

**WEEKLY PROGRESS REPORT – TRC SOLUTIONS**

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

**Project number: 283126**

**Period: November 26 to 30, 2018**

**Date of Report: December 5, 2018**

**Rev: 0**

**Prepared For: Gowanus Environmental Remediation Trust**



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

Sevenson Environmental Services (SES)

#### Turbidity Monitoring

- Turbid water not observed migrating from the 4<sup>th</sup> Street Turning Basin.

#### TB4 Demobilization Activities

- Commence placement of stone between installed sheet piles and existing bulkheads along southern boundary of Turning Basin 4.
- Disassemble hydraulic capping barge.
- Confirm elevation of oleophilic clay and sand mixture placed between existing timber bulkhead and installed sheet pile adjacent to Whole Foods.

#### Citizens Site Demobilization Activities

- Continue decontaminating and demobilizing equipment.

### **Quality Assurance and Control – Geosyntec**

- No exceedance of the turbidity trigger or action criteria
- Measurements for 11/26/18:
  - *Data from Monday, November 26<sup>th</sup>, 2018 did not meet data quality requirements for accuracy and were rejected.*
- Measurements for 11/27/18:
  - *Data from 07:00 to 12:00 on Tuesday, November 27<sup>th</sup>, 2018 did not meet data quality requirements for accuracy and were rejected.*
  - Daily average for ambient buoy – 11.6 NTU
  - Daily average for sentinel buoy – 4.1 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – no instances when turbidity measurement at the sentinel buoy exceeded the ambient buoy.
- Measurements for 11/28/18:
  - Daily average for ambient buoy – 12.4 NTU
  - Daily average for sentinel buoy – 6.0 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – no instances when turbidity measurement at the sentinel buoy exceeded the ambient buoy.
- Measurements for 11/29/18:
  - Daily average for ambient buoy – 18.3 NTU
  - Daily average for sentinel buoy – 8.8 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – no instances when turbidity measurement at the sentinel buoy exceeded the ambient buoy.
- Measurements for 11/30/18:
  - Daily average for ambient buoy – 19.5 NTU
  - Daily average for sentinel buoy – 1.4 NTU
  - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – no instances when turbidity measurement at the sentinel buoy exceeded the ambient buoy.

### **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 – 14 µg/m<sup>3</sup> recorded on 11/26/18
  - Station 2 – 14 µg/m<sup>3</sup> recorded on 11/26/18
  - Station 3 – 67 µg/m<sup>3</sup> recorded on 11/27/18
  - Station 4 – 12 µg/m<sup>3</sup> recorded on 11/30/18
  - Station 5 – 20 µg/m<sup>3</sup> recorded on 11/30/18
  - Station 6 – 14 µg/m<sup>3</sup> recorded on 11/30/18
  - Station 7 – <1 µg/m<sup>3</sup> recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
  - Station 1 – 265 ppb recorded on 11/27/18
  - Station 2 – <1 ppb recorded throughout the week
  - Station 3 – 14 ppb recorded on 11/26, 11/28, and 11/29/18
  - Station 4 – 33 ppb recorded on 11/28/18
  - Station 5 – 77 ppb recorded on 11/28 and 11/29/18
  - Station 6 – 23 ppb recorded on 11/29/18
  - Station 7 – <1 ppb recorded throughout the week
- 23-hour samples collected at ST-4 (collocated) collected on 11/28 through 11/29. Laboratory turnaround time is 10 business days.
- All real-time readings of formaldehyde, hydrogen sulfide, or ammonia less than instrument reporting limit.
- Tabulated laboratory analytical results for 24-hour sample collected at ST-1 on 10/15 through 10/16, ST-7 (collocated) on 10/18 through 10/19, ST-5 on 10/24 through 10/25, and ST-6 on 10/22 through 10/23 presented in weekly CAMP report.

**Noise and Vibration Monitoring – Wilson Ihrig**

- Operated and maintained two (2) noise monitors: NM-1 (north side of canal on Whole Foods promenade) and NM-2 (south side of canal on southeast corner of 386 3rd Avenue).
- Exceedances of the hourly Leq noise limit of 80 dBA measured at southern monitor during vacuum truck operations.
- Greatest hourly Leq noise measurements
  - Northern monitor (NM-1) – 77.8 dBA during 0900-1000 on 11/27/18
  - Southern monitor (NM-2) – 89 dBA during 1000-1100 on 11/27/18

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

- No activities during week.

**Two-Week Look Ahead:**

Sevenson:

- Transport for off-site disposal gravel and liner from dredge water treatment system pad.
- Perform optical monitoring of bulkheads and surrounding structures with autonomous total survey stations.
- Complete stone between installed sheet pile and existing bulkhead on southern side of TB4.
- Continue to demobilize equipment and materials from Citizens Site.
- Restore Citizens Site in accordance with specifications.
- Complete items on provided punch list and conduct walkthrough.



Geosyntec – Perform construction quality assurance responsibilities.

TRC CAMP Monitoring – Perform community air monitoring. Demobilize monitoring stations from Turning Basin 4 vicinity.

Wilson Ihrig – Perform noise monitoring. Demobilize noise monitors.

AHRS – Finalize final report for EPA review. Oversee packaging for shipment of materials from Clean Earth and delivery to Citizens Site.

**Key Milestones**

- No milestones during period.

Attachments:

1. Geosyntec In-Canal Water Quality Monitoring Weekly Data Summary
2. TRC Weekly CAMP Report
3. Wilson Ihrig Weekly Noise and Vibration Monitoring Report
4. AHRS Weekly Report (no activities during week)
5. Water Treatment System Monitoring Analytical Laboratory Data (no activities during week)
6. Cumulative Dredged Material Chart (no activities during week)



|                                    |   |   |
|------------------------------------|---|---|
| <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>11-26-2018 |
|-------------------------|---------------------------|

**Description**  
Decontamination of removed hydraulic capping piping.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>002 | <b>Date</b><br>11-26-2018 |
|-------------------------|---------------------------|

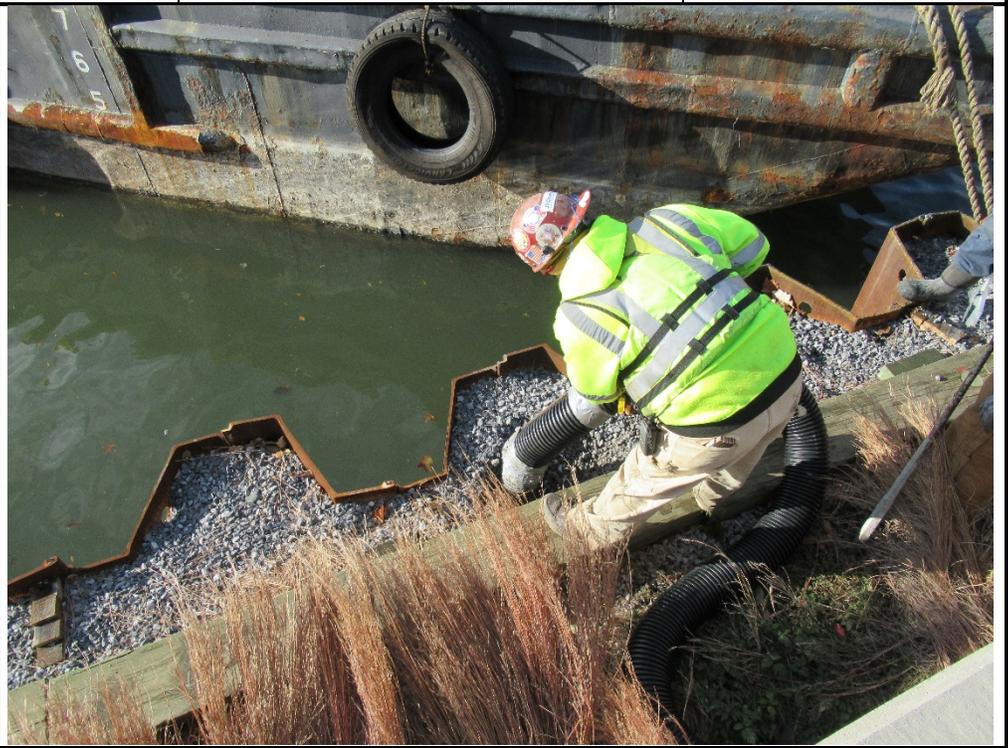
**Description**  
Hydraulic capping piping removal.



|                                    |   |   |
|------------------------------------|---|---|
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|------------------------------------|---|---|

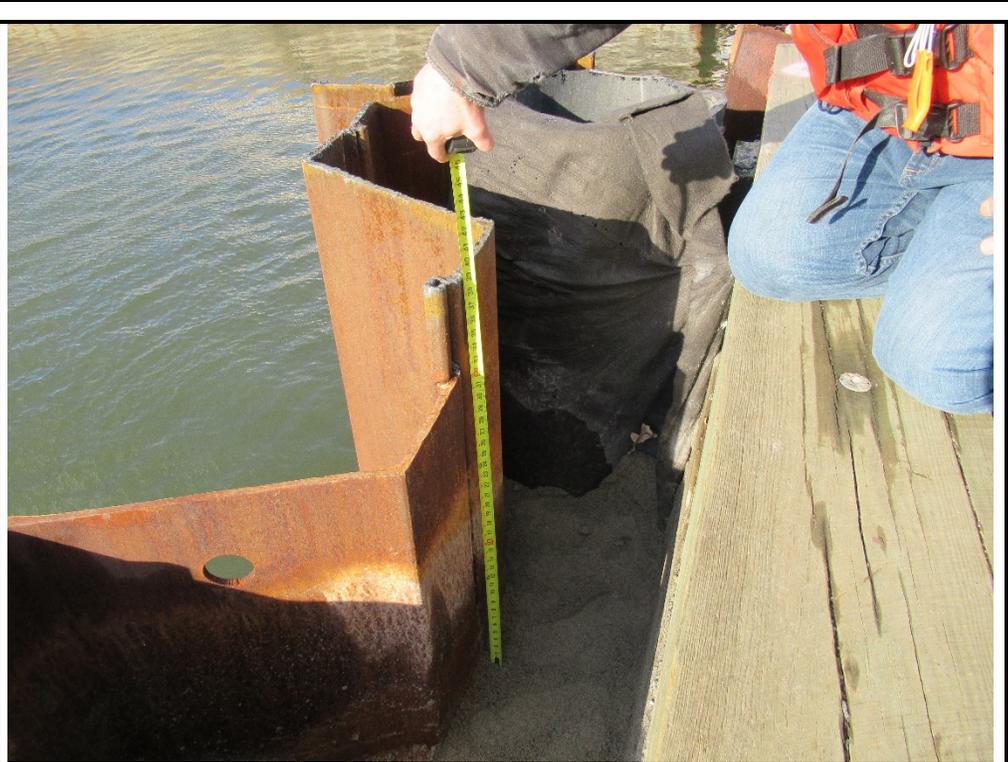
|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>003 | <b>Date</b><br>11-27-2018 |
|-------------------------|---------------------------|

**Description**  
Removal of gravel to confirm elevation of placed oleophilic clay and sand mixture.



|                         |                           |
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| <b>Photo No.</b><br>004 | <b>Date</b><br>11-27-2018 |
|-------------------------|---------------------------|

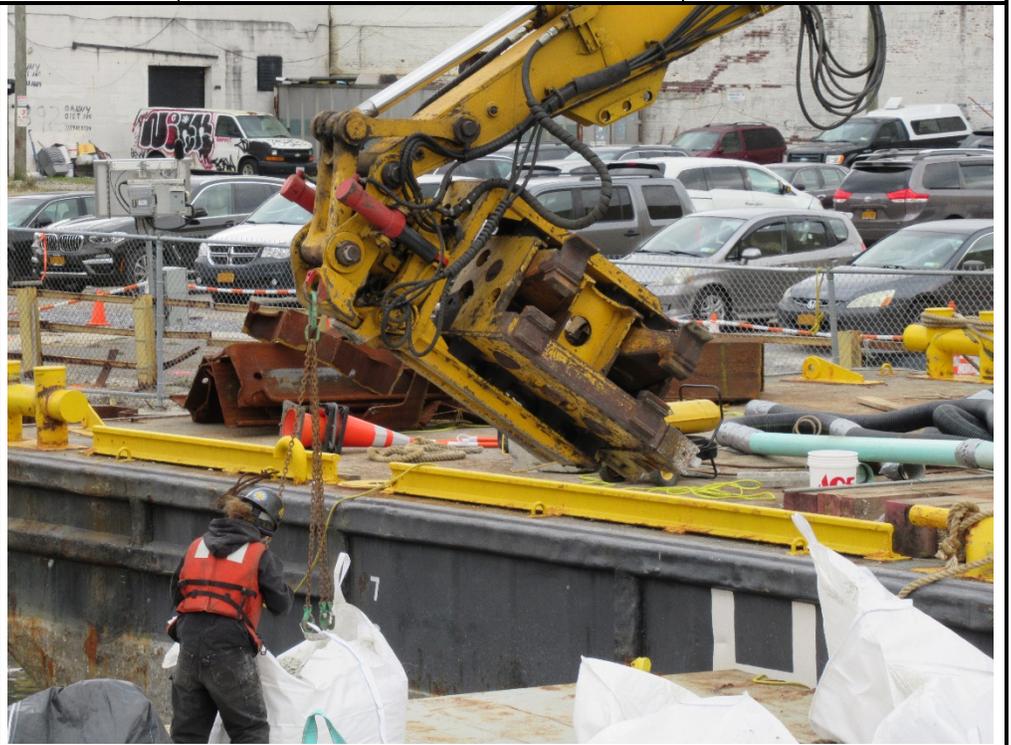
**Description**  
Measuring of distance from installed sheet piling to top of oleophilic clay and sand mixture.



