WEEKLY PROGRESS REPORT – TRC SOLUTIONS

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

Project number: 283126

Period: December 3 to 7, 2018

Date of Report: December 21, 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 4th Street Turning Basin.

TB4 Demobilization Activities

- Complete placement of stone between installed sheet piles and existing bulkheads along southern boundary.
- Remove turbidity curtain.
- Remove piping associated with hydraulic capping.

Citizens Site Demobilization Activities

- Continue decontaminating and demobilizing equipment, including removal of air bridge and appurtenances.

Quality Assurance and Control – Geosyntec

- No exceedance of the turbidity trigger or action criteria.
- Measurements for 12/3/18:
  - Daily average for ambient buoy – 12.4 NTU
  - Daily average for sentinel buoy – 1.3 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 12/4/18:
  - Daily average for ambient buoy – 19.6 NTU
  - Daily average for sentinel buoy – 3.9 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 12/5/18:
  - Daily average for ambient buoy – 14.6 NTU
  - Daily average for sentinel buoy – 2.5 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 12/6/18:
  - Daily average for ambient buoy – 22.9 NTU
  - Daily average for sentinel buoy – 3.2 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 12/7/18:
  - Daily average for ambient buoy – 20.4 NTU
  - Daily average for sentinel buoy – 4.8 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.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area. Demobilize monitoring stations from Turning Basin 4 vicinity on 12/04/18.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM_{10}) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM_{10} in $\mu g/m^3$
  - Station 1 – 34 $\mu g/m^3$ recorded on 12/06/18
  - Station 2 – 22 $\mu g/m^3$ recorded on 12/06/18
- Maximum weekly measurements of TVOC in ppb
  - Station 1 – 299 ppb recorded on 12/03/18
  - Station 2 – <1 ppb recorded throughout the week
- 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-4 on 10/30 through 10/31, ST-3 on 11/01 through 11/02, ST-1 on 11/05 through 11/06, and ST-2 on 11/08 through 11/09 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).
- No exceedances of the hourly Leq noise limit of 80 dBA measured during period.
- Greatest hourly Leq noise measurements
  - Northern monitor (NM-1) – 65.5 dBA during 0900-1000 on 12/03/18
  - Southern monitor (NM-2) – 75.7 dBA during 0800-0900 on 12/04/18

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

- On 12/03/18, oversee packaging of segregated objects at Clean Earth for shipment to Citizens Site.
- Observe unloading of objects at Citizens Site on 12/04/18.

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.
- 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. Demobilize turbidity monitors from Turning Basin 4.

TRC CAMP Monitoring – Perform community air monitoring. Demobilize monitoring stations from Citizens Site.

Wilson Ihrig – Perform noise monitoring. Demobilize noise monitors.

Emilcott – Conduct site inspections as necessary.

AHRS – Finalize final report for EPA review.

Key Milestones

- Complete placement of stone between installed sheet piles and existing bulkheads along southern boundary on 12/05/18.

Attachments:

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

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

Photo No.	Date
001	12-03-2018

Description
Materials staged for transportation off-site.

Photo No.	Date
002	12-03-2018

Description
Placement of gravel adjacent to 386 3rd Avenue.

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

Photo No.	Date
003	12-04-2018

Description
Placement of gravel adjacent to 386 3rd Avenue.

Photo No.	Date
004	12-04-2018

Description
Staged materials from Clean Earth.

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

Photo No.	Date
005	12-05-2018

Description
Pulling pin piles in preparation to cut in ~30′ sections.

Photo No.	Date
006	12-05-2018

Description
Hydraulic pump placed on truck for transportation off-site.

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

Photo No.	Date
007	12-06-2018

Description
Gravel placed near Station 8+63.

Photo No.	Date
008	12-06-2018

Description
Removed turbidity curtain and pipe staged on barge.

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

Photo No.	Date
009	12-07-2018

Description
Offloading of sheet pile pieces from barge.

Photo No.	Date
010	12-07-2018

Description
Items arranged in preparation of EPA site visit on 12/10.

GEOSYNTEC IN-CANAL WATER QUALITY MONITORING WEEKLY DATA SUMMARY

Prepared for

Gowanus Canal Remedial Design Group

GOWANUS CANAL SUPERFUND SITE DREDGING AND CAPPING PILOT STUDY

Water Quality Monitoring Weekly Data Summary

Week of December 3rd, 2018

Report Contents

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

Prepared by

Geosyntec consultants
engineers | scientists | innovators

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

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of December 3rd, 2018. Two turbidity buoys were deployed to monitor turbidity during the pilot study. One turbidity buoy was deployed just outside of the 4th Street Turning Basin and is referred to as the sentinel buoy. A second turbidity buoy was deployed further upstream in RTA1 in order to monitor background turbidity unaffected by on-water construction activities. This turbidity buoy is referred to as the ambient buoy. A map indicating the approximate locations of the turbidity buoys is provided in Figure 1. Each turbidity buoy was equipped with a YSI 600 OMS water quality meter with optical turbidity sensor. The buoys were programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a FTP site via telemetry. This report provides the turbidity data collected every 15 minutes from both the ambient and sentinel buoys during each day between 7 AM and 5 PM during the week of December 3rd. Average and maximum turbidity are also presented. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4. The data provided in this summary report have not yet been validated and should be considered preliminary.

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 Bonagurio engineering p.c.

Figure 1

Ewing, NJ | October 2017

2. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from December 3rd to December 7th, 2018. Negative turbidity values were observed at the sentinel buoy during this reporting period. 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, December 3rd, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
12/3/2018 7:00	10.9	-3.7	N	12/3/2018 12:15	14.0	5.2	N
12/3/2018 7:15	9.8	-3.9	N	12/3/2018 12:30	12.5	5.5	N
12/3/2018 7:30	24.3	-1.5	N	12/3/2018 12:45	12.9	5.6	N
12/3/2018 7:45	9.1	-1.6	N	12/3/2018 13:00	10.5	4.4	N
12/3/2018 8:00	17.2	-0.9	N	12/3/2018 13:15	10.6	3.2	N
12/3/2018 8:15	6.1	-3.4	N	12/3/2018 13:30	11.4	2.6	N
12/3/2018 8:30	12.7	-3.1	N	12/3/2018 13:45	12.1	2.4	N
12/3/2018 8:45	12.4	-2.6	N	12/3/2018 14:00	12.0	0.0	N
12/3/2018 9:00	12.0	-1.0	N	12/3/2018 14:15	10.7	3.8	N
12/3/2018 9:15	10.6	-1.6	N	12/3/2018 14:30	10.0	0.9	N
12/3/2018 9:30	12.5	-2.0	N	12/3/2018 14:45	11.0	3.3	N
12/3/2018 9:45	11.6	-0.9	N	12/3/2018 15:00	15.0	0.4	N
12/3/2018 10:00	12.4	1.2	N	12/3/2018 15:15	11.9	2.6	N
12/3/2018 10:15	12.6	0.4	N	12/3/2018 15:30	11.7	2.0	N
12/3/2018 10:30	15.7	1.6	N	12/3/2018 15:45	10.6	-0.7	N
12/3/2018 10:45	18.6	1.1	N	12/3/2018 16:00	10.1	3.1	N
12/3/2018 11:00	16.7	5.4	N	12/3/2018 16:15	10.9	4.7	N
12/3/2018 11:15	17.2	5.7	N	12/3/2018 16:30	7.8	0.1	N
12/3/2018 11:30	14.0	6.0	N	12/3/2018 16:45	8.2	-0.6	N
12/3/2018 11:45	14.5	7.5	N	12/3/2018 17:00	9.3	-0.7	N
12/3/2018 12:00	15.2	4.7	N				

Average	12.4	1.3	N
Maximum	24.3	7.5	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

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

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

2.2 Tuesday, December 4th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
12/4/2018 7:00	12.9	-0.4	N	12/4/2018 12:15	16.6	10.2	N
12/4/2018 7:15	25.8	2.9	N	12/4/2018 12:30	20.0	7.2	N
12/4/2018 7:30	15.6	4.9	N	12/4/2018 12:45	19.5	6.1	N
12/4/2018 7:45	20.8	2.9	N	12/4/2018 13:00	14.1	6.6	N
12/4/2018 8:00	13.0	0.6	N	12/4/2018 13:15	20.0	5.8	N
12/4/2018 8:15	10.8	2.2	N	12/4/2018 13:30	20.9	6.5	N
12/4/2018 8:30	18.1	0.9	N	12/4/2018 13:45	20.5	6.3	N
12/4/2018 8:45	20.1	1.2	N	12/4/2018 14:00	17.5	5.8	N
12/4/2018 9:00	16.1	1.0	N	12/4/2018 14:15	23.9	3.0	N
12/4/2018 9:15	20.1	-0.2	N	12/4/2018 14:30	30.5	6.4	N
12/4/2018 9:30	18.6	-0.1	N	12/4/2018 14:45	32.1	7.2	N
12/4/2018 9:45	23.5	1.8	N	12/4/2018 15:00	16.2	5.1	N
12/4/2018 10:00	19.0	1.4	N	12/4/2018 15:15	17.3	3.8	N
12/4/2018 10:15	17.5	1.5	N	12/4/2018 15:30	16.6	4.1	N
12/4/2018 10:30	20.5	3.9	N	12/4/2018 15:45	18.1	5.6	N
12/4/2018 10:45	12.8	1.7	N	12/4/2018 16:00	12.6	5.7	N
12/4/2018 11:00	29.3	1.7	N	12/4/2018 16:15	18.8	2.8	N
12/4/2018 11:15	33.4	3.6	N	12/4/2018 16:30	20.8	4.1	N
12/4/2018 11:30	20.7	4.1	N	12/4/2018 16:45	12.2	2.9	N
12/4/2018 11:45	23.1	9.8	N	12/4/2018 17:00	17.9	2.1	N
12/4/2018 12:00	25.1	6.4	N				

