring stations on the Citizen Property or Staging Area, and five (5) air monitoring stations in the 4<sup>th</sup> St Turning Basin Area. During the Week 3 monitoring period of October 16<sup>th</sup> through October 20<sup>th</sup>, 2017, there were no PM<sub>10</sub> or TVOC exceedances of the action level of 150 ug/m<sup>3</sup> or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study Brooklyn, NY, August 2017*.

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

During the Week 3 monitoring period of October 16<sup>th</sup>, through October 20<sup>th</sup>, 2017, TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Station 4 and 6. ST-6 was collected on October 17<sup>th</sup>, through October 18<sup>th</sup>, 2017 over a 24-hour sampling period. ST-4 was collected on October 18<sup>th</sup>, through October 19<sup>th</sup>, 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.

Results for a single sample collected at Station 4 for a 24 hr period concluding on October 5, 2017 are provided in Table 2 attached herein. Results for the majority of the volatile organics were non detected or consistent with concentrations found during the background monitoring period of August 28-31, 2017.

Site activities were conducted at the Citizen Property on October 16<sup>th</sup> through October 20<sup>th</sup>, 2017 which included the following:

- Material and Equipment deliveries on Citizen Property
- General vehicular traffic site-wide throughout the monitoring period
- Soil screening and transferring to barge
- Barge shipping and delivery
- Offloading of large and small debris to the laydown area
- De-mobilization of Pre-access barge

Activities related to the operation of the Water Treatment Facility took place at the 4<sup>th</sup> St Turning Basin Area of the Canal on October 16<sup>th</sup>, through October 20<sup>th</sup>, 2017 as follows:

- Staging and maneuvering of the work barges;
- Pre-access dredging resulting in the removal of; small debris (timbers, tires and miscellaneous items)
- Removal of Pre-access Dredge Barge from Canal

# Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)

10/16/2017 06:30 AM - 10/16/17 23:45 PM

Station 1

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

Station 2

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | <1 | ppb   | Max.             | 8 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

Station 3

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 89 | ppb   | Max.             | <1 | ug/m <sup>3</sup> |
| Avg. | 20 | ppb   | Avg.             | <1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

Station 4

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 22 | ppb   | Max.             | 8 | ug/m <sup>3</sup> |
| Avg. | 18 | ppb   | Avg.             | 3 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

Station 5

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 47 | ppb   | Max.             | 5 | ug/m <sup>3</sup> |
| Avg. | 13 | ppb   | Avg.             | 3 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

Station 6

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 47 | ppb   | Max.             | 10 | ug/m <sup>3</sup> |
| Avg. | 34 | ppb   | Avg.             | 5  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

Station 7

| TVOC |     |       | PM <sub>10</sub> |    |                   |
|------|-----|-------|------------------|----|-------------------|
| Max. | 110 | ppb   | Max.             | <1 | ug/m <sup>3</sup> |
| Avg. | 37  | ppb   | Avg.             | <1 | ug/m <sup>3</sup> |
| Exc. | 0   | total | Exc.             | 0  | Total             |

TVOC – Total Volatile Organic Compounds

PM<sub>10</sub> – Particulates as PM<sub>10</sub>

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m<sup>3</sup> - PM<sub>10</sub>)

# Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)

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

**Station 1**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 12 | ppb   | Max.             | 11 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 5  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 2**

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

**Station 3**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 54 | ppb   | Max.             | <1 | ug/m <sup>3</sup> |
| Avg. | 17 | ppb   | Avg.             | <1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 4**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 43 | ppb   | Max.             | 12 | ug/m <sup>3</sup> |
| Avg. | 18 | ppb   | Avg.             | 6  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 5**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 73 | ppb   | Max.             | 9 | ug/m <sup>3</sup> |
| Avg. | 20 | ppb   | Avg.             | 4 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 6**

| TVOC |   |       | PM <sub>10</sub> |    |                   |
|------|---|-------|------------------|----|-------------------|
| Max. | 7 | ppb   | Max.             | 15 | ug/m <sup>3</sup> |
| Avg. | 5 | ppb   | Avg.             | 6  | ug/m <sup>3</sup> |
| Exc. | 0 | total | Exc.             | 0  | Total             |

**Station 7**

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

TVOC – Total Volatile Organic Compounds

PM<sub>10</sub> – Particulates as PM<sub>10</sub>

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m<sup>3</sup> - PM<sub>10</sub>)

# Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)

10/18/2017 00:00 AM - 10/18/17 23:45 PM

## Station 1

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb   | Max.             | 87 | ug/m <sup>3</sup> |
| Avg. | 5  | ppb   | Avg.             | 11 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 2

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 13 | ppb   | Max.             | 49 | ug/m <sup>3</sup> |
| Avg. | 1  | ppb   | Avg.             | 9  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 3

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 58 | ppb   | Max.             | <1 | ug/m <sup>3</sup> |
| Avg. | 46 | ppb   | Avg.             | <1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 4

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 43 | ppb   | Max.             | 28 | ug/m <sup>3</sup> |
| Avg. | 15 | ppb   | Avg.             | 10 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 5

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 47 | ppb   | Max.             | 14 | ug/m <sup>3</sup> |
| Avg. | 18 | ppb   | Avg.             | 8  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 6

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 47 | ppb   | Max.             | 18 | ug/m <sup>3</sup> |
| Avg. | 28 | ppb   | Avg.             | 10 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 7

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 38 | ppb   | Max.             | <1 | ug/m <sup>3</sup> |
| Avg. | 2  | ppb   | Avg.             | <1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

TVOC – Total Volatile Organic Compounds

PM<sub>10</sub> – Particulates as PM<sub>10</sub>

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m<sup>3</sup> - PM<sub>10</sub>)

# Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)

10/19/2017 00:00 AM - 10/19/17 23:45 PM

## Station 1

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 33 | ppb   | Max.             | 15 | ug/m <sup>3</sup> |
| Avg. | 7  | ppb   | Avg.             | 9  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 2

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 25 | ppb   | Max.             | 16 | ug/m <sup>3</sup> |
| Avg. | 5  | ppb   | Avg.             | 9  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 3

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 57 | ppb   | Max.             | <1 | ug/m <sup>3</sup> |
| Avg. | 41 | ppb   | Avg.             | <1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 4

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 10 | ppb   | Max.             | 37 | ug/m <sup>3</sup> |
| Avg. | 1  | ppb   | Avg.             | 9  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 5

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 47 | ppb   | Max.             | 13 | ug/m <sup>3</sup> |
| Avg. | 15 | ppb   | Avg.             | 6  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 6

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 45 | ppb   | Max.             | 20 | ug/m <sup>3</sup> |
| Avg. | 25 | ppb   | Avg.             | 8  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

## Station 7

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

TVOC – Total Volatile Organic Compounds

PM<sub>10</sub> – Particulates as PM<sub>10</sub>

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m<sup>3</sup> - PM<sub>10</sub>)

# Gowanus Canal TB-4 Dredging and Capping Pilot Study

Brooklyn, New York

Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)

10/20/2017 00:00 AM - 10/20/17 18:00 PM

Station 1

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 13 | ppb   | Max.             | 20 | ug/m <sup>3</sup> |
| Avg. | 1  | ppb   | Avg.             | 8  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

Station 2

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 22 | ppb   | Max.             | 45 | ug/m <sup>3</sup> |
| Avg. | 3  | ppb   | Avg.             | 9  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

Station 3

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

Station 4

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 45 | ppb   | Max.             | 18 | ug/m <sup>3</sup> |
| Avg. | 8  | ppb   | Avg.             | 5  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

Station 5

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

Station 6

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb   | Max.             | 13 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 4  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

Station 7

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

TVOC – Total Volatile Organic Compounds

PM<sub>10</sub> – Particulates as PM<sub>10</sub>

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m<sup>3</sup> - PM<sub>10</sub>)



# Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study Brooklyn, New York Meteorological Summary October 16<sup>th</sup>, through October 20<sup>th</sup>, 2017

| October 16 <sup>th</sup> , 2017 |                  |                  |
|---------------------------------|------------------|------------------|
| Wind Direction (°)              | Wind Speed (mph) | Temperature (°F) |
| <b>W</b>                        | <b>2.93</b>      | <b>61.5</b>      |

| October 17 <sup>th</sup> , 2017 |                  |                  |
|---------------------------------|------------------|------------------|
| Wind Direction (°)              | Wind Speed (mph) | Temperature (°F) |
| <b>SW</b>                       | <b>2.51</b>      | <b>51.7</b>      |

| October 18 <sup>th</sup> , 2017 |                  |                  |
|---------------------------------|------------------|------------------|
| Wind Direction (°)              | Wind Speed (mph) | Temperature (°F) |
| <b>SSW</b>                      | <b>1.26</b>      | <b>53.9</b>      |

| October 19 <sup>th</sup> , 2017 |                  |                  |
|---------------------------------|------------------|------------------|
| Wind Direction (°)              | Wind Speed (mph) | Temperature (°F) |
| <b>SSW</b>                      | <b>1.37</b>      | <b>63.8</b>      |