|                                    |   |   |
|------------------------------------|---|---|
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|------------------------------------|---|---|

|                         |                           |
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| <b>Photo No.</b><br>005 | <b>Date</b><br>11-28-2018 |
|-------------------------|---------------------------|

**Description**  
Rigging super sack to place gravel between existing bulkhead and installed sheet piling.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>006 | <b>Date</b><br>11-28-2018 |
|-------------------------|---------------------------|

**Description**  
Hydraulic capping mix tank being demobilized.



|                                    |   |   |
|------------------------------------|---|---|
| <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>11-29-2018 |
|-------------------------|---------------------------|

**Description**  
Staging super sacks on hydraulic capping barge for gravel placement.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>008 | <b>Date</b><br>11-29-2018 |
|-------------------------|---------------------------|

**Description**  
Finished gravel placement along Whole Foods bulkhead.



|                                    |   |   |
|------------------------------------|---|---|
| <b>Client Name:</b><br>Gowanus ERT | <b>Site Location:</b><br>TB-4 Pilot Study | <b>Project No.:</b><br>283126.0000.0001 |
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|                         |                           |
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| <b>Photo No.</b><br>009 | <b>Date</b><br>11-30-2018 |
|-------------------------|---------------------------|

**Description**  
Placement of gravel adjacent to Dykes Lumber.



|                         |                           |
|-------------------------|---------------------------|
| <b>Photo No.</b><br>010 | <b>Date</b><br>11-30-2018 |
|-------------------------|---------------------------|

**Description**  
Cleaning of on-site catch basin.



**GEOSYNTEC IN-CANAL WATER QUALITY MONITORING WEEKLY DATA SUMMARY**



# **GOWANUS CANAL SUPERFUND SITE DREDGING AND CAPPING PILOT STUDY Water Quality Monitoring Weekly Data Summary**

Week of November 26<sup>th</sup>, 2018

## **Report Contents**

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

*Prepared by*

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

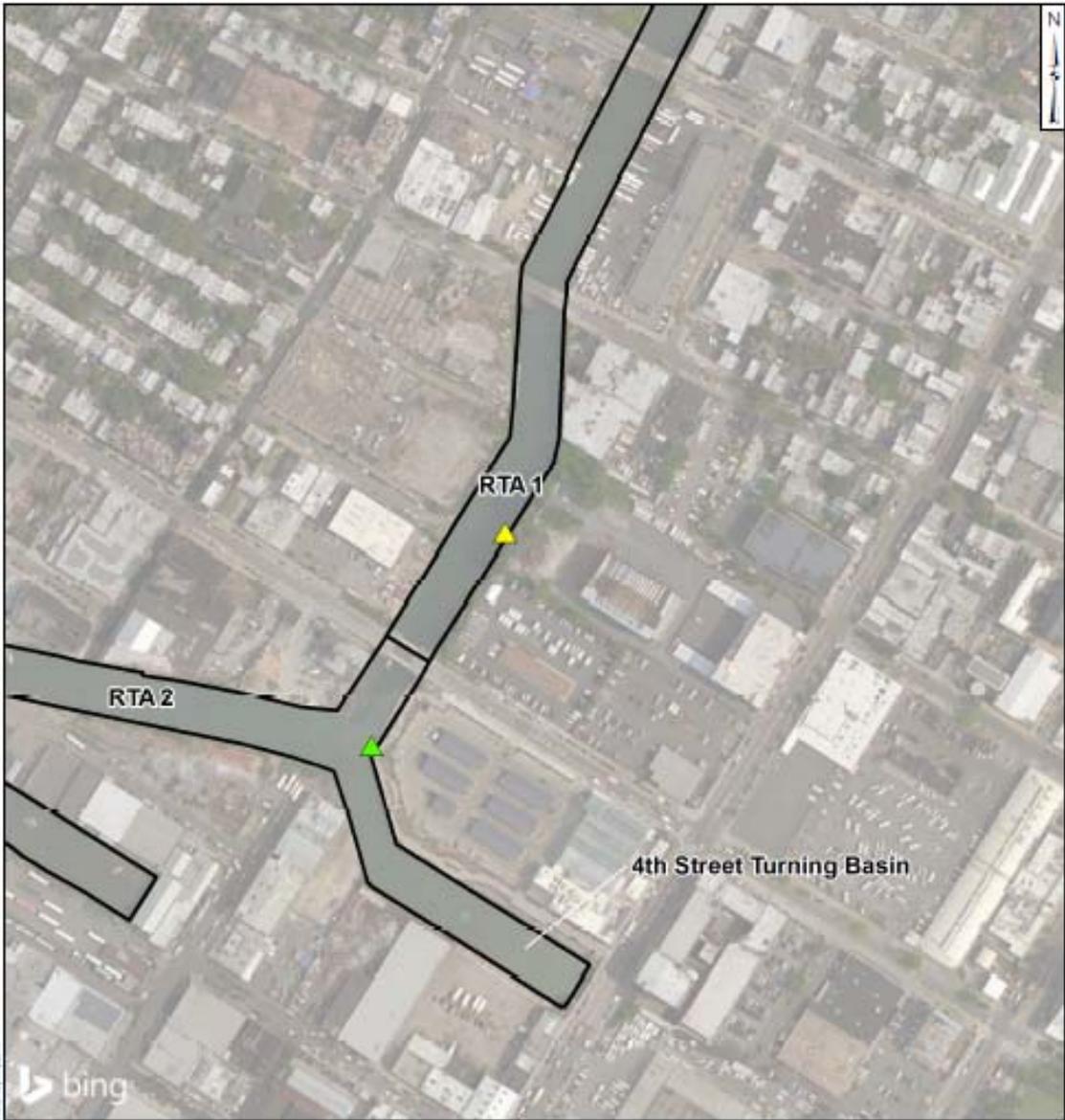
engineers | scientists | innovators

*an affiliate of Geosyntec Consultants*

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

## **1. SCOPE OF MONITORING**

The following report summarizes water quality monitoring data collected during the week of November 26<sup>th</sup>, 2018. 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 collected every 15 minutes. After each measurement, the turbidity data were transmitted to a FTP site via telemetry. This report provides the turbidity data collected every 15 minutes from both the ambient and sentinel buoys during each day between 7 AM and 5 PM during the week of November 26<sup>th</sup>. Average and maximum turbidity are also presented. Turbidity readings from November 26<sup>th</sup> and November 27<sup>th</sup> did not meet data quality criteria and were rejected. This failure was due to biofouling of the turbidity sensors causing the sensors to fail calibration checks. Limited waterway construction activities occurred on this reporting period and consisted of gravel placement behind the temporary bulkhead supports. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4.



**Legend**

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary

300 150 0 300 Feet

**Turbidity Buoy Locations**

Gowanus Canal, Brooklyn, NY

Gowanus Canal  
Remedial Design  
Group

Geosyntec  
consultants

Beech and Bospage  
engineering, p.c.  
an affiliate of Geosyntec Consultants

Figure

1

Ewing, NJ

October 2017

## **2. TURBIDITY BUOY DATA**

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from November 27<sup>th</sup> to November 30<sup>th</sup>, 2018. On Tuesday, November 27<sup>th</sup>, the sentinel buoy was serviced to remedy fouling of the meter. Data from Monday, November 26<sup>th</sup> and the morning of Tuesday, November 27<sup>th</sup> have not been provided due to failure of data quality requirements for accuracy. Negative turbidity values were observed at the sentinel buoy on Friday, November 30<sup>th</sup>. Since the numerical criteria is based on the difference between the ambient and sentinel turbidity buoy measurements, these negative values do not impact monitoring. Background data prior to the start of dredging is provided in Appendix A. No exceedances to the numerical rolling average threshold criteria were observed during the reporting period. Activities on the Canal were limited and consisted of gravel placement behind the temporary bulkhead supports.

### **2.1 Monday, November 26<sup>th</sup>, 2018**

*Data from Monday, November 26<sup>th</sup>, 2018 did not meet data quality requirements for accuracy and were rejected.*









### 3. HANDHELD MEASUREMENTS

No handheld measurements were collected during this reporting period.

### 4. SUMMARY OF VISUAL OBSERVATIONS

Visual observations were consistent with background conditions.

### 5. REPORT OF EXCEEDANCES

Turbidity buoy data was rejected for the November 26<sup>th</sup> and November 27<sup>th</sup> due to data failing to meet data quality requirements. 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.

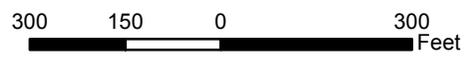
# **FIGURES**



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

Figure

1

Ewing, NJ

October 2017

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

| Time<br>(Local) | Ambient<br>Turbidity<br>(NTU) | Sentinel<br>Turbidity<br>(NTU) | Sentinel><br>Ambient<br>(Y/N) | Time<br>(Local) | Ambient<br>Turbidity<br>(NTU) | Sentinel<br>Turbidity<br>(NTU) | Sentinel><br>Ambient<br>(Y/N) | Time<br>(Local) | Ambient<br>Turbidity<br>(NTU) | Sentinel<br>Turbidity<br>(NTU) | Sentinel><br>Ambient<br>(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  
60<sup>th</sup> Weekly Monitoring Period  
Summary Report:**

November 26<sup>th</sup>, through November 30<sup>th</sup>, 2018

**Report Contents**

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

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

## **Executive Summary – Week 60 Monitoring Period November 26<sup>th</sup> through November 30<sup>th</sup>, 2018**

The following report summarizes site air monitoring activities for the Week 60 monitoring period from November 26<sup>th</sup> through November 30<sup>th</sup>, 2018. The start and stop times associated with each daily monitoring period are listed on the respective daily reports.

TRC continued to operate two (2) air monitoring stations on the Citizen Property or Staging Area, and five (5) air monitoring stations in the 4<sup>th</sup> St Turning Basin Area using the equipment specified previously in the *Gowanus Canal TB-4 Dredging and Pilot Study Executive Summary – Background Monitoring Period Report*. During the Week 60 monitoring period 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 TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017*.

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM<sub>10</sub>) daily averages and maximums. Figure 3 depicts the station locations along the Gowanus Canal.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 60 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 60 monitoring period of November 26<sup>th</sup> through November 30<sup>th</sup>, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Station 4. Co-located samples (ST-4A and ST-4B) were collected at Station 4 on November 28<sup>th</sup>, through November 29<sup>th</sup>, 2018. The samples were collected over a 23-hour period and shipped to Con-Test Analytical Laboratory for analyses. The results of the summa canister sampling are pending lab analyses.

Table 2 presents the analytical results for 23-hour samples collected at Station 1 and 7 during Week 54. ST-1 was collected on October 15<sup>th</sup>, through October 16<sup>th</sup>, 2018. Co-located samples (ST-7A and ST-7B) were collected at Station 7 on October 18<sup>th</sup>, through October 19<sup>th</sup>, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28<sup>th</sup> and 31<sup>st</sup>, 2017.

Table 3 presents the analytical results for 23-hour samples collected at Station 5 and 6 during Week 55. The ST-5 sample was collected on October 24<sup>th</sup> through 25<sup>th</sup>, 2018 and the ST-6 sample was collected on October 22<sup>nd</sup> through 23<sup>rd</sup>, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28<sup>th</sup> and 31<sup>st</sup>, 2017.