Average	19.6	3.9	N
Maximum	33.4	10.2	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

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

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

2.3 Wednesday, December 5th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
12/5/2018 7:00	10.0	-3.7	N	12/5/2018 12:15	15.4	3.8	N
12/5/2018 7:15	27.9	-2.6	N	12/5/2018 12:30	17.0	4.6	N
12/5/2018 7:30	23.5	1.8	N	12/5/2018 12:45	14.3	8.8	N
12/5/2018 7:45	28.1	0.1	N	12/5/2018 13:00	13.3	8.3	N
12/5/2018 8:00	14.0	1.8	N	12/5/2018 13:15	14.4	6.7	N
12/5/2018 8:15	14.7	-1.9	N	12/5/2018 13:30	12.5	7.5	N
12/5/2018 8:30	20.9	1.9	N	12/5/2018 13:45	11.1	8.4	N
12/5/2018 8:45	20.9	0.9	N	12/5/2018 14:00	11.5	3.6	N
12/5/2018 9:00	19.1	5.2	N	12/5/2018 14:15	11.4	3.7	N
12/5/2018 9:15	25.2	3.4	N	12/5/2018 14:30	10.5	5.5	N
12/5/2018 9:30	16.3	3.8	N	12/5/2018 14:45	9.9	2.9	N
12/5/2018 9:45	12.9	2.1	N	12/5/2018 15:00	9.5	1.3	N
12/5/2018 10:00	14.7	1.2	N	12/5/2018 15:15	9.9	1.0	N
12/5/2018 10:15	12.8	0.8	N	12/5/2018 15:30	10.0	-0.1	N
12/5/2018 10:30	14.5	0.6	N	12/5/2018 15:45	9.9	-0.9	N
12/5/2018 10:45	18.9	0.3	N	12/5/2018 16:00	9.5	1.2	N
12/5/2018 11:00	13.6	4.3	N	12/5/2018 16:15	10.0	-0.5	N
12/5/2018 11:15	13.7	3.9	N	12/5/2018 16:30	10.5	0.3	N
12/5/2018 11:30	12.3	4.4	N	12/5/2018 16:45	11.1	0.2	N
12/5/2018 11:45	13.8	4.0	N	12/5/2018 17:00	10.9	-1.0	N
12/5/2018 12:00	18.5	4.7	N				

Average	14.6	2.5	N
Maximum	28.1	8.8	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

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

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

2.4 Thursday, December 6th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
12/6/2018 7:00	10.0	-3.8	N	12/6/2018 12:15	21.7	4.3	N
12/6/2018 7:15	17.9	-2.4	N	12/6/2018 12:30	22.3	3.6	N
12/6/2018 7:30	11.4	-1.7	N	12/6/2018 12:45	18.6	3.1	N
12/6/2018 7:45	15.5	-1.9	N	12/6/2018 13:00	28.3	4.2	N
12/6/2018 8:00	32.7	-2.0	N	12/6/2018 13:15	27.9	5.7	N
12/6/2018 8:15	38.2	-0.3	N	12/6/2018 13:30	23.9	3.7	N
12/6/2018 8:30	24.0	-0.4	N	12/6/2018 13:45	17.7	5.7	N
12/6/2018 8:45	32.8	-0.6	N	12/6/2018 14:00	23.9	5.9	N
12/6/2018 9:00	31.8	0.2	N	12/6/2018 14:15	16.3	7.2	N
12/6/2018 9:15	32.6	7.3	N	12/6/2018 14:30	19.3	4.0	N
12/6/2018 9:30	38.4	8.6	N	12/6/2018 14:45	20.4	4.9	N
12/6/2018 9:45	38.9	7.5	N	12/6/2018 15:00	13.8	4.9	N
12/6/2018 10:00	32.1	7.5	N	12/6/2018 15:15	19.7	3.7	N
12/6/2018 10:15	17.2	5.7	N	12/6/2018 15:30	15.1	2.4	N
12/6/2018 10:30	38.4	6.2	N	12/6/2018 15:45	18.7	4.6	N
12/6/2018 10:45	21.4	4.8	N	12/6/2018 16:00	17.9	3.2	N
12/6/2018 11:00	27.1	2.8	N	12/6/2018 16:15	17.0	3.5	N
12/6/2018 11:15	16.2	2.6	N	12/6/2018 16:30	18.9	4.0	N
12/6/2018 11:30	17.2	3.2	N	12/6/2018 16:45	21.8	2.4	N
12/6/2018 11:45	19.4	1.4	N	12/6/2018 17:00	22.0	2.0	N
12/6/2018 12:00	18.9	2.5	N				

Average	22.9	3.2	N
Maximum	38.9	8.6	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

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

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

2.5 Friday, December 7th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
12/7/2018 7:00	15.9	-0.9	N	12/7/2018 12:15	27.5	5.2	N
12/7/2018 7:15	22.3	-1.0	N	12/7/2018 12:30	20.8	4.7	N
12/7/2018 7:30	15.3	-0.6	N	12/7/2018 12:45	32.9	6.8	N
12/7/2018 7:45	18.0	-0.9	N	12/7/2018 13:00	18.0	5.9	N
12/7/2018 8:00	26.3	-1.1	N	12/7/2018 13:15	20.4	4.0	N
12/7/2018 8:15	13.2	-0.5	N	12/7/2018 13:30	22.4	4.4	N
12/7/2018 8:30	14.5	0.1	N	12/7/2018 13:45	34.1	4.9	N
12/7/2018 8:45	30.6	3.8	N	12/7/2018 14:00	19.6	5.6	N
12/7/2018 9:00	39.2	3.4	N	12/7/2018 14:15	21.7	6.5	N
12/7/2018 9:15	16.2	4.6	N	12/7/2018 14:30	22.3	10.0	N
12/7/2018 9:30	21.4	5.3	N	12/7/2018 14:45	20.2	7.9	N
12/7/2018 9:45	11.4	7.7	N	12/7/2018 15:00	18.4	8.3	N
12/7/2018 10:00	20.6	6.3	N	12/7/2018 15:15	20.2	8.2	N
12/7/2018 10:15	21.9	4.4	N	12/7/2018 15:30	15.7	12.2	N
12/7/2018 10:30	20.1	3.4	N	12/7/2018 15:45	19.7	8.8	N
12/7/2018 10:45	16.4	3.7	N	12/7/2018 16:00	18.7	9.7	N
12/7/2018 11:00	16.3	4.0	N	12/7/2018 16:15	17.5	7.4	N
12/7/2018 11:15	14.4	1.9	N	12/7/2018 16:30	17.6	5.8	N
12/7/2018 11:30	18.8	3.1	N	12/7/2018 16:45	18.9	7.5	N
12/7/2018 11:45	24.0	6.2	N	12/7/2018 17:00	17.2	6.7	N
12/7/2018 12:00	15.9	4.4	N				

Average	20.4	4.8	N
Maximum	39.2	12.2	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

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

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

3. HANDHELD MEASURMENTS

No handheld measurements were collected during this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

Visual observations were consistent with background conditions.

5. REPORT OF EXCEEDANCES

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

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

FIGURES

Legend

- Ambient Buoy
- Sentinel Buoy
- RTA Boundary

300 150 0 300 Feet

Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group

Geosyntec consultants

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

Figure 1

Ewing, NJ | October 2017

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

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

PRELIMINARY DATA
NOT YET SUBJECT TO QC REVIEW

Geosyntec consultants

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

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

Average	7.5	6.0	N
Maximum	11.1	16.7	Y

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT

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

(TRC Project No.274286-0000-00000)

Community Air Monitoring Project
61st Weekly Monitoring Period
Summary Report:

December 3rd, through December 7th, 2018

Report Contents

- Executive Summary
- Daily Data Summary Report – PM_{10}/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 61 Monitoring Period
December 3rd through December 7th, 2018

The following report summarizes site air monitoring activities for the Week 61 monitoring period from December 3rd through December 7th, 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 using the equipment specified previously in the *Gowanus Canal TB-4 Dredging and Pilot Study Executive Summary – Background Monitoring Period Report*. During the Week 61 monitoring period there were no PM_{10} or TVOC exceedances of the action level of 150 ug/m^3 or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017.*

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

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at stations 1 and 2 throughout the Week 61 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 61 monitoring period of December 3rd through December 7th, 2018 TRC conducted no Volatile Organic Compounds (USEPA Method TO-15) sampling at any stations.