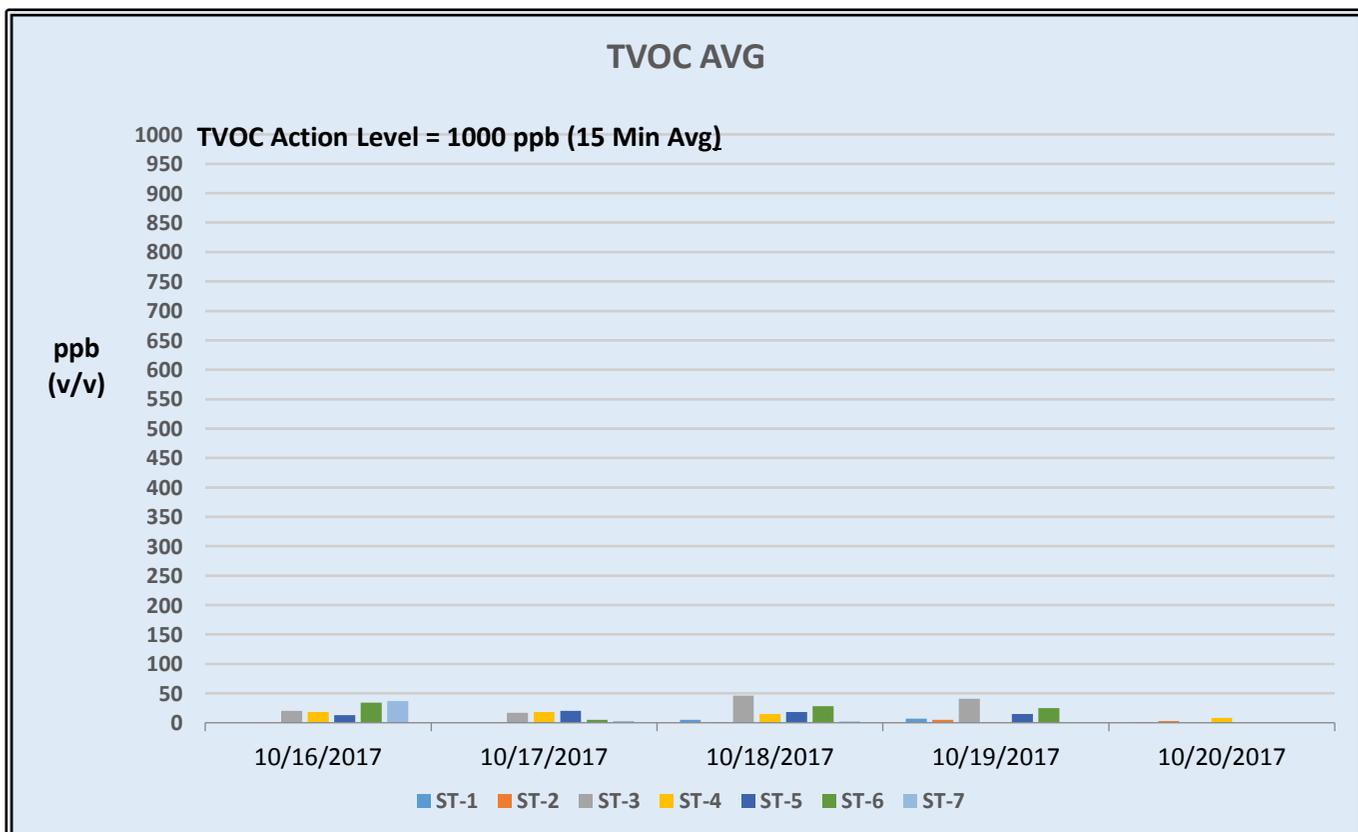
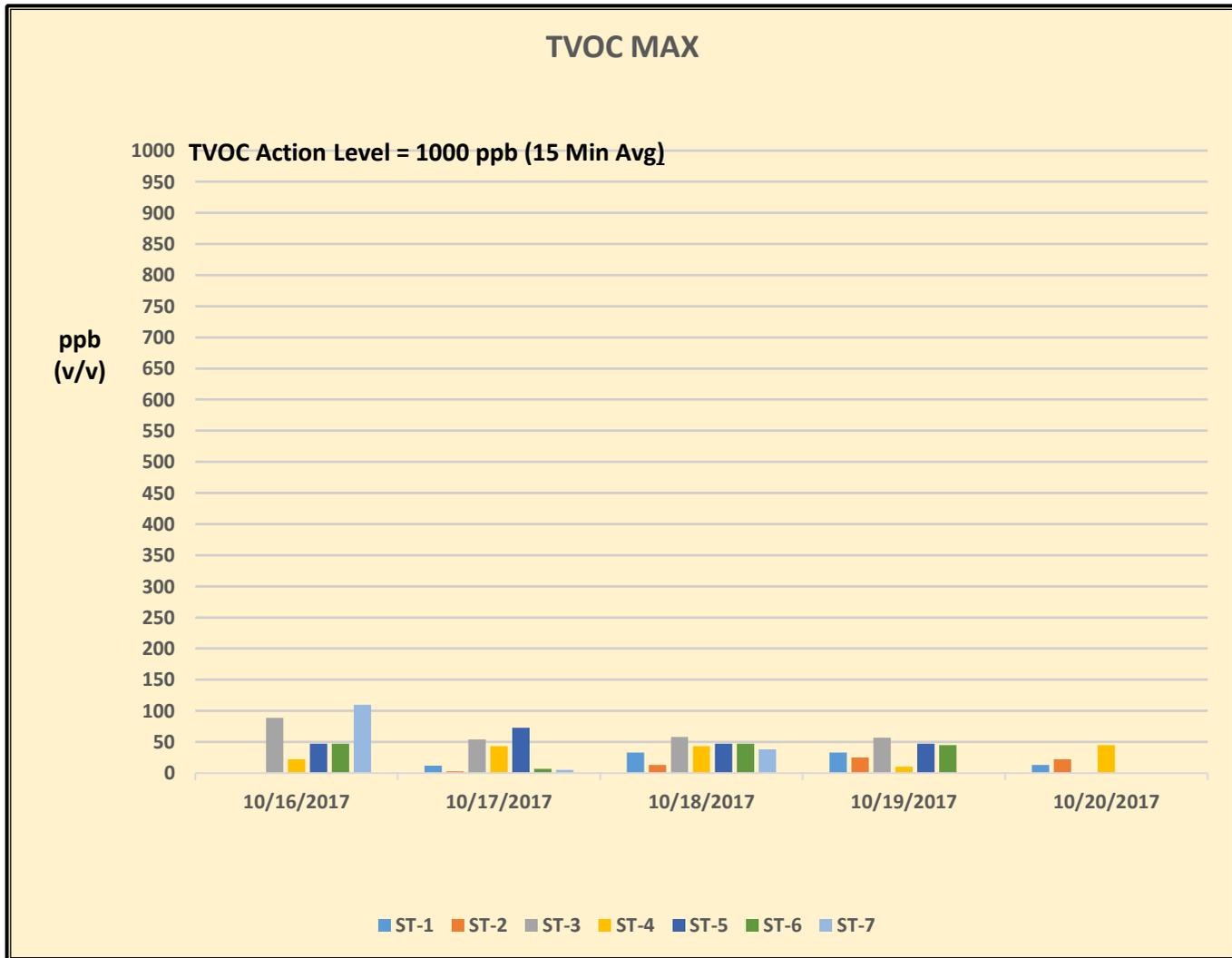
| October 20 <sup>th</sup> , 2017 |                  |                  |
|---------------------------------|------------------|------------------|
| Wind Direction (°)              | Wind Speed (mph) | Temperature (°F) |
| <b>W</b>                        | <b>1.74</b>      | <b>65.1</b>      |