Site activities which were conducted at the Citizen Property during November 26<sup>th</sup> through November 30<sup>th</sup>, 2018 included the following:

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

Site activities which were conducted at the 4<sup>th</sup> St Turning Basin Area of the Canal during November 26<sup>th</sup> through November 30<sup>th</sup>, 2018 included the following:

- Confirm elevation of Oleophilic clay and sand placed between existing bulkhead and installed sheet pile adjacent to Whole Foods
- Commence placement of gravel between existing bulkhead and installed sheet piles adjacent to Dykes Lumber

**Gowanus Canal Superfund Site**  
**TB-4 Dredging and Capping Pilot Study**  
**Brooklyn, New York**  
Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)  
11/26/2018 06:30 AM - 11/26/2018 23:45 PM

**Station 1 (Citizen Property near Construction Trailers)**

| TVOC |     |       | PM <sub>10</sub> |    |                   |
|------|-----|-------|------------------|----|-------------------|
| Max. | 100 | ppb   | Max.             | 14 | ug/m <sup>3</sup> |
| Avg. | 6   | ppb   | Avg.             | 8  | ug/m <sup>3</sup> |
| Exc. | 0   | total | Exc.             | 0  | Total             |

**Station 2 (Citizen Property near Pad Area)**

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

**Station 3 (Whole Foods Property NW Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 14 | ppb   | Max.             | 36 | ug/m <sup>3</sup> |
| Avg. | 3  | ppb   | Avg.             | 6  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 4 (Whole Foods Property Central Riverwalk Location)**

| 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 5 (Whole Foods Property near 3rd Avenue Bridge)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 39 | ppb   | Max.             | 16 | ug/m <sup>3</sup> |
| Avg. | 8  | ppb   | Avg.             | 10 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 6 (Maritime Estates Property along Canal Fencing)**

| 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 7 (386 3rd Avenue along Canal Fencing)**

| 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**  
Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)  
11/27/2018 00:00 AM - 11/27/2018 23:45 PM

**Station 1 (Citizen Property near Construction Trailers)**

| TVOC |     |       | PM <sub>10</sub> |   |                   |
|------|-----|-------|------------------|---|-------------------|
| Max. | 265 | ppb   | Max.             | 6 | ug/m <sup>3</sup> |
| Avg. | 72  | ppb   | Avg.             | 3 | ug/m <sup>3</sup> |
| Exc. | 0   | total | Exc.             | 0 | Total             |

**Station 2 (Citizen Property near Pad Area)**

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

**Station 3 (Whole Foods Property NW Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 5  | ppb   | Max.             | 67 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 3  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 4 (Whole Foods Property Central Riverwalk Location)**

| 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 5 (Whole Foods Property near 3rd Avenue Bridge)**

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

**Station 6 (Maritime Estates Property along Canal Fencing)**

| 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 7 (386 3rd Avenue along Canal Fencing)**

| 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**  
Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)  
11/28/2018 00:00 AM - 11/28/2018 23:45 PM

**Station 1 (Citizen Property near Construction Trailers)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 33 | ppb   | Max.             | 6 | ug/m <sup>3</sup> |
| Avg. | 21 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 2 (Citizen Property near Pad Area)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | <1 | ppb   | Max.             | 5 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 3 (Whole Foods Property NW Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 14 | ppb   | Max.             | 24 | ug/m <sup>3</sup> |
| Avg. | 4  | ppb   | Avg.             | 7  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 4 (Whole Foods Property Central Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 33 | ppb   | Max.             | 4 | ug/m <sup>3</sup> |
| Avg. | 3  | ppb   | Avg.             | 1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

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

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 77 | ppb   | Max.             | 7 | ug/m <sup>3</sup> |
| Avg. | 48 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 6 (Maritime Estates Property along Canal Fencing)**

| 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 7 (386 3rd Avenue along Canal Fencing)**

| 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**  
Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)  
11/29/2018 00:00 AM - 11/29/2018 23:45 PM

**Station 1 (Citizen Property near Construction Trailers)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 33 | ppb   | Max.             | 6 | ug/m <sup>3</sup> |
| Avg. | 19 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 2 (Citizen Property near Pad Area)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | <1 | ppb   | Max.             | 5 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 3 (Whole Foods Property NW Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | 14 | ppb   | Max.             | 23 | ug/m <sup>3</sup> |
| Avg. | 1  | ppb   | Avg.             | 5  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 4 (Whole Foods Property Central Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | <1 | ppb   | Max.             | 5 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 2 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

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

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 77 | ppb   | Max.             | 9 | ug/m <sup>3</sup> |
| Avg. | 73 | ppb   | Avg.             | 3 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 6 (Maritime Estates Property along Canal Fencing)**

| TVOC |    |       | PM <sub>10</sub> |   |                   |
|------|----|-------|------------------|---|-------------------|
| Max. | 23 | ppb   | Max.             | 7 | ug/m <sup>3</sup> |
| Avg. | 9  | ppb   | Avg.             | 1 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0 | Total             |

**Station 7 (386 3rd Avenue along Canal Fencing)**

| 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**  
Daily Station Report – TVOC/PM<sub>10</sub>  
(TRC Project No.274286-0000-00000)  
11/30/2018 00:00 AM - 11/30/2018 17:00 PM

**Station 1 (Citizen Property near Construction Trailers)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb   | Max.             | 13 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 7  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 2 (Citizen Property near Pad Area)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb   | Max.             | 11 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 6  | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 3 (Whole Foods Property NW Riverwalk Location)**

| TVOC |    |       | PM <sub>10</sub> |    |                   |
|------|----|-------|------------------|----|-------------------|
| Max. | <1 | ppb   | Max.             | 64 | ug/m <sup>3</sup> |
| Avg. | <1 | ppb   | Avg.             | 21 | ug/m <sup>3</sup> |
| Exc. | 0  | total | Exc.             | 0  | Total             |

**Station 4 (Whole Foods Property Central Riverwalk Location)**

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

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

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

**Station 6 (Maritime Estates Property along Canal Fencing)**

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

**Station 7 (386 3rd Avenue along Canal Fencing)**

| 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

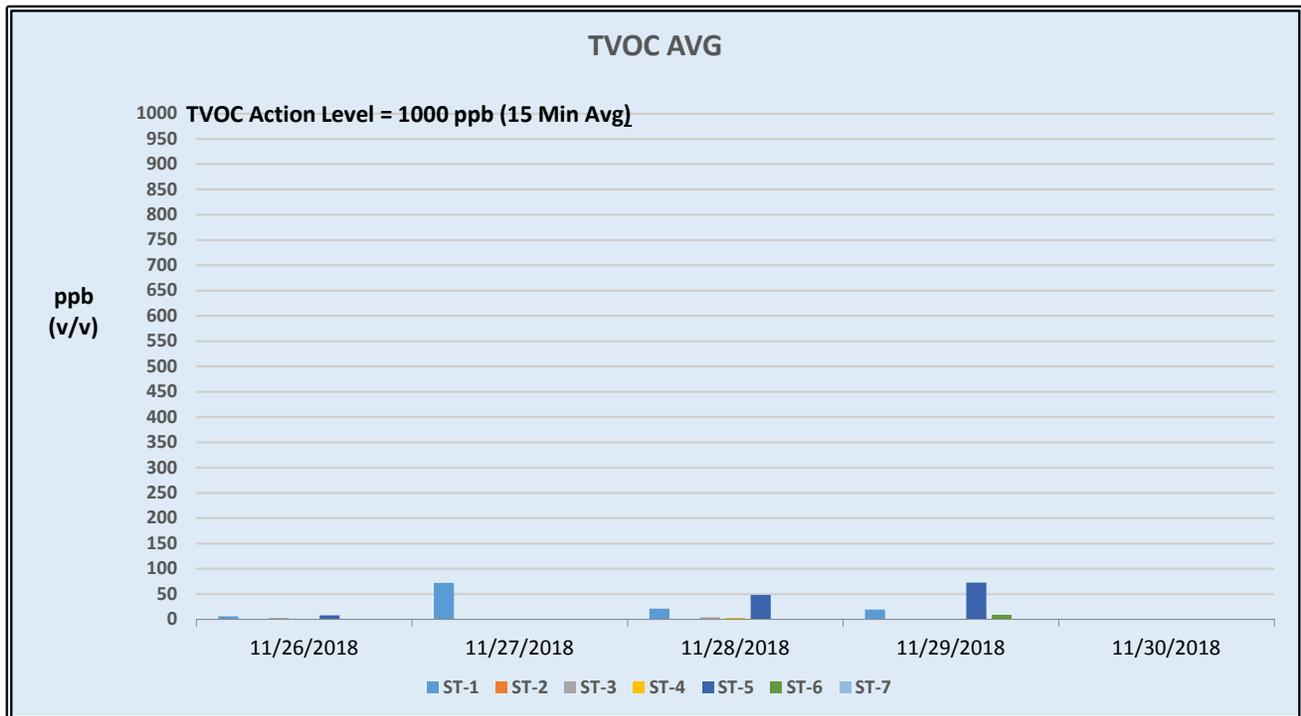
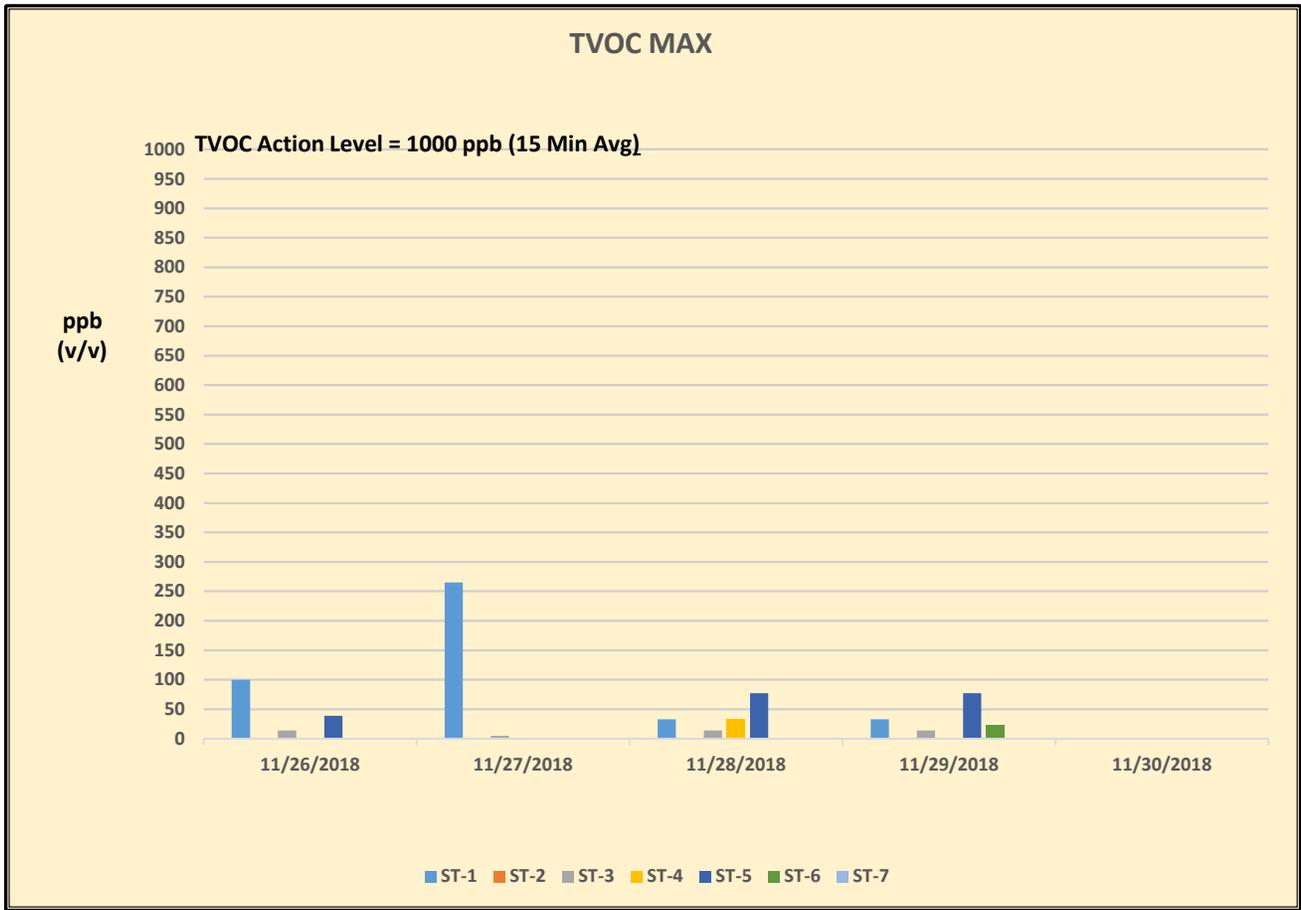
PM<sub>10</sub> – Particulates as PM<sub>10</sub>

