Groundwater & Environmental Services, Inc.

EASTERN NEW YORK OFFICE

October 31, 2016

Mr. Michael D. MacCabe, P.E.
Senior Environmental Engineer
Division of Environmental Remediation
NYS Department of Environmental Protection
625 Broadway, 12th Floor
Albany, New York 12233-7016

Re: Exposure Assessment Report
Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, New York
NYSDEC Spill #89-04339

Dear Mr. MacCabe:

Please find the enclosed *Exposure Assessment Report* prepared by Groundwater & Environmental Services, Inc. (GES), on behalf of ExxonMobil Environmental Services Company (EMES) for Former Mobil Station #17-EMW located at 304 Columbia Street in Brooklyn, New York (the Site). Should you have any questions or comments regarding the attached report, please contact Dennis G. Shin, P.E. at (800) 360-9405, extension 4333.

Respectfully Submitted,
Groundwater & Environmental Services, Inc.

Christopher J. Kelly
Associate Geologist

Dennis G. Shin, P.E.
Senior Project Manager

Enclosure
cc: Elaine Lamm – EMES

EXPOSURE ASSESSMENT REPORT

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, New York
NYSDEC Spill #89-04339

Prepared for:

Elaine Lamm
ExxonMobil Environmental Services Company
38 Varick Street
Brooklyn, New York

Prepared by:

Groundwater & Environmental Services, Inc.
89 Cabot Court, Suite A
Hauppauge, New York

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Reviewed by:

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Senior Project Manager

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LIST OF ACRONYMS

AS :	Air Sparge
AST :	Aboveground Storage Tank
BTEX :	Benzene, Toluene, Ethylbenzene and Total Xylenes
Cat-Ox :	Catalytic Oxidizer
COC :	Chemical of Concern
COV :	Coefficient of Variation
CP-51 SCG :	Soil quality standards as defined by the NYSDEC *Commissioner Policy 51/ Soil Cleanup Guidance,* amended October 21, 2010 (updated soil cleanup levels to TAGM 4046)
DO :	Dissolved Oxygen
DTW :	Depth to Water
EPA :	Environmental Protection Agency
ESA :	Environmental Site Assessment
eV :	Electron Volt
F&T :	Fate and Transport
ft bgs :	Feet Below Ground Surface
ft/ft :	Feet per Foot
GES :	Groundwater & Environmental Services, Inc.
GPR :	Ground Penetrating Radar
HIT :	High Intensity Targeted
HVE :	High Vacuum Extraction
IP :	Injection Point
IRM :	Interim Remedial Measure
ISCO :	In-situ Chemical Oxidation
lbs/hr	Pounds Per Hour
LNAPL :	Light Non-Aqueous Phase Liquids
LPH :	Liquid Phase Hydrocarbons
mV :	Millivolts
MNA :	Monitored Natural Attenuation
MPE :	Multi-Phase Extraction
MSL :	Mean Sea Level
MTBE :	Methyl Tertiary Butyl Ether
MW :	Monitoring Well
ND :	Not Detected or Below Laboratory Detection Limits
NYSDEC :	New York State Department of Environmental Conservation
NYCDEP :	New York City Department of Environmental Protection
O&M :	Operations and Maintenance
ORP :	Oxidation-Reduction Potential
PID :	Photo-Ionization Detector
ppm_{v} :	Parts Per Million by Volume
P&T :	Pump and Treat
RAP	Remedial Action Plan
RSCOs :	Recommended Soil Cleanup Objectives as defined by TAGM 4046
SRS :	Sensitive Receptor Survey
STARS :	*Spills Technology and Remediation Series #1*, amended August 1992
STIP :	Stipulation Agreement.
SVE :	Soil Vapor Extraction

LIST OF ACRONYMS (CONTINUED)

SVOCs :	Semi Volatile Organic Compounds
TAGM :	*Technical and Administrative Guidance Memorandum (#4046): Determination of Soil Cleanup Objectives,* amended January 24, 1994
TOC :	Top of Casing
µg/kg :	Micrograms per kilogram
µg/L :	Micrograms per liter
USGS :	United States Geological Survey
UST :	Underground Storage Tank
VGAC :	Vapor-Phase Granulated Activated Carbon
VEGE :	Vacuum Enhanced Groundwater Extraction
VOCs :	Volatile Organic Compounds
WQS	Groundwater quality standards as defined by the June 1998 *Technical and Operation Guidance Series* 1.1.1, *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* and the April 2000 *Addendum*.

1.0 INTRODUCTION

New York State Department of Environmental Conservation (NYSDEC) Spill #89-04339 was assigned to the Former Mobil Station #17-EMW located at 304 Columbia Street in Brooklyn, New York (the Site) in August of 1989 when petroleum-impacted soils were encountered during UST upgrade and removal activities. Various assessment and remediation activities have been conducted at the Site to characterize and remediate NYSDEC Spill #89-04339. Through the remediation activities conducted to date, impacted soils and groundwater have been remediated to the extent practical via soil excavation, enhanced fluid recovery (EFR) events, surfactant injections, and ISCO, the remaining impacts are limited in magnitude, and the residual liquid-phase hydrocarbon (LPH) plume and dissolved-phase plume is stable and/or decreasing.

This purpose of this Exposure Assessment Report is to provide a summary of historical assessment and remediation activities conducted at the Site, provide a summary of post-remediation soil and groundwater quality, and evaluate exposure pathways in relation to the residual impacts remaining at the Site.

2.0 BACKGROUND

A discussion of the Site description, use, geology, hydrogeology, and environmental history is presented below.

2.1 Site Description

The Site is a former Mobil service station located on a 0.2-acre parcel of land at 304 Columbia Street on the west side of Columbia Street between Woodhull Street and Hamilton Avenue in Brooklyn, New York. The approximate geographical coordinates for the Property are 40 degrees, 40 minutes, 54.43 seconds North (Latitude) by 74 degrees 0 minutes, 16.34 seconds West (Longitude). The Site is approximately 20 feet above mean sea level (MSL). A USGS 7.5-minute series topographic quadrangle map (Jersey City, New Jersey, 1981) showing the Site location is provided as **Figure 1**.

The Site is located in a mixed residential and commercial area of Brooklyn, New York. Properties immediately surrounding the Site include the following:

- North: Woodhull Street with mixed residential/commercial properties beyond;
- South: Intersection of Columbia Street and Hamilton Avenue followed by a concrete and stone retaining wall with the entrance to the Brooklyn Battery Tunnel beyond;
- East: Columbia Street with mixed residential/commercial properties beyond including several restaurants; and,
- West: Hamilton Avenue followed by the entrance to the Brooklyn Battery Tunnel.

2.2 Site Use

The Site appears to have been utilized as a retail petroleum filling station since at least 1989, however it is assumed that operation began prior to 1989 (limited data is available regarding historical Site use prior to 1989). In July 1989, Mobil Oil Corporation conducted an upgrade of the underground storage tank (UST) system at the Site. Twelve abandoned 550-gallon steel gasoline USTs, two 4,000-gallon USTs of unknown construction, and one 550-gallon steel used oil UST were removed from the Site. Three 4,000-gallon double-walled fiberglass gasoline USTs and one 1,000-gallon double-walled fiberglass used oil UST were installed during the upgrade.

NYSDEC Spill # 89-04339 was assigned due to the petroleum-impacted soils encountered during the 1989 UST upgrade activities. In 1997, EMES removed the upgraded USTs installed in 1989 as well as one 4,000-gallon, abandoned, single-wall steel gasoline UST, one dispenser island, the associated product and vent piping, and three hydraulic lifts.

Currently, the Site operates as an automobile repair facility. The parcel contains a single-story concrete block building with three service bays located in the northeast portion of the property. An above-ground storage tank containing used oil is located to the east of the on-Site building. Public utilities servicing the Site include subsurface sewer, water, electric, natural gas piping, and telephone lines. A Site Map showing the former features and underground infrastructure as well as the current Site layout is provided as **Figure 2**.

2.3 Geology

Based upon a review of available boring log data, non-native sediments (i.e., fill material) extend from grade to approximately 3 feet below ground surface (bgs). The fill material in these locations consists of a mixture of coarse sand and gravels as well as construction debris consisting of concrete and bricks. Native sediments are present below these zones of fill material, and appear to consist generally of a silty sand layer from below the fill to approximately 8 feet to 9 feet bgs, a sandy silt layer below the silty sand layer which extends to between 22 feet and 24 feet bgs, and a silty sand layer below the sandy silt layer to at least 28 feet bgs, the total depth of the exploration.

2.4 Hydrogeology

Based upon groundwater data from the historical and current groundwater monitoring well network, a summary of the Site hydrogeology is provided below:

- The aquifer is unconfined.
- The average DTW at the Site is approximately 9 to 10 feet below TOC.
- Groundwater has fluctuated over time with an average rise of approximately 1.53 feet and an average fall of approximately 1.95 feet.
- Based upon historical DTW information, the vadose, smear and saturated zones are defined as follows:
    - Vadose Zone: grade to 7 feet bgs
    - Smear Zone: 7 to 12 feet bgs
    - Saturated Zone: > 12 feet bgs

- Groundwater flow has been predominately in a south-southwest direction with an approximate hydraulic gradient of 0.012 feet/feet.

Historical groundwater monitoring data is provided in **Table 1** and a map showing the current and historical groundwater flow directionality is provided as **Figure 3**.

2.5 Environmental History

There are currently three (3) closed NYSDEC spills associated with the Site:

- NYSDEC Spill #93-12498 was issued on January 24, 1994 in response to a tank tightness test failure. The spill was closed on May 14, 2003.
- NYSDEC Spill #05-02047 was opened on May 19, 2005 in response to a used oil spill. The spill was closed on April 26, 2010.
- NYSDEC Spill #06-10200 was issued on December 7, 2006 in response to an unknown spill event. The spill was closed on April 26, 2010.

There is one (1) active NYSDEC spill associated with the Site:

- NYSDEC Spill #89-04339 was assigned to the Site on August 1, 1989 during UST removal activities.

Assessment and remediation activities have been performed at the Site in response to NYSDEC Spill #89-04339 between 1989 and 2016. A summary of the historical site assessment and remediation activities associated with NYSDEC Spill #89-04339 has been discussed below and a detailed chronology of activities conducted at the Site is been included as **Appendix A**.

2.5.1 Assessment Activities

Investigation activities associated with NYSDEC Spill #89-04339 have been conducted at the Site since August of 1989 to characterize and delineate soil and groundwater impacts both horizontally and vertically. Assessment activities conducted at the Site included the following:

- Installation of 23 groundwater monitoring wells (MW-1 through MW-20; MW-6A through MW-8A);
- Installation of twelve (12) injection wells (IP-1 through IP-12); and
- Advancement of 21 soil borings (B-1 through B-5, SB-1, SB-2, SB-4, SB-7 through SB-9, and SB-11 through SB-20).

2.5.2 Remediation Activities

Remediation activities at the Site have included the removal of the UST system, excavation of petroleum-impacted soils during the UST removal activities, and implementation of EFR, ISCO, and SEGE remedial programs. The remediation activities have been detailed below.

- UST Removal and Soil Excavation
  In July of 1989, the UST system consisting of twelve (12) abandoned 550-gallon steel gasoline USTs, two (2) 4,000-gallon USTs of unknown construction, and one (1) 550-gallon steel used oil UST were removed from the Site and four (4) new USTs were installed. Petroleum-impacted soil and liquid phase hydrocarbons (LPH) were discovered during tank removal activities. Approximately 650 tons of petroleum-impacted soil was excavated and disposed at a state-certified landfill.

Site divestment activities were conducted in April, 1997 and included the removal of one (1) 1,000-gallon used oil UST, one (1) 4,000-gallon abandoned single-walled steel gasoline UST, two (2) 4,000-gallon double-walled fiberglass gasoline USTs, one (1) 4,000-gallon abandoned double-walled fiberglass gasoline UST, one (1) dispenser island, the associated piping, and three (3) hydraulic lifts. Approximately 235.06 tons of petroleum-impacted soil was excavated and disposed at a state-certified landfill. Fourteen (14) soil samples and one (1) groundwater sample were collected from the side walls and bottoms of the tank excavations and analyzed for VOCs and SVOCs via EPA Methods 8021 and 8270, respectively. Soil samples from the used oil UST excavation were also analyzed for RCRA metals. Elevated levels of VOCs, SVOCs, and RCRA metals above regulatory guidance values were detected in the soil samples; elevated levels of VOCs above regulatory guidance values were detected in the groundwater sample.

- Enhanced Fluid Recovery (EFR) Events
  Beginning in February 2004, a high vacuum dual-phase extraction (HVDPE)/ enhanced fluid recovery (EFR) events were conducted. During these events, preliminary data from MW-2 was collected to conduct a HVDPE/EFR pilot test. Between January 2005 and March 2006, EFR events were conducted on a monthly basis.

- ISCO
  In June 2009, chemical oxidation injections were performed where approximately 1,800 gallons of sodium persulfate and 2,700 gallons of ISOTEC's patented catalyst were injected into twelve injection points located on the Site (IP-1 through IP-12).

  On June 22 and 23, 2010, approximately 1,680 gallons of a diluted EnviroClean surfactant solution was injected at MW-1, MW-2, MW-3, MW-13, and MW-16 in order to address LPH observed at the Site prior to continuation of chemical injections. On June 24, 25, and 28, 2010, approximately 710 gallons of fluids were recovered during EFR events from the five injection wells.

  From July to August, 2010, surfactant injection and recovery events were performed at monitoring wells MW-1, MW-2, MW-3, MW-13, and MW-16. Approximately 836 gallons of fluids were recovered during EFR events from the five injection wells.

  Between December of 2010 and August of 2011, an ISCO remedial program was implemented at the Site. ISCO activities were completed utilizing dedicated injection points IP-1 through IP-12 with the goal of targeting smear and saturated soil impacts between 10 and 17 feet bgs. A pilot test and one (1) subsequent ISCO event was conducted at the Site. In total, approximately 9,600 gallons of 10% sodium persulfate solution and approximately 4,800 gallons of activated chelated iron catalyst and were injected into the targeted zone.

- Surfactant Enhanced Groundwater Extraction (SEGE) Events
  Beginning in October of 2013, Surfactant Enhanced Groundwater Extraction (SEGE) events were conducted at the Site to reduce the presence of LPH along the western boundary of the property.

  On October 7, 2013, a total of approximately 750 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-11, MW-17, MW-19, and MW-20. Between October 8 and 11, 2013, a total of 1,022 gallons of fluids were extracted from the same monitoring wells.

On November 11, 2013, a total of approximately 500 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-13 and MW-16. Between November 12 and 14, 2013, a total of 1,008 gallons of fluids were extracted from the same monitoring wells.

On September 8, 2014, a total of approximately 500 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-11, MW-13, MW-16 and MW-17. Between September 9 through 12, 2014, a total of approximately 1,059 gallons of surfactant/groundwater mixture was extracted from these wells.

On December 8, 2014, the final Surfactant Enhanced Groundwater Extraction Event included the injection of approximately 500 gallons of surfactant into monitoring wells MW-1, MW-2, MW-11, MW-13, MW-16 and MW-17. Between December 9 through 12, 2014, a total of approximately 1,450 gallons of surfactant/groundwater mixture was extracted from these wells.

3.0 POST-REMEDIATION SOIL, GROUNDWATER QUALITY, AND LPH EVALUATION

A discussion of post-remediation soil and groundwater quality is presented below.

3.1 Soil Quality

Soil boring investigations were first conducted in June 1990 and as recently as July 2012, spanning the history of remedial efforts at the Site. ISCO injection events began in June 2009 and concluded in December 2010. The most recent soil quality data is from soil borings SB101 through SB107, which were advanced in July 2012, along the sidewalk to the southwest of the former UST field in order to investigate the extent and magnitude of soil impacts down-gradient of injection points IP1 through IP12. Data is also available from nearby soil borings previously advanced and sampled in June 1990, April 1997, July 2002, September 2006, and February 2008.

The following table summarizes the soil analytical data from soil borings SB101 to SB107:

Adsorbed-Phase Total VOC Summary		
Location	**Depth (feet bgs)**	**Highest Post-ISCO (July 2012) Soil Concentrations (µg/kg)**
SB101	(10-15)	642.54
SB102	(10-15)	25.39
SB103	(8-10)	77,898
SB104	(8-10)	228,900
SB105	(8-10)	35,589
SB106	(10-15)	100,710
SB107	(10-15)	155,959

Historical soil analytical data is included as **Table 2** and historical analytical exceedances data is included on **Figure 4.**

3.2 Groundwater Quality

Groundwater Analytical Results

Routine groundwater monitoring and sampling has been conducted at the Site since December of 1991 and the latest groundwater sampling event was performed on September 18, 2016. During the September 2016 sampling event, 16 wells were gauged and sampled for BTEX and MTBE. Monitoring well MW-3 was blocked by a vehicle and monitoring well MW-9 could not be located and therefore was not gauged or sampled. LPH was detected in monitoring wells MW-1, MW-2, and MW-13. Based upon the results of the September 2016 groundwater sampling event:

- Dissolved-phase BTEX concentrations ranged from ND non-detect at three (3) wells (MW-5, MW-7A and MW-15)to 12,281 µg/L (MW-10).