Table 2 presents the analytical results for 23-hour samples collected at Station 3 and 4 during Week 56. ST-4 was collected on October 30th through October 31st, 2018 and ST-3 was collected on November 1st, through November 2nd, 2018. Sampling results were

either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Table 3 presents the analytical results for 23-hour samples collected at Station 1 and 2 during Week 57. The ST-1 sample was collected on November 5th through 6th, 2018 and the ST-2 sample was collected on November 8th through 9th, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Site activities which were conducted at the Citizen Property during December 3rd through December 7th, 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
- Removal of air bridge and appurtenances from adjacent to Citizens Site bulkhead
- Delivery of screened debris from Clean Earth

Site activities which were conducted at the 4th St Turning Basin Area of the Canal during December 3rd through December 7th, 2018 included the following:

- Complete placement of stone between installed sheet piles and existing bulkheads along southern boundary of Turning Basin 4
- Removal of turbidity curtain from mouth of Turning Basin 4

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
12/03/2018 06:30 AM - 12/03/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	299	ppb	Max.	13	ug/m^3
Avg.	80	ppb	Avg.	4	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

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

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
12/04/2018 00:00 AM - 12/04/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	66	ppb	Max.	13	ug/m^3
Avg.	16	ppb	Avg.	2	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	4	ug/m^3
Avg.	<1	ppb	Avg.	1	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
12/05/2018 00:00 AM - 12/05/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	33	ppb	Max.	8	ug/m^3
Avg.	13	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	6	ug/m^3
Avg.	<1	ppb	Avg.	3	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
12/06/2018 00:00 AM - 12/06/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	66	ppb	Max.	34	ug/m^3
Avg.	28	ppb	Avg.	10	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	22	ug/m^3
Avg.	<1	ppb	Avg.	8	ug/m^3
Exc.	0	total	Exc.	0	Total

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

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

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

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

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM_{10}
(TRC Project No.274286-0000-00000)
12/07/2018 00:00 AM - 12/07/2018 17:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM_{10}		
Max.	66	ppb	Max.	11	ug/m^3
Avg.	27	ppb	Avg.	4	ug/m^3
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM_{10}		
Max.	<1	ppb	Max.	11	ug/m^3
Avg.	<1	ppb	Avg.	4	ug/m^3
Exc.	0	total	Exc.	0	Total

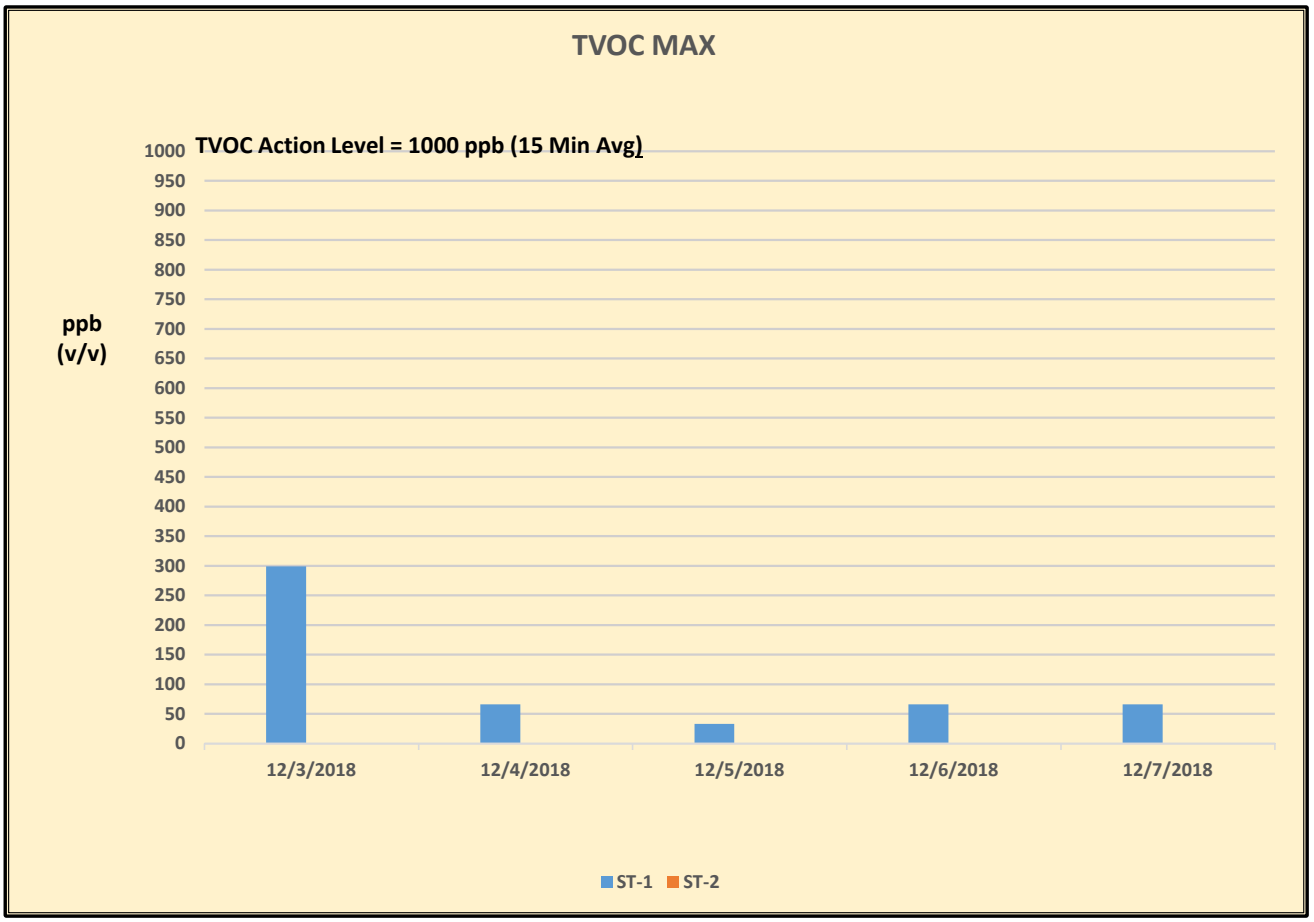
TVOC – Total Volatile Organic Compounds PM_{10} – Particulates as PM_{10}

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

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

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

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 61



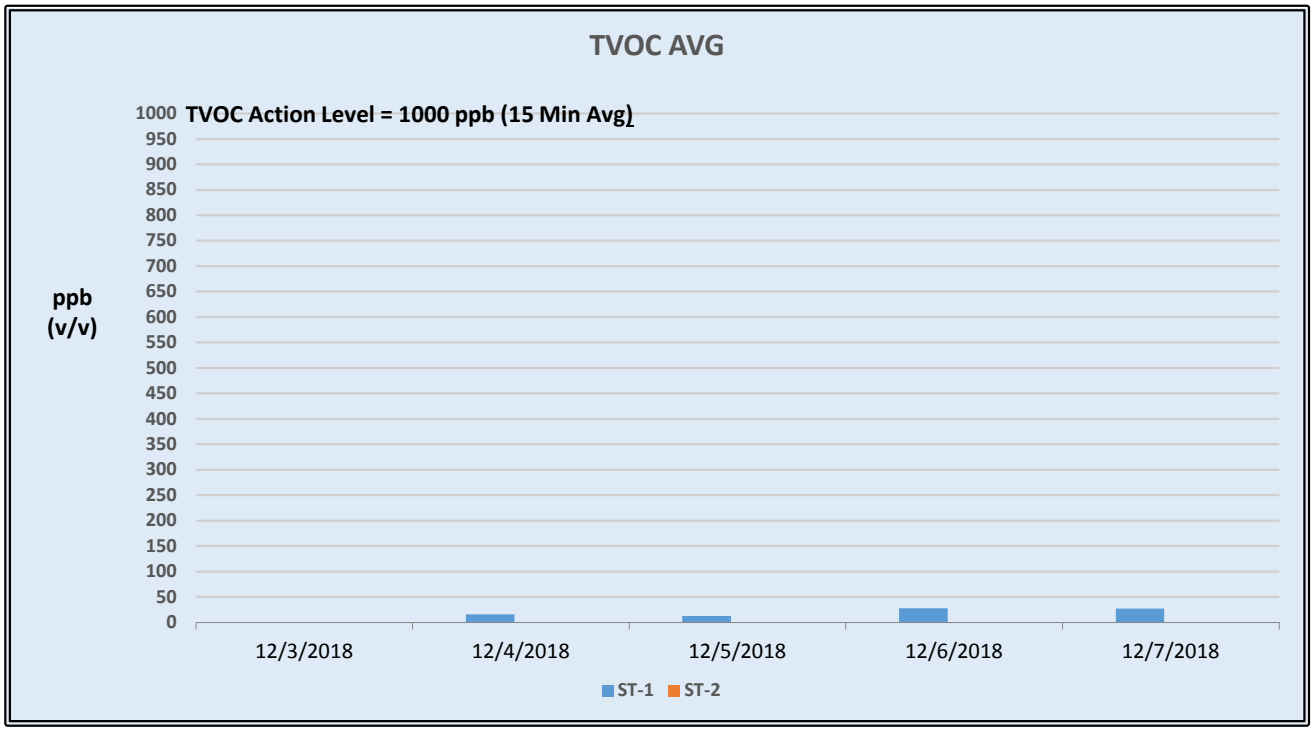
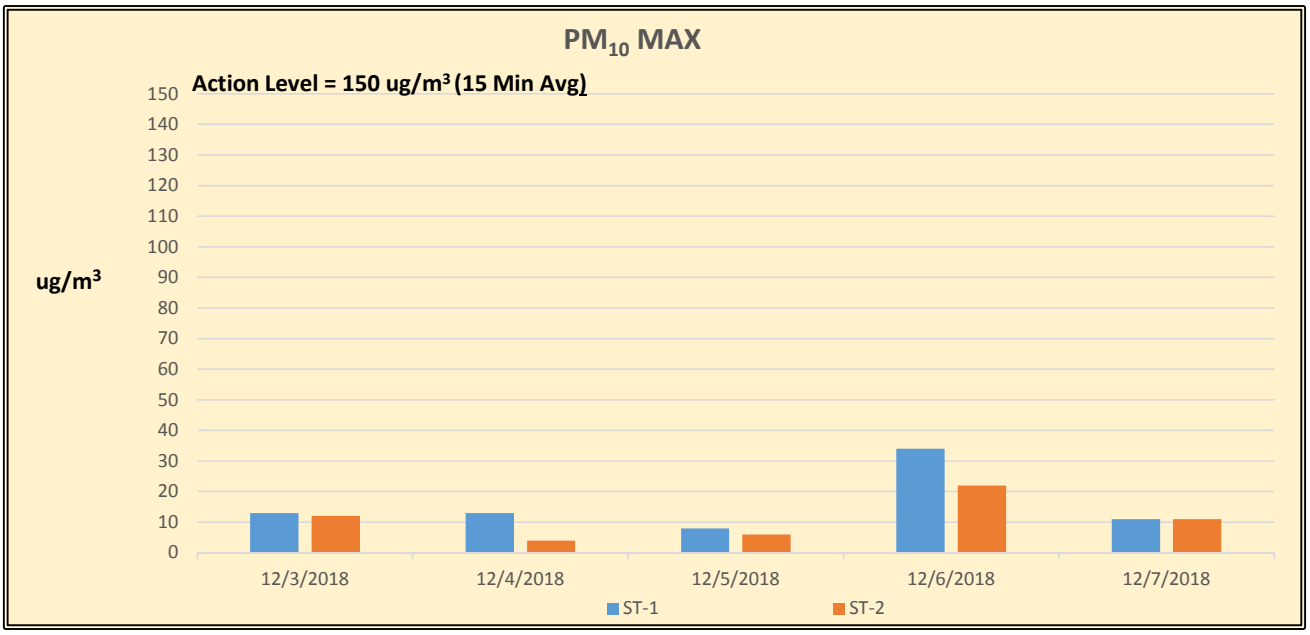