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

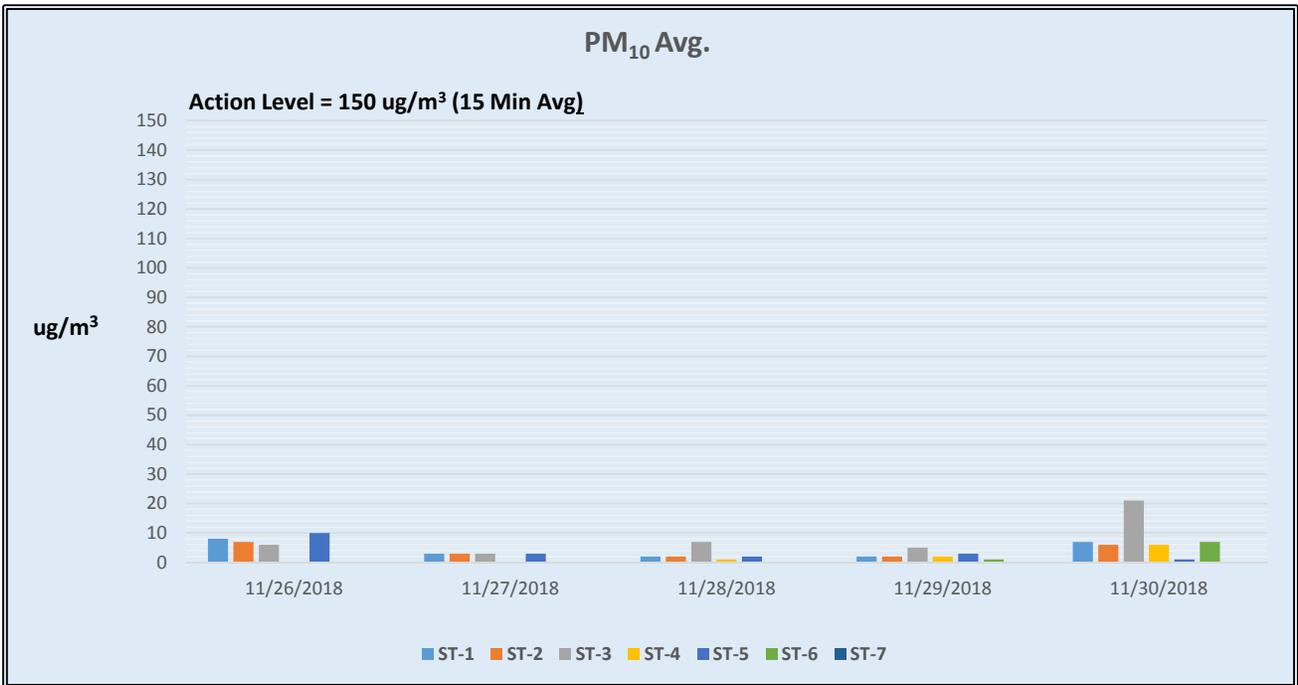
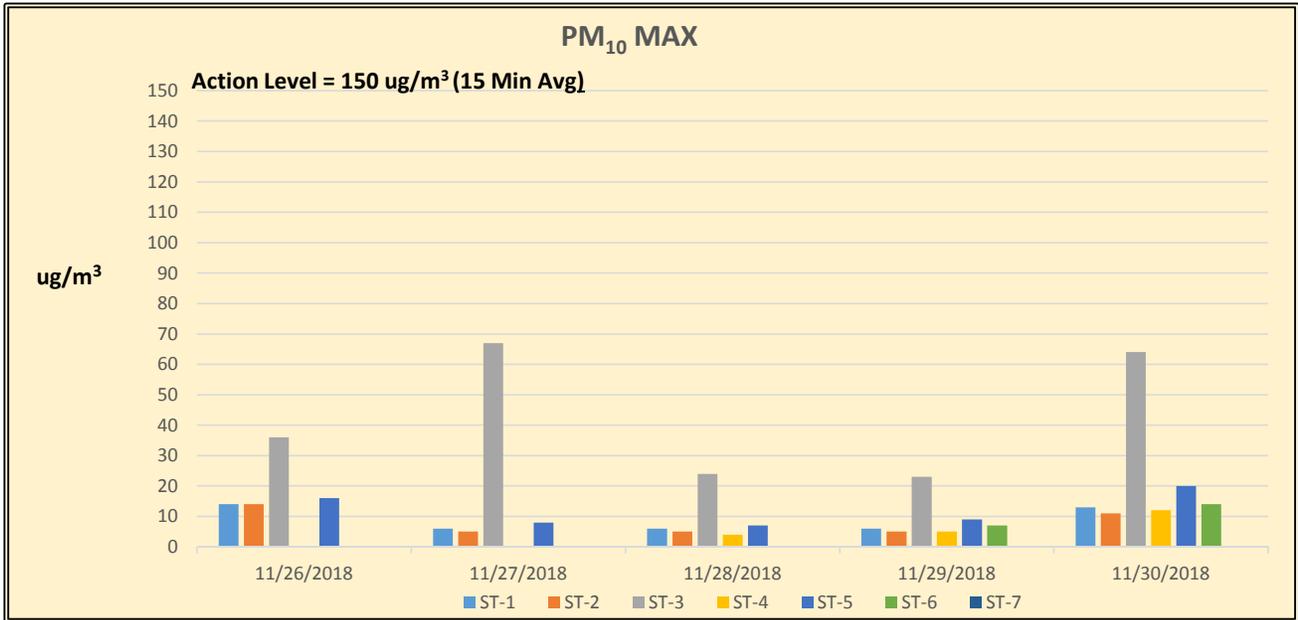
Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM<sub>10</sub>)

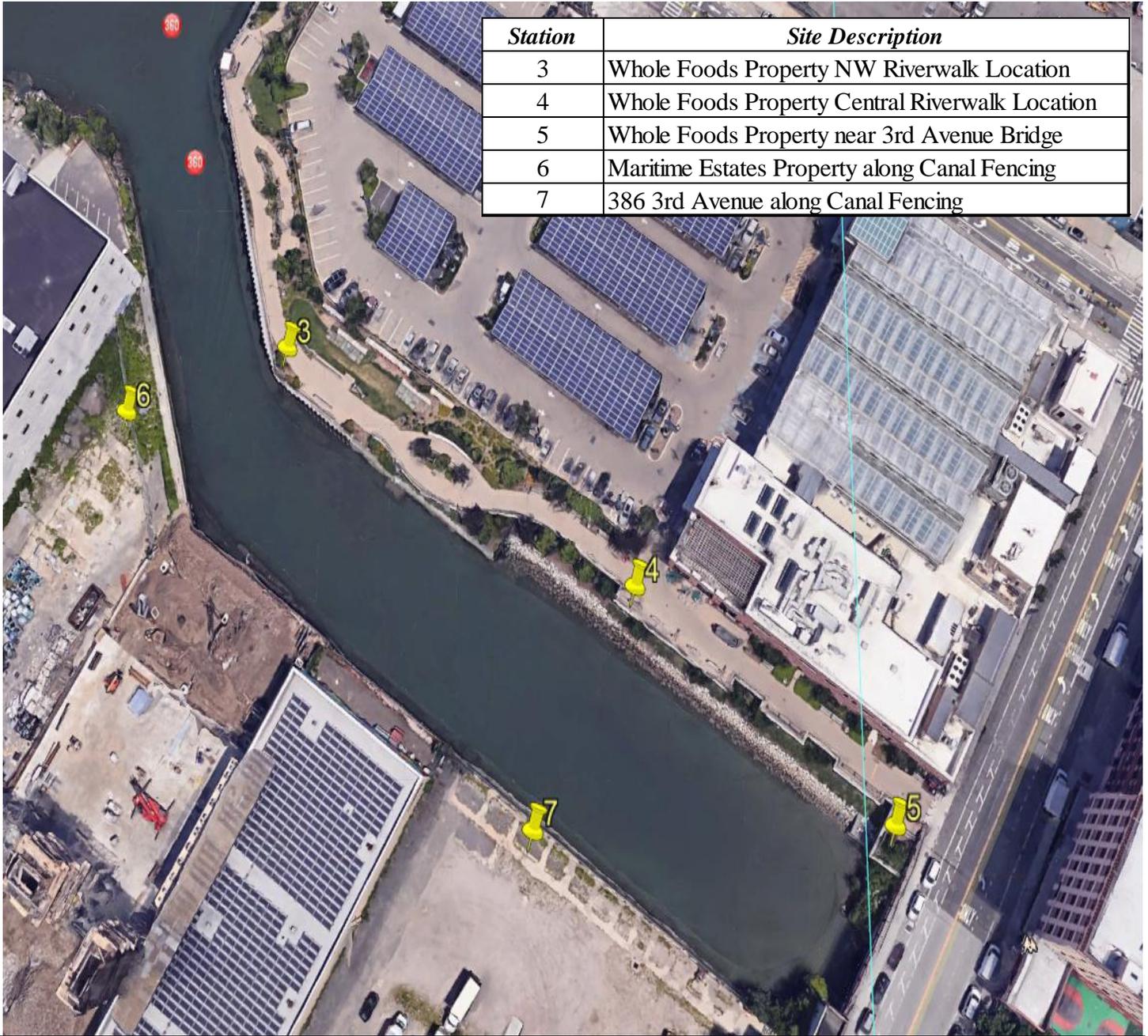
Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m<sup>3</sup> - PM<sub>10</sub>)

**Figure 1**  
**Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program**  
**TVOC Monitoring Data - Week 60**



**Figure 2**  
**Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program**  
**PM<sub>10</sub> Monitoring Data - Week 60**





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

**Table 2:**  
**Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program**  
**Week 54 VOCs Results: October 15th through 16th and October 18th through 19th (Co-located)**