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

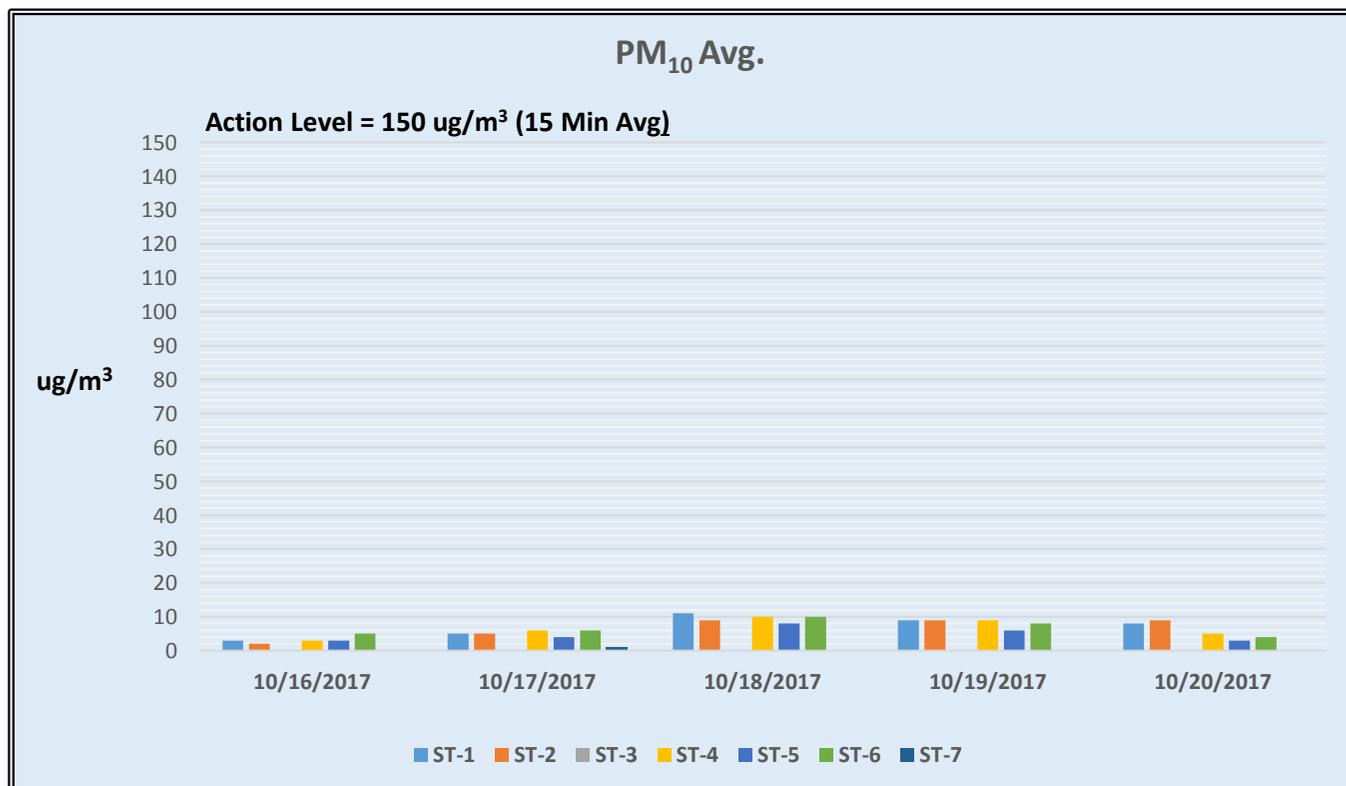
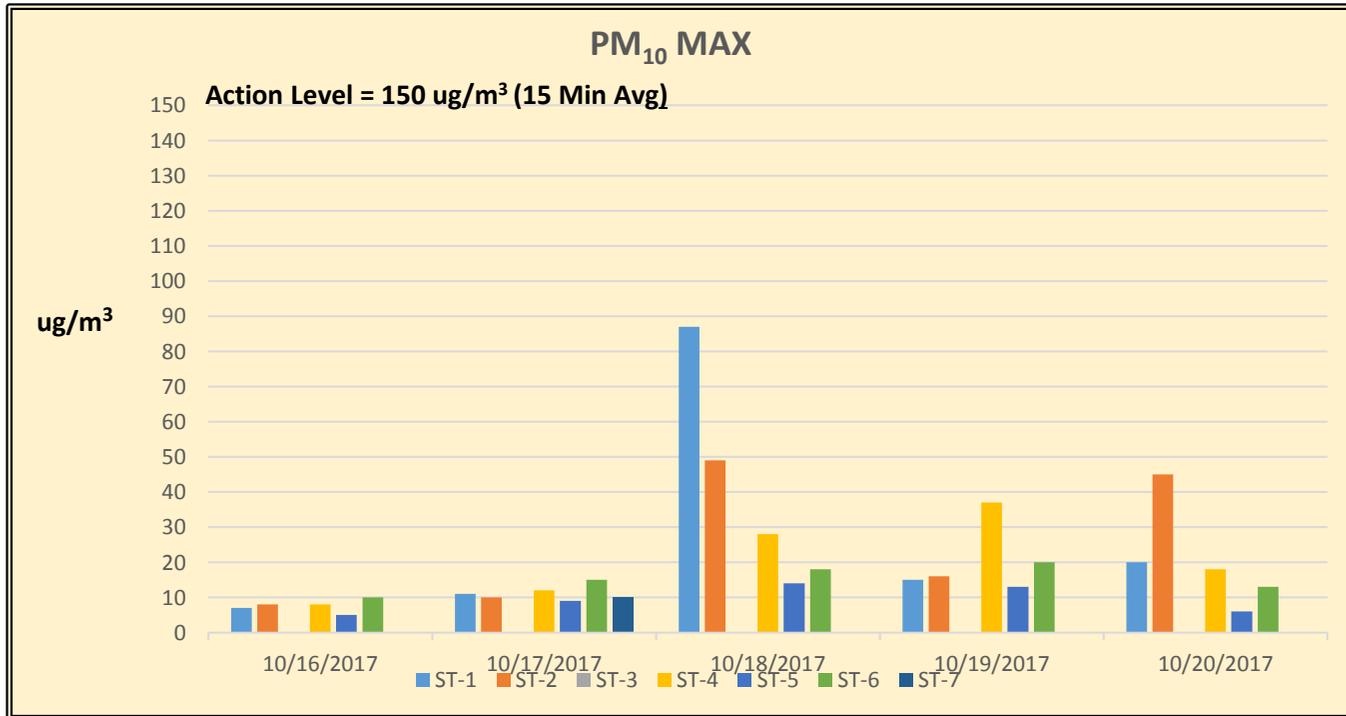
\*All meteorological data represents averages for the time period of 00:00 to 23:45 for Tuesday, Wednesday, and Thursday.

\*All meteorological data represents an average for the time period of 00:30 to 18:00 for Friday.

Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study  
 TRC CAMP TVOC Monitoring Data - Week #3 (10/16 to 10/20/2017)



Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study  
 TRC CAMP PM<sub>10</sub> Monitoring Data - Week #3 (10/16 to 10/20/2017)



**Table 1: Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study  
VOCs Results: Week 1, October 5, 2017**

|   |                |             |   |
|---|----------------|-------------|---|
| Sample ID   | ST4-VOC-100517 |             |   |
| Laboratory ID   | 17J0497-01     |             |   |
| Date Sampled  | 10/5/2017      |             |   |
| Location  | Station 4      |             |   |
|   | ppbV           | ug/m3       |   |
| <b>VOCs - TO-15</b>                                       |                |             |   |
| <b>Acetone</b>  | <1.4           | < 3.3       |   |
| <b>Benzene</b>  | <b>0.31</b>    | <b>0.98</b> |   |
| <b>Benzyl chloride</b>                                    | <0.035         | <0.18       |   |
| <b>Bromodichloromethane</b>                               | <0.035         | <0.24       |   |
| <b>Bromoform</b>  | <0.035         | <0.36       |   |
| <b>Bromomethane</b>                                       | <0.035         | <0.14       |   |
| <b>1,3-Butadiene</b>                                      | <b>0.087</b>   | <b>0.19</b> |   |
| <b>2-Butanone (MEK)</b>                                   | <1.4           | <4.1        |   |
| <b>Carbon Disulfide</b>                                   | <0.35          | <1.1        |   |
| <b>Carbon Tetrachloride</b>                               | 0.064          | 0.4         |   |
| <b>Chlorobenzene</b>                                      | <0.035         | <0.16       |   |
| <b>Chloroethane</b>                                       | <0.035         | <0.093      |   |
| <b>Chloroform</b>   | <0.035         | <0.17       |   |
| <b>Chloromethane</b>                                      | <b>0.5</b>     | <b>1</b>    |   |
| <b>Cyclohexane</b>  | <b>0.49</b>    | <b>1.7</b>  |   |
| <b>Dibromochloromethane</b>                               | <0.035         | <0.30       |   |
| <b>1,2-Dibromoethane (EDB)</b>                            | <0.035         | <0.27       |   |
| <b>1,2-Dichlorobenzene</b>                                | <0.035         | <0.21       |   |
| <b>1,3-Dichlorobenzene</b>                                | <0.035         | <0.21       |   |
| <b>1,4-Dichlorobenzene</b>                                | <0.035         | <0.21       |   |
| <b>Dichlorodifluoromethane (Freon 12)</b>                 | <b>0.31</b>    | <b>1.5</b>  |   |
| <b>1,1-Dichloroethane</b>                                 | <0.035         | <0.14       |   |
| <b>1,2-Dichloroethane</b>                                 | <0.035         | <0.14       |   |
| <b>1,1-Dichloroethylene</b>                               | <0.035         | <0.14       |   |
| <b>cis-1,2-Dichloroethylene</b>                           | <0.035         | <0.14       |   |
| <b>trans-1,2-Dichloroethylene</b>                         | <0.035         | <0.14       |   |
| <b>1,2-Dichloropropane</b>                                | <0.035         | <0.16       |   |
| <b>cis-1,3-Dichloropropene</b>                            | <0.035         | <0.16       |   |
| <b>trans-1,3-Dichloropropene</b>                          | <0.035         | <0.16       |   |
| <b>1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)</b> | <0.035         | <0.25       |   |
| <b>1,4-Dioxane</b>  | <0.35          | <1.3        |   |
| <b>Ethanol</b>  | <b>13</b>      | <b>25</b>   |   |
| <b>Ethyl Acetate</b>                                      | <b>1.3</b>     | <b>4.7</b>  |   |
| <b>Ethylbenzene</b>                                       | <b>0.19</b>    | <b>0.81</b> |   |
| <b>4-Ethyltoluene</b>                                     | <b>0.044</b>   | <b>0.22</b> |   |
| <b>Heptane</b>  | <b>0.26</b>    | <b>1.1</b>  |   |
| <b>Hexachlorobutadiene</b>                                | <0.035         | <0.37       |   |
| <b>Hexane</b>   | <1.4           | <4.9        |   |
| <b>2-Hexanone (MBK)</b>                                   | <0.035         | <0.14       |   |
| <b>Isopropanol</b>  | <b>3.2</b>     | <b>7.9</b>  |   |
| <b>Methyl tert-Butyl Ether (MTBE)</b>                     | <0.035         | <0.13       |   |
| <b>Methylene Chloride</b>                                 | <b>0.37</b>    | <b>1.3</b>  |   |
| <b>4-Methyl-2-pentanone (MIBK)</b>                        | <b>0.17</b>    | <b>0.69</b> | B |
| <b>Naphthalene</b>  | <b>0.13</b>    | <b>0.69</b> |   |
| <b>Propene</b>  | <1.4           | <2.4        |   |
| <b>Styrene</b>  | <b>0.12</b>    | <b>0.52</b> |   |
| <b>1,1,2,2-Tetrachloroethane</b>                          | <0.035         | <0.24       |   |
| <b>Tetrachloroethylene</b>                                | <b>0.1</b>     | <b>0.69</b> |   |
| <b>Tetrahydrofuran</b>                                    | <0.035         | <0.10       |   |
| <b>Toluene</b>  | <b>1.8</b>     | <b>6.8</b>  |   |
| <b>1,2,4-Trichlorobenzene</b>                             | <0.035         | <0.26       |   |
| <b>1,1,1-Trichloroethane</b>                              | <0.035         | <0.19       |   |
| <b>1,1,2-Trichloroethane</b>                              | <0.035         | <0.19       |   |
| <b>Trichloroethylene</b>                                  | <0.035         | <0.19       |   |
| <b>Trichlorofluoromethane (Freon 11)</b>                  | <b>0.26</b>    | <b>1.5</b>  |   |
| <b>1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)</b>  | <0.14          | <1.1        |   |
| <b>1,2,4-Trimethylbenzene</b>                             | <b>0.14</b>    | <b>0.69</b> |   |
| <b>1,3,5-Trimethylbenzene</b>                             | <b>0.037</b>   | <b>0.18</b> |   |
| <b>Vinyl Acetate</b>                                      | <0.70          | <2.5        |   |
| <b>Vinyl Chloride</b>                                     | <0.035         | <0.090      |   |
| <b>m&amp;p-Xylene</b>                                     | <b>0.57</b>    | <b>2.5</b>  |   |
| <b>o-Xylene</b>   | <b>0.21</b>    | <b>0.93</b> |   |