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM_{10} Monitoring Data - Week 61



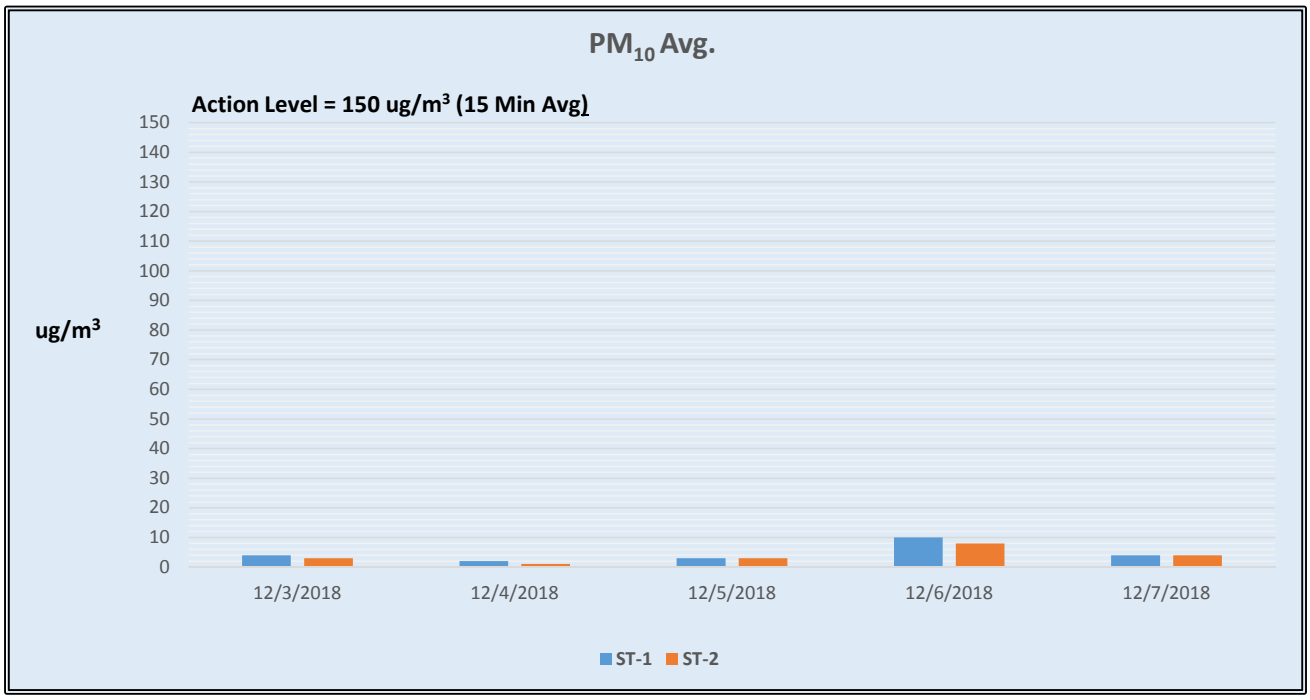


Table 2:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 56 VOCs Results: October 30th through 31st and November 1st through 2nd

Sample ID	ST-4-VOC-103018		ST-3-VOC-110118	
Laboratory ID	18K0287-01		18K0287-02	
Date Sampled	10/30/18 12:20 - 10/31/18 11:30		11/1/18 13:30 - 11/2/18 12:30	
Location	Station 4		Station 3	
VOCs - TO-15	ppbV	ug/m3	ppbV	ug/m3
Acetone	**4.6**	**11**	**4.5**	**11**
Benzene	**0.4**	**1.3**	**0.16**	**0.52**
Benzyl chloride	<0.035	<0.18	<0.035	<0.18
Bromodichloromethane	<0.035	<0.24	<0.035	<0.24
Bromoform	<0.035	<0.36	<0.035	<0.36
Bromomethane	<0.035	<0.14	<0.035	<0.14
1,3-Butadiene	<0.035	<0.078	<0.035	<0.078
2-Butanone (MEK)	<1.4	<4.1	<1.4	<4.1
Carbon Disulfide	<0.35	<1.1	<0.35	<1.1
Carbon Tetrachloride	<0.035	<0.22	**0.077**	**0.49**
Chlorobenzene	<0.035	<0.16	<0.035	<0.16
Chloroethane	<0.035	<0.093	<0.035	<0.093
Chloroform	<0.035	<0.17	<0.035	<0.17
Chloromethane	<0.070	<0.14	**0.61**	**1.3**
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)	**0.47**	**2.3**	**0.34**	**1.7**
1,1-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,2-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,1-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
cis-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
trans-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
1,2-Dichloropropane	<0.035	<0.16	<0.035	<0.16
cis-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
trans-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.035	<0.25	<0.035	<0.25
1,4-Dioxane	<0.35	<1.3	<0.35	<1.3
Ethanol	**18**	**34**	**7.9**	**15**
Ethyl Acetate	**0.65**	**2.3**	<0.070	<0.25
Ethylbenzene	**0.18**	**0.79**	<0.035	<0.15
4-Ethyltoluene	**0.23**	**1.1**	<0.035	<0.17
Heptane	**0.32**	**1.3**	<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	<0.035	<0.14
Isopropanol	**4.6**	**11**	<1.4	<3.4
Methyl tert-Butyl Ether (MTBE)	<0.035	<0.13	<0.035	<0.13
Methylene Chloride	<0.35	<1.2	<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 J-	<1.4	<2.4 J-
Styrene	<0.035	<0.15	<0.035	<0.15
1,1,2,2-Tetrachloroethane	<0.035	<0.24	<0.035	<0.24
Tetrachloroethylene	**0.51**	**3.4**	**0.24**	**1.6**
Tetrahydrofuran	<0.035	<0.10	<0.035	<0.10
Toluene	**1.2**	**4.7**	**0.45**	**1.7**
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)	**0.58**	**3.3**	**0.27**	**1.5**
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.14	<1.1	<0.14	<1.1
1,2,4-Trimethylbenzene	**0.26**	**1.3**	<0.035	<0.17
1,3,5-Trimethylbenzene	**0.07**	**0.34**	<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	**0.62**	**2.7**	**0.19**	**0.82**
o-Xylene	**0.25**	**1.1**	<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

J-: The results reported for propene are estimated values and may be biased low.