| Sample ID  | ST-1-VOC-101518                 |                   | ST-7A-VOC-101518                |                   | ST-7B-VOC-101518                |                   | Relative Percent Difference |
|--|---------------------------------|-------------------|---------------------------------|-------------------|---------------------------------|-------------------|-----------------------------|
| Laboratory ID                                      | 18J1268-01                      |                   | 18J1268-02                      |                   | 18J1268-03                      |                   |                             |
| Date Sampled                                       | 10/15/18 07:00 - 10/16/18 06:00 |                   | 10/18/18 11:00 - 10/19/18 10:00 |                   | 10/18/18 11:00 - 10/19/18 10:00 |                   | Station 7 Pair              |
| Location   | Station 1                       |                   | Station 7                       |                   | Station 7 Duplicate             |                   |                             |
| VOCs - TO-15                                       | ppbV                            | ug/m <sup>3</sup> | ppbV                            | ug/m <sup>3</sup> | ppbV                            | ug/m <sup>3</sup> |                             |
| Acetone  | <b>2.7</b>                      | <b>6.5</b>        | <b>3</b>                        | <b>7.2</b>        | <b>2.5</b>                      | <b>5.9</b>        | <b>19.8%</b>                |
| Benzene  | <b>0.3</b>                      | <b>0.97</b>       | <b>0.22</b>                     | <b>0.69</b>       | <b>0.2</b>                      | <b>0.65</b>       | <b>6.0%</b>                 |
| Benzyl chloride                                    | <0.040                          | <0.21             | <0.035                          | <0.18             | <0.035                          | <0.18             | NC                          |
| Bromodichloromethane                               | <0.040                          | <0.27             | <0.035                          | <0.24             | <0.035                          | <0.24             | NC                          |
| Bromoform  | <0.040                          | <0.41             | <0.035                          | <0.36             | <0.035                          | <0.36             | NC                          |
| Bromomethane                                       | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| 1,3-Butadiene                                      | <0.040                          | <0.088            | <0.035                          | <0.078            | <0.035                          | <0.078            | NC                          |
| 2-Butanone (MEK)                                   | <1.6                            | <4.7              | <1.4                            | <4.1              | <1.4                            | <4.1              | NC                          |
| Carbon Disulfide                                   | <0.40                           | <1.2              | <0.35                           | <1.1              | <0.35                           | <1.1              | NC                          |
| Carbon Tetrachloride                               | <b>0.064</b>                    | <b>0.4</b>        | <b>0.07</b>                     | <b>0.44</b>       | <b>0.07</b>                     | <b>0.44</b>       | <b>0.0%</b>                 |
| Chlorobenzene                                      | <0.040                          | <0.18             | <0.035                          | <0.16             | <0.035                          | <0.16             | NC                          |
| Chloroethane                                       | <0.040                          | <0.11             | <0.035                          | <0.093            | <0.035                          | <0.093            | NC                          |
| Chloroform   | <0.040                          | <0.2              | <0.035                          | <1.7              | <0.035                          | <1.7              | NC                          |
| Chloromethane                                      | <b>0.52</b>                     | <b>1.1</b>        | <b>0.58</b>                     | <b>1.2</b>        | <b>0.59</b>                     | <b>1.2</b>        | <b>0.0%</b>                 |
| Cyclohexane  | <0.040                          | <0.14             | <0.035                          | <0.12             | <0.035                          | <0.12             | NC                          |
| Dibromochloromethane                               | <0.040                          | <0.34             | <0.035                          | <0.30             | <0.035                          | <0.30             | NC                          |
| 1,2-Dibromoethane (EDB)                            | <0.040                          | <0.31             | <0.035                          | <0.27             | <0.035                          | <0.27             | NC                          |
| 1,2-Dichlorobenzene                                | <0.040                          | <0.24             | <0.035                          | <0.21             | <0.035                          | <0.21             | NC                          |
| 1,3-Dichlorobenzene                                | <0.040                          | <0.24             | <0.035                          | <0.21             | <0.035                          | <0.21             | NC                          |
| 1,4-Dichlorobenzene                                | <0.040                          | <0.24             | <0.035                          | <0.21             | <0.035                          | <0.21             | NC                          |
| Dichlorodifluoromethane (Freon 12)                 | <b>0.41</b>                     | <b>2</b>          | <b>0.32</b>                     | <b>1.6</b>        | <b>0.37</b>                     | <b>1.8</b>        | <b>11.8%</b>                |
| 1,1-Dichloroethane                                 | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| 1,2-Dichloroethane                                 | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| 1,1-Dichloroethylene                               | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| cis-1,2-Dichloroethylene                           | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| trans-1,2-Dichloroethylene                         | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| 1,2-Dichloropropane                                | <0.040                          | <0.18             | <0.035                          | <0.16             | <0.035                          | <0.16             | NC                          |
| cis-1,3-Dichloropropene                            | <0.040                          | <0.18             | <0.035                          | <0.16             | <0.035                          | <0.16             | NC                          |
| trans-1,3-Dichloropropene                          | <0.040                          | <0.18             | <0.035                          | <0.16             | <0.035                          | <0.16             | NC                          |
| 1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114) | <0.040                          | <0.28             | <0.035                          | <0.25             | <0.035                          | <0.25             | NC                          |
| 1,4-Dioxane  | <0.40                           | <1.4              | <0.35                           | <1.3              | <0.35                           | <1.3              | NC                          |
| Ethanol  | <b>9.2</b>                      | <b>17</b>         | <b>5.4</b>                      | <b>10</b>         | <b>4.4</b>                      | <b>8.3</b>        | <b>18.6%</b>                |
| Ethyl Acetate                                      | <0.080                          | <0.29             | <0.070                          | <0.25             | <0.070                          | <0.25             | NC                          |
| Ethylbenzene                                       | <b>0.18</b>                     | <b>0.76</b>       | <b>0.035</b>                    | <b>0.15</b>       | <b>0.12</b>                     | <b>0.52</b>       | NC                          |
| 4-Ethyltoluene                                     | <0.040                          | <0.20             | <b>0.16</b>                     | <b>0.79</b>       | <b>0.26</b>                     | <b>1.3</b>        | <b>48.8%</b>                |
| Heptane  | <b>0.19</b>                     | <b>0.79</b>       | <0.035                          | <0.14             | <b>0.29</b>                     | <b>1.2</b>        | NC                          |
| Hexachlorobutadiene                                | <0.040                          | <0.43             | <0.035                          | <0.37             | <0.035                          | <0.37             | NC                          |
| Hexane   | <1.6                            | <5.6              | <1.4                            | <4.9              | <1.4                            | <4.9              | NC                          |
| 2-Hexanone (MBK)                                   | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| Isopropanol  | <1.6                            | <3.9              | <1.4                            | <3.4              | <1.4                            | <3.4              | NC                          |
| Methyl tert-Butyl Ether (MTBE)                     | <0.040                          | <0.14             | <0.035                          | <0.13             | <0.035                          | <0.13             | NC                          |
| Methylene Chloride                                 | <0.40                           | <1.4              | <0.35                           | <1.2              | <0.35                           | <1.2              | NC                          |
| 4-Methyl-2-pentanone (MIBK)                        | <0.040                          | <0.16             | <0.035                          | <0.14             | <0.035                          | <0.14             | NC                          |
| Naphthalene  | <0.080                          | <0.42             | <0.070                          | <0.37             | <0.070                          | <0.37             | NC                          |
| Propene  | <1.6                            | <2.8              | <1.4                            | <2.4              | <1.4                            | <2.4              | NC                          |
| Styrene  | <0.040                          | <0.17             | <0.035                          | <0.15             | <0.035                          | <0.15             | NC                          |
| 1,1,2,2-Tetrachloroethane                          | <0.040                          | <0.27             | <0.035                          | <0.24             | <0.035                          | <0.24             | NC                          |
| Tetrachloroethylene                                | <b>0.088</b>                    | <b>0.6</b>        | <b>0.22</b>                     | <b>1.5</b>        | <b>0.2</b>                      | <b>1.4</b>        | <b>6.9%</b>                 |
| Tetrahydrofuran                                    | <0.040                          | <0.12             | <0.035                          | <0.10             | <0.035                          | <0.10             | NC                          |
| Toluene  | <b>0.72</b>                     | <b>2.7</b>        | <b>0.81</b>                     | <b>3.1</b>        | <b>0.78</b>                     | <b>2.9</b>        | <b>6.7%</b>                 |
| 1,2,4-Trichlorobenzene                             | <0.040                          | <0.30             | <0.035                          | <0.26             | <0.035                          | <0.26             | NC                          |
| 1,1,1-Trichloroethane                              | <0.040                          | <0.22             | <0.035                          | <0.19             | <0.035                          | <0.19             | NC                          |
| 1,1,2-Trichloroethane                              | <0.040                          | <0.22             | <0.035                          | <0.19             | <0.035                          | <0.19             | NC                          |
| Trichloroethylene                                  | <0.040                          | <0.21             | <0.035                          | <0.19             | <0.035                          | <0.19             | NC                          |
| Trichlorofluoromethane (Freon 11)                  | <b>0.25</b>                     | <b>1.4</b>        | <b>0.23</b>                     | <b>1.3</b>        | <b>0.24</b>                     | <b>1.3</b>        | <b>0.0%</b>                 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)  | <0.16                           | <1.2              | <0.14                           | <1.1              | <0.14                           | <1.1              | NC                          |
| 1,2,4-Trimethylbenzene                             | <b>0.16</b>                     | <b>0.79</b>       | <b>0.18</b>                     | <b>0.9</b>        | <b>0.31</b>                     | <b>1.5</b>        | <b>50.0%</b>                |
| 1,3,5-Trimethylbenzene                             | <0.040                          | <0.20             | <b>0.049</b>                    | <b>0.24</b>       | <b>0.07</b>                     | <b>0.34</b>       | <b>34.5%</b>                |
| Vinyl Acetate                                      | <0.80                           | <2.8              | <0.70                           | <2.5              | <0.70                           | <2.5              | NC                          |
| Vinyl Chloride                                     | <0.040                          | <0.10             | <0.035                          | <0.090            | <0.035                          | <0.090            | NC                          |
| m&p-Xylene   | <b>0.53</b>                     | <b>2.3</b>        | <b>0.34</b>                     | <b>1.5</b>        | <b>0.39</b>                     | <b>1.7</b>        | <b>12.5%</b>                |
| o-Xylene   | <b>0.2</b>                      | <b>0.87</b>       | <b>0.14</b>                     | <b>0.61</b>       | <b>0.17</b>                     | <b>0.73</b>       | <b>17.9%</b>                |

Notes:

Values in **bold** indicate detected concentrations

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol

Relative Percent Difference (RPD) calculated using the following equation:

$$RPD = \frac{|X1 - X2|}{[(X1+X2)/2]}$$

where: X1 = original sample, X2 = duplicate sample

NC: RPD not calculable due to a non-detect result in one or both co-located sample

**Table 3:**  
**Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program**  
**Week 55 VOCs Results: October 22nd through 23rd and October 24th through 25th**

| Sample ID  | ST-5-VOC-102418                 |             | ST-6-VOC-102218                 |             |
|--|---------------------------------|-------------|---------------------------------|-------------|
| Laboratory ID                                      | 18J1270-01                      |             | 18J1270-02                      |             |
| Date Sampled                                       | 10/24/18 11:00 - 10/25/18 10:00 |             | 10/22/18 09:00 - 10/23/18 08:00 |             |
| Location   | Station 5                       |             | Station 6                       |             |
| VOCs - TO-15                                       | ppbV                            | ug/m3       | ppbV                            | ug/m3       |
| Acetone  | <b>2.6</b>                      | <b>6.1</b>  | <b>2.2</b>                      | <b>5.3</b>  |
| Benzene  | <b>0.14</b>                     | <b>0.45</b> | <b>0.15</b>                     | <b>0.49</b> |
| Benzyl chloride                                    | <0.035                          | <0.18       | <0.035                          | <0.18       |
| Bromodichloromethane                               | <0.035                          | <0.24       | <0.035                          | <0.24       |
| Bromoform  | <0.035                          | <0.36       | <0.035                          | <0.36       |
| Bromomethane                                       | <0.035                          | <0.14       | <0.035                          | <0.14       |
| 1,3-Butadiene                                      | <0.035                          | <0.078      | <0.035                          | <0.078      |
| 2-Butanone (MEK)                                   | <1.4                            | <4.1        | <1.4                            | <4.1        |
| Carbon Disulfide                                   | <0.35                           | <1.1        | <0.35                           | <1.1        |
| Carbon Tetrachloride                               | <b>0.07</b>                     | <b>0.44</b> | <b>0.063</b>                    | <b>0.4</b>  |
| Chlorobenzene                                      | <0.035                          | <0.16       | <0.035                          | <0.16       |
| Chloroethane                                       | <0.035                          | <0.093      | <0.035                          | <0.093      |
| Chloroform   | <0.035                          | <0.17       | <0.035                          | <0.17       |
| Chloromethane                                      | <b>0.48</b>                     | <b>1</b>    | <b>0.53</b>                     | <b>1.1</b>  |
| Cyclohexane  | <0.035                          | <0.12       | <0.035                          | <0.12       |
| Dibromochloromethane                               | <0.035                          | <0.30       | <0.035                          | <0.30       |
| 1,2-Dibromoethane (EDB)                            | <0.035                          | <0.27       | <0.035                          | <0.27       |
| 1,2-Dichlorobenzene                                | <0.035                          | <0.21       | <0.035                          | <0.21       |
| 1,3-Dichlorobenzene                                | <0.035                          | <0.21       | <0.035                          | <0.21       |
| 1,4-Dichlorobenzene                                | <0.035                          | <0.21       | <0.035                          | <0.21       |
| Dichlorodifluoromethane (Freon 12)                 | <b>0.29</b>                     | <b>1.5</b>  | <b>0.33</b>                     | <b>1.6</b>  |
| 1,1-Dichloroethane                                 | <0.035                          | <0.14       | <0.035                          | <0.14       |
| 1,2-Dichloroethane                                 | <0.035                          | <0.14       | <0.035                          | <0.14       |
| 1,1-Dichloroethylene                               | <0.035                          | <0.14       | <0.035                          | <0.14       |
| cis-1,2-Dichloroethylene                           | <0.035                          | <0.14       | <0.035                          | <0.14       |
| trans-1,2-Dichloroethylene                         | <0.035                          | <0.14       | <0.035                          | <0.14       |
| 1,2-Dichloropropane                                | <0.035                          | <0.16       | <0.035                          | <0.16       |
| cis-1,3-Dichloropropene                            | <0.035                          | <0.16       | <0.035                          | <0.16       |
| trans-1,3-Dichloropropene                          | <0.035                          | <0.16       | <0.035                          | <0.16       |
| 1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114) | <0.035                          | <0.25       | <0.035                          | <0.25       |
| 1,4-Dioxane  | <0.35                           | <1.3        | <0.35                           | <1.3        |
| Ethanol  | <b>4.5</b>                      | <b>8.5</b>  | <b>3.9</b>                      | <b>7.4</b>  |
| Ethyl Acetate                                      | <b>0.91</b>                     | <b>3.3</b>  | <0.070                          | <0.25       |
| Ethylbenzene                                       | <b>0.049</b>                    | <b>0.21</b> | <b>0.049</b>                    | <b>0.21</b> |
| 4-Ethyltoluene                                     | <0.035                          | <0.17       | <0.035                          | <0.17       |
| Heptane  | <0.035                          | <0.14       | <0.035                          | <0.14       |
| Hexachlorobutadiene                                | <0.035                          | <0.37       | <0.035                          | <0.37       |
| Hexane   | <1.4                            | <4.9        | <1.4                            | <4.9        |
| 2-Hexanone (MBK)                                   | <0.035                          | <0.14       | <b>0.18</b>                     | <b>0.75</b> |
| Isopropanol  | <1.4                            | <3.4        | <1.4                            | <3.4        |
| Methyl tert-Butyl Ether (MTBE)                     | <0.035                          | <0.13       | <0.035                          | <0.13       |
| Methylene Chloride                                 | <b>0.46</b>                     | <b>1.6</b>  | <0.35                           | <1.2        |
| 4-Methyl-2-pentanone (MIBK)                        | <0.035                          | <0.14       | <0.035                          | <0.14       |
| Naphthalene  | <0.070                          | <0.37       | <0.070                          | <0.37       |
| Propene  | <1.4                            | <2.4        | <1.4                            | <2.4        |
| Styrene  | <0.035                          | <0.15       | <0.035                          | <0.15       |
| 1,1,1,2-Tetrachloroethane                          | <0.035                          | <0.24       | <0.035                          | <0.24       |
| Tetrachloroethylene                                | <b>0.098</b>                    | <b>0.67</b> | <b>0.084</b>                    | <b>0.57</b> |
| Tetrahydrofuran                                    | <0.035                          | <0.10       | <0.035                          | <0.10       |
| Toluene  | <b>0.31</b>                     | <b>1.2</b>  | <b>0.32</b>                     | <b>1.2</b>  |
| 1,2,4-Trichlorobenzene                             | <0.035                          | <0.26       | <0.035                          | <0.26       |
| 1,1,1-Trichloroethane                              | <0.035                          | <0.19       | <0.035                          | <0.19       |
| 1,1,2-Trichloroethane                              | <0.035                          | <0.19       | <0.035                          | <0.19       |
| Trichloroethylene                                  | <0.035                          | <0.19       | <0.035                          | <0.19       |
| Trichlorofluoromethane (Freon 11)                  | <b>0.23</b>                     | <b>1.3</b>  | <b>0.23</b>                     | <b>1.3</b>  |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)  | <0.14                           | <1.1        | <0.14                           | <1.1        |
| 1,2,4-Trimethylbenzene                             | <b>0.077</b>                    | <b>0.38</b> | <0.035                          | <0.17       |
| 1,3,5-Trimethylbenzene                             | <0.035                          | <0.17       | <0.035                          | <0.17       |
| Vinyl Acetate                                      | <0.70                           | <2.5        | <0.70                           | <2.5        |
| Vinyl Chloride                                     | <0.035                          | <0.090      | <0.035                          | <0.090      |
| m&p-Xylene   | <b>0.15</b>                     | <b>0.64</b> | <b>0.17</b>                     | <b>0.73</b> |
| o-Xylene   | <b>0.056</b>                    | <b>0.24</b> | <0.035                          | <0.15       |