- Fourteen (14) wells (MW-1, MW-2, MW-8A, MW-10 through MW-20) had one or more total BTEX compounds that exceeded the NYSDEC WQS.

- Dissolved-phase MTBE concentrations ranged from non-detect at ten (10) wells (MW-3, MW-5, MW-7A, MW-11, MW-13, MW-14 and MW-16 through MW-19) to 114 µg/L (MW-10).

Seven (7) of the thirteen (13) wells exhibiting one or more BTEX compounds exceeding the NYSDEC WQS have reduced in concentration since their installation. Based upon the current groundwater analytical data as compared to historical concentrations, there has been an overall 57% reduction in dissolved phase BTEX concentrations at wells across the Site.

The below table summarizes the percent reduction of dissolved-phase BTEX concentration in each of the thirteen (13) wells since their installation.

Dissolved-Phase BTEX Percent Reduction Summary			
Well ID	**Installation Concentration**	**September 18, 2016**	**% Reduction** (since installation)
MW-1*	3,300	NS	-
MW-2*	1,428**	NS	-
MW-8A	5,109	8,091	58
MW-10	7,077	12,281	74
MW-11	2,688	1,882.9	-30
MW-12	577.1	9.06	-98
MW-13*	10,530	3,621	-66
MW-14	17.7	24.8	40
MW-16	5,499	2,630	-52
MW-17	1,867	2,446.7	31
MW-18	3,266	2,211	-32
MW-19	284.4	210.2	-26
MW-20	108.15	8.53	-92
		Average % Reduction:	**57%**

Notes:
- Concentrations are in µg/L
- Negative % reduction indicates an increase
*MW-1, MW-2 and MW-13 contained LPH during the 3rd quarter 2016 groundwater sampling event.
**MW-2 was not sampled until the 1st quarter of 2001 due to the presence of LPH.
NS = Not Sampled

Horizontal Delineation Evaluation

Based upon the historical groundwater analytical data, the dissolved-phase plume is fully delineated to the north, northeast, south, and northwest. The dissolved-phase plume is not fully delineated cross-gradient to the southwest due to the Site's proximity to the Brooklyn Battery Tunnel. A summary of dissolved-phase data supporting delineation to the north, east and northwest is provided below.

- Delineated to the north (up-gradient) by MW-5 where BTEX constituent concentrations have been below NYS TOGS WQS 1.1.1 since December of 2005.

- Delineated to the northeast (cross-gradient) by MW-14 where dissolved total BTEX concentrations have been below 150 µg/L since March 2008.
- Delineated to the northwest (up-gradient) by MW-9 (Total BTEX constituents below 10 µg/L since April of 2005).
- Delineated to the south (down-gradient) by MW-15 where dissolved total BTEX concentrations have not been detected since October 2014.

Although the dissolved-phase total BTEX plume is not fully delineated to the south/south-west of the Site, additional delineation to the south is not possible due to the Brooklyn Battery Tunnel toll plaza bounding the Site to the south / southwest. The plume is not fully delineated to the east, but is bounded by monitoring well MW-18 which has exhibited a 71% decrease since its peak in June 2007. Additionally, the heart of the plume is concentrated over a southwest-trending transect of Hamilton Avenue between monitoring wells MW-11 and MW-10, and has not shown down-gradient migration since at least April of 2005. Dissolved-phase BTEX plume maps are included as **Appendix B**.

Historical groundwater analytical data is included as **Table 1** and on **Figure 3**.

Mann-Kendall Trend Analysis Summary

As discussed above, an average of 60% reduction in dissolved-phase concentrations has been observed across the Site. To evaluate concentration trends at wells identified with compounds above the NYSDEC WQS, a Mann-Kendall statistical trend analysis was performed. The Mann-Kendall statistical trend analysis is used to determine whether groundwater contaminant concentrations in a monitoring well are increasing, stable, or decreasing and was evaluated to determine statistical significant at the 90%, 95%, and 99% confidence levels. The S statistic is evaluated to determine if there is an increasing or decreasing trend. A positive S indicates an increasing trend, while a negative S indicates a decreasing trend. When no trend is determined, the coefficient of variation (CoV) test can be applied to determine plume stability. The coefficient of variation is a simple calculation that can assess the scatter in the data. Specifically, a CoV less than or equal to 1 indicates that the plume is stable and a CoV value greater than one indicates no trend (WDNR, 2001).

The Mann-Kendall statistical trend analysis was performed at well locations where one or more BTEX compounds were detected above NYSDEC WQS within the past 4 quarters (MW-1 through MW-3, MW-8A, MW-10 through MW-14, and MW-16 through MW-20). The detailed results of the Mann-Kendall trend analysis conducted at each well is outlined below:

MW-1

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-1 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed negative trends for all compounds with 99% confidence at MW-1.

MW-1 (28-Feb-2005-19-Sep-2016)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	79.92	47.59	496.22	294.37
UCL	113.26	58.51	600.36	353.01
Median	37.50	38.00	464.00	227.00
Standard Deviation	83.80	27.43	261.79	147.42
Coefficient of Variation	1.05	0.58	0.53	0.50
Skewness	1.37	0.45	0.63	1.17
Minimum	16.70	11.70	93.10	119.00
Maximum	271.00	89.10	1,010.00	692.00
Count (n)	19	19	19	19
Mann-Kendall S	-76	-93	-69	-74
3rd Quarter 2016				
80% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
90% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
95% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
99% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
Sen Slope	-0.050	-0.024	-0.190	-0.071

MW-2

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-2 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed no trend for toluene, a positive trend with 80% confidence for total benzene, and positive trends with 95% confidence for ethylbenzene and total xylenes at MW-2.
- The COV values for all BTEX constituents are less than one (0.41 to 0.66) indicating that the plume is stable at MW-2 based upon the data set.
- MW-2 contained 0.45 feet of product during the 3rd quarter 2016 groundwater sampling event.

MW-2 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	403.50	25.44	188.50	151.91
UCL	500.53	31.81	251.32	209.66
Median	375.50	22.85	201.50	109.00
Standard Deviation	167.40	11.00	108.37	99.63
Coefficient of Variation	0.41	0.43	0.57	0.66
Skewness	0.91	1.89	0.04	1.82
Minimum	204.00	15.30	23.00	53.40
Maximum	754.00	52.40	353.00	394.00
Count (n)	10	10	10	10
Mann-Kendall S	15	2	23	24
3rd Quarter 2016	--	--	--	--
80% confidence	Positive Trend	No Trend	Positive Trend	Positive Trend
90% confidence	No Trend	No Trend	Positive Trend	Positive Trend
95% confidence	No Trend	No Trend	Positive Trend	Positive Trend
99% confidence	No Trend	No Trend	No Trend	No Trend
Sen Slope	0.087	0.0000	0.072	0.037

MW-3

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-3 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a negative trend for benzene with 99% confidence, a positive trend for total xylenes with 90% confidence, and no trends for ethylbenzene or toluene at MW-5.
- The COV values for all BTEX constituents are greater than one, indicating that there is no trend at MW-3 based upon the data set.
- Benzene and toluene were both non-detect at MW-3 during the 3rd quarter 2016 groundwater sampling event.

MW-3 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	32.08	9.78	92.80	72.64
UCL	44.59	12.85	132.62	95.82
Median	9.90	3.05	30.90	26.50
Standard Deviation	48.75	11.94	155.21	90.32
Coefficient of Variation	1.52	1.22	1.67	1.24
Skewness	2.06	1.38	3.44	1.67
Minimum	0.27	0.44	0.28	0.33
Maximum	218.00	43.00	867.00	386.00
Count (n)	43	43	43	43
3rd Quarter 2016	ND < 1.00	ND < 1.00	8.66	11.6
Mann-Kendall S	-368	-7	-31	130
80% confidence	Negative Trend	No Trend	No Trend	Positive Trend
90% confidence	Negative Trend	No Trend	No Trend	Positive Trend
95% confidence	Negative Trend	No Trend	No Trend	No Trend
99% confidence	Negative Trend	No Trend	No Trend	No Trend
Sen Slope	-0.007	0.0000	-0.001	0.007

MW-8A

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-8A as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a positive trend for ethylbenzene with 80% confidence and a positive trend for total xylenes with 90% confidence. No trends for benzene and toluene are present at MW-8A.
- Negative Mann-Kendall S values for toluene indicate that the compound has exhibited a decreasing trend over time at MW-8A.
- The COV values for all BTEX constituents are less than one (0.42 to 0.52), indicating that the plume is stable at MW-8A based upon the data set.

MW-8A (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	1,279.90	257.26	948.93	2,891.02
UCL	1,417.63	284.89	1,055.51	3,272.87
Median	1,400.00	260.00	1,004.50	2,820.00
Standard Deviation	543.30	109.00	420.42	1,506.25
Coefficient of Variation	0.42	0.42	0.44	0.52
Skewness	-0.34	0.02	-0.09	0.23
Minimum	82.50	21.30	131.00	237.00
Maximum	2,220.00	510.00	1,700.00	6,450.00
Count (n)	44	44	44	44
Mann-Kendall S	81	-74	120	149
3rd Quarter 2016	1,490	281	1,490	4,830
80% confidence	No Trend	No Trend	Positive Trend	Positive Trend
90% confidence	No Trend	No Trend	No Trend	Positive Trend
95% confidence	No Trend	No Trend	No Trend	No Trend
99% confidence	No Trend	No Trend	No Trend	No Trend
Sen Slope	0.062	-0.011	0.077	0.338

MW-10

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-10 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed positive trends for ethylbenzene and toluene with 95% confidence, a positive trend for benzene with 99% confidence, and no trend for total xylenes.
- The COV values for all BTEX constituents are less than one (0.41 to 0.49), indicating that the plume is stable at MW-10 based upon the data set.

MW-10 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	4,022.13	491.10	1,488.09	4,103.77
UCL	4,428.11	542.09	1,650.22	4,598.37
Median	4,110.00	496.00	1,490.00	3,860.00
Standard Deviation	1,657.50	208.18	661.95	2,019.32
Coefficient of Variation	0.41	0.42	0.44	0.49
Skewness	-0.37	0.40	1.46	1.22
Minimum	754.00	97.60	298.00	957.00
Maximum	7,050.00	1,180.00	3,900.00	11,900.00
Count (n)	47	47	47	47
Mann-Kendall S	304	211	211	34
3rd Quarter 2016	4,990	591	1,689	5,020
80% confidence	Positive Trend	Positive Trend	Positive Trend	No Trend
90% confidence	Positive Trend	Positive Trend	Positive Trend	No Trend
95% confidence	Positive Trend	Positive Trend	Positive Trend	No Trend
99% confidence	Positive Trend	No Trend	No Trend	No Trend
Sen Slope	0.487	0.048	0.109	0.110

MW-11

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-11 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed negative trends for all compounds with 99% confidence at MW-11.

MW-11 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	423.18	139.22	716.34	1,277.51
UCL	472.08	167.67	797.75	1,574.95
Median	438.00	125.00	699.00	935.00
Standard Deviation	185.93	108.16	309.55	1,130.94
Coefficient of Variation	0.44	0.78	0.43	0.89
Skewness	-0.17	2.02	0.09	1.97
Minimum	57.00	7.60	162.00	171.00
Maximum	797.00	576.00	1,300.00	5,050.00
Count (n)	41	41	41	41
Mann-Kendall S	-339	-394	-354	-383
3rd Quarter 2016	359	95.9	603	825
80% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
90% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
95% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
99% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
Sen Slope	-0.088	-0.050	-0.160	-0.452

MW-12

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-12 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed negative trends for all compounds with 99% confidence at MW-12.

MW-12 (28-Feb-2005-19-Sep-2016)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	115.93	3.47	15.68	15.68
UCL	153.82	4.46	21.86	20.70
Median	35.30	1.05	4.92	4.22
Standard Deviation	151.23	3.95	24.66	20.05
Coefficient of Variation	1.30	1.14	1.57	1.28
Skewness	1.67	1.85	2.35	1.88
Minimum	1.56	0.35	0.34	0.32
Maximum	603.00	17.40	115.00	86.80
Count (n)	45	45	45	45
Mann-Kendall S	-596	-600	-541	-589
3rd Quarter 2016	9.06	ND < 1.00	ND < 1.00	ND < 3.00
80% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
90% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
95% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
99% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
Sen Slope	-0.064	-0.002	-0.004	-0.007

MW-13

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-13 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed positive trends for benzene, ethylbenzene, toluene, and total xylenes with 99% confidence at MW-13.
- The COV values for benzene (0.94), toluene (0.98) and ethylbenzene (0.64) are less than one, indicating plume stability. The COV value for total xylenes (1.07) is greater than one, indicating that no trend can be determined for this constituent at MW-13 based upon the data set.
- MW-13 contained 0.02 feet of product during the 3rd quarter 2016 groundwater sampling event.

MW-13 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	258.98	50.74	435.94	448.07
UCL	327.71	64.75	514.98	582.99
Median	203.00	38.60	374.00	260.50
Standard Deviation	243.96	49.72	280.55	478.88
Coefficient of Variation	0.94	0.98	0.64	1.07
Skewness	1.34	0.63	0.28	0.97
Minimum	6.00	1.00	5.00	5.00
Maximum	971.00	165.00	985.00	1,500.00
Count (n)	36	36	36	36
Mann-Kendall S	207	298	296	327
3rd Quarter 2016	971	165	985	1,500
80% confidence	Positive Trend	Positive Trend	Positive Trend	Positive Trend
90% confidence	Positive Trend	Positive Trend	Positive Trend	Positive Trend
95% confidence	Positive Trend	Positive Trend	Positive Trend	Positive Trend
99% confidence	Positive Trend	Positive Trend	Positive Trend	Positive Trend
Sen Slope	0.101	0.034	0.209	0.255

MW-14

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-14 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a negative trend for benzene with 99% confidence and positive trends for toluene, ethylbenzene and total xylenes with 99% confidence at MW-14.
- The COV values for all BTEX constituents are less than one (0.65 to 0.74), indicating that the plume is stable at MW-14 based upon the data set.

MW-14 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	57.51	6.01	6.22	20.31
UCL	68.71	7.05	7.38	23.76
Median	50.30	5.00	10.00	30.00
Standard Deviation	42.58	3.94	4.42	13.13
Coefficient of Variation	0.74	0.65	0.71	0.65
Skewness	0.46	-0.11	-0.35	-0.46
Minimum	3.80	0.39	0.22	0.53
Maximum	147.00	10.00	10.00	41.10
Count (n)	41	41	41	41
Mann-Kendall S	-271	311	314	212
3rd Quarter 2016	24.8	ND < 10.0	ND < 10.0	ND < 30.0
80% confidence	Negative Trend	Positive Trend	Positive Trend	Positive Trend
90% confidence	Negative Trend	Positive Trend	Positive Trend	Positive Trend
95% confidence	Negative Trend	Positive Trend	Positive Trend	Positive Trend
99% confidence	Negative Trend	Positive Trend	Positive Trend	Positive Trend
Sen Slope	-0.023	0.002	0.002	0.0000

MW-16

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-16 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a negative trend for benzene with 95% confidence, a positive trend for ethylbenzene with 80% confidence, a positive trend for toluene with 90% confidence an no trend for total xylenes.
- The COV values for all BTEX constituents are less than one (0.49 to 0.75) indicating that the plume is stable at MW-16 based upon the data set.

MW-16 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	1,203.46	77.52	406.41	760.52
UCL	1,404.61	89.55	491.27	941.82
Median	1,130.00	76.60	393.00	662.00
Standard Deviation	636.82	38.09	268.66	573.99
Coefficient of Variation	0.53	0.49	0.66	0.75
Skewness	0.80	0.39	1.38	1.31
Minimum	68.30	4.10	59.90	77.10
Maximum	2,830.00	159.00	1,220.00	2,520.00
Count (n)	29	29	29	29
Mann-Kendall S	-123	81	55	34
3rd Quarter 2016	978	108	534	1,010
80% confidence	Negative Trend	Positive Trend	Positive Trend	No Trend
90% confidence	Negative Trend	Positive Trend	No Trend	No Trend
95% confidence	Negative Trend	No Trend	No Trend	No Trend
99% confidence	No Trend	No Trend	No Trend	No Trend
Sen Slope	-0.174	0.013	0.037	0.037

MW-17

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-17 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a positive trend for benzene and toluene with 90% confidence, a positive trend for toluene with 95% confidence, a positive trend for ethylbenzene with 99% confidence and no trend for total xylenes.
- The COV values for ethylbenzene, toluene, and total xylenes were less than one (0.60 to 0.71) indicating that all three constituents are stable at MW-17 based upon the data set.
- Benzene has a COV value of 1.77, indicating that no trend can be determined for the compound from the data set at MW-17.