Notes:

Values in **bold** indicate detected concentrations

B: This compound was detected in the laboratory blank, indicating potential contamination. Results for the following compounds may be influenced by laboratory derived contamination: acetone, ethanol, methylene chloride and isopropanol

Table 2: Summary of Periodic (Daily) Monitoring Data  
 Week 3 (October 16<sup>th</sup> through 20<sup>th</sup>, 2017)

| October 16 <sup>th</sup> , 2017 |       |                    |                                     |                            |
|---------------------------------|-------|--------------------|-------------------------------------|----------------------------|
| Station Id                      | Time  | Formaldehyde (CHO) | Hydrogen Sulfide (H <sub>2</sub> S) | Ammonia (NH <sub>3</sub> ) |
| ST-1                            | 7:30  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-2                            | 7:35  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:20 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-3                            | 7:55  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:50 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-4                            | 8:10  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-5                            | 8:15  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-6                            | 9:00  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-7                            | 9:15  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:40 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |

| October 17 <sup>th</sup> , 2017 |       |                    |                                     |                            |
|---------------------------------|-------|--------------------|-------------------------------------|----------------------------|
| Station Id                      | Time  | Formaldehyde (CHO) | Hydrogen Sulfide (H <sub>2</sub> S) | Ammonia (NH <sub>3</sub> ) |
| ST-1                            | 9:00  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-2                            | 9:10  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:35 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-3                            | 9:30  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:50 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-4                            | 9:40  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-5                            | 9:45  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-6                            | 10:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:40 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-7                            | 10:15 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |

Table 2: Summary of Periodic (Daily) Monitoring Data  
 Week 3 (October 16<sup>th</sup> through 20<sup>th</sup>, 2017)

| October 18 <sup>th</sup> , 2017 |       |                    |                                     |                            |
|---------------------------------|-------|--------------------|-------------------------------------|----------------------------|
| Station Id                      | Time  | Formaldehyde (CHO) | Hydrogen Sulfide (H <sub>2</sub> S) | Ammonia (NH <sub>3</sub> ) |
| ST-1                            | 9:00  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-2                            | 9:05  | <50 ppb            | 1.15 ppb                            | <1.0 ppm                   |
|                                 | 15:40 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-3                            | 9:20  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-4                            | 9:35  | <50 ppb            | 2.75 ppb                            | <1.0 ppm                   |
|                                 | 16:05 | <50 ppb            | 7.18                                | <1.0 ppm                   |
| ST-5                            | 9:40  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-6                            | 10:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-7                            | 10:15 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:45 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |

| October 19 <sup>th</sup> , 2017 |       |                    |                                     |                            |
|---------------------------------|-------|--------------------|-------------------------------------|----------------------------|
| Station Id                      | Time  | Formaldehyde (CHO) | Hydrogen Sulfide (H <sub>2</sub> S) | Ammonia (NH <sub>3</sub> ) |
| ST-1                            | 7:15  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 13:15 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-2                            | 7:20  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 13:20 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-3                            | 7:40  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-4                            | 7:50  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:05 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-5                            | 9:40  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-6                            | 10:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-7                            | 10:15 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 14:45 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |

Table 2: Summary of Periodic (Daily) Monitoring Data  
 Week 3 (October 16<sup>th</sup> through 20<sup>th</sup>, 2017)

| October 20 <sup>th</sup> , 2017 |       |                    |                                     |                            |
|---------------------------------|-------|--------------------|-------------------------------------|----------------------------|
| Station Id                      | Time  | Formaldehyde (CHO) | Hydrogen Sulfide (H <sub>2</sub> S) | Ammonia (NH <sub>3</sub> ) |
| ST-1                            | 9:00  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-2                            | 9:05  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:20 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-3                            | 9:15  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:40 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-4                            | 9:20  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 15:45 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-5                            | 9:30  | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-6                            | 10:00 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:20 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
| ST-7                            | 10:10 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |
|                                 | 16:30 | <50 ppb            | <3 ppb                              | <1.0 ppm                   |

\* ppb – Parts Per Billion

\* ppm – Part Per Million

**WILSON-IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT**





WI #15-081

**MEMORANDUM**

October 23, 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, 16 – 20 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 6 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring plan<sup>1</sup>. 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<sup>2</sup>. Due to cellular connectivity issues, no data are available for NM-1.

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

<sup>2</sup> 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 7 and 16 present the maximum peak particle velocity (PPV) vibration events compared with the thresholds discussed in the vibration monitoring plan<sup>3</sup>. Commercial and Industrial structures are assigned a PPV vibration criterion of 2.0 inches/second.



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

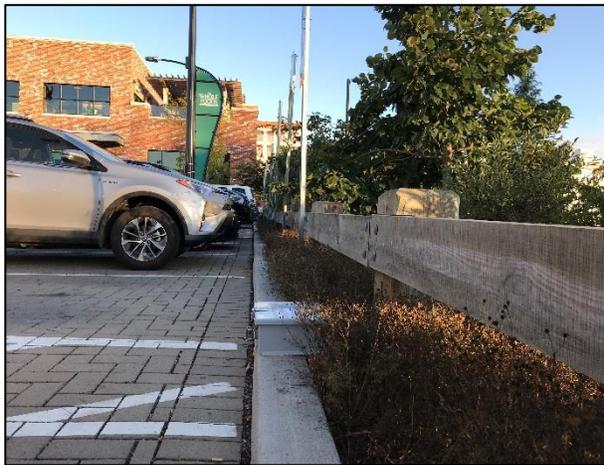
<sup>3</sup> Wilson Ihrig. *Gowanus Canal 4<sup>th</sup> Street Turning Basin Dredging and Capping Pilot Study Noise and Vibration Monitoring Plan*. California: prepared for Gowanus Canal Remedial Design Group, DRAFT May 2017