Table 3:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 57 VOCs Results: November 5th through 6th and November 8th through 9th

Sample ID	ST-1-VOC-110518		ST-2-VOC-110818	
Laboratory ID	18K0520-01		18K0520-02	
Date Sampled	11/5/18 12:40 - 11/6/18 11:50		11/8/18 10:20 - 11/9/18 09:30	
Location	Station 1		Station 2	
VOCs - TO-15	ppbV	ug/m3	ppbV	ug/m3
Acetone	**6.4**	**15**	**2.9**	**6.8**
Benzene	**0.18**	**0.56**	**0.15**	**0.49**
Benzyl chloride	<0.035	<0.18	<0.035	<0.18
Bromodichloromethane	<0.035	<0.24	<0.035	<0.24
Bromoform	<0.035	<0.36	<0.035	<0.36
Bromomethane	<0.035	<0.14	<0.035	<0.14
1,3-Butadiene	<0.035	<0.078	<0.035	<0.078
2-Butanone (MEK)	<1.4	<4.1	<1.4	<4.1
Carbon Disulfide	<0.35	<1.1	<0.35	<1.1
Carbon Tetrachloride	**0.07**	**0.44**	**0.07**	**0.44**
Chlorobenzene	<0.035	<0.16	<0.035	<0.16
Chloroethane	<0.035	<0.093	<0.035	<0.093
Chloroform	<0.035	<0.17	<0.035	<0.17
Chloromethane	**0.57**	**1.2**	**0.52**	**1.1**
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)	**0.46**	**2.3**	**0.35**	**1.7**
1,1-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,2-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,1-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
cis-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
trans-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
1,2-Dichloropropane	<0.035	<0.16	<0.035	<0.16
cis-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
trans-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.035	<0.25	<0.035	<0.25
1,4-Dioxane	<0.35	<1.3	<0.35	<1.3
Ethanol	**8.3**	**16**	**5.9**	**11**
Ethyl Acetate	<0.070	<0.25	<0.070	<0.25
Ethylbenzene	**0.056**	**0.24**	<0.035	<0.15
4-Ethyltoluene	<0.035	<0.17	<0.035	<0.17
Heptane	**0.091**	**0.37**	<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	<0.035	<0.14
Isopropanol	**4.1**	**10**	<1.4	<3.4
Methyl tert-Butyl Ether (MTBE)	<0.035	<0.13	<0.035	<0.13
Methylene Chloride	<0.35	<1.2	<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
1,1,2,2-Tetrachloroethane	<0.035	<0.24	<0.035	<0.24
Tetrachloroethylene	**0.29**	**2**	**0.077**	**0.52**
Tetrahydrofuran	<0.035	<0.10	<0.035	<0.10
Toluene	**0.81**	**3**	**0.35**	**1.3**
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)	**0.27**	**1.5**	**0.27**	**1.5**
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.14	<1.1	<0.14	<1.1
1,2,4-Trimethylbenzene	<0.035	<0.17	<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	**0.18**	**0.76**	**0.14**	**0.61**
o-Xylene	**0.063**	**0.27**	**0.049**	**0.21**

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 61
Summary of Additional Periodic (Daily) Monitoring Data

December 3rd, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	15:10	<50	<3	<1.0

December 4th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	8:00	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	16:10	<50	<3	<1.0

December 5th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:30	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	13:40	<50	<3	<1.0

December 6th, 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H_2S) (ppb)*	Ammonia (NH_3) (ppm)**
ST-1	7:30	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	15:40	<50	<3	<1.0

Table 1

Week 61
Summary of Additional Periodic (Daily) Monitoring Data

December 7th, 2018				
Station Id	**Time**	**Formaldehyde (CHO) (ppb)***	**Hydrogen Sulfide (H_2S) (ppb)***	**Ammonia (NH_3) (ppm)****
ST-1	10:00	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-2	10:10	<50	<3	<1.0
	16:10	<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
December 3rd through December 7th, 2018

December 3rd, 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
WSW	**2.88**	**49.5**

December 4th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
W	**3.86**	**38.5**

December 5th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
WSW	**5.07**	**43.5**

December 6th, 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
WSW	**2.20**	**49.1**

December 7th, 2018 ***		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	**1.98**	**33.5**

* 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

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #15-081

MEMORANDUM

December 10, 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, 3 – 7 December, 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[1]. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference[2].