MW-17 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	21.81	87.53	512.02	697.64
UCL	32.54	102.02	608.54	835.56
Median	16.10	80.10	402.00	675.00
Standard Deviation	38.62	52.17	347.55	496.65
Coefficient of Variation	1.77	0.60	0.68	0.71
Skewness	5.56	0.58	0.55	0.76
Minimum	2.60	14.20	63.70	63.50
Maximum	244.00	232.00	1,230.00	2,160.00
Count (n)	37	37	37	37
Mann-Kendall S	113	145	185	6
3rd Quarter 2016	37.7	159	1,060	1,190
80% confidence	Positive Trend	Positive Trend	Positive Trend	No Trend
90% confidence	Positive Trend	Positive Trend	Positive Trend	No Trend
95% confidence	No Trend	Positive Trend	Positive Trend	No Trend
99% confidence	No Trend	No Trend	Positive Trend	No Trend
Sen Slope	0.002	0.014	0.137	0.009

MW-18

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-18 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a negative trends for toluene with 95% confidence and negative trends for benzene, ethylbenzene and total xylenes with 99% confidence at MW-18.

MW-18 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	1,381.69	89.37	345.13	609.33
UCL	1,546.90	102.55	407.42	757.28
Median	1,320.00	80.50	294.00	435.50
Standard Deviation	636.11	50.74	239.84	569.62
Coefficient of Variation	0.46	0.57	0.69	0.93
Skewness	0.11	1.97	2.25	3.18
Minimum	153.00	11.90	89.20	137.00
Maximum	2,580.00	296.00	1,310.00	3,360.00
Count (n)	42	42	42	42
Mann-Kendall S	-401	-153	-255	-278
3rd Quarter 2016	1,110	130	255	716
80% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
90% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
95% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
99% confidence	Negative Trend	No Trend	Negative Trend	Negative Trend
Sen Slope	-0.389	-0.011	-0.064	-0.152

MW-19

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-19 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed a negative trend for ethylbenzene with 99% confidence, and no trends for benzene, toluene and total xylenes.
- The COV value for all BTEX constituents are below one (0.22 to 0.39) indicating that the dissolved-phase plume is stable at MW-19 based upon the data set.
- Mann-Kendall S values are negative for benzene (-8) and ethylbenzene (-46), indicating decreasing trends.

MW-19 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	49.51	12.07	130.19	49.75
UCL	55.88	14.20	155.34	55.26
Median	50.90	12.80	123.00	52.80
Standard Deviation	12.90	4.30	50.88	11.17
Coefficient of Variation	0.26	0.36	0.39	0.22
Skewness	0.07	-0.13	0.91	-0.25
Minimum	28.80	4.06	72.00	32.00
Maximum	68.90	19.10	245.00	68.20
Count (n)	13	13	13	13
Mann-Kendall S	-8	8	-46	12
3rd Quarter 2016	50.9	19.1	72	68.2
80% confidence	No Trend	No Trend	Negative Trend	No Trend
90% confidence	No Trend	No Trend	Negative Trend	No Trend
95% confidence	No Trend	No Trend	Negative Trend	No Trend
99% confidence	No Trend	No Trend	Negative Trend	No Trend
Sen Slope	-0.008	0.002	-0.094	0.007

MW-20

- The Mann-Kendall statistical analysis was utilized to evaluate the trends of benzene, ethylbenzene, toluene, and total xylenes at monitoring well MW-20 as these were the compounds detected above the NYSDEC WQS within the past four quarters.
- Results of this analysis revealed negative trends benzene, toluene, and total xylenes with 95% confidence and a negative trend for ethylbenzene with 99% confidence.
- Mann-Kendall S values for each of the four BTEX constituents are negative (-25 to -41), indicating decreasing trends for each compound at MW-20.

MW-20 (28-Feb-2005-19-Sep-2016)	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NY TOGS 1.1.1 WQS (CLASS GA)	**1**	**5**	**5**	**5**
Mean	23.71	1.35	12.24	5.45
UCL	43.34	1.76	25.07	8.32
Median	5.98	1.00	1.00	3.00
Standard Deviation	39.71	0.82	25.97	5.81
Coefficient of Variation	1.68	0.61	2.12	1.07
Skewness	2.76	2.42	2.68	2.35
Minimum	1.65	1.00	1.00	3.00
Maximum	145.00	3.65	89.10	21.10
Count (n)	13	13	13	13
Mann-Kendall S	-32	-25	-41	-28
3rd Quarter 2016	8.53	ND < 1.00	ND < 1.00	ND < 3.00
80% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
90% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
95% confidence	Negative Trend	Negative Trend	Negative Trend	Negative Trend
99% confidence	No Trend	No Trend	Negative Trend	No Trend
Sen Slope	-0.016	0.0000	-0.004	0.0000

In summary, the Mann-Kendall trend analysis indicates that the dissolved-phase BTEX plume on-Site is generally stable. Modeling efforts indicate that the highest concentrations of dissolved-phase BTEX compounds have remained in a region southwest of the former tank field spanning the width of Hamilton Avenue. The fourteen monitoring wells located on-Site and off-Site likely do not show statistically significant positive or negative trends due to the limited migration of the plume. Well reports produced using GroundWater Spatio-Temportal Data Analysis Tool (GWSDAT) for the wells currently sampled are included as **Appendix C**.

3.3 LPH Evaluation

Historically, LPH has been detected on-Site in one (1) monitoring well location and in seven (7) off-Site monitoring well locations. Based on available Site information, including historic groundwater flow maps, the former UST field directly south of the on-Site building appears to have been the original source of the LPH presence at the Site.

Additional information on the LPH presence at each monitoring well is included below.

On-Site Monitoring Well:

- MW-7A: LPH has only been observed at monitoring well MW-7A on June 16, 2011 and August 8, 2011. The maximum LPH thickness of 0.25 feet was observed on June 16, 2011 and the minimum LPH thickness of 0.01 feet was observed on August 8,, 2011.

Off-Site Monitoring Wells:

- **MW-1**: LPH has been consistently observed at monitoring well MW-1 from February 28, 2005 through March 16, 2012. The maximum LPH thickness observed at this well was 0.40 feet on June 16, 2011 and the most recent LPH thickness observed was 0.15 feet on September 19, 2016.
- **MW-2**: LPH has been consistently observed at monitoring well MW-2 from February 28, 2005 through September 7, 2012. The maximum LPH thickness observed at this well was 1.50 feet on June 16, 2011 and the most recent LPH thickness observed was 0.45 feet on September 19, 2016.
- **MW-11**: LPH has been observed intermittently at monitoring well MW-11 from September 8, 2005 through September 24, 2009. The maximum LPH thickness ever observed at this location was 0.08 feet on July 20, 2009 and the most recent thickness observed was 0.05 feet on September 24, 2009.
- **MW-13**: LPH was consistently observed at monitoring well MW-13 from February 28, 2005 through December 11, 2007, but has not been observed since that time. The maximum LPH thickness observed at this well was 2.17 feet on February 28, 2005 and the most recent thickness observed was 0.02 feet on September 19, 2016.
- **MW-14**: LPH was intermittently observed at monitoring well MW-14 from March 20, 2006 through December 11, 2007 but has not been observed since that time. The maximum LPH thickness observed at this well was 4.75 feet on December 7, 2006 and the most recent thickness observed was 0.05 feet on December 11, 2007.
- **MW-16**: LPH was intermittently observed at monitoring well MW-16 from December 7, 2006 through August 8, 2011 but has not been observed since that time. The maximum LPH thickness observed at this well was 8.72 feet on December 7, 2006 and the most recent thickness observed was 0.08 feet on June 6, 2014.
- **MW-17**: LPH has been recently observed at monitoring well MW-17 from June 16, 2011 through March 16, 2012. The maximum LPH thickness observed at this well was 0.07 feet on March 16, 2012.

Previous remedial efforts for the removal of LPH have included an enhanced fluid recovery (EFR) pilot test in 2004. Monthly EFR events were conducted at the Site during 2005 and 2006. The amount of fluid recovered during these events is unknown.

On October 7, 2013, a total of approximately 750 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-11, MW-17, MW-19, and MW-20. Between October 8 and 11, 2013, a total of 1,022 gallons of fluids were extracted from the same monitoring wells.

On November 11, 2013, a total of approximately 500 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-13 and MW-16. Between November 12 and 14, 2013, a total of 1,008 gallons of fluids were extracted from the same monitoring wells.

On September 8, 2014, a total of approximately 500 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-11, MW-13, MW-16 and MW-17. Between September 9 through 12, 2014, a total of approximately 1,059 gallons of surfactant/groundwater mixture was extracted from these wells.

On December 8, 2014, the final Surfactant Enhanced Groundwater Extraction Event included the injection of approximately 500 gallons of surfactant into monitoring wells MW-1, MW-2, MW-11, MW-13, MW-16 and MW-17. Between December 9 through 12, 2014, a total of approximately 1,450 gallons of surfactant/groundwater mixture was extracted from these wells.

Based on the September 19, 2016 groundwater sampling event, the residual LPH thicknesses are as follows:

Well ID	LPH Thickness (feet)
MW-1	0.15
MW-2	0.45
MW-13	0.02

The residual LPH is limited to the sidewalk area on the western side of the Site and the east side of Hamilton Avenue. It does not appear that the LPH is mobile as is evidenced by the lack of LPH observations in monitoring wells MW-8A, MW-10, and MW-15, located down gradient across Hamilton Avenue. In addition, the LPH thicknesses observed in the monitoring wells is not an accurate depiction of the actual volume of residual LPH in the aquifer.

The LPH has been remediated (and recovered) to the degree practical though the remedial activities conducted to date including EFRs, surfactant injections, and ISCO. The residual LPH:

- is limited in mobility;
- is limited to the sidewalk area on the western side of the Site and the east side of Hamilton Avenue;
- is no longer a threat to human health or the environment; and
- has been recovered and remediated to the degree practical.

4.0 SENSITIVE RECEPTOR SURVEY

In March of 2010, Kleinfelder performed an SRS for the Site and surrounding area. Specifically, Kleinfelder obtained data regarding general Site information, public supply wells, private wells, surface water, residential buildings, public use areas, basements, and other environmental receptors. A copy of the Kleinfelder SRS report is included as **Appendix D**. Based upon the results of the SRS, receptors in the vicinity of the Site that were identified include non-potable private water wells, residential and commercial basements, storm sewers, and residential properties along Woodhull and Columbia Streets.

Based upon a review of the current and historical analytical data, groundwater impacts do not extend off-Site toward the north, south, or east. Upon evaluating the sensitive receptors identified, there is little to no risk of impacting receptors located up-gradient to the north, northwest, and northeast or cross-gradient to the west and east due to Site conditions as well as their directionality and distance from the Site. Therefore, only sensitive receptors identified down-gradient of the Site (south/southwest) have been evaluated. There are no public supply wells, churches, schools, hospitals, or parks down-gradient of the Site. The only sensitive receptor located down-gradient to the Site is the Brooklyn Battery Tunnel and toll plaza, which is situated approximately 15 feet below street level and partitioned by a stone and concrete parapet.

5.0 QUALITATIVE EXPOSURE ASSESSMENT

Based upon the fact that residual soil and groundwater impacts remain at the Site and residential properties bordering the Site to the north and east were identified as having the potential for exposure to residual impacts, the following exposure pathways were evaluated:

- Direct contact with soil and groundwater; and,
- Soil and groundwater to indoor air.

5.1 Direct Contact with Soil and Groundwater Impacts

Due to the depths of residual soil and groundwater impacts (including residual LPH) remaining at the Site, as well as the historical flow of groundwater, direct contact with impacted soil and groundwater is unlikely.

- Historical Site investigation data indicates that residual petroleum impacted soil is first encountered at approximately 10 to 12 feet bgs in the southwestern portion of the Site. Due to the depth at which adsorbed-phase impacts have been observed, direct contact with petroleum-impacted soils in residential units is unlikely.
- Based upon the DTW at the Site (approximately 9.5 feet below top of casing), direct contact with petroleum impacted groundwater and/or LPH is unlikely.

5.2 Soil and Groundwater to Indoor Air

Residual impacts are present above the applicable soil and groundwater cleanup standards primarily in the southwest portion of the Site and towards off-Site wells MW-8A and MW-10. Health risks due to potential vapor intrusion were evaluated at off-Site buildings to the north and east of the Site. Due to the

depth of soil impacts being detected at depths of 10-12 feet bgs, residual groundwater impacts being detected at approximately 9.5 feet bgs, and the distance of the residential buildings from the impacted zones, there is limited risk of vapor migration from the soil and groundwater to indoor air. This is due to the stability and limited historical migration of the dissolved-phase BTEX plume.

6.0 CONCLUSIONS AND RECOMMENDATIONS

- Soil excavation activities have been conducted twice at the Site to remove impacted source materials. Multi-event EFR, ISCO, and SEGE remedial programs have been implemented to reduce smear and saturated zone impacts at the Site. To monitor for remediation effectiveness in dissolved-phase concentrations, groundwater sampling has been conducted quarterly since 1991.

- Based upon historical and current groundwater analytical data, 14 monitoring wells exhibit total BTEX concentrations over NYSDEC WQS with a maximum of 12,281 µg/L at MW-10, which is located off-Site and down-gradient of the former UST field.

- The dissolved-phase plume is delineated in all directions with the exception of down-gradient to the south and southwest. Based upon the results of a Mann-Kendall statistical trend analysis, the dissolved-phase BTEX plume is generally stable and has not migrated significantly since at least April of 2005.

- Based upon the SRS and qualitative human exposure assessment, it is unlikely the residual petroleum impacts associated with the Site would adversely affect the public health or the environment.

As summarized in this report, impacted soils and groundwater at the Site have been actively targeted by aggressive remediation techniques, the remaining on-Site and off-Site impacts are stable or decreasing, and it has been demonstrated that there is no risk of exposure to residual soil and groundwater impacts for the residential properties up-gradient from the Site.