**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)**

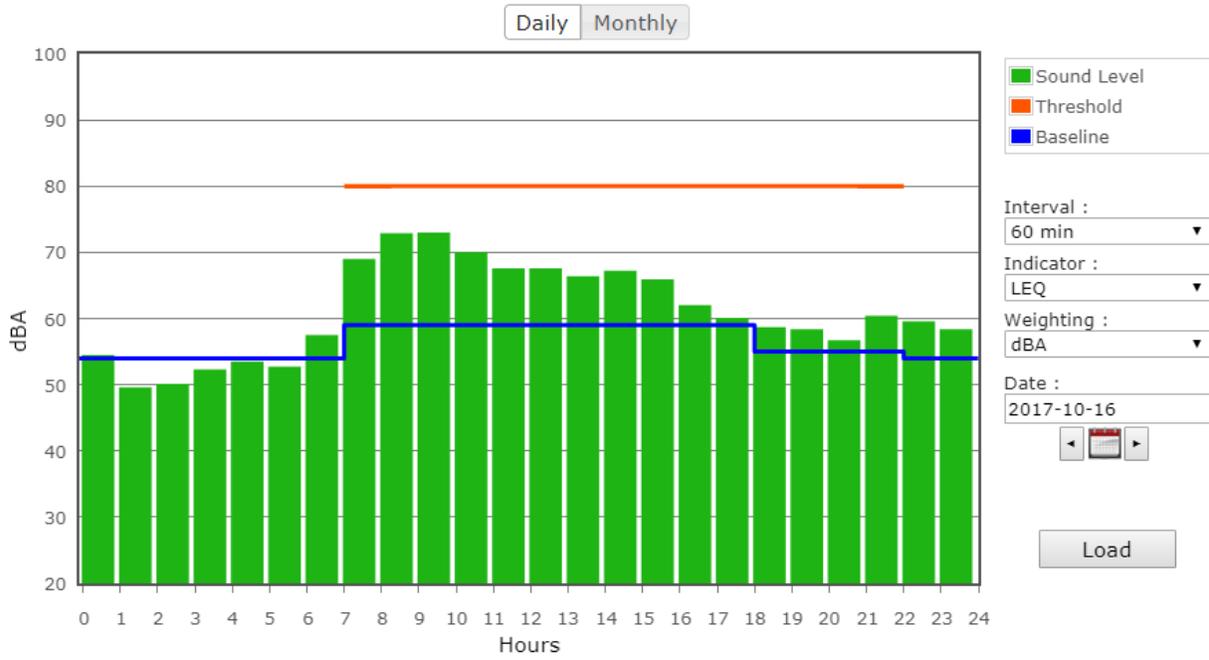


Figure 2: South Monitor NM-2 on Monday

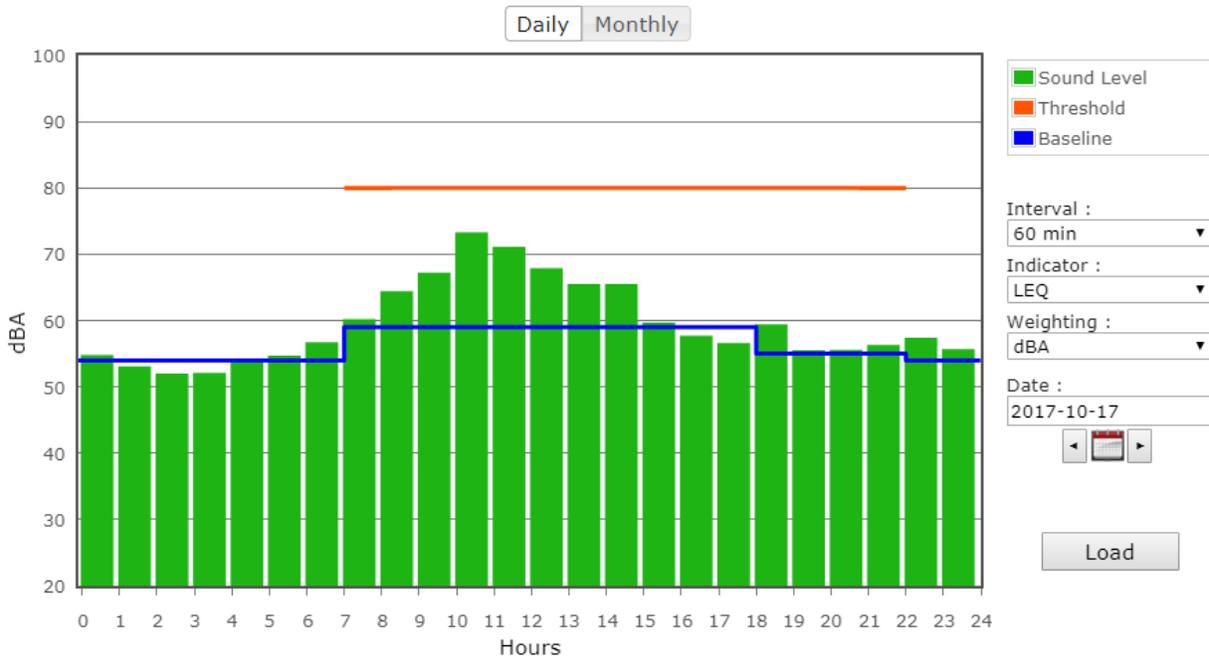
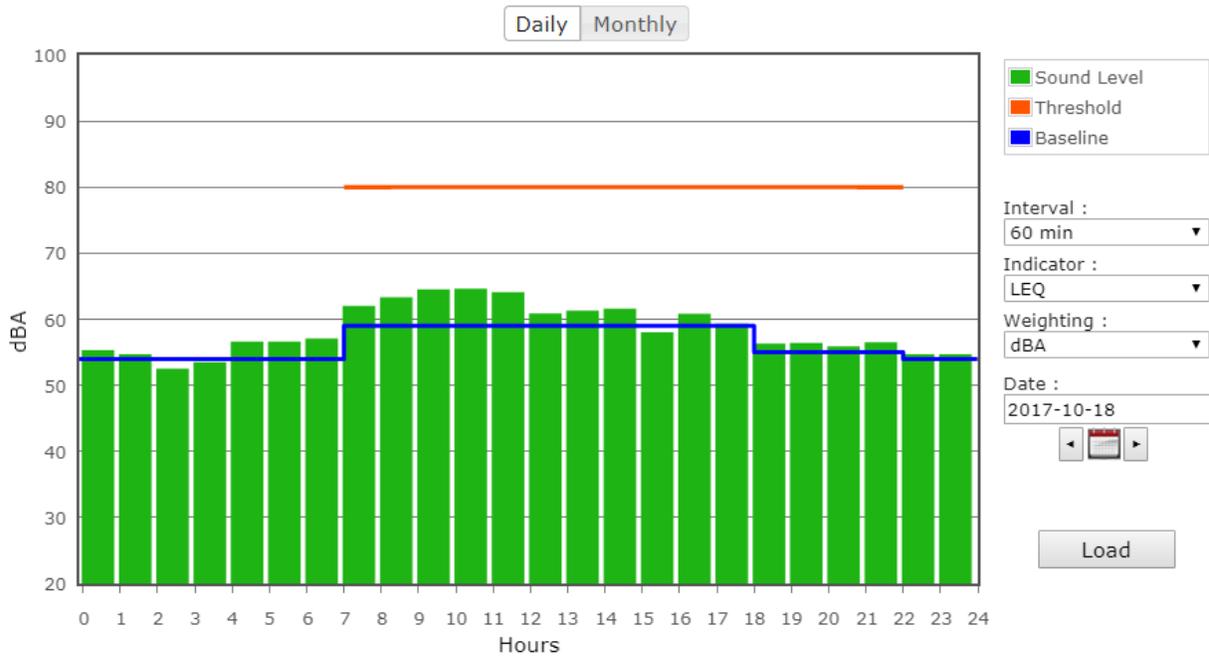
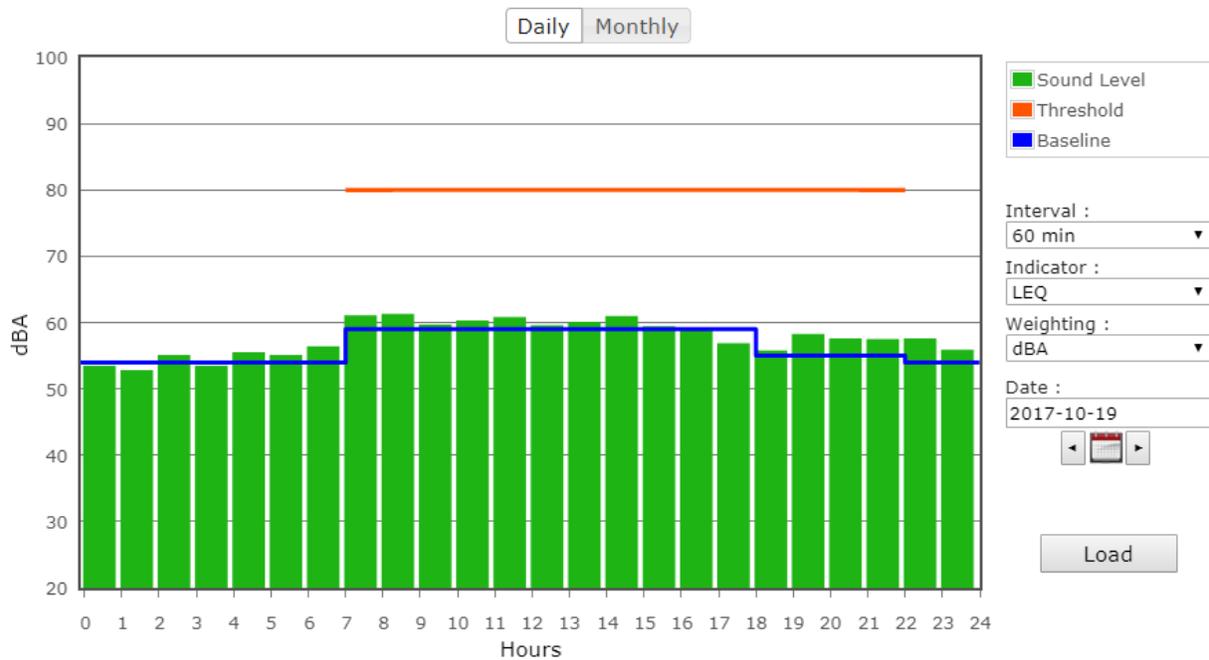