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

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

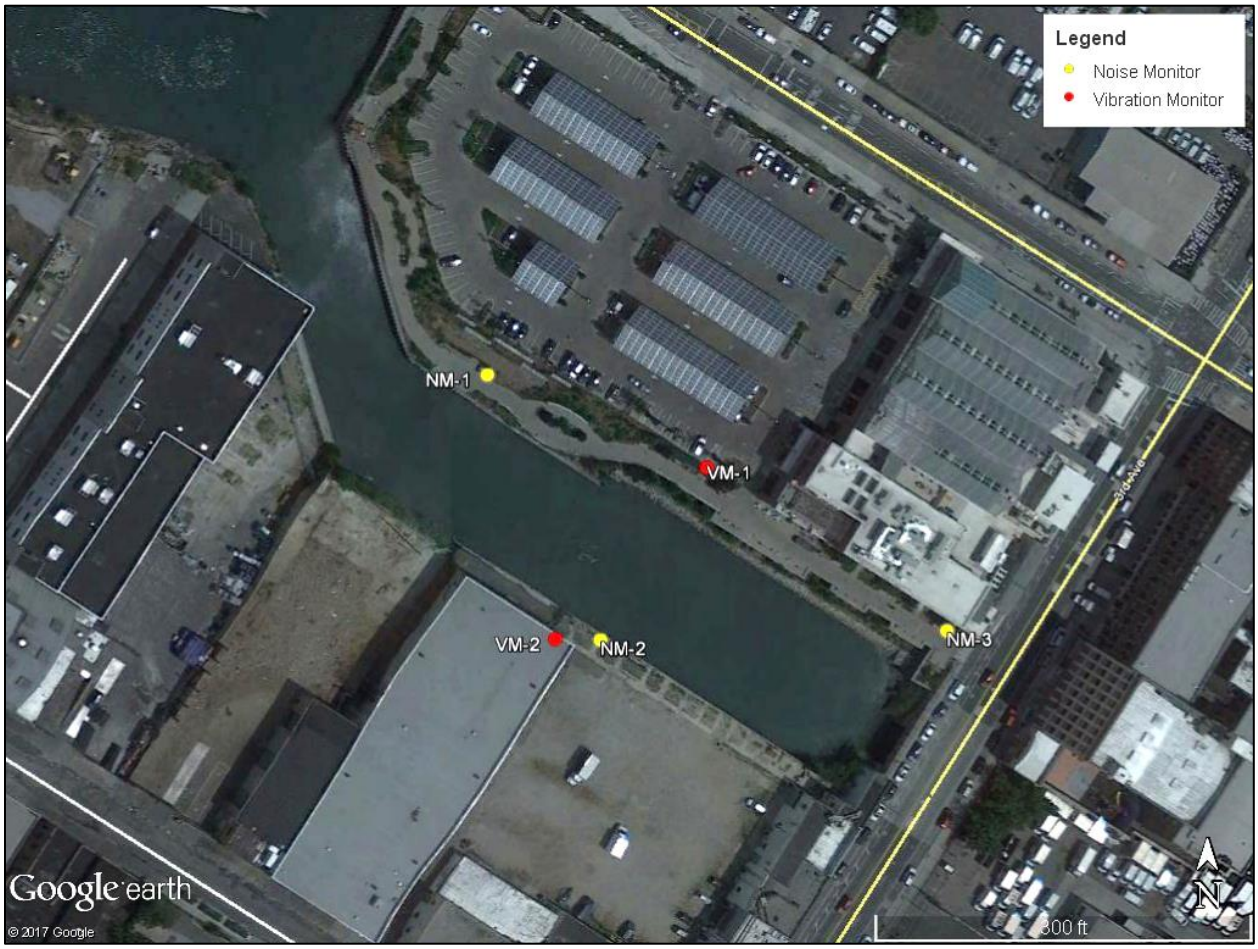


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study

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

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

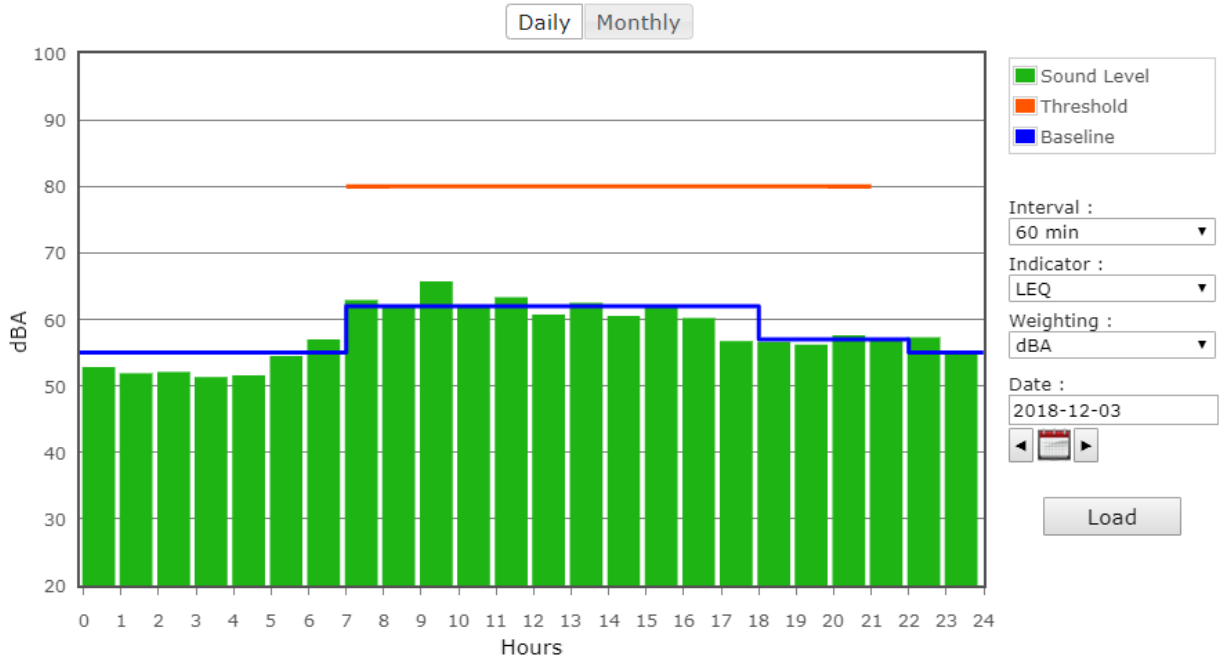


Figure 2: North Monitor NM-1 on Monday

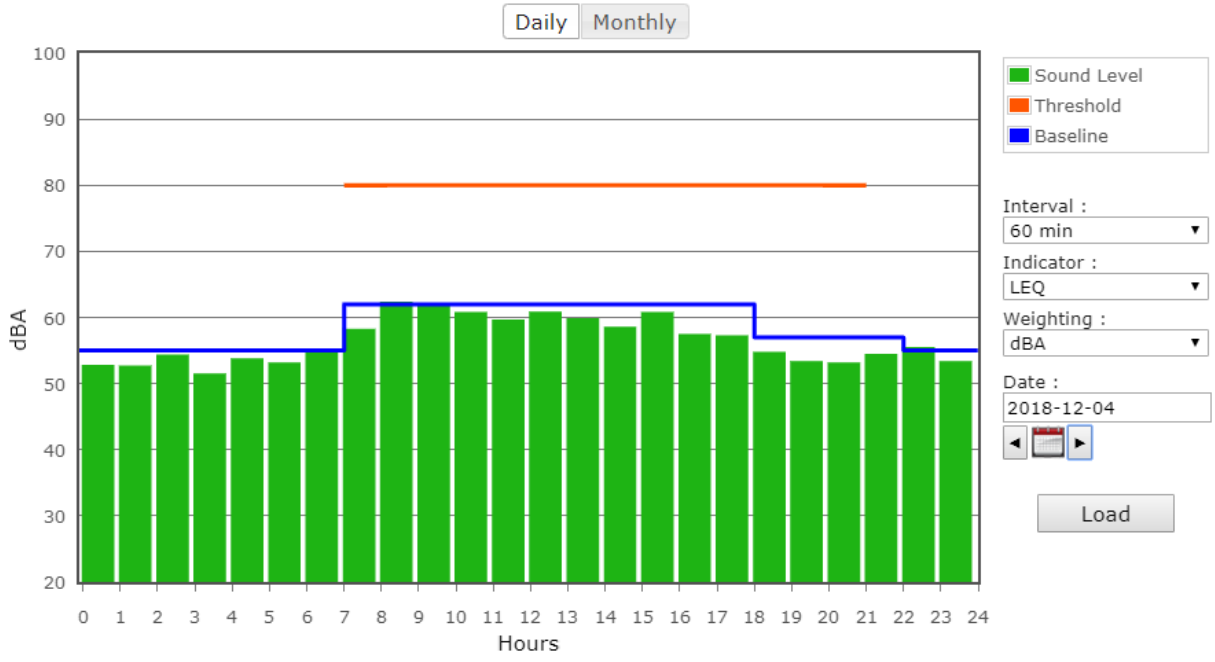


Figure 3: North Monitor NM-1 on Tuesday

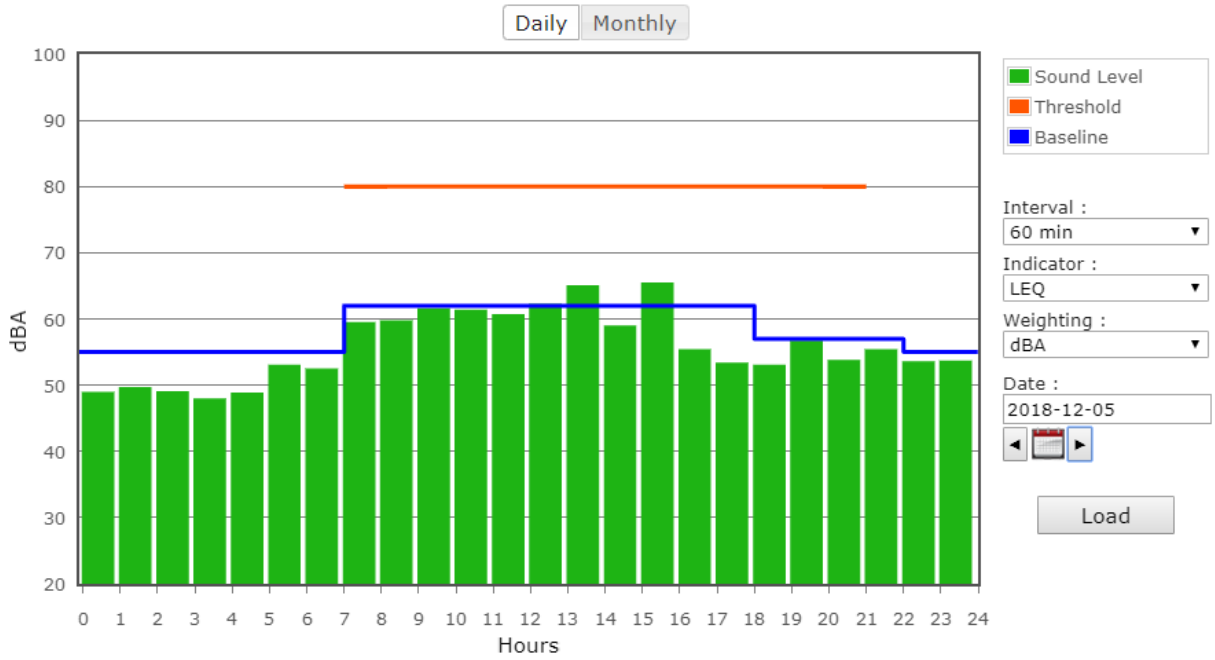


Figure 4: North Monitor NM-1 on Wednesday

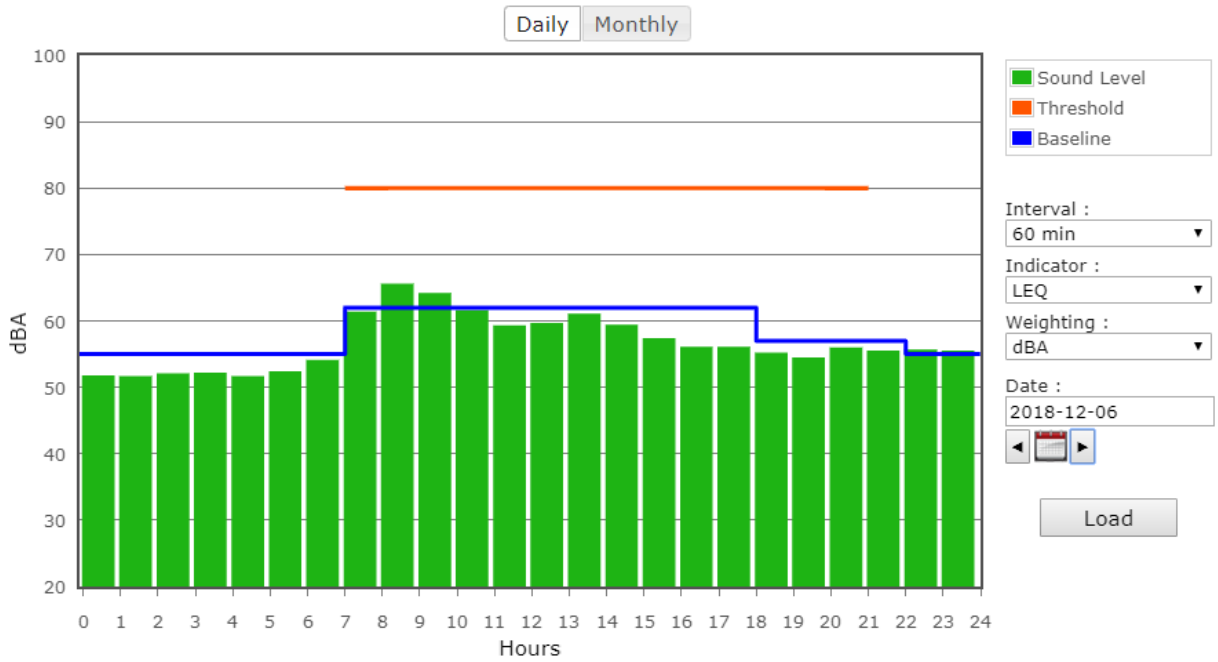


Figure 5: North Monitor NM-1 on Thursday

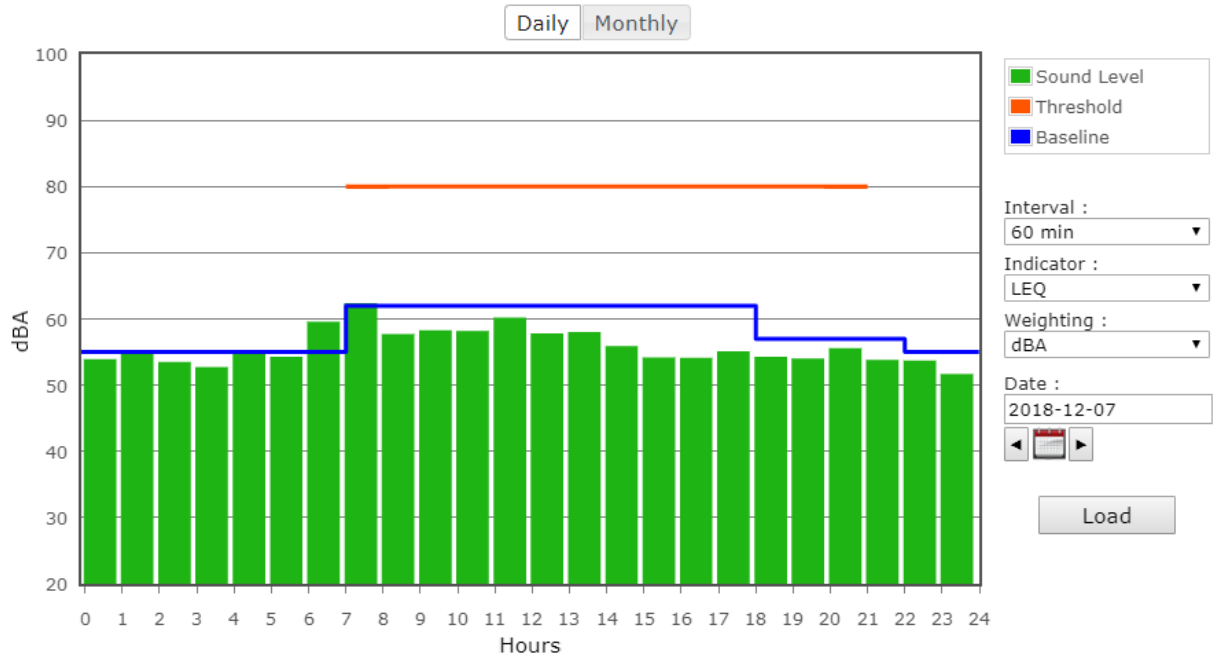


Figure 6: North Monitor NM-1 on Friday

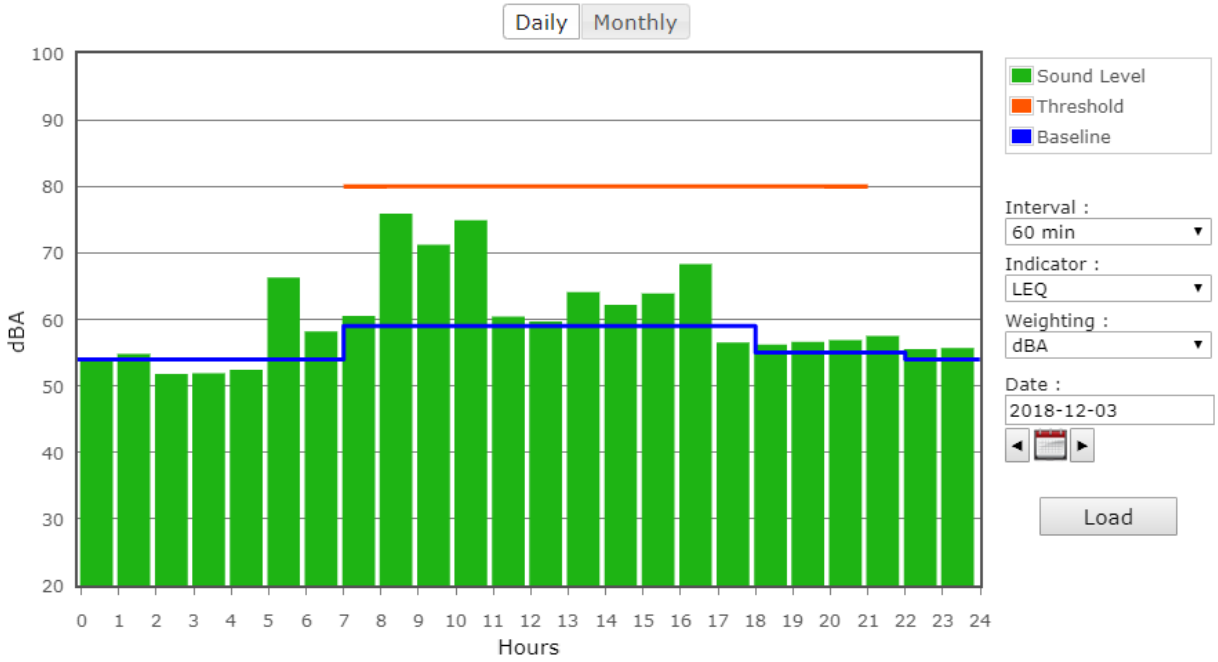


Figure 7: South Monitor NM-2 on Monday

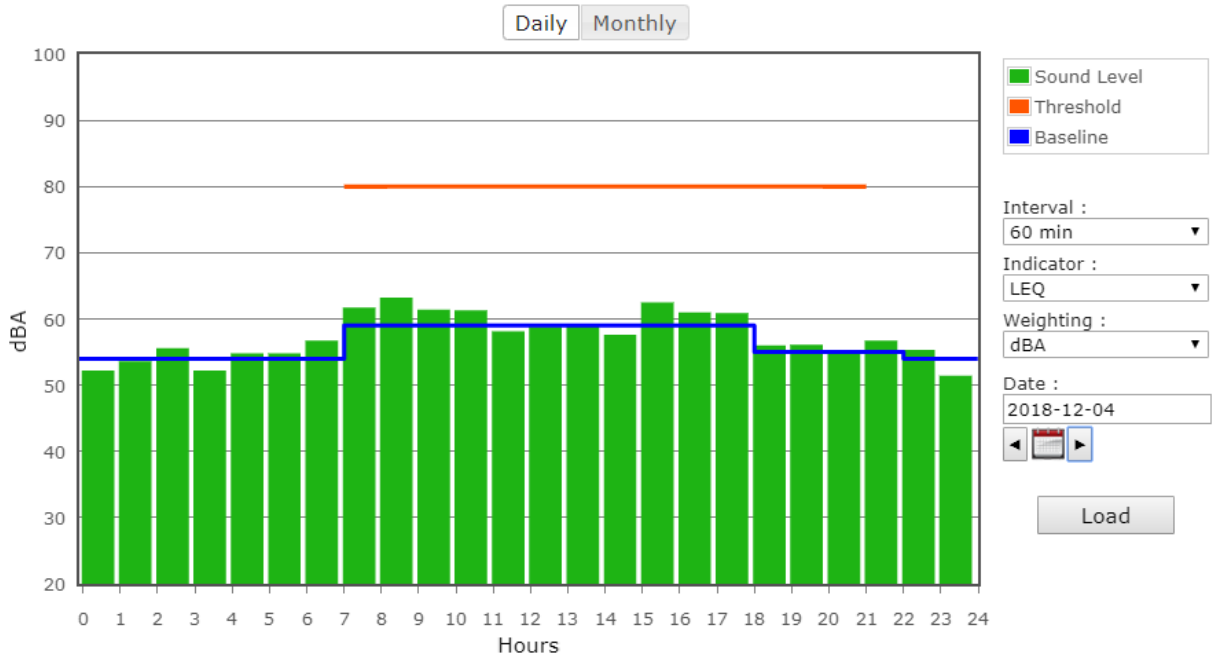


Figure 8: South Monitor NM-2 on Tuesday

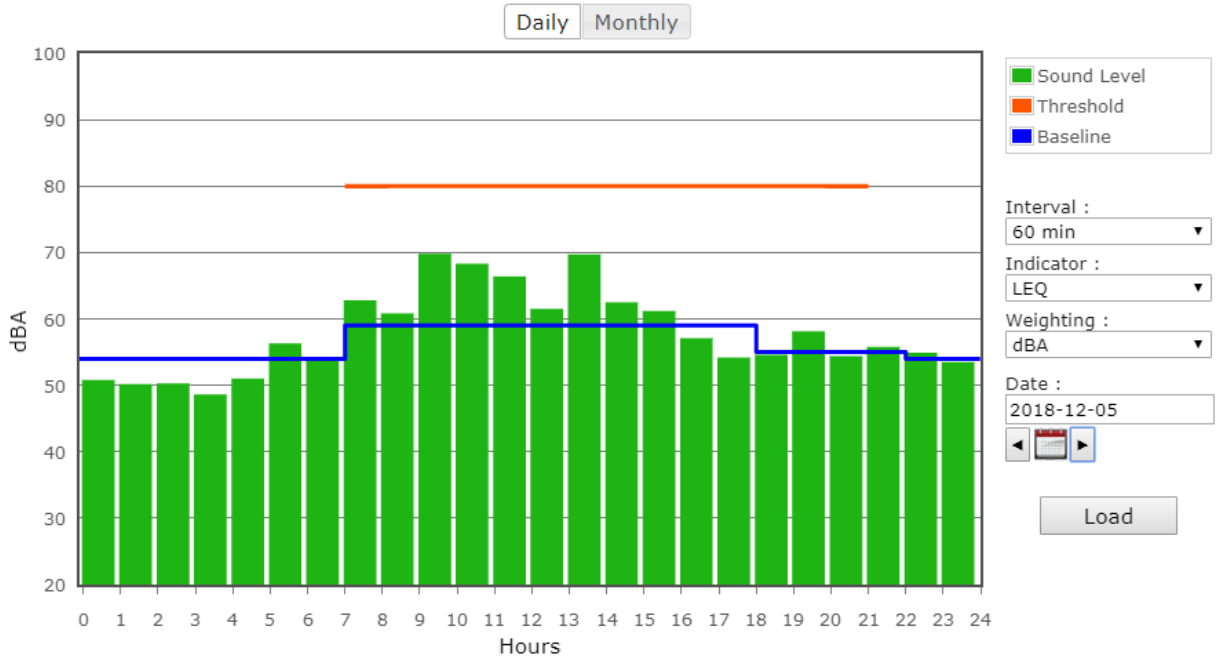


Figure 9: South Monitor NM-2 on Wednesday

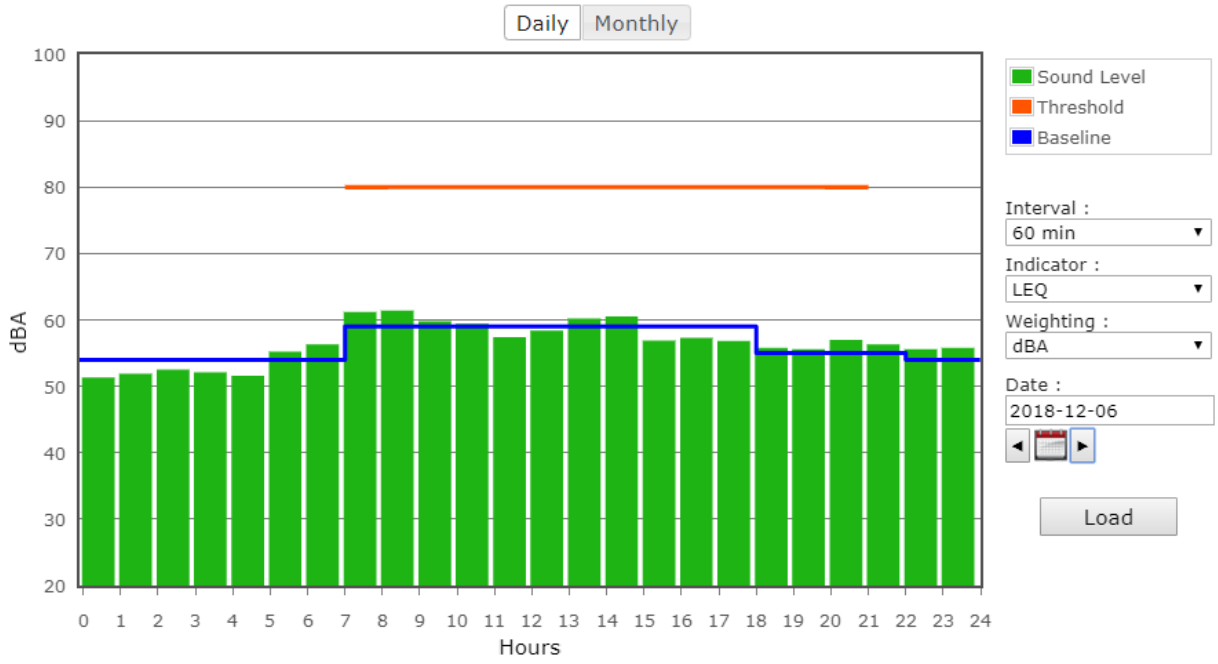


Figure 10: South Monitor NM-2 on Thursday