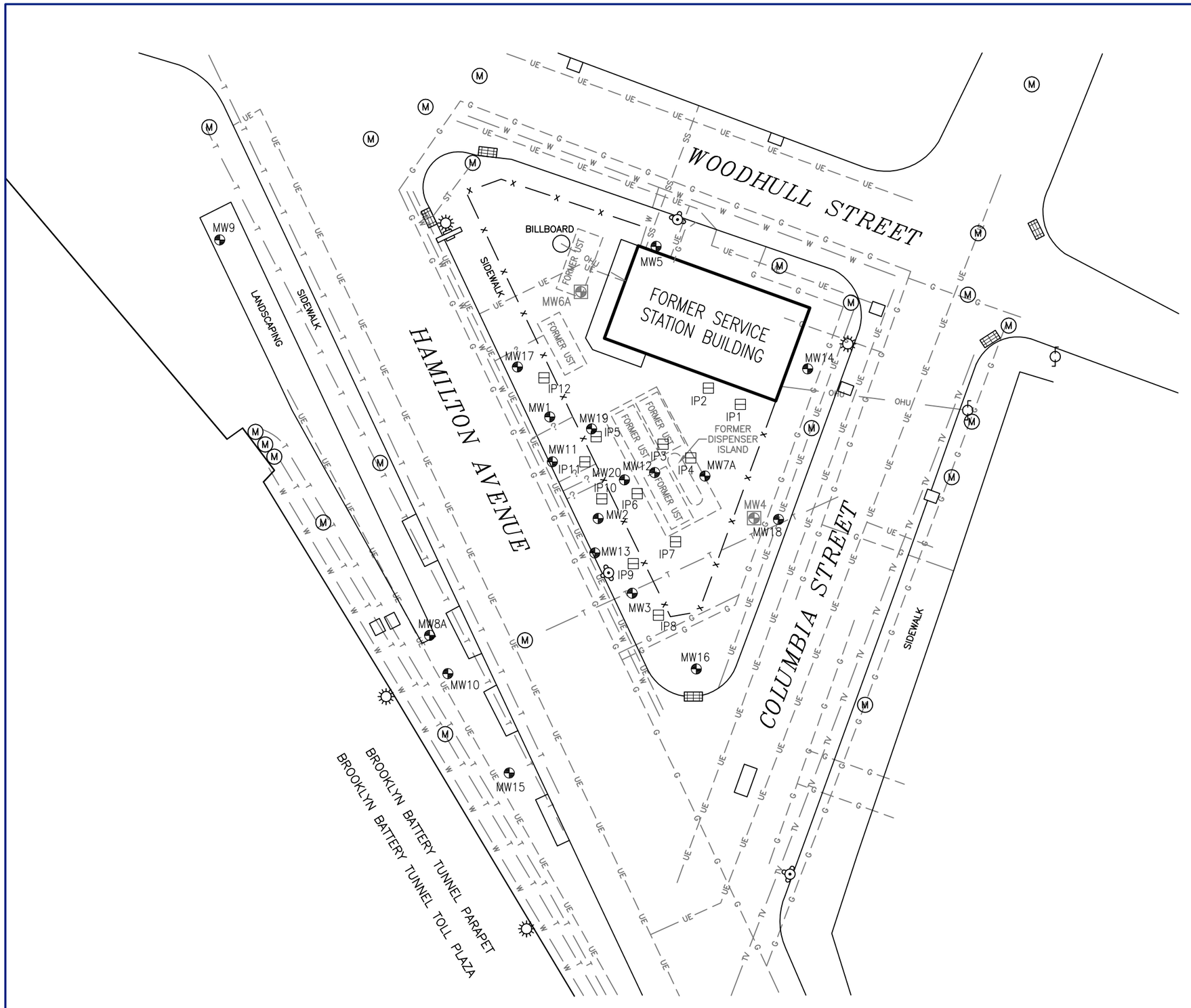
FIGURES

SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1981
JERSEY CITY, NEW JERSEY
CONTOUR INTERVAL = 10'

QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	**SITE LOCATION MAP**
CHECKED BY:	FORMER MOBIL STATION #17-EMW **304 COLUMBIA STREET** **BROOKLYN, NEW YORK**
REVIEWED BY:	Groundwater & Environmental Services, Inc. 89 CABOT COURT, SUITE A, HAUPPAUGE, NEW YORK 11788
NORTH	SCALE IN FEET: 0 — 2000 / DATE: 12-11-15 / FIGURE: 1

M:\Graphics\0500-Long Island\ExxonMobil\Mobil\17-EMW Brooklyn\17-EMW brooklyn SLM.dwg, Model, WShea

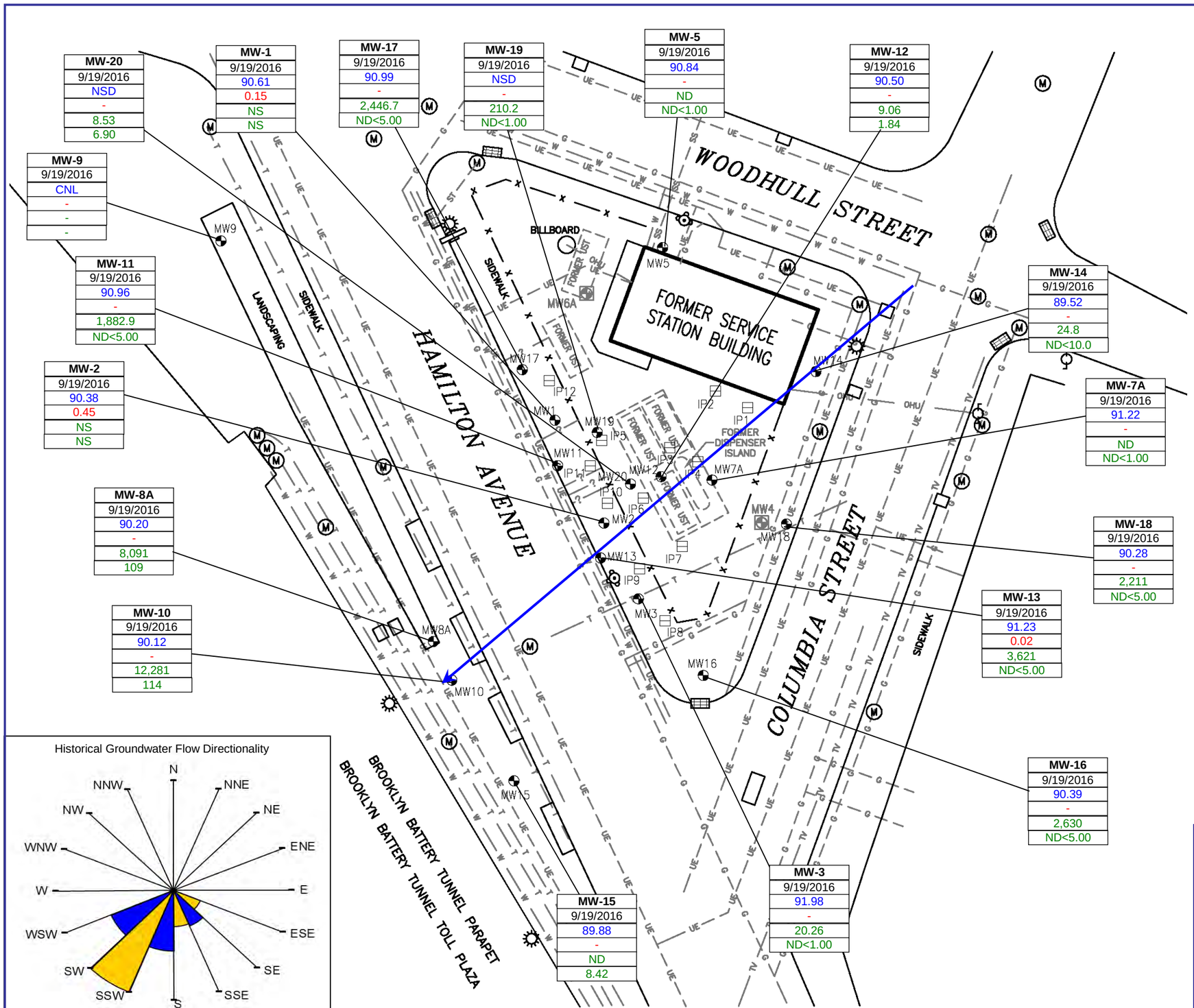


LEGEND

- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- MONITORING WELL
- ABANDONED/DESTROYED MONITORING WELL
- INJECTION POINT
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND TELEVISION LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND GAS LINE

DRAFTED BY: W.G.S. (N.J.)	**SITE MAP**
CHECKED BY:	FORMER MOBIL STATION #17–EMW **304 COLUMBIA STREET** **BROOKLYN, NEW YORK**
REVIEWED BY:	**Groundwater & Environmental Services, Inc.** 89 CABOT COURT, SUITE A, HAUPPAUGE, NEW YORK 11788
NORTH	SCALE IN FEET: 0 APPROXIMATE 30 / DATE: 10–1–13 / FIGURE: 2

M:\Graphics\0500-Long Island\ExxonMobil\Mobil\17-EMW Brooklyn\17-EMW Brooklyn SM.dwg, B-30, WShea



LEGEND

- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- MONITORING WELL
- ABANDONED/DESTROYED MONITORING WELL
- INJECTION POINT
- SS — UNDERGROUND SANITARY SEWER LINE
- TV — UNDERGROUND TELEVISION LINE
- T — UNDERGROUND TELEPHONE LINE
- UE — UNDERGROUND ELECTRIC LINE
- W — UNDERGROUND WATER LINE
- G — UNDERGROUND GAS LINE

MW-16	WELL IDENTIFICATION
9/19/2016	SAMPLE DATE
90.39	GROUNDWATER ELEVATION (feet)
-	LPH THICKNESS (feet)
2,630	TOTAL BTEX CONCENTRATION (µg/L)
ND<5.00	MTBE CONCENTRATION (µg/L)

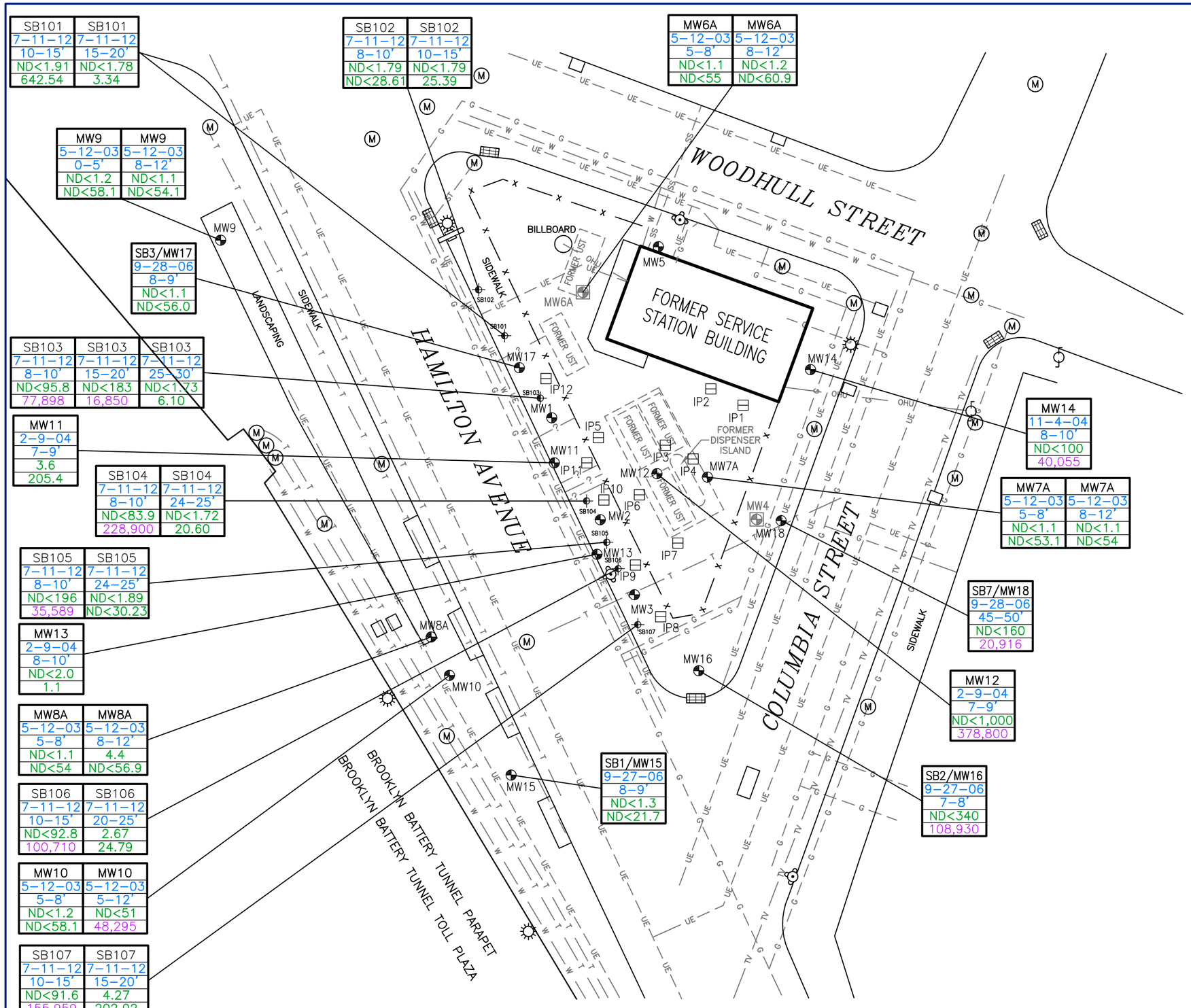
LPH	LIQUID PHASE HYDROCARBONS
µg/L	MICROGRAMS PER LITER
CNL	COULD NOT LOCATE
NSD	NO SURVEY DATA
BTEX	BENZENE, TOLUENE, ETHYLBENZENE AND TOTAL XYLENES
MTBE	METHYL *tert*- BUTYL ETHER
ND < #	WHERE AN ANALYTE IS NOT DETECTED, A METHOD DETECTION LIMIT IS GIVEN.
NS	NOT SAMPLED
→	HISTORICAL GROUNDWATER FLOW DIRECTION

Notes:
- MW-9 could not be located and therefore was not gauged or sampled.

Historical Groundwater Flow Directionality

79 Measurements (3/5/1991 through 9/19/2016)

DRAFTED BY: CJK (NY-E)	**GROUNDWATER MONITORING MAP September 19, 2016**	
CHECKED BY: CJK (NY-E)	**Former Mobil Station #17-EMW 304 Columbia Street Brooklyn, New York**	
REVIEWED BY: DGS (NY-E)	**Groundwater & Environmental Services, Inc.** 89 CABOT COURT, SUITE A, HAUPPAUGE, NEW YORK 11788	
NORTH	SCALE IN FEET 0 30	DATE **10/17/2016**
		FIGURE **3**



SB101	SB101
7–11–12	7–11–12
10–15'	15–20'
ND<1.91	ND<1.78
642.54	3.34

SB102	SB102
7–11–12	7–11–12
8–10'	10–15'
ND<1.79	ND<1.79
ND<28.61	25.39

MW6A	MW6A
5–12–03	5–12–03
5–8'	8–12'
ND<1.1	ND<1.2
ND<55	ND<60.9

MW9	MW9
5–12–03	5–12–03
0–5'	8–12'
ND<1.2	ND<1.1
ND<58.1	ND<54.1

SB3/MW17
9–28–06
8–9'
ND<1.1
ND<56.0

SB103	SB103	SB103
7–11–12	7–11–12	7–11–12
8–10'	15–20'	25–30'
ND<95.8	ND<183	ND<1.73
77,898	16,850	6.10

MW11
2–9–04
7–9'
3.6
205.4

SB104	SB104
7–11–12	7–11–12
8–10'	24–25'
ND<83.9	ND<1.72
228,900	20.60

SB105	SB105
7–11–12	7–11–12
8–10'	24–25'
ND<196	ND<1.89
35,589	ND<30.23

MW13
2–9–04
8–10'
ND<2.0
1.1

MW8A	MW8A
5–12–03	5–12–03
5–8'	8–12'
ND<1.1	4.4
ND<54	ND<56.9

SB106	SB106
7–11–12	7–11–12
10–15'	20–25'
ND<92.8	2.67
100,710	24.79

MW10	MW10
5–12–03	5–12–03
5–8'	5–12'
ND<1.2	ND<51
ND<58.1	48,295

SB107	SB107
7–11–12	7–11–12
10–15'	15–20'
ND<91.6	4.27
155,959	202.02

MW14
11–4–04
8–10'
ND<100
40,055

MW7A	MW7A
5–12–03	5–12–03
5–8'	8–12'
ND<1.1	ND<1.1
ND<53.1	ND<54

SB7/MW18
9–28–06
45–50'
ND<160
20,916

MW12
2–9–04
7–9'
ND<1,000
378,800

SB1/MW15
9–27–06
8–9'
ND<1.3
ND<21.7

SB2/MW16
9–27–06
7–8'
ND<340
108,930

LEGEND

- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- MONITORING WELL
- ABANDONED/DESTROYED MONITORING WELL
- INJECTION POINT
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND TELEVISION LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND GAS LINE
- SOIL BORING (JULY 11, 2012)

SB101
7–11–12
10–15'
ND<1.91
642.54

SAMPLE IDENTIFICATION
SAMPLE DATE
SAMPLE DEPTH (feet)
MTBE CONCENTRATION (ug/kg)
TOTAL STARS VOCs CONCENTRATION (ug/kg)

ug/kg — MICROGRAMS PER KILOGRAM
MTBE — METHYL *tert* –BUTYL ETHER
VOCs — VOLATILE ORGANIC COMPOUNDS
ND — NOT DETECTED
<# — WHERE AN ANALYTE IS NOT DETECTED, A METHOD DETECTION LIMIT IS GIVEN

NOTE:

VALUE SHADED PURPLE INDICATES ONE OR MORE COMPOUNDS ARE ABOVE THE CURRENT CP–51 SCG (COMMISSIONER POLICY 51/SOIL CLEANUP GUIDANCE)

DRAFTED BY: W.G.S. (N.J.)
CHECKED BY:
REVIEWED BY:

HISTORIC SOIL ANALYTICAL DATA MAP

FORMER MOBIL STATION #17–EMW
304 COLUMBIA STREET
BROOKLYN, NEW YORK

NORTH

Groundwater & Environmental Services, Inc.
89 CABOT COURT, SUITE A, HAUPPAUGE, NEW YORK 11788

SCALE IN FEET: 0 APPROXIMATE 30
DATE: 9–28–12
FIGURE: 4

M:\Graphics\0500-Long Island\ExxonMobil\Mobil\17-EMW Brooklyn\17-EMW Brooklyn SM.dwg, B-30, WShea