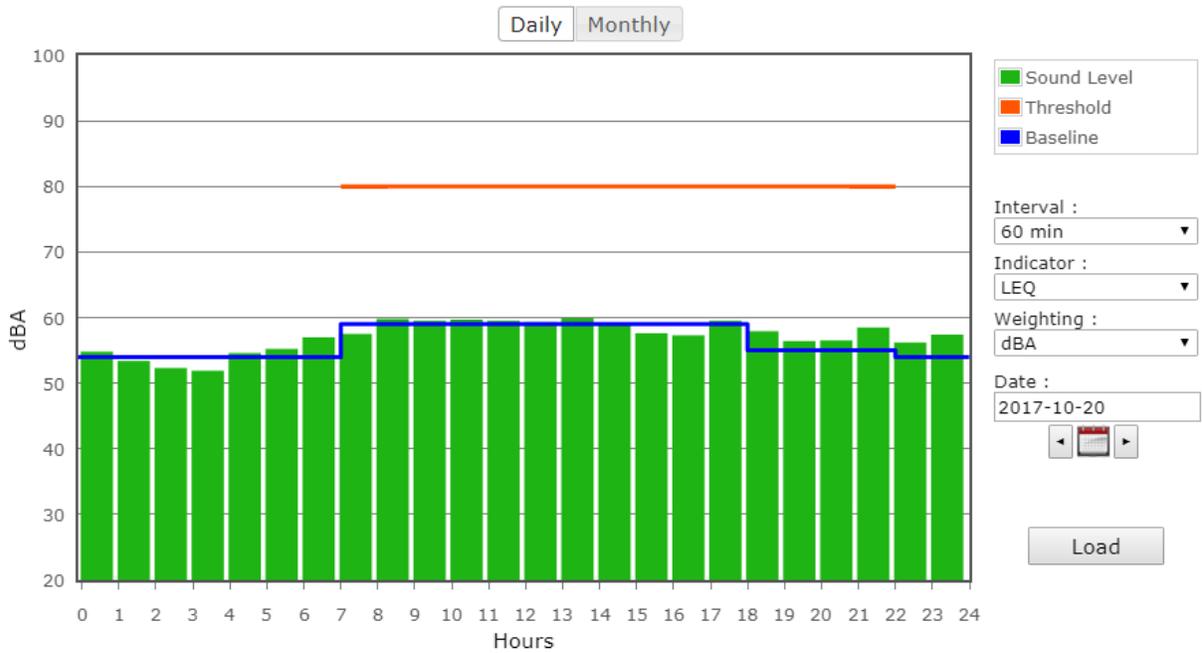
Figure 3: South Monitor NM-2 on Tuesday



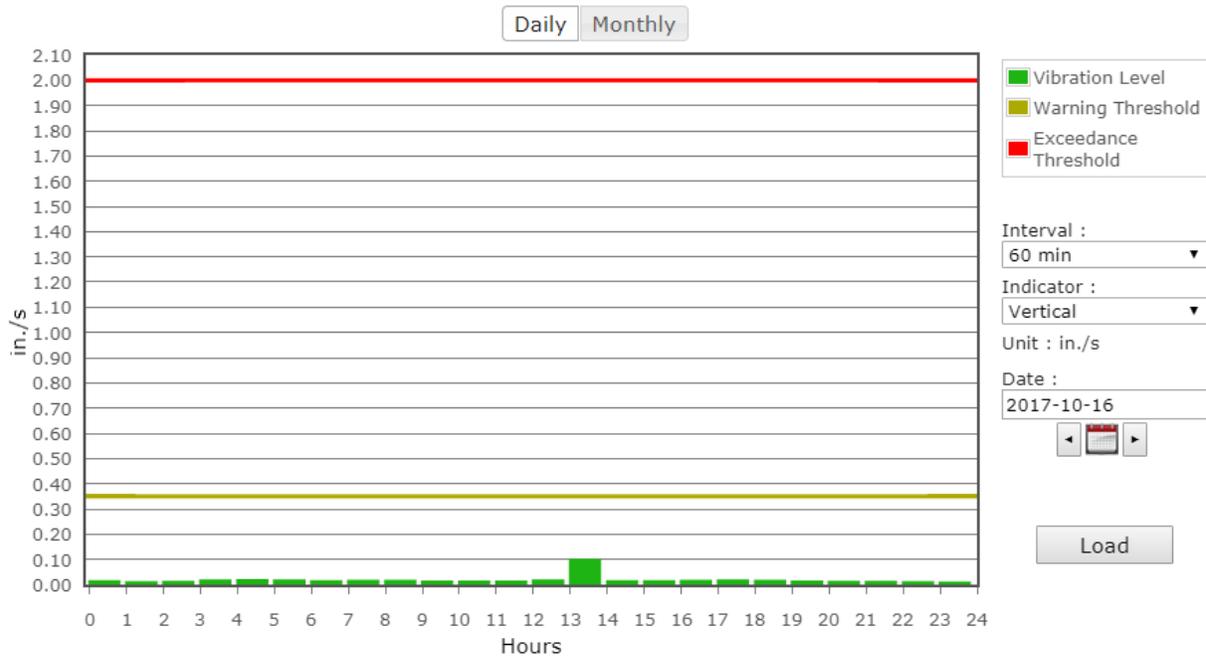
**Figure 4: South Monitor NM-2 on Wednesday**



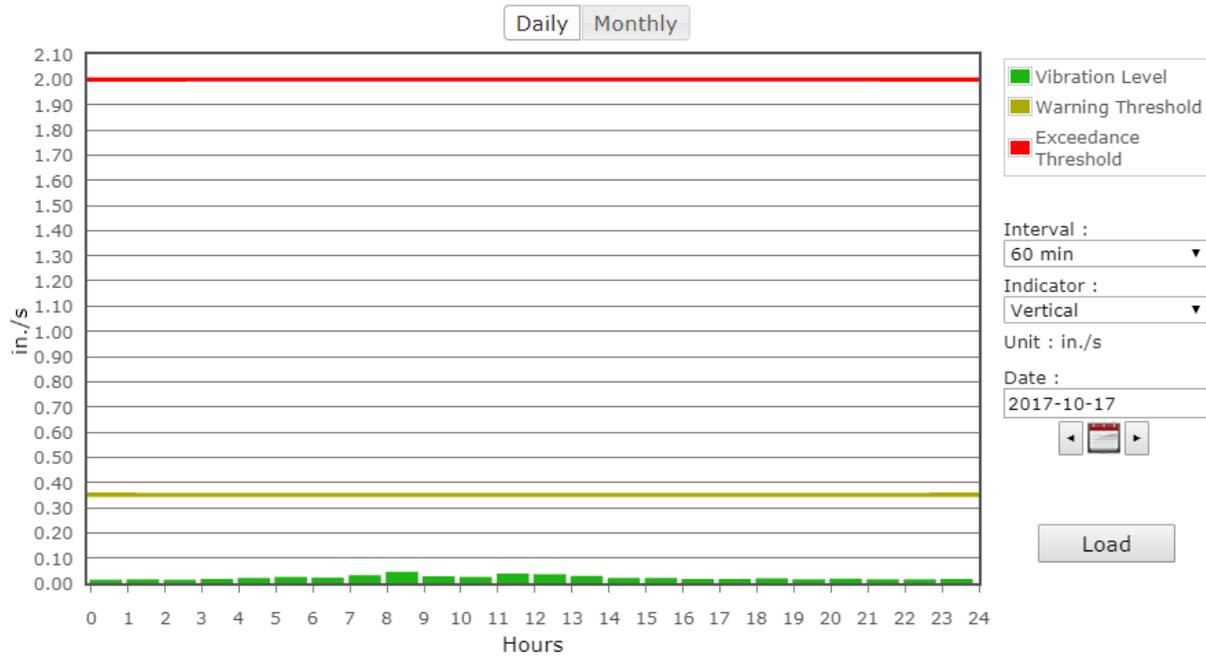
**Figure 5: South Monitor NM-2 on Thursday**



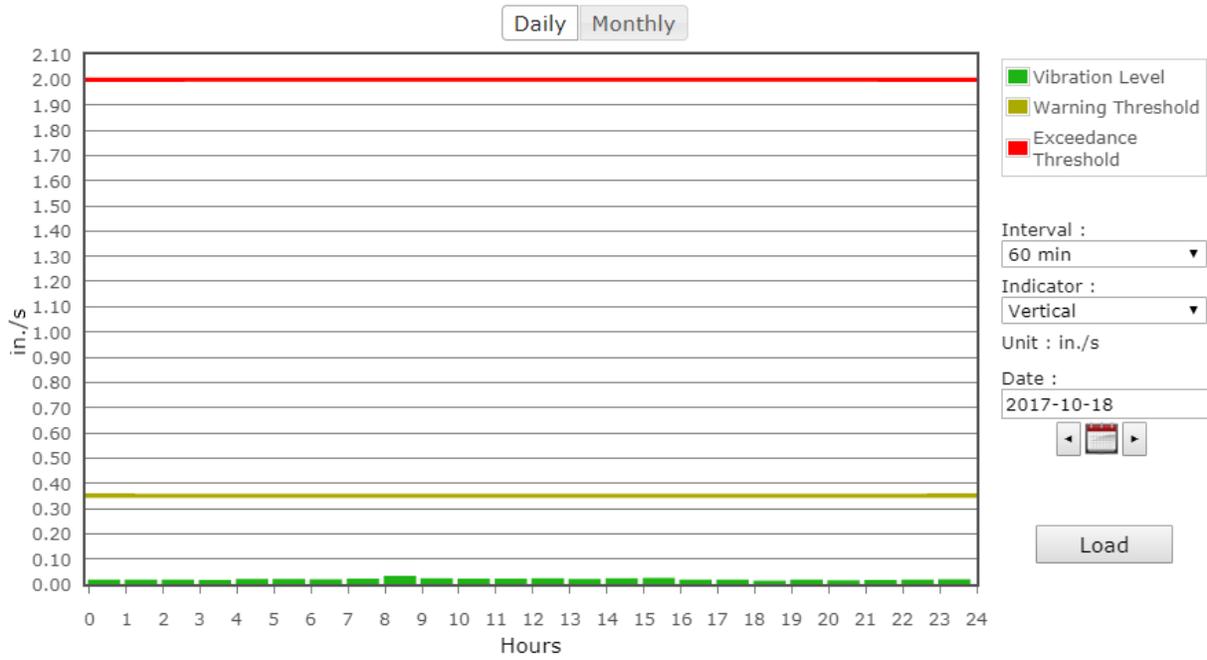
**Figure 6: South Monitor NM-2 on Friday**