Notes:

Values in **bold** indicate detected concentrations

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol

**Table 1**

**Week 60**

**Summary of Additional Periodic (Daily) Monitoring Data**

| November 26 <sup>th</sup> , 2018 |       |                           |  |                                    |
|----------------------------------|-------|---------------------------|--|------------------------------------|
| Station Id                       | Time  | Formaldehyde (CHO) (ppb)* | Hydrogen Sulfide (H <sub>2</sub> S) (ppb)* | Ammonia (NH <sub>3</sub> ) (ppm)** |
| ST-1                             | 7:30  | <50                       | <3   | <1.0                               |
|                                  | 14:00 | <50                       | <3   | <1.0                               |
| ST-2                             | 7:35  | <50                       | <3   | <1.0                               |
|                                  | 14:10 | <50                       | <3   | <1.0                               |
| ST-3                             | 7:50  | <50                       | <3   | <1.0                               |
|                                  | 14:30 | <50                       | <3   | <1.0                               |
| ST-4                             | 8:00  | <50                       | <3   | <1.0                               |
|                                  | 14:40 | <50                       | <3   | <1.0                               |
| ST-5                             | 8:15  | <50                       | <3   | <1.0                               |
|                                  | 14:50 | <50                       | <3   | <1.0                               |
| ST-6                             | 8:30  | <50                       | <3   | <1.0                               |
|                                  | 15:10 | <50                       | <3   | <1.0                               |
| ST-7                             | 8:50  | <50                       | <3   | <1.0                               |
|                                  | 15:30 | <50                       | <3   | <1.0                               |
| November 27 <sup>th</sup> , 2018 |       |                           |  |                                    |
| Station Id                       | Time  | Formaldehyde (CHO) (ppb)* | Hydrogen Sulfide (H <sub>2</sub> S) (ppb)* | Ammonia (NH <sub>3</sub> ) (ppm)** |
| ST-1                             | 8:00  | <50                       | <3   | <1.0                               |
|                                  | 15:00 | <50                       | <3   | <1.0                               |
| ST-2                             | 8:10  | <50                       | <3   | <1.0                               |
|                                  | 15:10 | <50                       | <3   | <1.0                               |
| ST-3                             | 8:30  | <50                       | <3   | <1.0                               |
|                                  | 15:40 | <50                       | <3   | <1.0                               |
| ST-4                             | 8:40  | <50                       | <3   | <1.0                               |
|                                  | 15:50 | <50                       | <3   | <1.0                               |
| ST-5                             | 8:50  | <50                       | <3   | <1.0                               |
|                                  | 16:10 | <50                       | <3   | <1.0                               |
| ST-6                             | 9:10  | <50                       | <3   | <1.0                               |
|                                  | 16:20 | <50                       | <3   | <1.0                               |
| ST-7                             | 9:30  | <50                       | <3   | <1.0                               |
|                                  | 17:00 | <50                       | <3   | <1.0                               |

**Table 1**

**Week 60**

**Summary of Additional Periodic (Daily) Monitoring Data**

| November 28 <sup>th</sup> , 2018 |       |                           |  |                                    |
|----------------------------------|-------|---------------------------|--|------------------------------------|
| Station Id                       | Time  | Formaldehyde (CHO) (ppb)* | Hydrogen Sulfide (H <sub>2</sub> S) (ppb)* | Ammonia (NH <sub>3</sub> ) (ppm)** |
| ST-1                             | 8:00  | <50                       | <3   | <1.0                               |
|                                  | 13:30 | <50                       | <3   | <1.0                               |
| ST-2                             | 8:10  | <50                       | <3   | <1.0                               |
|                                  | 13:40 | <50                       | <3   | <1.0                               |
| ST-3                             | 8:30  | <50                       | <3   | <1.0                               |
|                                  | 14:10 | <50                       | <3   | <1.0                               |
| ST-4                             | 8:40  | <50                       | <3   | <1.0                               |
|                                  | 14:20 | <50                       | <3   | <1.0                               |
| ST-5                             | 8:50  | <50                       | <3   | <1.0                               |
|                                  | 14:30 | <50                       | <3   | <1.0                               |
| ST-6                             | 9:10  | <50                       | <3   | <1.0                               |
|                                  | 14:50 | <50                       | <3   | <1.0                               |
| ST-7                             | 9:40  | <50                       | <3   | <1.0                               |
|                                  | 15:30 | <50                       | <3   | <1.0                               |
| November 29 <sup>th</sup> , 2018 |       |                           |  |                                    |
| Station Id                       | Time  | Formaldehyde (CHO) (ppb)* | Hydrogen Sulfide (H <sub>2</sub> S) (ppb)* | Ammonia (NH <sub>3</sub> ) (ppm)** |
| ST-1                             | 7:30  | <50                       | <3   | <1.0                               |
|                                  | 14:30 | <50                       | <3   | <1.0                               |
| ST-2                             | 7:40  | <50                       | <3   | <1.0                               |
|                                  | 14:40 | <50                       | <3   | <1.0                               |
| ST-3                             | 7:55  | <50                       | <3   | <1.0                               |
|                                  | 15:00 | <50                       | <3   | <1.0                               |
| ST-4                             | 8:00  | <50                       | <3   | <1.0                               |
|                                  | 15:10 | <50                       | <3   | <1.0                               |
| ST-5                             | 8:10  | <50                       | <3   | <1.0                               |
|                                  | 15:20 | <50                       | <3   | <1.0                               |
| ST-6                             | 8:25  | <50                       | <3   | <1.0                               |
|                                  | 15:40 | <50                       | <3   | <1.0                               |
| ST-7                             | 8:40  | <50                       | <3   | <1.0                               |
|                                  | 16:10 | <50                       | <3   | <1.0                               |

Table 1

Week 60

Summary of Additional Periodic (Daily) Monitoring Data

| November 30 <sup>th</sup> , 2018 |       |                           |  |                                    |
|----------------------------------|-------|---------------------------|--|------------------------------------|
| Station Id                       | Time  | Formaldehyde (CHO) (ppb)* | Hydrogen Sulfide (H <sub>2</sub> S) (ppb)* | Ammonia (NH <sub>3</sub> ) (ppm)** |
| ST-1                             | 7:30  | <50                       | <3   | <1.0                               |
|                                  | 15:00 | <50                       | <3   | <1.0                               |
| ST-2                             | 7:40  | <50                       | <3   | <1.0                               |
|                                  | 15:05 | <50                       | <3   | <1.0                               |
| ST-3                             | 7:50  | <50                       | <3   | <1.0                               |
|                                  | 15:15 | <50                       | <3   | <1.0                               |
| ST-4                             | 7:55  | <50                       | <3   | <1.0                               |
|                                  | 15:20 | <50                       | <3   | <1.0                               |
| ST-5                             | 8:00  | <50                       | <3   | <1.0                               |
|                                  | 15:25 | <50                       | <3   | <1.0                               |
| ST-6                             | 8:10  | <50                       | <3   | <1.0                               |
|                                  | 15:30 | <50                       | <3   | <1.0                               |
| ST-7                             | 8:30  | <50                       | <3   | <1.0                               |
|                                  | 15:45 | <50                       | <3   | <1.0                               |

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

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



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

## Meteorological Summary

November 26<sup>th</sup> through November 30<sup>th</sup>, 2018

| November 26 <sup>th</sup> , 2018 * |                  |                  |
|------------------------------------|------------------|------------------|
| Wind Direction (°)                 | Wind Speed (mph) | Temperature (°F) |
| SSE                                | 1.71             | 47.0             |

| November 27 <sup>th</sup> , 2018 ** |                  |                  |
|-------------------------------------|------------------|------------------|
| Wind Direction (°)                  | Wind Speed (mph) | Temperature (°F) |
| WSW                                 | 3.99             | 46.3             |

| November 28 <sup>th</sup> , 2018 ** |                  |                  |
|-------------------------------------|------------------|------------------|
| Wind Direction (°)                  | Wind Speed (mph) | Temperature (°F) |
| WSW                                 | 5.07             | 43.5             |

| November 29 <sup>th</sup> , 2018 ** |                  |                  |
|-------------------------------------|------------------|------------------|
| Wind Direction (°)                  | Wind Speed (mph) | Temperature (°F) |
| W                                   | 4.40             | 42.5             |

| November 30 <sup>th</sup> , 2018 *** |                  |                  |
|--------------------------------------|------------------|------------------|
| Wind Direction (°)                   | Wind Speed (mph) | Temperature (°F) |
| ESE                                  | 1.53             | 40.5             |

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

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

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

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





WI #15-081

**MEMORANDUM**

December 3, 2018

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

From: Silas Bensing, Ani Toncheva / Wilson Ihrig

Subject: Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study, Weekly Noise Monitoring Report, 26 - 30 November, 2018

**Noise Monitoring Locations**

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

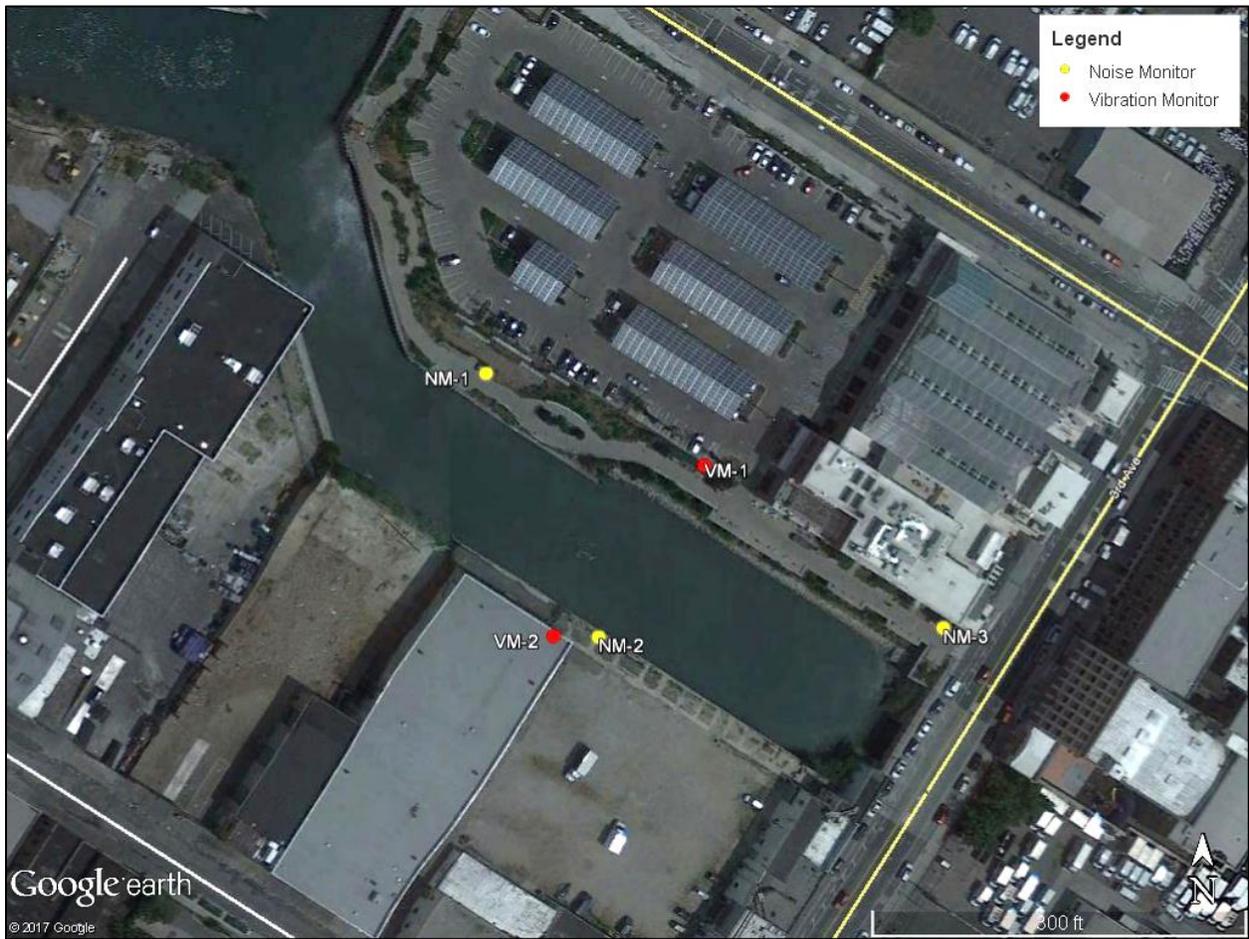
**Noise Monitoring Results**

Figures 2 through 11 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring 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>.

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<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.