TABLES

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-1	2/28/2005	100.00	8.48	8.47	0.01	91.53	-	-	-	-	-	-	
	6/6/2005	100.00	8.41	8.40	0.01	91.60	-	-	-	-	-	-	
	9/8/2005	100.00	9.10	9.02	0.08	90.96	-	-	-	-	-	-	
	12/29/2005	100.00	7.95	7.94	0.01	92.06	-	-	-	-	-	-	
	3/20/2006	100.00	8.69	8.60	0.09	91.38	-	-	-	-	-	-	
	6/7/2006	100.00	7.65	-	-	92.35	-	-	-	-	-	-	
	9/14/2006	100.00	7.70	7.51	0.19	92.44	-	-	-	-	-	-	
	12/7/2006	100.00	7.88	7.62	0.26	92.32	-	-	-	-	-	-	
	3/29/2007	100.00	8.44	8.28	0.16	91.68	-	-	-	-	-	-	
	6/13/2007	100.00	-	-	-	-	-	-	-	-	-	-	NM
	9/19/2007	100.00	9.03	8.68	0.35	91.23	-	-	-	-	-	-	
	12/11/2007	100.00	9.10	9.08	0.02	90.92	-	-	-	-	-	-	
	3/13/2008	100.00	8.46	-	-	91.54	**220**	**79.8**	**830**	**414**	**1,543.8**	**14.9**	
	6/6/2008	100.00	8.61	-	-	91.39	**271**	**89.1**	**817**	**481**	**1,658.1**	**17.3**	
	12/30/2008	100.00	8.24	-	-	91.76	**216**	**67.8**	**539**	**336**	**1,158.8**	**13.2**	
	3/16/2009	100.00	9.41	-	-	90.59	**215**	**78.8**	**761**	**474**	**1,528.8**	9	
	6/8/2009	100.00	8.23	-	-	91.77	**24**	**88.4**	**551**	**692**	**1,355.4**	ND < 5	
	7/20/2009	100.00	8.48	8.20	0.28	91.73	-	-	-	-	-	-	
	9/24/2009	100.00	9.12	8.98	0.14	90.99	-	-	-	-	-	-	
	12/3/2009	100.00	8.96	8.86	0.10	91.12	-	-	-	-	-	-	
	3/3/2010	100.00	7.98	-	-	92.02	**109**	**75.2**	**948**	**293**	**1,425.2**	3.6	
	6/7/2010	100.00	8.31	8.27	0.04	91.72	-	-	-	-	-	-	
	9/1/2010	100.00	9.36	-	-	90.64	**89.3**	**86.5**	**1,010**	**405**	**1,590.8**	ND < 20	
	12/3/2010	100.00	9.13	9.10	0.03	90.89	-	-	-	-	-	-	
	3/29/2011	100.00	8.01	7.84	0.17	92.12	-	-	-	-	-	-	
	6/16/2011	100.00	5.53	5.13	0.40	94.77	-	-	-	-	-	-	
	8/8/2011	100.00	9.06	8.88	0.18	91.08	-	-	-	-	-	-	
	9/19/2011	100.00	7.75	7.37	0.38	92.54	-	-	-	-	-	-	
	12/5/2011	100.00	8.24	8.12	0.12	91.85	-	-	-	-	-	-	
	3/16/2012	100.00	9.32	9.29	0.03	90.70	-	-	-	-	-	-	
	6/8/2012	100.00	8.44	-	-	91.56	**33.0**	**29.2**	**199**	**147**	**408.2**	ND < 1.00	
	9/7/2012	100.00	8.81	-	-	91.19	**33.5**	**20.5**	**270**	**119**	**443**	ND < 1.00	
	12/18/2012	100.00	8.93	-	-	91.07	**33.5**	**25.4**	**363**	**203**	**624.9**	ND < 1.00	
	3/14/2013	100.00	8.71	-	-	91.29	**42.8**	**38.0**	**378**	**227**	**685.8**	ND < 1.00	
	6/24/2013	100.00	7.59	-	-	92.41	**37.5**	**36.0**	**464**	**224**	**761.5**	ND < 1.00	
	9/6/2013	100.00	8.93	8.85	0.08	91.13	-	-	-	-	-	-	
	9/26/2013	100.00	9.14	8.98	0.16	90.98	-	-	-	-	-	-	
	10/23/2013	100.00	9.41	9.37	0.04	90.62	-	-	-	-	-	-	
	11/11/2013	100.00	9.74	-	-	90.26	-	-	-	-	-	-	
	12/10/2013	100.00	9.88	-	-	90.12	**16.7**	**28.7**	**315**	**211**	**571.4**	ND < 1.00	COULD NOT GAUGE
	1/21/2014	100.00	9.09	9.05	0.04	90.94	-	-	-	-	-	-	
	3/10/2014	100.00	-	-	-	-	**25.1**	**25.1**	**286**	**208**	**544.2**	1.43	COULD NOT GAUGE
	6/3/2014	100.00	8.10	-	-	91.90	**20.0**	ND < 20.0	**371**	**200**	**591**	ND < 20.0	
	10/2/2014	100.00	9.59	9.47	0.12	90.50	**33.6**	**42.7**	**484**	**321**	**881.3**	ND < 1.00	
	12/3/2014	100.00	8.73	-	-	91.27	**42.9**	**39.6**	**472**	**336**	**890.5**	ND < 5.00	SHEEN
	3/11/2015	100.00	8.41	-	-	91.59	**17.1**	**11.7**	**93.1**	**135**	**256.9**	ND < 1.00	
	6/18/2015	100.00	8.65	8.58	0.07	91.40	-	-	-	-	-	-	
	9/9/2015	100.00	7.98	7.90	0.08	92.08	**38.5**	**21.8**	**277**	**167**	**504.3**	ND < 1.00	
	12/10/2015	100.00	9.57	9.33	0.24	90.61	-	-	-	-	-	-	
	3/16/2016	100.00	8.63	8.37	0.26	91.57	-	-	-	-	-	-	
	6/15/2016	100.00	8.95	8.77	0.18	91.19	-	-	-	-	-	-	
	9/19/2016	100.00	9.50	9.35	0.15	90.61	-	-	-	-	-	-	
MW-2	2/28/2005	100.16	8.78	8.77	0.01	91.39	-	-	-	-	-	-	
	6/6/2005	100.16	8.66	8.65	0.01	91.51	-	-	-	-	-	-	
	9/8/2005	100.16	9.87	9.62	0.25	90.48	-	-	-	-	-	-	
	12/29/2005	100.16	8.26	8.25	0.01	91.91	-	-	-	-	-	-	
	3/20/2006	100.16	8.96	8.88	0.08	91.26	-	-	-	-	-	-	
	6/7/2006	100.16	7.73	-	-	92.43	-	-	-	-	-	-	
	9/14/2006	100.16	7.90	7.58	0.32	92.50	-	-	-	-	-	-	
	12/7/2006	100.16	8.20	7.80	0.40	92.26	-	-	-	-	-	-	
	3/29/2007	100.16	8.81	8.72	0.09	91.42	-	-	-	-	-	-	
	6/13/2007	100.16	8.15	7.72	0.43	92.33	-	-	-	-	-	-	
	9/19/2007	100.16	9.18	8.68	0.50	91.36	-	-	-	-	-	-	
	12/11/2007	100.16	9.35	9.28	0.07	90.86	-	-	-	-	-	-	
	3/13/2008	100.16	8.77	-	-	91.39	**204**	**18**	**130**	**109**	**461**	ND < 2	
	6/6/2008	100.16	9.10	-	-	91.06	**378**	**25**	**137**	**93.3**	**633.3**	**71**	
	12/30/2008	100.16	8.56	-	-	91.60	**305**	**27**	**50**	**84.4**	**466.4**	**37**	
	3/16/2009	100.16	9.71	-	-	90.45	**246**	**18**	**23**	**53.4**	**340.4**	**67**	
	6/8/2009	100.16	8.61	8.53	0.08	91.61	-	-	-	-	-	-	
	7/20/2009	100.16	9.47	8.35	1.12	91.53	-	-	-	-	-	-	
	9/24/2009	100.16	9.06	9.01	0.05	91.14	-	-	-	-	-	-	
	12/3/2009	100.16	9.75	9.05	0.70	90.94	-	-	-	-	-	-	
	3/3/2010	100.16	8.30	8.27	0.03	91.88	-	-	-	-	-	-	
	6/7/2010	100.16	9.07	8.36	0.71	91.62	-	-	-	-	-	-	
	9/1/2010	100.16	9.94	-	-	90.22	**530**	**22**	**202**	**105**	**859**	**155**	
	12/3/2010	100.16	9.37	-	-	90.79	**500**	**52.4**	**336**	**232**	**1,120.4**	**120**	
	3/29/2011	100.16	8.74	8.08	0.66	91.92	-	-	-	-	-	-	
	6/16/2011	100.16	9.80	8.30	1.50	91.49	-	-	-	-	-	-	
	8/8/2011	100.16	9.43	9.06	0.37	91.01	-	-	-	-	-	-	
	9/19/2011	100.16	7.81	7.50	0.31	92.58	-	-	-	-	-	-	
	12/5/2011	100.16	9.10	8.42	0.68	91.57	-	-	-	-	-	-	
	3/16/2012	100.16	10.10	9.58	0.52	90.45	-	-	-	-	-	-	
	6/8/2012	100.16	8.75	8.72	0.03	91.43	-	-	-	-	-	-	
	9/7/2012	100.16	8.95	8.91	0.04	91.24	-	-	-	-	-	-	
	12/18/2012	100.16	10.02	9.89	0.13	90.24	-	-	-	-	-	-	
	3/14/2013	100.16	9.65	9.60	0.05	90.55	-	-	-	-	-	-	
	6/24/2013	100.16	8.30	7.95	0.35	92.12	-	-	-	-	-	-	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-2 (cont)	9/6/2013	100.16	9.07	9.02	0.05	91.13	-	-	-	-	-	-	
	10/7/2013	100.16	9.34	-	-	90.82	-	-	-	-	-	-	
	10/23/2013	100.16	9.70	9.67	0.03	90.48	-	-	-	-	-	-	
	11/11/2013	100.16	10.05	-	-	90.11	-	-	-	-	-	-	
	12/10/2013	100.16	10.08	-	-	90.08	**258**	**18.5**	**204**	**109**	**589.5**	**39.1**	COULD NOT GAUGE
	1/21/2014	100.16	9.33	-	-	90.83	-	-	-	-	-	-	
	3/10/2014	100.16	-	-	-	-	-	-	-	-	-	-	COULD NOT GAUGE
	6/3/2014	100.16	8.34	8.28	0.06	91.87	-	-	-	-	-	-	
	10/2/2014	100.16	9.76	9.64	0.12	90.49	**487**	**23.7**	**201**	**162**	**873.7**	2.63	
	12/3/2014	100.16	8.96	-	-	91.20	**754**	**34.5**	**353**	**177**	**1,318.5**	ND < 5.00	
	3/11/2015	100.16	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	6/18/2015	100.16	9.12	8.86	0.26	91.24	-	-	-	-	-	-	
	9/9/2015	100.16	9.67	9.12	0.55	90.90	**373**	**15.3**	**249**	**394**	**1,031.3**	1.51	
	12/10/2015	100.16	9.95	9.55	0.40	90.51	-	-	-	-	-	-	
	3/16/2016	100.16	9.11	8.67	0.44	91.38	-	-	-	-	-	-	
	6/15/2016	100.16	9.35	9.00	0.35	91.07	-	-	-	-	-	-	
	9/19/2016	100.16	10.12	9.67	0.45	90.38	-	-	-	-	-	-	
MW-3	2/28/2005	100.43	9.32	-	-	91.11	**120**	**38.5**	**167**	**151**	**476.5**	**13.1**	
	6/6/2005	100.43	9.21	-	-	91.22	**37.6**	**22.5**	**135**	**113**	**308.1**	3.5	
	9/8/2005	100.43	9.67	-	-	90.76	**86**	**23.5**	**47.9**	**139**	**296.4**	7.8	
	12/29/2005	100.43	8.50	-	-	91.93	**11.3**	0.88	**28.9**	**15.3**	**56.38**	0.88	
	3/20/2006	100.43	9.98	-	-	90.45	**218**	**12.1**	**94.6**	**61.9**	**386.6**	**24.7**	
	6/7/2006	100.43	7.51	-	-	92.92	**9.9**	2.6	**27.2**	**12.1**	**51.8**	ND < 1	
	9/14/2006	100.43	7.57	-	-	92.86	**17.8**	ND < 1	**20.8**	3.9	**42.5**	ND < 1	
	12/7/2006	100.43	7.90	-	-	92.53	**10.4**	ND < 1	**15.7**	2	**28.1**	0.51	
	3/29/2007	100.43	8.69	-	-	91.74	0.94	ND < 1	**5.1**	1	**7.04**	ND < 1	
	6/13/2007	100.43	7.95	-	-	92.48	**3.6**	ND < 1	**6.8**	0.52	**10.92**	ND < 1	
	9/19/2007	100.43	9.45	-	-	90.98	**61.8**	1.70	**63.2**	**7.8**	**134.5**	9.5	
	12/11/2007	100.43	9.75	-	-	90.68	**71.3**	**12.8**	**101**	**24.8**	**209.9**	7.4	
	3/13/2008	100.43	8.56	-	-	91.87	**10.8**	ND < 1	3	0.72	**14.52**	ND < 1	
	6/6/2008	100.43	9.46	-	-	90.97	**76.1**	**9.5**	**46.5**	**17.9**	**150**	**15**	
	12/30/2008	100.43	8.49	-	-	91.94	**5.8**	0.44	0.28	ND < 1	**6.52**	0.53	
	3/16/2009	100.43	10.02	-	-	90.41	**113**	**13.5**	**6**	**20.8**	**153.3**	**20.2**	
	6/8/2009	100.43	8.33	-	-	92.10	**1.7**	ND < 1	1.4	ND < 1	**3.1**	ND < 1	
	7/20/2009	100.43	9.39	-	-	91.04	**92**	4	**10.6**	**13.4**	**120**	**13.2**	
	9/24/2009	100.43	9.57	-	-	90.86	**153**	**12.1**	**79.5**	**97.3**	**341.9**	ND < 1	
	12/3/2009	100.43	9.60	-	-	90.83	**92.7**	**8.4**	**90.4**	**79.1**	**270.6**	3.1	
	3/3/2010	100.43	8.18	-	-	92.25	0.27	ND < 1	1.7	1.6	3.57	ND < 1	
	6/7/2010	100.43	9.18	-	-	91.25	**3**	0.50	**6.8**	3.2	**13.5**	1.2	
	9/1/2010	100.43	10.66	-	-	89.77	**49.3**	**28.8**	**164**	**170**	**412.1**	**25.8**	
	12/3/2010	100.43	9.58	-	-	90.85	**3.9**	2.7	**30.9**	**26.5**	**64**	ND < 1	
	3/29/2011	100.43	8.25	-	-	92.18	ND < 1	ND < 1	0.36	0.33	0.69	ND < 1	
	6/16/2011	100.43	8.90	-	-	91.53	**2.8**	2.1	**49.5**	**31.2**	**85.6**	ND < 5	
	8/8/2011	100.43	9.51	-	-	90.92	**23.1**	**17.4**	**157**	**114**	**311.5**	ND < 1	
	3/16/2012	100.43	9.97	-	-	90.46	**25**	**43**	**867**	**386**	**1,321**	ND < 1	
	6/8/2012	100.43	9.27	-	-	91.16	**14.9**	**27.0**	**389**	**208**	**638.9**	ND < 1.00	
	9/7/2012	100.43	9.41	-	-	91.02	**3.67**	**7.33**	**110**	**83.2**	**204.2**	ND < 1.00	
	12/18/2012	100.43	9.51	-	-	90.92	**19.2**	**31.6**	**378**	**278**	**706.8**	ND < 1.00	
	3/14/2013	100.43	9.47	-	-	90.96	**15.7**	**36.7**	**319**	**277**	**648.4**	1.42	
	6/24/2013	100.43	8.07	-	-	92.36	ND < 1.00	3.05	**63.9**	**68.2**	**135.15**	ND < 1.00	
	9/4/2013	100.43	9.72	-	-	90.71	**7.74**	**14.1**	**127**	**113**	**261.84**	6.86	
	9/6/2013	100.43	9.76	-	-	90.67	**7.74**	**14.1**	**127**	**113**	**261.84**	6.86	
	11/11/2013	100.43	10.85	-	-	89.58	-	-	-	-	-	-	
	12/10/2013	100.43	10.55	-	-	89.88	**4.18**	**18.5**	**222**	**211**	**455.68**	ND < 1.00	COULD NOT GAUGE
	1/21/2014	100.43	9.78	-	-	90.65	-	-	-	-	-	-	
	3/10/2014	100.43	-	-	-	-	**1.60**	**5.32**	**75.7**	**118**	**200.62**	1.26	COULD NOT GAUGE
	6/3/2014	100.43	8.56	-	-	91.87	ND < 1.00	1.26	**28.3**	**43.2**	**72.76**	ND < 1.00	
	10/2/2014	100.43	10.29	-	-	90.14	**3.21**	4.44	**12.2**	**118**	**137.85**	ND < 1.00	
	12/3/2014	100.43	9.50	-	-	90.93	**1.08**	2.15	**20.8**	**61.7**	**85.73**	ND < 1.00	
	3/11/2015	100.43	8.19	-	-	92.24	ND < 1.00	ND < 1.00	1.63	2.95	4.58	ND < 1.00	
	6/18/2015	100.43	9.52	-	-	90.91	ND < 1.00	1.12	**5.18**	**26.4**	**32.7**	ND < 1.00	
	9/9/2015	100.43	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	12/10/2015	100.43	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	3/16/2016	100.43	9.19	-	-	91.24	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	9/19/2016	100.43	8.45	-	-	91.98	ND < 1.00	ND < 1.00	**8.66**	**11.6**	**20.26**	ND < 1.00	
MW-4	2/28/2005	100.05	9.02	-	-	91.03	**50**	2.6	**11**	**25**	**88.6**	ND < 1	
	6/6/2005	100.05	9.18	-	-	90.87	**4.6**	ND < 1	0.49	ND < 1	**5.09**	ND < 1	
	12/29/2005	100.05	8.54	-	-	91.51	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/20/2006	100.05	9.16	-	-	90.89	**9.1**	ND < 1	0.62	0.59	**10.31**	ND < 1	
	6/7/2006	100.05	8.00	-	-	92.05	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	9/14/2006	NSD	-	-	-	-	-	-	-	-	-	-	WELL DESTROYED