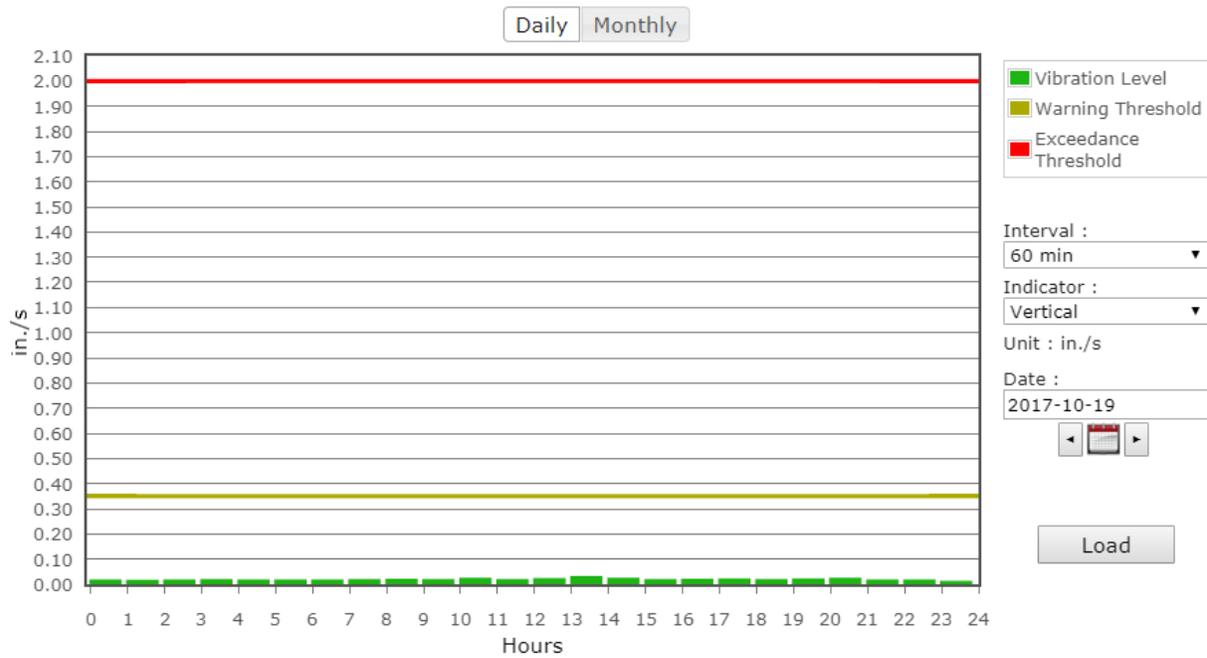
**Figure 7: North Vibration Monitor VM-1 on Monday**



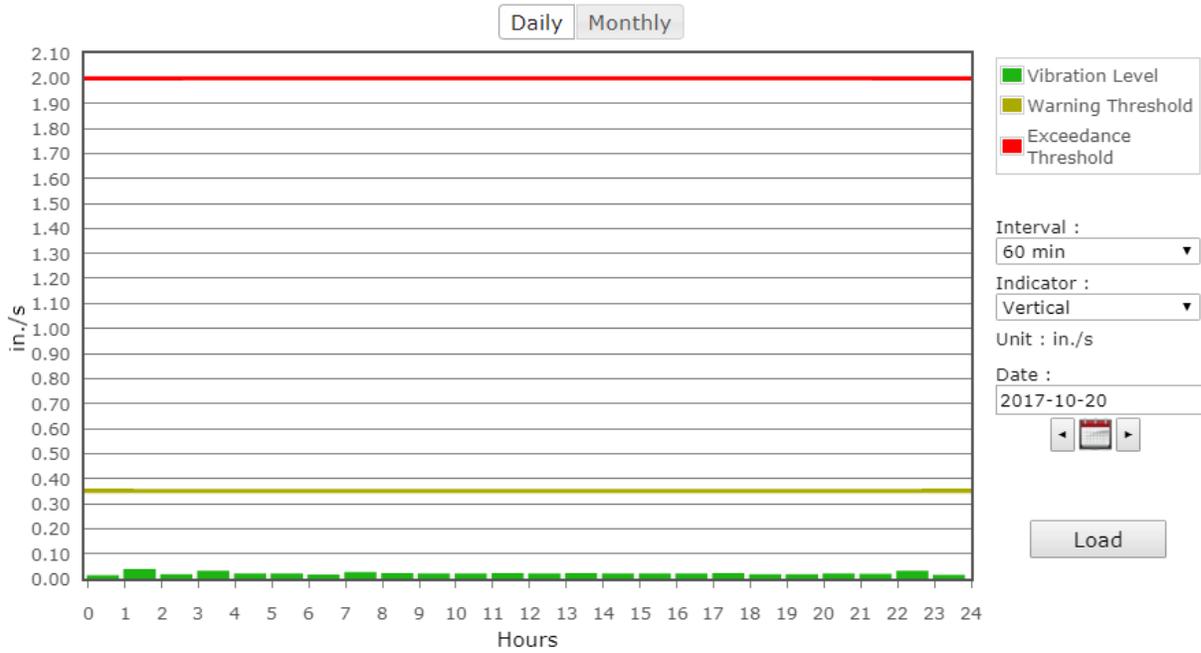
**Figure 8: North Vibration Monitor VM-1 on Tuesday**



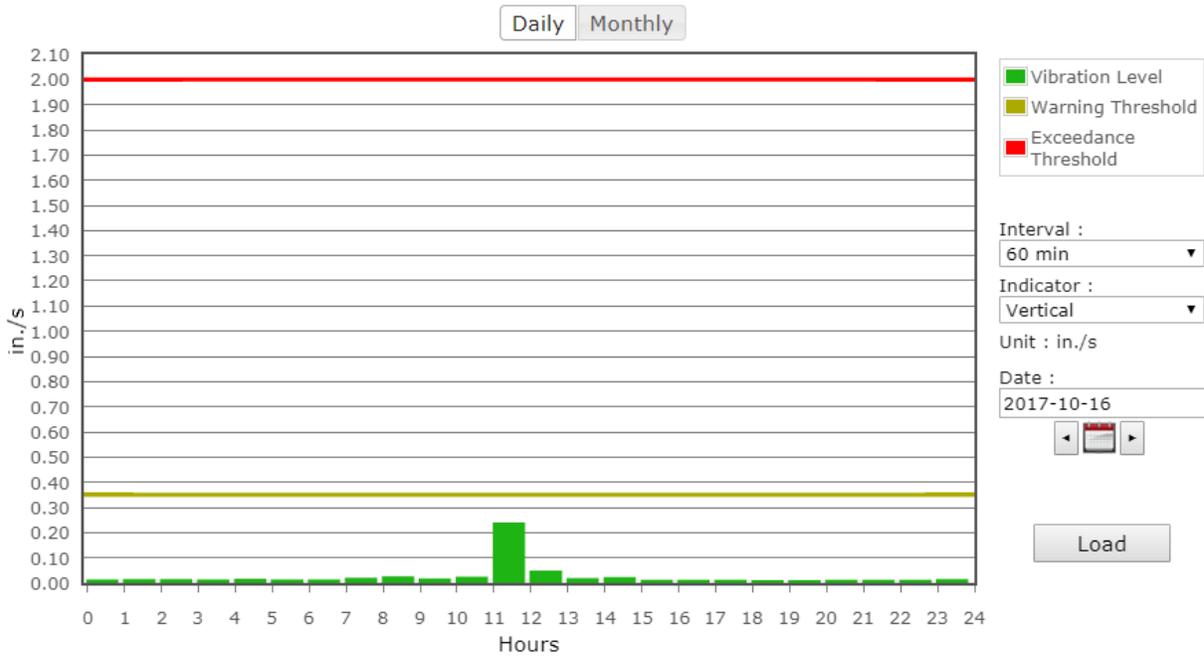
**Figure 9: North Vibration Monitor VM-1 on Wednesday**



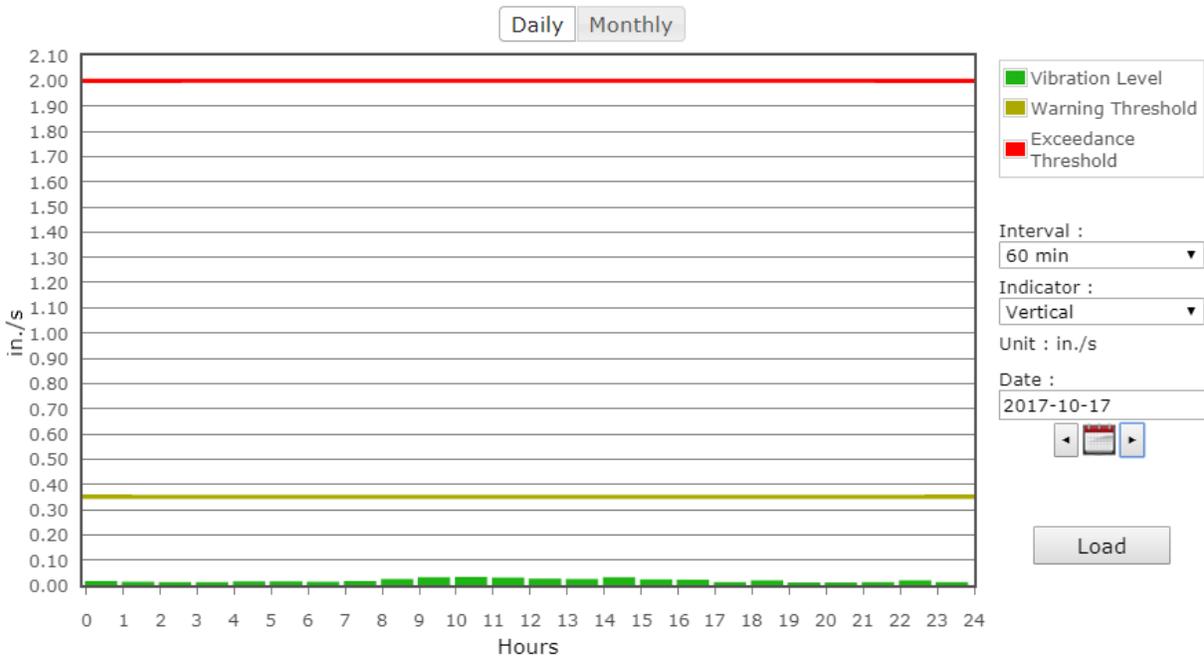
**Figure 10: North Vibration Monitor VM-1 on Thursday**