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



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



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

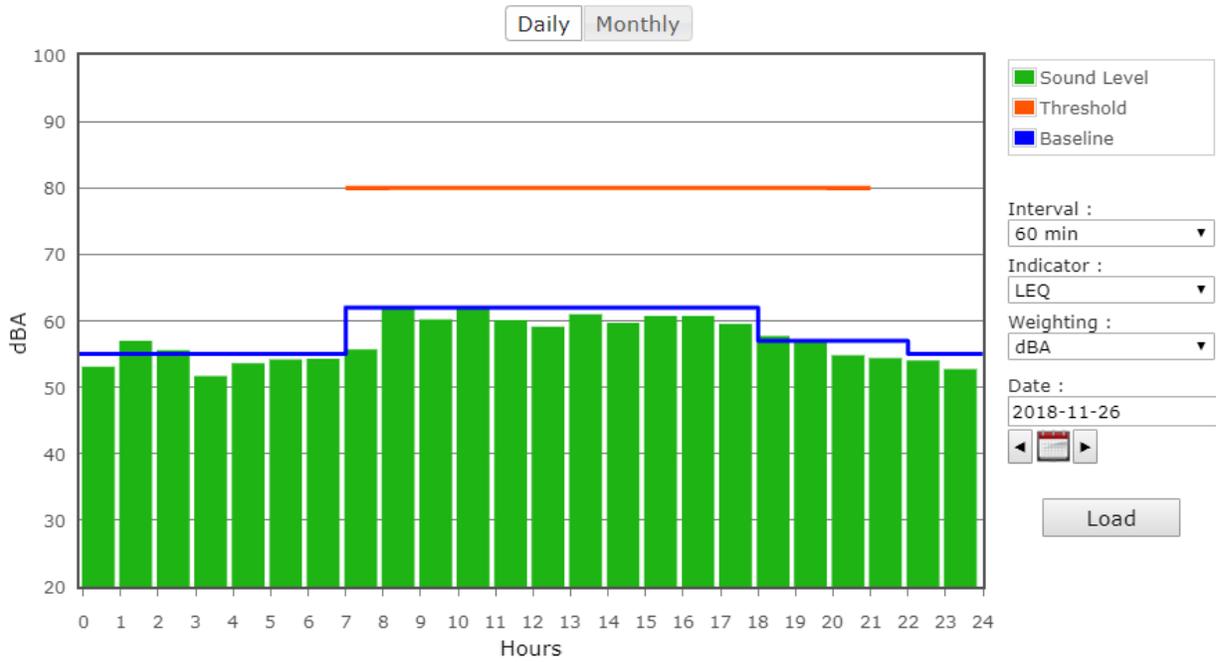


Figure 2: North Monitor NM-1 on Monday

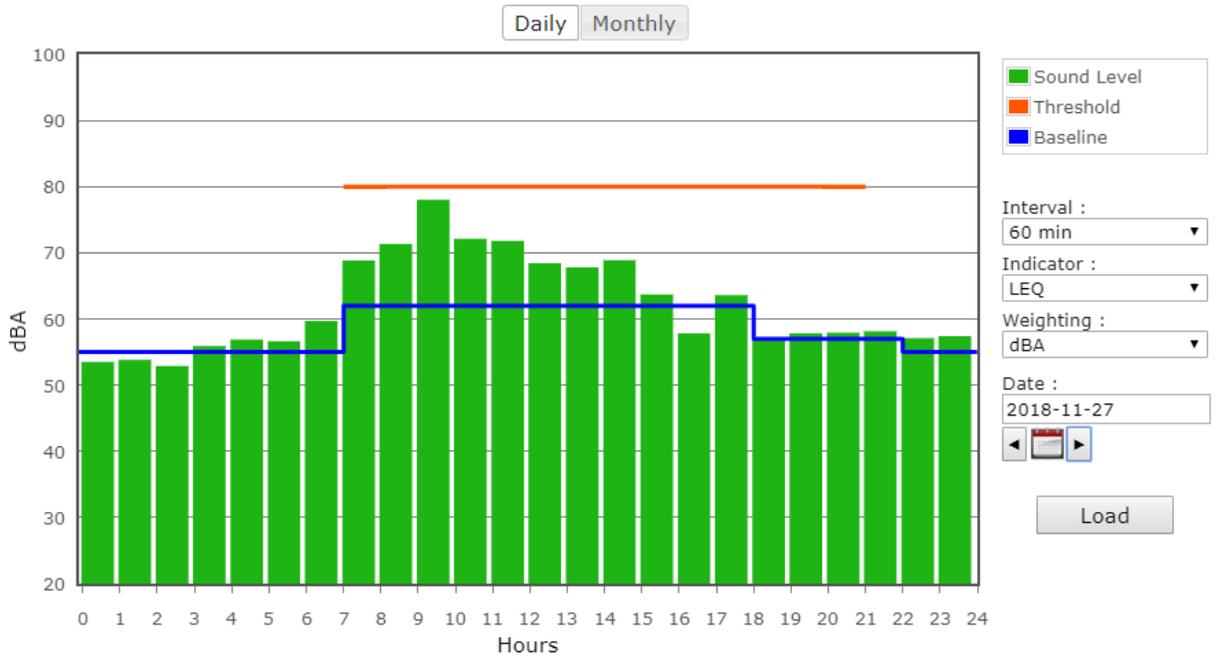
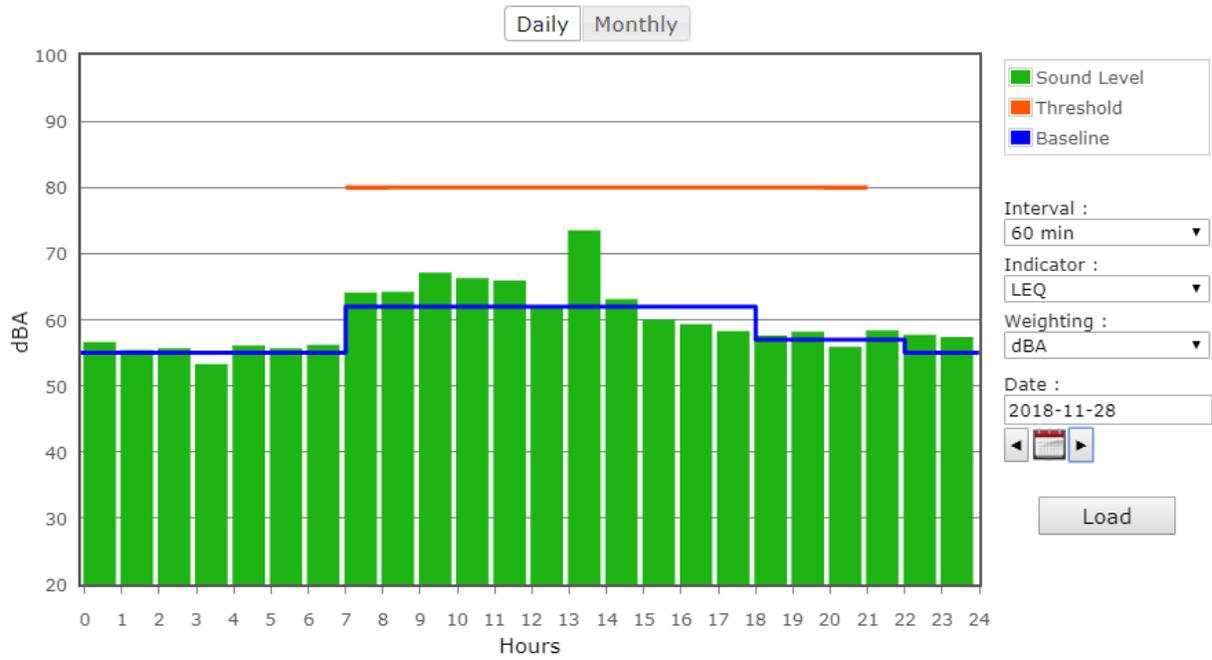
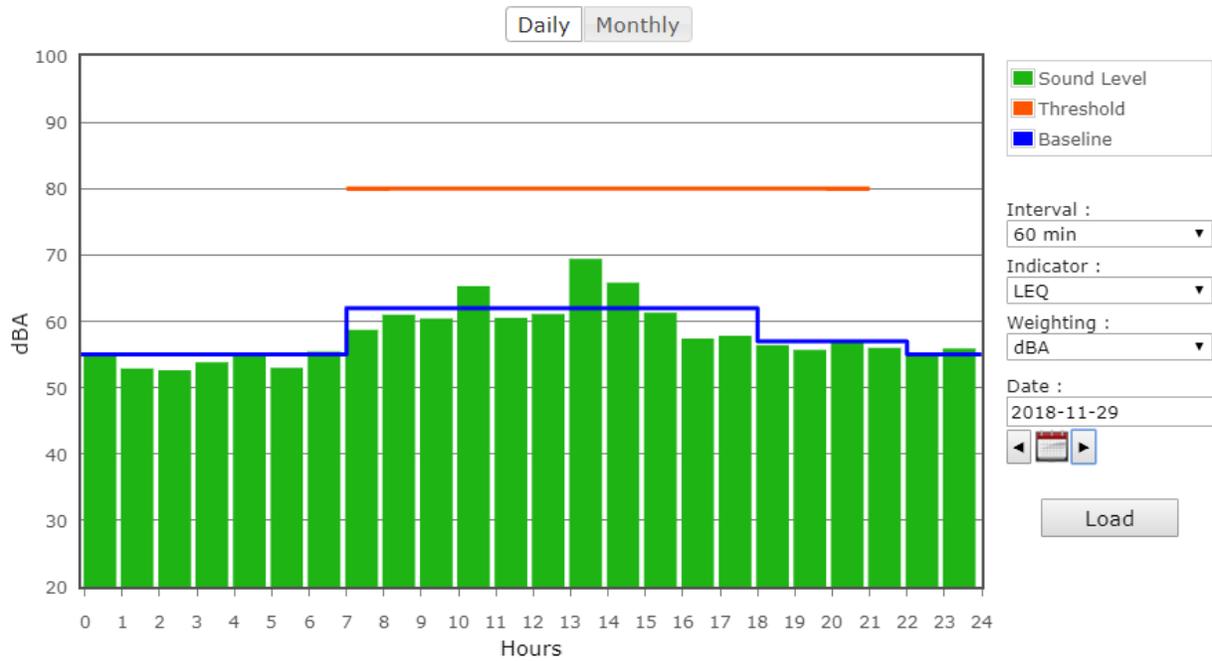