MW-5	2/28/2005	101.15	8.47	-	-	92.68	0.86	ND < 1	1.6	**8.1**	**10.56**	3.1	
	6/6/2005	101.15	8.73	-	-	92.42	ND < 1	ND < 1	ND < 1	ND	ND	ND < 1	
	9/8/2005	101.15	-	-	-	-	ND < 1	ND < 1	4.7	**7.3**	**12**	ND < 1	NM
	12/29/2005	101.15	7.95	-	-	93.20	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/20/2006	101.15	8.63	-	-	92.52	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	6/7/2006	101.15	8.12	-	-	93.03	ND < 1	ND < 1	ND < 1	0.65	0.65	ND < 1	
	12/7/2006	101.15	7.97	-	-	93.18	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/29/2007	101.15	8.10	-	-	93.05	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	6/13/2007	101.15	7.68	-	-	93.47	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	9/19/2007	101.15	8.96	-	-	92.19	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/11/2007	101.15	9.20	-	-	91.95	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/13/2008	101.15	8.56	-	-	92.59	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	6/6/2008	101.15	8.85	-	-	92.30	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/30/2008	101.15	8.09	-	-	93.06	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/16/2009	101.15	9.41	-	-	91.74	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-5 (cont)	6/8/2009	101.15	8.40	-	-	92.75	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	7/20/2009	101.15	8.63	-	-	92.52	-	-	-	-	-	-	
	9/24/2009	101.15	9.29	-	-	91.86	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/3/2009	101.15	9.00	-	-	92.15	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/3/2010	101.15	7.74	-	-	93.41	ND < 1	ND < 1	ND < 1	0.35	0.35	ND < 1	
	6/7/2010	101.15	8.73	-	-	92.42	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	9/1/2010	101.15	9.61	-	-	91.54	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/3/2010	101.15	9.40	-	-	91.75	ND < 1	ND < 1	ND < 1	ND < 1	ND	0.35	
	3/29/2011	101.15	7.91	-	-	93.24	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	6/16/2011	101.15	8.60	-	-	92.55	ND < 1	ND < 1	ND < 1	0.25	0.25	ND < 1	
	8/8/2011	101.15	9.17	-	-	91.98	ND < 1	ND < 1	ND < 1	ND < 1	ND	1.3	
	9/19/2011	101.15	7.64	-	-	93.51	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/5/2011	101.15	8.40	-	-	92.75	ND < 0.22	ND < 0.15	ND < 0.21	ND < 0.17	ND	ND < 0.18	
	3/16/2012	101.15	9.37	-	-	91.78	ND < 1	ND < 1	ND < 1	ND < 3	ND	ND < 1	
	6/8/2012	101.15	8.60	-	-	92.55	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	9/7/2012	101.15	9.19	-	-	91.96	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	12/18/2012	101.15	9.01	-	-	92.14	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	3/14/2013	101.15	8.42	-	-	92.73	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	6/24/2013	101.15	8.16	-	-	92.99	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	9/4/2013	101.15	9.21	-	-	91.94	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	9/6/2013	101.15	9.22	-	-	91.93	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	12/10/2013	101.15	9.68	-	-	91.47	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	COULD NOT GAUGE
	1/21/2014	101.15	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	101.15	-	-	-	-	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	COULD NOT GAUGE
	6/3/2014	101.15	8.52	-	-	92.63	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	10/2/2014	101.15	10.11	-	-	91.04	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	12/3/2014	101.15	9.20	-	-	91.95	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	3/11/2015	101.15	8.65	-	-	92.50	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	6/18/2015	101.15	8.60	-	-	92.55	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	9/9/2015	101.15	8.98	-	-	92.17	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	12/10/2015	101.15	9.74	-	-	91.41	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	3/16/2016	101.15	8.44	-	-	92.71	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	6/15/2016	101.15	8.93	-	-	92.22	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	9/19/2016	101.15	10.31	-	-	90.84	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
MW-6A	2/28/2005	101.17	8.29	-	-	92.88	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	6/6/2005	NSD	-	-	-	-	-	-	-	-	-	-	WELL DESTROYED
MW-7A	2/28/2005	101.24	9.67	-	-	91.57	**151**	3.8	3	**8.8**	**166.6**	2.5	
	6/6/2005	101.24	9.59	-	-	91.65	**13**	ND < 1	ND < 1	ND < 1	**13**	ND < 1	
	12/29/2005	101.24	9.27	-	-	91.97	**105**	1	**5.2**	4	**115.2**	3.2	
	3/20/2006	101.24	9.57	-	-	91.67	**9.4**	ND < 1	ND < 1	0.46	**9.86**	0.51	
	6/7/2006	101.24	8.72	-	-	92.52	**328**	**9.2**	**20**	**49**	**406.2**	1.8	
	9/14/2006	101.24	8.52	-	-	92.72	**4.7**	ND < 1	0.35	ND < 1	**5.05**	ND < 1	
	12/7/2006	101.24	8.75	-	-	92.49	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/29/2007	101.24	9.48	-	-	91.76	**291**	**6**	**8.2**	**17**	**322.2**	ND < 1	
	6/13/2007	101.24	8.56	-	-	92.68	**448**	**18**	**28**	**53**	**547**	2.4	
	9/19/2007	101.24	9.55	-	-	91.69	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/11/2007	101.24	10.27	-	-	90.97	ND < 1	ND < 1	ND < 1	ND < 1	ND	2.3	
	3/13/2008	101.24	9.56	-	-	91.68	**202**	3.7	**8.4**	**10**	**224.1**	ND < 2.0	
	6/6/2008	101.24	9.74	-	-	91.50	**4.5**	ND < 1	ND < 1	ND < 1	**4.5**	0.31	
	12/30/2008	101.24	9.53	-	-	91.71	**335**	4.6	3.4	**21**	**364**	1.9	
	3/16/2009	101.24	10.58	-	-	90.66	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	6/8/2009	101.24	9.52	-	-	91.72	**30**	ND < 1	ND < 1	ND < 1	**30**	ND < 1	
	7/20/2009	101.24	8.98	-	-	92.26	1	ND < 1	ND < 1	ND < 1	1	0.48	
	9/24/2009	101.24	10.07	-	-	91.17	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/3/2009	101.24	10.11	-	-	91.13	ND < 1	ND < 1	ND < 1	ND < 1	ND	0.52	
	3/3/2010	101.24	9.41	-	-	91.83	**145**	2.9	**5.5**	**5.6**	**159**	1.2	
	6/7/2010	101.24	9.36	-	-	91.88	0.36	ND < 1	ND < 1	ND < 1	0.36	ND < 1	
	9/1/2010	101.24	10.50	-	-	90.74	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	12/3/2010	101.24	10.31	-	-	90.93	ND < 1	ND < 1	ND < 1	ND < 1	ND	ND < 1	
	3/29/2011	101.24	8.87	-	-	92.37	**1.7**	ND < 1	ND < 1	ND < 1	**1.7**	ND < 1	
	6/16/2011	101.24	9.55	9.30	0.25	91.88	-	-	-	-	-	-	
	8/8/2011	101.24	9.99	9.98	0.01	91.26	-	-	-	-	-	-	
	9/19/2011	101.24	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	3/16/2012	101.24	10.48	-	-	90.76	**107**	1.31	3.55	ND < 3	**111.86**	1.09	
	6/8/2012	101.24	9.76	-	-	91.48	**143**	4.03	**25.3**	**7.23**	**179.56**	1.12	
	9/7/2012	101.24	10.02	-	-	91.22	**14.4**	ND < 1.00	ND < 1.00	ND < 3.00	**14.4**	ND < 1.00	
	12/18/2012	101.24	10.13	-	-	91.11	**12.9**	ND < 1.00	ND < 1.00	ND < 3.00	**12.9**	ND < 1.00	
	3/14/2013	101.24	9.85	-	-	91.39	**88.8**	1.84	**12.4**	**8.73**	**111.77**	ND < 1.00	
	6/24/2013	101.24	8.76	-	-	92.48	**45.8**	ND < 1.00	3.81	ND < 3.00	**49.61**	ND < 1.00	
	9/4/2013	101.24	9.96	9.91	0.05	91.32	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	9/6/2013	101.24	10.05	9.99	0.06	91.24	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	ND < 1.00	
	12/10/2013	101.24	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	1/21/2014	101.24	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	101.24	-	-	-	-	**9.00**	ND < 1.00	ND < 1.00	ND < 3.00	**9**	ND < 1.00	COULD NOT GAUGE
	6/3/2014	101.24	9.21	-	-	92.03	**2.07**	ND < 1.00	ND < 1.00	ND < 2.00	**2.07**	ND < 1.00	
	10/2/2014	101.24	10.60	-	-	90.64	**3.16**	ND < 1.00	ND < 1.00	ND < 2.00	**3.16**	ND < 1.00	
	12/3/2014	101.24	9.77	-	-	91.47	**6.83**	ND < 1.00	ND < 1.00	ND < 2.00	**6.83**	ND < 1.00	
	3/11/2015	101.24	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	6/18/2015	101.24	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	9/9/2015	101.24	10.14	-	-	91.10	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	12/10/2015	101.24	10.48	-	-	90.76	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	3/16/2016	101.24	9.48	-	-	91.76	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	6/15/2016	101.24	9.98	-	-	91.26	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
	9/19/2016	101.24	10.02	-	-	91.22	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	ND < 1.00	
MW-8A	2/28/2005	100.59	10.02	-	-	90.57	**1,430**	**369**	**1,020**	**3,180**	**5,999**	**4,720**	
	6/6/2005	100.59	9.48	-	-	91.11	**1,660**	**391**	**1,150**	**3,960**	**7,161**	**3,980**	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-8A	9/8/2005	100.59	10.02	-	-	90.57	**2,030**	**447**	**1,200**	**3,880**	**7,557**	**3,640**	
(cont)	12/29/2005	100.59	9.18	-	-	91.41	**434**	**49.3**	**216**	**675**	**1,374.3**	**250**	
	3/20/2006	100.59	9.87	-	-	90.72	**2,060**	**467**	**1,220**	**4,040**	**7,787**	**4,730**	
	9/14/2006	100.59	8.74	-	-	91.85	**2,170**	**510**	**1,380**	**4,320**	**8,380**	**2,370**	
	12/7/2006	100.59	8.62	-	-	91.97	**1,660**	**430**	**1,350**	**4,570**	**8,010**	**1,980**	
	3/29/2007	100.59	9.52	-	-	91.07	**1,420**	**341**	**908**	**2,370**	**5,039**	**2,960**	
	6/13/2007	100.59	8.55	-	-	92.04	**444**	**155**	**694**	**1,770**	**3,063**	**380**	
	9/19/2007	100.59	9.36	-	-	91.23	**1,090**	**267**	**915**	**2,570**	**4,842**	**1,160**	
	12/11/2007	100.59	10.13	-	-	90.46	**1,530**	**305**	**1,090**	**3,420**	**6,345**	**1,570**	
	3/13/2008	100.59	9.69	-	-	90.90	**1,580**	**315**	**1,140**	**3,430**	**6,465**	**1,850**	
	6/6/2008	100.59	9.35	-	-	91.24	**1,230**	**280**	**1,070**	**2,610**	**5,190**	**806**	
	12/30/2008	100.59	9.17	-	-	91.42	**82.5**	**21.3**	**131**	**237**	**471.8**	**22.6**	
	6/8/2009	100.59	9.18	-	-	91.41	**292**	**64.9**	**348**	**616**	**1,320.9**	**129**	
	7/20/2009	100.59	9.10	-	-	91.49	**292**	**72.8**	**324**	**525**	**1,213.8**	**149**	
	9/24/2009	100.59	10.79	-	-	89.80	**984**	**223**	**909**	**2,320**	**4,436**	**542**	
	12/3/2009	100.59	9.75	-	-	90.84	**1,030**	**235**	**1,060**	**2,240**	**4,565**	**452**	
	3/3/2010	100.59	9.25	-	-	91.34	**691**	**177**	**762**	**2,070**	**3,700**	**185**	
	6/7/2010	100.59	9.17	-	-	91.42	**1,020**	**213**	**869**	**2,060**	**4,162**	**766**	
	9/1/2010	100.59	10.18	-	-	90.41	**1,520**	**291**	**1,070**	**3,030**	**5,911**	**939**	
	12/3/2010	100.59	10.00	-	-	90.59	**942**	**253**	**745**	**1,900**	**3,840**	**555**	
	3/29/2011	100.59	9.46	-	-	91.13	**1,070**	**227**	**831**	**1,860**	**3,988**	**418**	
	9/19/2011	100.59	8.26	-	-	92.33	**779**	**157**	**533**	**1,060**	**2,529**	**298**	
	12/5/2011	100.59	9.20	-	-	91.39	**1,540**	**222**	**682**	**1,530**	**3,974**	**637**	
	3/16/2012	100.59	10.07	-	-	90.52	**2,220**	**386**	**1,410**	**5,250**	**9,266**	**1,100**	
	6/8/2012	100.59	9.84	-	-	90.75	**808**	**111**	**434**	**1,200**	**2,553**	**983**	
	9/7/2012	100.59	10.00	-	-	90.59	**985**	**154**	**341**	**953**	**2,433**	**376**	
	12/18/2012	100.59	10.78	-	-	89.81	**1,300**	**231**	**496**	**2,200**	**4,227**	**336**	
	3/14/2013	100.59	11.08	-	-	89.51	**1,160**	**188**	**551**	**2,360**	**4,259**	**330**	