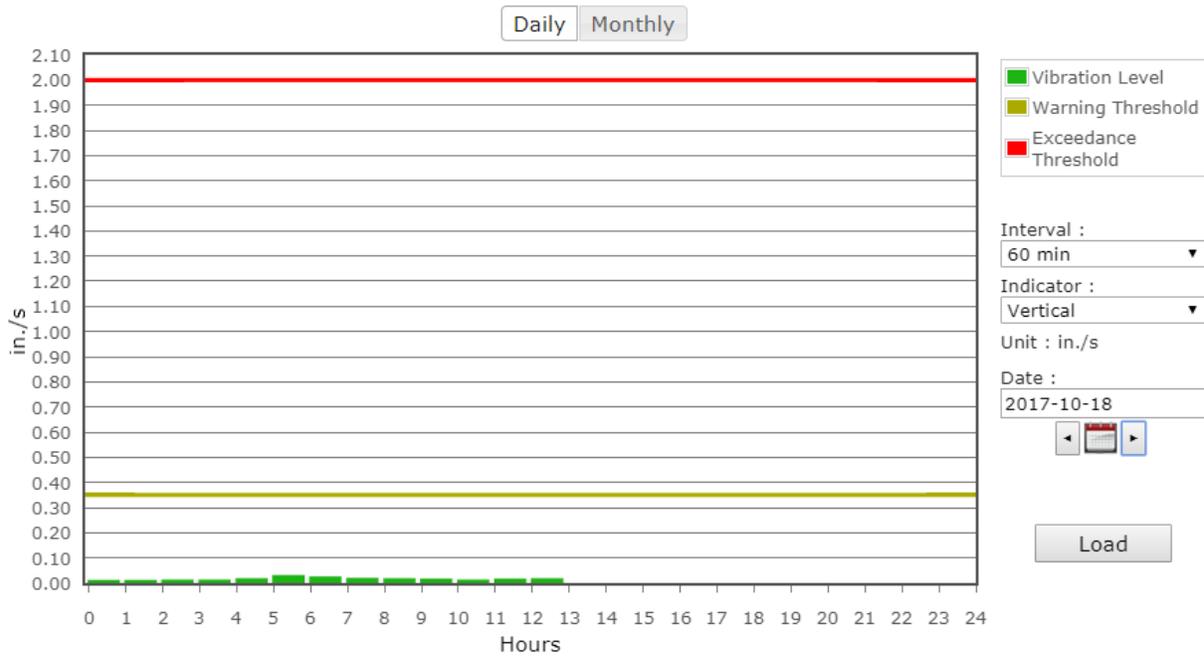
**Figure 11: North Vibration Monitor VM-1 on Friday**



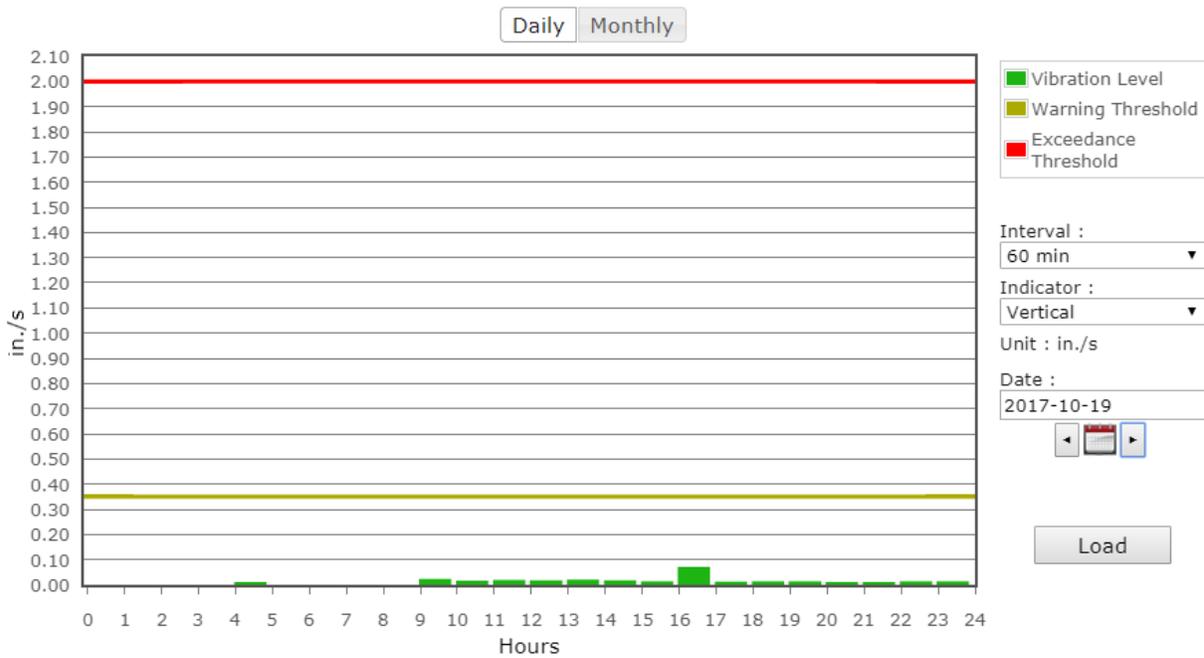
**Figure 12: South Vibration Monitor VM-2 on Monday**



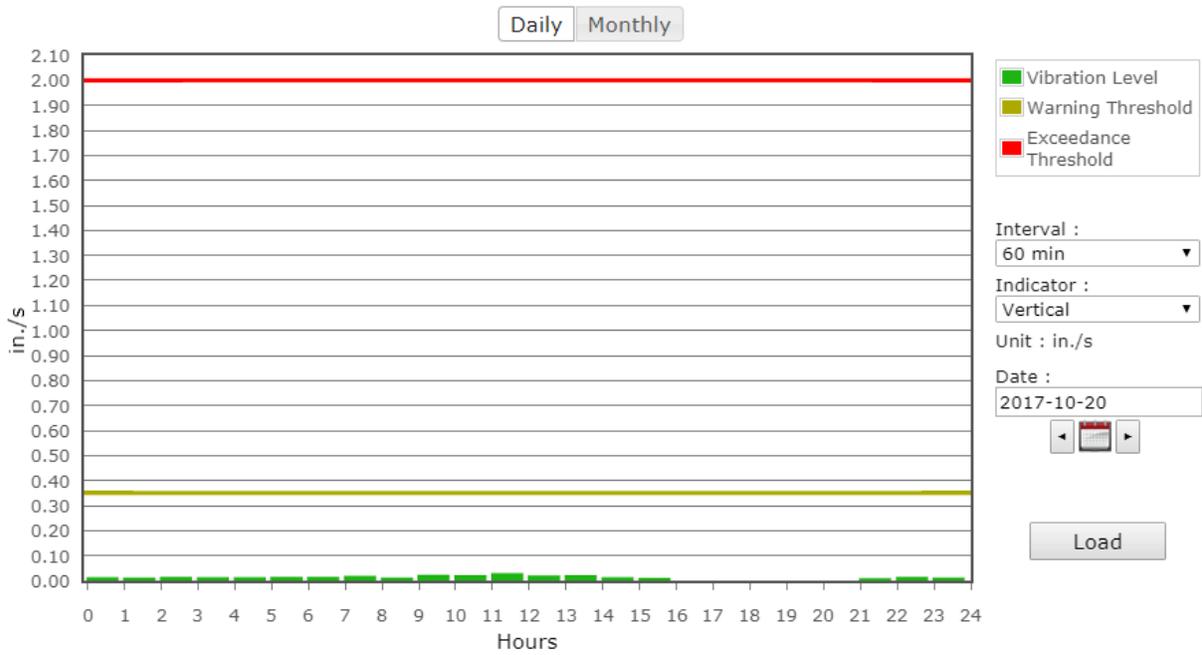
**Figure 13: South Vibration Monitor VM-2 on Tuesday**



**Figure 14: South Vibration Monitor VM-2 on Wednesday**



**Figure 15: South Vibration Monitor VM-2 on Thursday**



**Figure 16: South Vibration Monitor VM-2 on Friday**

20171023 Wilson Ihrig Weekly Noise and Vibration Report 16 Oct - 20 Oct 2017.docx

**AHRS WEEKLY REPORT**





## Cultural Resource Consultants

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### Weekly Report

**October 23, 2017**

Jonathan Bream of AHRS was on the dredge barge monitoring the debris removal of the seven test pits excavated along the edge of the timber canal bulkheads on Tuesday, October 17. The debris removal was conducted to a depth of – 6.0 feet. No probing was done during the dredging. Monitoring included the removal of the debris by the operator as well examination of the dredge spoil in the skows after each deposit.

Recognizable objects in the dredge spoil included plastic sheeting, plastic bags, a plastic bucket and other modern debris. No large objects appeared.

On Wednesday, October 18, Jonathan Bream accompanied Panos Andonyadis of Geosyntec on the skiff to probe for the depth and condition of the bulkheads. Due to Test Pits 1 to 4 not being marked on the ground, Panos was only able to probe the bulkheads at Test Pits 5, 6, and 7. While the bulkheads have been cut down along Whole Foods, the timber cribbing still exists below the low water line. In the three test pits sampled, it appears that timber cribbing extended to a depth of – 6.0 feet.

Photographs were taken of the dredge spoil but nothing very descript nor obvious cultural resources was seen. This dredge spoil would be screened and any large objects will be viewed during the next and final inspection for the debris removed during Access Dredging activities. This inspection is scheduled for Monday, October 23, 2017.



Photograph 1 – TB4 TP2 Location p2: Showing Location of Test Pit 2.



Photograph 2 – TB4 TP4 Dredge Bucket: Note the plastic and modern debris hanging from dredge bucket.

**WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA  
(ANALYTICAL RESULTS TO BE PROVIDED IN FOLLOWING WEEKLY REPORT)**



**CUMULATIVE DREDGED MATERIAL CHART**



Gowanus Canal TB4 Pilot Study  
Cumulative Material Dredged  
Weekly Report Update