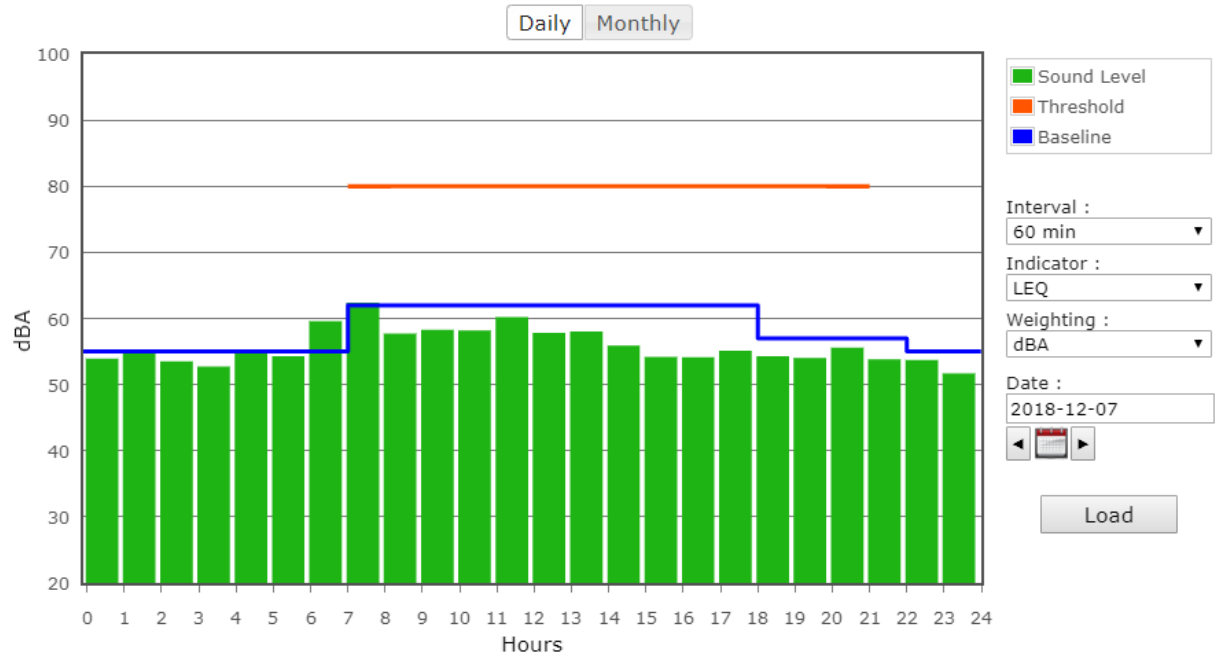


Figure 11: South Monitor NM-2 on Friday

AHRS WEEKLY REPORT

Weekly Report
12/7/2018

On December 3, 2018, Jonathan Bream of AHRS was on site at Clean Earth to observe the packing of set apart objects to be delivered to the Citizen Site on December 4, 2018. Upon delivery of the object to the Citizens Site, Mr. Bream observed the unloading of the objects at the Citizen Site to confirm that the objects were not damaged during delivery.

DECEMBER 3, 2018

The staff at Clean Earth assembled and skidded the set apart objects to be transported to Citizen Site. The bricks were placed on two skids, the metal objects were placed on two skids, and the water-logged objects were bubble wrapped and placed on two skids.

Each water-logged object was wrapped in bubble wrap, taped and placed on the skid. The large wooden wheel was placed on one skid with a few other water-logged objects.

Each skid was banded in both directions and then wrapped in plastic wrap to keep the objects from shifting in transport (Photo 1 & 2).

Skids will be transported to Citizen Site in the morning.

Photo 1 - Wooden wheel bubble wrapped and strapped onto skid.

Photo 2 - Six skids of objects ready to be transported.

DECEMBER 4, 2018

The six skids of objects arrived at Citizen Site in the afternoon of December 4 (Photo 3). The object arrived undamaged. These objects will be stored in a metal sea box (Photo 4). The two skids of bricks and two skids of metal objects were unwrapped and placed in the rear of the box. The water-logged wooden objects were unwrapped and placed in a pool of water (Photo 5). The staff of Geosyntec would keep watch on the water-logged object to keep them moist and would put a tough heater in the water during the extreme cold weather over the winter.

Photo 3 - Arrival of six skids of objects at Citizens Site.

Photo 4 - Empty sea box ready to receive set apart objects.

Photo 5 - Creating pool of water to keep water-logged objects wet.

WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA

(NO ACTIVITIES DURING WEEK)

CUMULATIVE DREDGED MATERIAL CHART

(NO ACTIVITIES DURING WEEK)