	6/24/2013	100.59	9.31	-	-	91.28	**991**	**155**	**482**	**1,930**	**3,558**	**157**	
	9/6/2013	100.59	10.82	-	-	89.77	**1,670**	**306**	**1,250**	**3,790**	**7,016**	**337**	
	12/10/2013	100.59	11.44	-	-	89.15	**1,370**	**226**	**742**	**3,210**	**5,548**	**333**	COULD NOT GAUGE
	1/21/2014	100.59	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	100.59	-	-	-	-	**1,860**	**299**	**989**	**3,320**	**6,468**	**390**	COULD NOT GAUGE
	6/3/2014	100.59	10.68	-	-	89.91	**1,400**	**251**	**361**	**909**	**2,921**	**278**	
	10/2/2014	100.59	11.05	-	-	89.54	**1,500**	**286**	**1,120**	**3,720**	**6,626**	**367**	
	12/3/2014	100.59	10.01	-	-	90.58	**2,200**	**303**	**1,700**	**4,730**	**8,933**	**347**	
	3/11/2015	100.59	10.30	-	-	90.29	**1,480**	**326**	**1,670**	**6,450**	**9,926**	**429**	
	6/18/2015	100.59	9.81	-	-	90.78	**1,900**	**303**	**1,690**	**5,850**	**9,743**	**323**	
	9/9/2015	100.59	10.00	-	-	90.59	**1,640**	**282**	**1,150**	**3,530**	**6,602**	**194**	
	12/10/2015	100.59	10.33	-	-	90.26	**1,400**	**225**	**1,300**	**3,890**	**6,815**	**104**	
	3/16/2016	100.59	10.02	-	-	90.57	**341**	**198**	**1,400**	**3,890**	**5,829**	**140**	
	6/15/2016	100.59	9.86	-	-	90.73	**1,620**	**325**	**1,560**	**4,950**	**8,455**	**130**	
	9/19/2016	100.59	10.39	-	-	90.20	**1,490**	**281**	**1,490**	**4,830**	**8,091**	**109**	
MW-9	2/28/2005	100.10	9.45	-	-	90.65	ND < 1	ND < 1	ND < 1	ND < 1	ND	1.8	
	6/6/2005	100.10	9.38	-	-	90.72	ND < 1	ND < 1	ND < 1	ND < 1	ND	1.1	
	9/8/2005	100.10	10.01	-	-	90.09	ND < 1	ND < 1	0.73	2	2.73	7.3	
	12/29/2005	100.10	8.88	-	-	91.22	ND < 1	ND < 1	ND < 1	ND < 1	ND	**16.7**	
	3/20/2006	100.10	9.65	-	-	90.45	ND < 1	ND < 1	ND < 1	ND < 1	ND	9.8	
	9/14/2006	100.10	8.93	-	-	91.17	0.93	ND < 1	0.43	1.1	2.46	**20.8**	
	12/7/2006	100.10	8.72	-	-	91.38	0.88	0.72	ND < 1	3.6	5.2	**45**	
	3/29/2007	100.10	9.09	-	-	91.01	ND < 1	ND < 1	ND < 1	ND < 1	ND	**46.8**	
	6/13/2007	100.10	8.64	-	-	91.46	**4.9**	1.7	ND < 1	**6.4**	**13**	**60**	
	9/19/2007	100.10	9.39	-	-	90.71	0.35	ND < 1	ND < 1	0.97	1.32	**19.2**	
	12/11/2007	100.10	9.80	-	-	90.30	ND < 1	ND < 1	ND < 1	ND < 1	ND	**15.7**	
	3/13/2008	100.10	8.98	-	-	91.12	ND < 1	ND < 1	ND < 1	ND < 1	ND	6.5	
	6/6/2008	100.10	9.19	-	-	90.91	ND < 1	ND < 1	ND < 1	ND < 1	ND	6.2	
	12/30/2008	100.10	8.75	-	-	91.35	ND < 1	ND < 1	ND < 1	ND < 1	ND	2.6	
	7/20/2009	100.10	9.10	-	-	91.00	-	-	-	-	-	-	
	9/24/2009	100.10	9.71	-	-	90.39	ND < 1	ND < 1	ND < 1	ND < 1	ND	2.6	
	12/3/2009	100.10	9.62	-	-	90.48	ND < 1	ND < 1	ND < 1	ND < 1	ND	4.6	
	3/3/2010	100.10	8.47	-	-	91.63	ND < 1	ND < 1	ND < 1	ND < 1	ND	0.32	
	6/7/2010	100.10	9.24	-	-	90.86	ND < 1	ND < 1	ND < 1	ND < 1	ND	2.9	
	9/1/2010	100.10	10.11	-	-	89.99	ND < 1	ND < 1	ND < 1	ND < 1	ND	6.7	
	12/3/2010	100.10	9.90	-	-	90.20	ND < 1	ND < 1	ND < 1	ND < 1	ND	6.7	
	3/29/2011	100.10	9.04	-	-	91.06	ND < 1	ND < 1	ND < 1	ND < 1	ND	1.5	
	12/5/2011	100.10	9.20	-	-	90.90	ND < 0.22	ND < 0.15	ND < 0.21	ND < 0.17	ND	**10.1**	
	3/16/2012	100.10	10.33	-	-	89.77	ND < 1	ND < 1	ND < 1	ND < 3	ND	9.21	
	6/8/2012	100.10	9.44	-	-	90.66	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	**12.6**	
	9/7/2012	100.10	9.79	-	-	90.31	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	**11.0**	
	12/18/2012	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	3/14/2013	100.10	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	6/24/2013	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	9/6/2013	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	12/10/2013	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	1/21/2014	100.10	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	100.10	-	-	-	-	-	-	-	-	-	-	COULD NOT GAUGE
	6/3/2014	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	10/2/2014	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	12/3/2014	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	3/11/2015	100.10	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	6/18/2015	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	9/9/2015	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	12/10/2015	100.10	-	-	-	-	-	-	-	-	-	-	CNL
	3/16/2016	100.10	-	-	-	-	-	-	-	-	-	-	CNL
MW-10	2/28/2005	100.50	9.94	-	-	90.56	**5,040**	**763**	**1,520**	**7,160**	**14,483**	**10,300**	
	6/6/2005	100.50	9.03	-	-	91.47	**823**	**97.6**	**298**	**1,390**	**2,608.6**	**1,560**	
	9/8/2005	100.50	9.90	-	-	90.60	**2,780**	**331**	**1,000**	**3,840**	**7,951**	**5,030**	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-10 (cont)	12/29/2005	100.50	8.90	-	-	91.60	**754**	**192**	**942**	**1,900**	**3,788**	**833**	
	3/20/2006	100.50	9.54	-	-	90.96	**6,220**	**803**	**1,640**	**6,970**	**15,633**	**10,500**	
	6/7/2006	100.50	9.01	-	-	91.49	**4,580**	**459**	**1,150**	**4,290**	**10,479**	**6,210**	
	9/14/2006	100.50	8.58	-	-	91.92	**4,900**	**625**	**1,520**	**5,930**	**12,975**	**6,740**	
	12/7/2006	100.50	8.52	-	-	91.98	**3,070**	**504**	**2,030**	**7,360**	**12,964**	**1,410**	
	3/29/2007	100.50	9.40	-	-	91.10	**7,050**	**1,180**	**3,550**	**11,900**	**23,680**	**6,820**	
	6/13/2007	100.50	8.42	-	-	92.08	**1,450**	**231**	**909**	**2,980**	**5,570**	**466**	
	9/19/2007	100.50	9.22	-	-	91.28	**3,380**	**445**	**1,400**	**4,500**	**9,725**	**1,310**	
	12/11/2007	100.50	11.03	-	-	89.47	**3,030**	**411**	**1,360**	**4,010**	**8,811**	**1,750**	
	3/13/2008	100.50	9.56	-	-	90.94	**4,270**	**530**	**1,520**	**5,160**	**11,480**	**2,470**	
	6/6/2008	100.50	9.25	-	-	91.25	**3,080**	**414**	**1,510**	**4,450**	**9,454**	**1,260**	
	12/30/2008	100.50	9.05	-	-	91.45	**903**	**115**	**649**	**1,500**	**3,167**	**213**	
	6/8/2009	100.50	8.97	-	-	91.53	**1,110**	**143**	**658**	**1,440**	**3,351**	**166**	
	7/20/2009	100.50	8.98	-	-	91.52	**1,050**	**157**	**593**	**1,250**	**3,050**	**97.1**	
	9/24/2009	100.50	9.59	-	-	90.91	**2,390**	**374**	**1,490**	**3,210**	**7,464**	**315**	
	12/3/2009	100.50	9.55	-	-	90.95	**3,380**	**673**	**3,900**	**3,990**	**11,943**	**698**	
	3/3/2010	100.50	9.25	-	-	91.25	**3,450**	**440**	**1,400**	**3,440**	**8,730**	**1,810**	
	6/7/2010	100.50	9.02	-	-	91.48	**3,210**	**403**	**1,260**	**2,760**	**7,633**	**1,380**	
	9/1/2010	100.50	10.00	-	-	90.50	**4,870**	**485**	**1,830**	**4,040**	**11,225**	**1,580**	
	12/3/2010	100.50	9.80	-	-	90.70	**3,950**	**496**	**1,510**	**3,180**	**9,136**	ND < 10	
	3/29/2011	100.50	9.35	-	-	91.15	**5,450**	**594**	**1,550**	**3,700**	**11,294**	**1,640**	
	6/16/2011	100.50	8.80	-	-	91.70	**5,410**	**555**	**1,450**	**3,580**	**10,995**	**1,160**	
	8/8/2011	100.50	9.72	-	-	90.78	**6,180**	**645**	**1,450**	**3,460**	**11,735**	**1,030**	
	9/19/2011	100.50	8.19	-	-	92.31	**1,810**	**162**	**497**	**957**	**3,426**	**191**	
	12/5/2011	100.50	9.00	-	-	91.50	**3,790**	**443**	**1,910**	**3,860**	**10,003**	**610**	
	3/16/2012	100.50	10.51	-	-	89.99	**5,350**	**744**	**2,220**	**5,690**	**14,004**	**1,210**	
	6/8/2012	100.50	9.47	-	-	91.03	**3,780**	**343**	**859**	**1,720**	**6,702**	**860**	
	9/7/2012	100.50	10.04	-	-	90.46	**3,930**	**334**	**738**	**2,290**	**7,292**	**777**	
	12/18/2012	100.50	10.83	-	-	89.67	**5,460**	**623**	**1,170**	**3,340**	**10,593**	**708**	
	3/14/2013	100.50	10.99	-	-	89.51	**5,030**	**469**	**1,280**	**3,010**	**9,789**	**712**	
	6/24/2013	100.50	8.51	-	-	91.99	**2,680**	**330**	**927**	**2,900**	**6,837**	**137**	
	9/6/2013	100.50	10.66	-	-	89.84	**5,290**	**524**	**1,360**	**3,150**	**10,324**	**383**	
	12/10/2013	100.50	11.36	-	-	89.14	**6,080**	**560**	**1,410**	**4,520**	**12,570**	**464**	COULD NOT GAUGE
	1/21/2014	100.50	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	100.50	-	-	-	-	**6,990**	**680**	**1,770**	**5,550**	**14,990**	**657**	COULD NOT GAUGE
	6/3/2014	100.50	9.71	-	-	90.79	**3,400**	**455**	**1,250**	**3,700**	**8,805**	**476**	
	10/2/2014	100.50	10.90	-	-	89.60	**5,540**	**636**	**2,200**	**5,670**	**14,046**	**601**	SHEEN
	12/3/2014	100.50	9.91	-	-	90.59	**5,250**	**664**	**2,050**	**5,380**	**13,344**	**612**	
	3/11/2015	100.50	10.24	-	-	90.26	**5,880**	**766**	**2,300**	**7,140**	**16,086**	**309**	
	6/18/2015	100.50	9.69	-	-	90.81	**5,580**	**631**	**1,780**	**5,480**	**13,471**	**202**	
	9/9/2015	100.50	9.89	-	-	90.61	**4,350**	**522**	**1,550**	**5,030**	**11,452**	**136**	
	12/10/2015	100.50	10.23	-	-	90.27	**3,850**	**371**	**1,610**	**1,370**	**7,201**	**75.0**	
	3/16/2016	100.50	9.96	-	-	90.54	**4,120**	**650**	**1,740**	**4,930**	**11,440**	**143**	
	6/15/2016	100.50	9.74	-	-	90.76	**4,110**	**518**	**1,550**	**4,780**	**10,958**	**146**	
	9/19/2016	100.50	10.38	-	-	90.12	**4,990**	**591**	**1,680**	**5,020**	**12,281**	**114**	
MW-11	2/28/2005	99.62	8.14	-	-	91.48	**619**	**576**	**1,050**	**4,270**	**6,515**	**77**	
	6/6/2005	99.62	8.07	-	-	91.55	**616**	**410**	**1,070**	**5,050**	**7,146**	**71**	
	9/8/2005	99.62	8.81	8.78	0.03	90.83	-	-	-	-	-	-	
	12/29/2005	99.62	11.63	-	-	87.99	**697**	**249**	**1,170**	**3,630**	**5,746**	**57**	
	3/20/2006	99.62	8.13	-	-	91.49	**625**	**294**	**1,070**	**4,130**	**6,119**	**39**	
	6/7/2006	99.62	7.45	-	-	92.17	-	-	-	-	-	-	
	9/14/2006	99.62	7.13	7.11	0.02	92.51	-	-	-	-	-	-	
	12/7/2006	99.62	7.30	7.28	0.02	92.34	-	-	-	-	-	-	
	3/29/2007	99.62	7.94	-	-	91.68	**531**	**199**	**1,030**	**1,580**	**3,340**	ND < 10	
	6/13/2007	99.62	7.18	-	-	92.44	**438**	**125**	**738**	**935**	**2,236**	**32**	
	9/19/2007	99.62	8.11	-	-	91.51	**718**	**231**	**1,050**	**1,800**	**3,799**	**36**	
	12/11/2007	99.62	8.70	8.68	0.02	90.94	-	-	-	-	-	-	
	3/13/2008	99.62	8.20	-	-	91.42	**336**	**153**	**860**	**1,530**	**2,879**	ND < 5	
	6/6/2008	99.62	8.17	-	-	91.45	**617**	**194**	**954**	**1,410**	**3,175**	**37**	
	12/30/2008	99.62	7.91	-	-	91.71	**473**	**185**	**990**	**1,730**	**3,378**	**23.9**	
	3/16/2009	99.62	9.06	-	-	90.56	**423**	**192**	**770**	**1,610**	**2,995**	**20.9**	
	6/8/2009	99.62	7.87	-	-	91.75	**575**	**209**	**1,110**	**2,330**	**4,224**	**27.4**	
	7/20/2009	99.62	7.93	7.85	0.08	91.75	-	-	-	-	-	-	
	9/24/2009	99.62	8.59	8.54	0.05	91.07	-	-	-	-	-	-	
	12/3/2009	99.62	8.51	-	-	91.11	**797**	**142**	**1,280**	**1,020**	**3,239**	**46.9**	
	3/3/2010	99.62	7.66	-	-	91.96	**518**	**110**	**1,060**	**1,010**	**2,698**	**23.4**	
	6/7/2010	99.62	7.94	-	-	91.68	**382**	**33.1**	**901**	**498**	**1,814.1**	**23.1**	
	9/1/2010	99.62	8.98	-	-	90.64	**510**	**131**	**1,300**	**1,620**	**3,561**	ND < 100	
	12/3/2010	99.62	8.71	-	-	90.91	**513**	**206**	**911**	**1,560**	**3,190**	**11.3**	
	3/29/2011	99.62	7.45	-	-	92.17	**68.3**	**7.60**	**199**	**234**	**508.9**	3.20	
	6/16/2011	99.62	7.71	-	-	91.91	**148**	**23.3**	**293**	**315**	**779.3**	2.80	
	8/8/2011	99.62	8.54	-	-	91.08	**308**	**48.5**	**380**	**385**	**1,121.5**	7.90	
	9/19/2011	99.62	6.98	-	-	92.64	**57**	**12.3**	**162**	**171**	**402.3**	1.40	
	12/5/2011	99.62	7.81	-	-	91.81	**144**	**52**	**304**	**455**	**955**	4	
	3/16/2012	99.62	8.98	-	-	90.64	**637**	**149**	**794**	**1,580**	**3,160**	**12**	