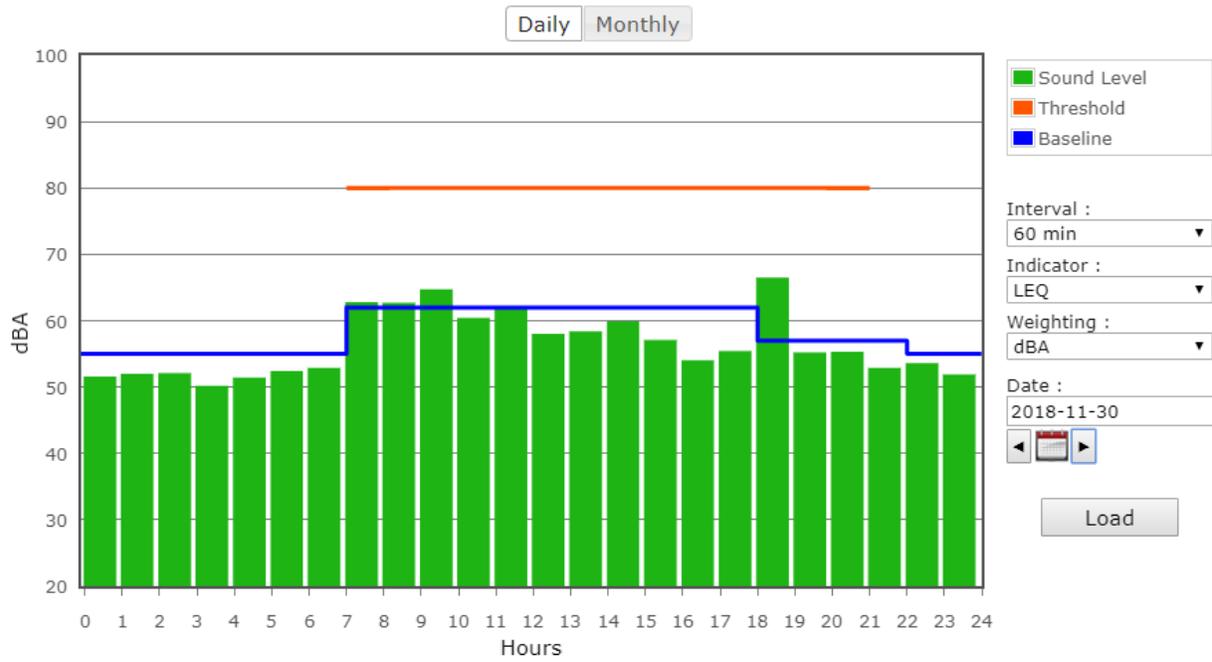
Figure 3: North Monitor NM-1 on Tuesday



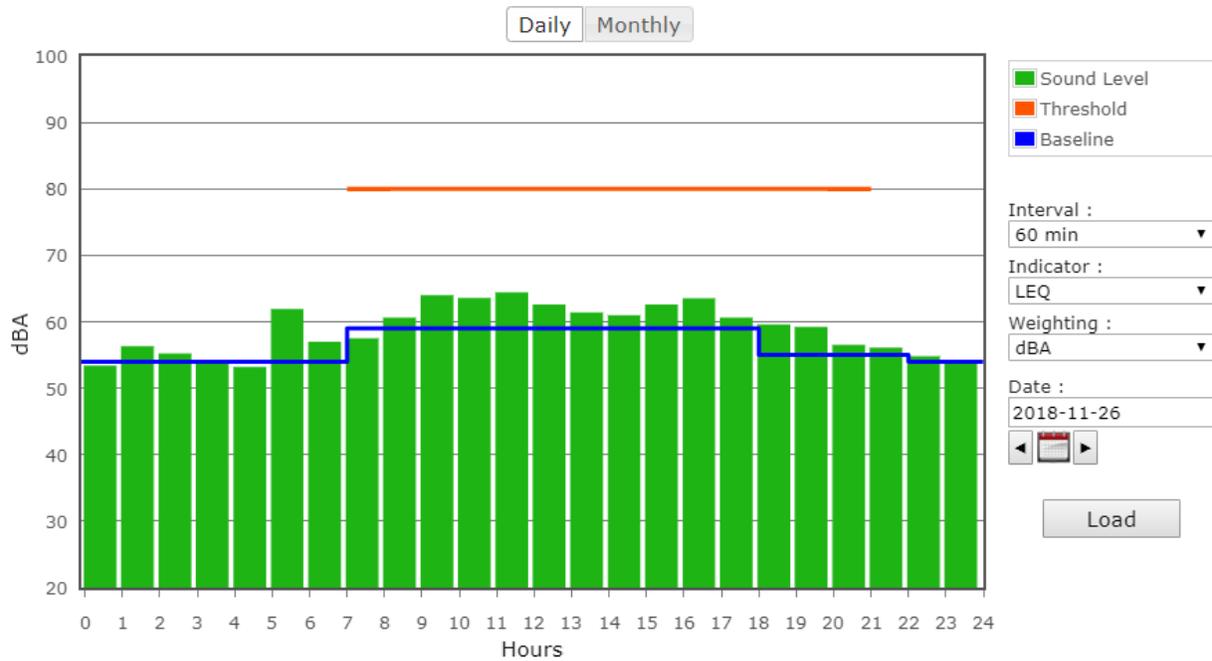
**Figure 4: North Monitor NM-1 on Wednesday**



**Figure 5: North Monitor NM-1 on Thursday**



**Figure 6: North Monitor NM-1 on Friday**



**Figure 7: South Monitor NM-2 on Monday**

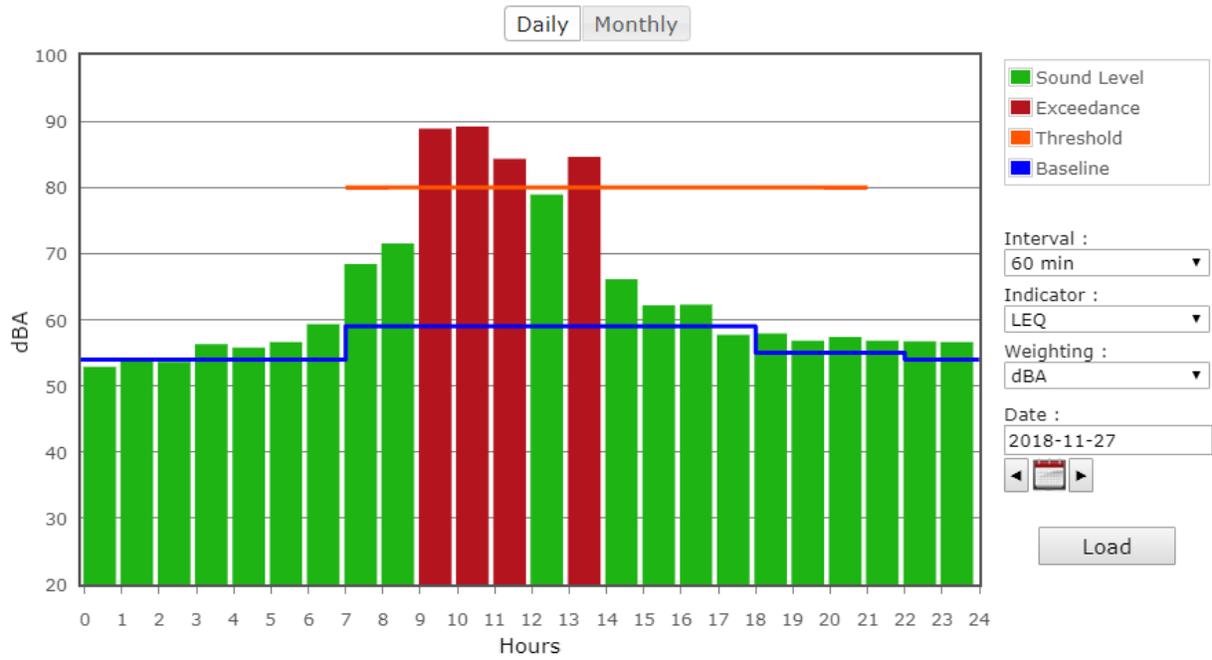


Figure 8: South Monitor NM-2 on Tuesday

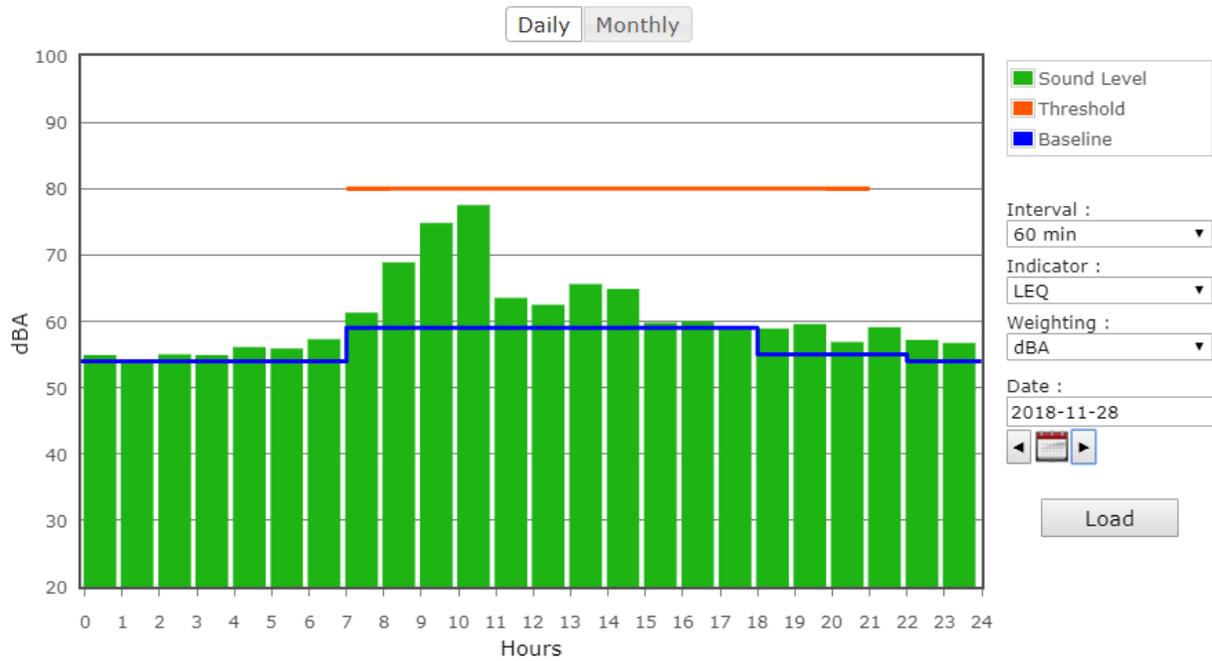
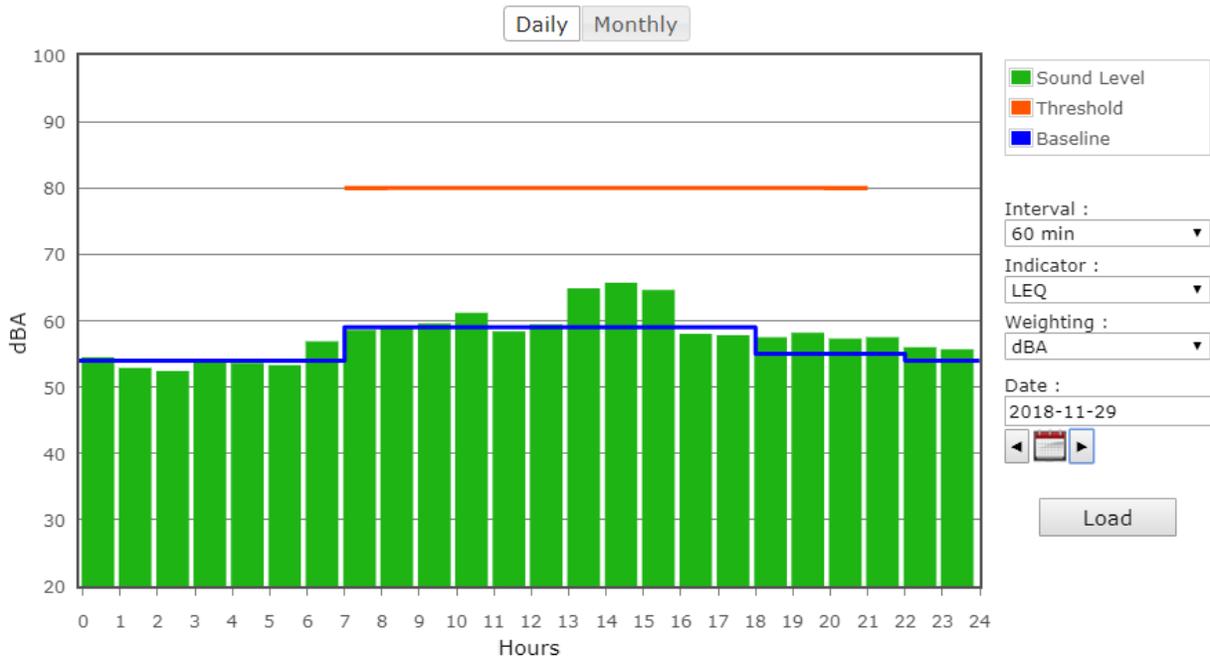
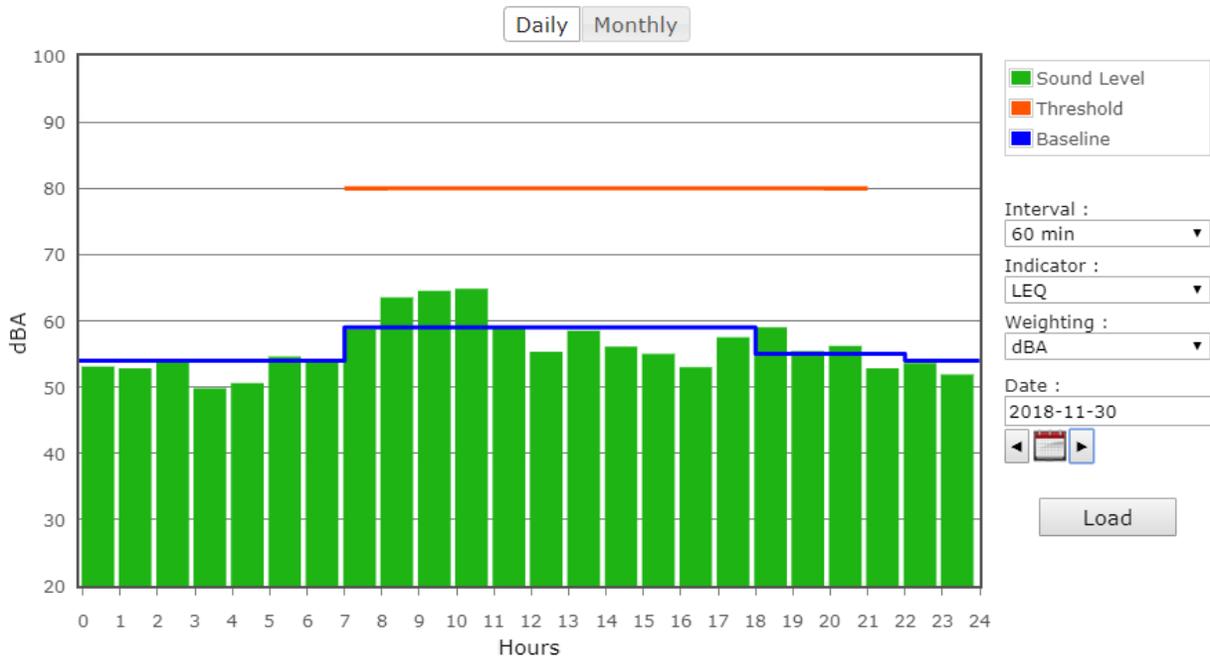


Figure 9: South Monitor NM-2 on Wednesday



**Figure 10: South Monitor NM-2 on Thursday**



**Figure 11: South Monitor NM-2 on Friday**

**AHRS WEEKLY REPORT**  
**(NO ACTIVITIES DURING WEEK)**



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



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