	6/8/2012	99.62	8.14	-	-	91.48	**492**	**161**	**611**	**1,090**	**2,354**	9.70	
	9/7/2012	99.62	8.18	-	-	91.44	**604**	**164**	**699**	**1,240**	**2,707**	7.61	
	12/18/2012	99.62	8.61	-	-	91.01	**587**	**184**	**702**	**1,320**	**2,793**	7.11	
	3/14/2013	99.62	8.40	-	-	91.22	**487**	**150**	**608**	**934**	**2,179**	7.78	
	6/24/2013	99.62	7.27	-	-	92.35	**403**	**113**	**495**	**447**	**1,458**	3.98	
	9/4/2013	99.62	8.50	-	-	91.12	**513**	**147**	**947**	**1,230**	**2,837**	3.54	
	9/6/2013	99.62	8.56	-	-	91.06	**513**	**147**	**947**	**1,230**	**2,837**	3.54	
	10/7/2013	99.62	8.76	-	-	90.86	-	-	-	-	-	-	
	10/23/2013	99.62	9.03	-	-	90.59	-	-	-	-	-	-	
	11/11/2013	99.62	9.42	-	-	90.20	-	-	-	-	-	-	
	12/10/2013	99.62	9.92	-	-	89.70	**490**	**107**	**561**	**869**	**2,027**	2.93	COULD NOT GAUGE
	1/21/2014	99.62	8.65	-	-	90.97	-	-	-	-	-	-	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-11	3/10/2014	99.62	-	-	-	-	**435**	**86.0**	**521**	**801**	**1,843**	3.54	COULD NOT GAUGE
(cont)	6/3/2014	99.62	7.71	-	-	91.91	**218**	**70.6**	**287**	**468**	**1,043.6**	3.16	
	10/2/2014	99.62	9.00	-	-	90.62	**309**	**74.9**	**407**	**475**	**1,265.9**	ND < 10.0	
	12/3/2014	99.62	8.28	-	-	91.34	**241**	**61.8**	**325**	**354**	**981.8**	4.82	
	3/11/2015	99.62	8.32	-	-	91.30	**193**	**62.5**	**497**	**567**	**1,319.5**	ND < 1.00	
	6/18/2015	99.62	8.47	-	-	91.15	**246**	**63.3**	**540**	**551**	**1,400.3**	4.43	
	9/9/2015	99.62	7.82	-	-	91.80	**307**	**76.2**	**509**	**687**	**1,579.2**	ND < 1.00	
	12/10/2015	99.62	9.21	-	-	90.41	**224**	**31.8**	**546**	**438**	**1,239.8**	ND < 1.00	
	3/16/2016	99.62	8.31	-	-	91.31	**178**	**56.9**	**507**	**561**	**1,302.9**	ND < 1.00	
	6/15/2016	99.62	8.66	-	-	90.96	**314**	**70.4**	**559**	**668**	**1,611.4**	ND < 5.00	
	9/19/2016	99.62	9.41	-	-	90.21	**359**	**95.9**	**603**	**825**	**1,882.9**	ND < 5.00	
MW-12	2/28/2005	100.85	9.38	-	-	91.47	**127**	**6.6**	**50**	**57**	**240.6**	**24.8**	
	6/6/2005	100.85	9.17	-	-	91.68	**250**	**8.2**	**29.2**	**51.4**	**338.8**	**129**	
	3/20/2006	100.85	9.17	-	-	91.68	**229**	**9**	**35.5**	**50.2**	**323.7**	**26.6**	
	6/7/2006	100.85	8.68	-	-	92.17	**470**	**17.4**	**81.1**	**86.8**	**655.3**	**96.7**	
	9/14/2006	100.85	8.13	-	-	92.72	**476**	**14**	**42.9**	**63.2**	**596.1**	**55**	
	12/7/2006	100.85	8.37	-	-	92.48	**225**	**7.3**	**5.1**	**22.5**	**259.9**	**29.4**	
	3/29/2007	100.85	9.16	-	-	91.69	**193**	3.7	4	**12.5**	**213.2**	**44.3**	
	6/13/2007	100.85	8.28	-	-	92.57	**274**	**8.3**	**5.8**	**24.7**	**312.8**	**86.5**	
	9/19/2007	100.85	9.16	-	-	91.69	**285**	**6.2**	4.2	**20.5**	**315.9**	**33**	
	12/11/2007	100.85	9.90	-	-	90.95	**249**	5	4.2	**17.6**	**275.8**	**31.6**	
	3/13/2008	100.85	9.21	-	-	91.64	**172**	3.6	**11**	**14.4**	**201**	ND < 1	
	6/6/2008	100.85	9.33	-	-	91.52	**134**	4.4	**8.5**	**15.8**	**162.7**	**20.6**	
	12/30/2008	100.85	9.22	-	-	91.63	**603**	**12.3**	**115**	**53.9**	**784.2**	**41**	
	3/16/2009	100.85	10.21	-	-	90.64	**144**	3.2	**32.2**	**17.7**	**197.1**	**12.9**	
	6/8/2009	100.85	9.16	-	-	91.69	**474**	**8.6**	**69.2**	**33.5**	**585.3**	**147**	
	7/20/2009	100.85	9.38	-	-	91.47	**14.5**	0.56	**15.2**	2.4	**32.66**	**41.9**	
	9/24/2009	100.85	9.71	-	-	91.14	**54.8**	3.1	**37.8**	**21.4**	**117.1**	**113**	
	12/3/2009	100.85	9.75	-	-	91.10	**120**	3.9	**52.7**	**28.5**	**205.1**	**88.4**	
	3/3/2010	100.85	9.15	-	-	91.70	**148**	3.6	**23.1**	**16.1**	**190.8**	**41.4**	
	6/7/2010	100.85	8.97	-	-	91.88	**22.9**	1.1	**8.4**	**7.2**	**39.6**	8.6	
	9/1/2010	100.85	10.22	-	-	90.63	**111**	2.4	**10.7**	**11.6**	**135.7**	**23**	
	12/3/2010	100.85	10.00	-	-	90.85	**87**	1.6	**7.5**	**7**	**103.1**	**20.3**	
	3/29/2011	100.85	8.53	-	-	92.32	**2.1**	ND < 1	0.34	0.32	**2.76**	6.7	
	6/16/2011	100.85	8.90	-	-	91.95	**3.5**	0.36	0.72	1.3	**5.88**	8.9	
	8/8/2011	100.85	9.70	-	-	91.15	**24**	1.4	3.5	**6.6**	**35.5**	**32.5**	
	9/19/2011	100.85	8.39	-	-	92.46	**2.8**	0.35	2.4	3.2	**8.75**	ND < 1	
	3/16/2012	100.85	10.17	-	-	90.68	**27**	1.05	**8.41**	4.22	**40.68**	**24**	
	6/8/2012	100.85	9.42	-	-	91.43	**30.2**	ND < 1.00	4.87	ND < 3.00	**35.07**	**24.3**	
	9/7/2012	100.85	9.66	-	-	91.19	**38.2**	ND < 1.00	4.92	ND < 3.00	**43.12**	ND < 1.00	
	12/18/2012	100.85	9.98	-	-	90.87	**50.5**	1.02	**5.07**	ND < 3.00	**56.59**	**13.4**	
	3/14/2013	100.85	9.58	-	-	91.27	**35.3**	ND < 1.00	**5.36**	ND < 3.00	**40.66**	**13.5**	
	6/24/2013	100.85	8.36	-	-	92.49	**2.76**	ND < 1.00	ND < 1.00	ND < 3.00	**2.76**	2.48	
	9/4/2013	100.85	9.58	-	-	91.27	**15.5**	ND < 1.00	3.19	ND < 2.00	**18.69**	7.88	
	9/6/2013	100.85	9.65	-	-	91.20	**15.5**	ND < 1.00	3.19	ND < 2.00	**18.69**	7.88	
	10/7/2013	100.85	9.98	-	-	90.87	-	-	-	-	-	-	
	12/10/2013	100.85	10.67	-	-	90.18	**34.4**	ND < 1.00	1.45	ND < 3.00	**35.85**	**12.1**	COULD NOT GAUGE
	1/21/2014	100.85	-	-	-	-	-	-	-	-	-	-	INACCESSIBLE
	3/10/2014	100.85	-	-	-	-	**5.71**	ND < 1.00	ND < 1.00	ND < 3.00	**5.71**	ND < 1.00	COULD NOT GAUGE
	6/3/2014	100.85	8.81	-	-	92.04	**2.19**	ND < 1.00	ND < 1.00	ND < 2.00	**2.19**	1.59	
	10/2/2014	100.85	10.25	-	-	90.60	**10.2**	ND < 1.00	ND < 1.00	ND < 2.00	**10.2**	5.21	
	12/3/2014	100.85	9.55	-	-	91.30	**19.9**	ND < 1.00	ND < 1.00	ND < 2.00	**19.9**	8.41	
	3/11/2015	100.85	9.34	-	-	91.51	**10.7**	ND < 1.00	ND < 1.00	ND < 2.00	**10.7**	ND < 1.00	
	6/18/2015	100.85	9.44	-	-	91.41	**1.56**	ND < 1.00	ND < 1.00	ND < 3.00	**1.56**	3.48	
	9/9/2015	100.85	9.76	-	-	91.09	**8.05**	ND < 1.00	ND < 1.00	ND < 3.00	**8.05**	ND < 1.00	
	12/10/2015	100.85	10.16	-	-	90.69	**6.74**	ND < 1.00	ND < 1.00	ND < 3.00	**6.74**	2.28	
	3/16/2016	100.85	9.10	-	-	91.75	**3.76**	ND < 1.00	ND < 1.00	ND < 3.00	**3.76**	ND < 1.00	
	6/15/2016	100.85	9.49	-	-	91.36	**9.33**	ND < 1.00	ND < 1.00	ND < 3.00	**9.33**	5.40	
	9/19/2016	100.85	10.35	-	-	90.50	**9.06**	ND < 1.00	ND < 1.00	ND < 3.00	**9.06**	1.84	
MW-13	2/28/2005	100.04	8.83	6.66	2.17	92.84	-	-	-	-	-	-	
	6/6/2005	100.04	8.54	8.53	0.01	91.51	-	-	-	-	-	-	
	9/8/2005	100.04	9.37	9.16	0.21	90.83	-	-	-	-	-	-	
	12/29/2005	100.04	8.65	8.64	0.01	91.40	-	-	-	-	-	-	
	3/20/2006	100.04	6.67	6.66	0.01	93.38	-	-	-	-	-	-	
	6/7/2006	100.04	7.61	-	-	92.43	-	-	-	-	-	-	
	9/14/2006	100.04	7.34	7.32	0.02	92.72	-	-	-	-	-	-	
	12/7/2006	100.04	7.71	7.56	0.15	92.44	-	-	-	-	-	-	
	3/29/2007	100.04	8.53	-	-	91.51	**76.5**	ND < 5	ND < 5	ND < 5	**76.5**	9.3	
	6/13/2007	100.04	7.55	-	-	92.49	**56.1**	2.6	**172**	**56.9**	**287.6**	**11**	
	9/19/2007	100.04	8.53	8.51	0.02	91.53	-	-	-	-	-	-	
	12/11/2007	100.04	9.30	9.28	0.02	90.76	-	-	-	-	-	-	
	3/13/2008	100.04	8.58	-	-	91.46	**179**	**6.1**	**303**	**74.7**	**562.8**	**13.3**	
	6/6/2008	100.04	8.70	-	-	91.34	**245**	**10.2**	**354**	**95.8**	**705**	**20.8**	
	12/30/2008	100.04	8.37	-	-	91.67	**226**	**20.3**	**394**	**136**	**776.3**	**12.3**	
	3/16/2009	100.04	9.76	-	-	90.28	**270**	**22.8**	**423**	**135**	**850.8**	**11.9**	
	6/8/2009	100.04	8.24	-	-	91.80	**68.6**	**6.2**	**129**	**36.8**	**240.6**	**11.7**	
	7/20/2009	100.04	8.31	-	-	91.73	**39**	**7.9**	**300**	**88.6**	**435.5**	**15.9**	
	9/24/2009	100.04	9.01	-	-	91.03	**115**	4.1	**295**	**44.1**	**458.2**	**10.8**	
	12/3/2009	100.04	8.96	-	-	91.08	**219**	**7**	**295**	**53**	**574**	**13.6**	
	3/3/2010	100.04	7.90	-	-	92.14	**31.8**	2.3	**109**	**18.5**	**161.6**	4.8	
	6/7/2010	100.04	8.33	-	-	91.71	**21.2**	1.7	**149**	**19.9**	**191.8**	**18.6**	
	9/1/2010	100.04	9.44	-	-	90.60	**541**	**120**	**884**	**1,490**	**3,035**	**16.9**	
	12/3/2010	100.04	9.13	-	-	90.91	**321**	**114**	**685**	**1,240**	**2,360**	ND < 5	
	3/29/2011	100.04	7.90	-	-	92.14	**6**	ND < 1	**8.7**	**5.2**	**19.9**	3	
	6/16/2011	100.04	5.30	-	-	94.74	**31.5**	2	**62**	**34.4**	**129.9**	**10.5**	
	8/8/2011	100.04	9.04	-	-	91.00	**212**	**40.6**	**260**	**284**	**796.6**	3.1	
	9/19/2011	100.04	7.36	-	-	92.68	**12.3**	2	**174**	**57.5**	**245.8**	1.3	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-13 (cont)	12/5/2011	100.04	8.25	-	-	91.79	**20**	1.8	**110**	**44**	**175.8**	3.4	
	3/16/2012	100.04	9.44	-	-	90.60	**194**	**56**	**505**	**294**	**1,049**	1.71	
	6/8/2012	100.04	8.62	-	-	91.42	**135**	**38.6**	**331**	**235**	**739.6**	2.74	
	9/7/2012	100.04	8.92	-	-	91.12	**178**	**39.2**	**421**	**237**	**875.2**	ND < 1.00	
	12/18/2012	100.04	9.09	-	-	90.95	**308**	**84.5**	**663**	**452**	**1,507.5**	2.82	
	3/14/2013	100.04	8.92	-	-	91.12	**586**	**114**	**590**	**948**	**2,238**	6.10	
	6/24/2013	100.04	7.74	-	-	92.30	**117**	**38.6**	**544**	**399**	**1,098.6**	2.43	
	9/4/2013	100.04	8.94	8.91	0.03	91.12	-	-	-	-	-	-	
	9/6/2013	100.04	9.06	8.89	0.17	91.11	-	-	-	-	-	-	
	9/26/2013	100.04	9.16	9.15	0.01	90.89	**395**	**77.9**	**515**	**458**	**1,445.9**	3.87	
	10/7/2013	100.04	9.21	-	-	90.83	-	-	-	-	-	-	
	10/23/2013	100.04	9.45	-	-	90.59	-	-	-	-	-	-	
	11/11/2013	100.04	9.86	-	-	90.18	-	-	-	-	-	-	
	12/10/2013	100.04	10.02	-	-	90.02	**767**	**126**	**744**	**1,240**	**2,877**	**13.7**	COULD NOT GAUGE
	1/21/2014	100.04	9.19	-	-	90.85	-	-	-	-	-	-	
	3/10/2014	100.04	-	-	-	-	**250**	**53.8**	**294**	**461**	**1,058.8**	2.51	COULD NOT GAUGE
	6/3/2014	100.04	8.26	-	-	91.78	**92.1**	**29.0**	**235**	**383**	**739.1**	1.52	
	10/2/2014	100.04	9.48	-	-	90.56	**434**	**119**	**744**	**1,290**	**2,587**	1.21	
	12/3/2014	100.04	8.84	-	-	91.20	**395**	**118**	**755**	**1,000**	**2,268**	ND < 1.00	
	3/11/2015	100.04	8.30	-	-	91.74	**129**	**69.7**	**804**	**1,040**	**2,042.7**	2.82	
	6/18/2015	100.04	8.67	8.62	0.05	91.41	-	-	-	-	-	-	
	9/9/2015	100.04	9.05	-	-	90.99	**619**	**117**	**762**	**715**	**2,213**	ND < 1.00	
	12/10/2015	100.04	9.45	9.30	0.15	90.70	-	-	-	-	-	-	
	3/16/2016	100.04	8.54	8.46	0.08	91.56	**252**	**92.6**	**820**	**620**	**1,784.6**	ND < 1.00	
	6/15/2016	100.04	8.85	8.80	0.05	91.23	**810**	**114**	**870**	**939**	**2,733**	ND < 5.00	
	9/19/2016	100.04	9.51	9.49	0.02	90.55	**971**	**165**	**985**	**1,500**	**3,621**	ND < 5.00	
MW-14	2/28/2005	100.04	12.87	-	-	87.17	**4.2**	0.61	1.7	**6.7**	**13.21**	2.5	
	6/6/2005	100.04	13.02	-	-	87.02	**12.6**	1	2.4	**9.3**	**25.3**	ND < 1	
	3/20/2006	100.04	13.03	12.53	0.50	87.39	-	-	-	-	-	-	
	6/7/2006	100.04	8.19	8.12	0.07	91.90	-	-	-	-	-	-	
	12/7/2006	100.04	13.30	8.55	4.75	90.30	-	-	-	-	-	-	
	3/29/2007	100.04	10.52	-	-	89.52	**118**	4.8	1.4	**11.3**	**135.5**	ND < 1	
	6/13/2007	100.04	8.38	-	-	91.66	**125**	**5.6**	**5.4**	**41.1**	**177.1**	ND < 1	
	9/19/2007	100.04	10.08	-	-	89.96	**121**	5	4.1	**31.3**	**161.4**	ND < 1	
	12/11/2007	100.04	10.95	10.90	0.05	89.13	-	-	-	-	-	-	
	3/13/2008	100.04	9.73	-	-	90.31	**66.7**	2.7	0.76	4.6	**74.76**	ND < 1	
	6/6/2008	100.04	10.05	-	-	89.99	**95.5**	3.6	1.3	**5.8**	**106.2**	ND < 1	
	12/30/2008	100.04	9.59	-	-	90.45	**85.3**	2.5	0.51	2.1	**90.41**	ND < 1	
	3/16/2009	100.04	10.44	-	-	89.60	**101**	4.1	0.77	4.3	**110.17**	ND < 1	
	6/8/2009	100.04	9.46	-	-	90.58	**54.8**	2.3	1.2	4.2	**62.5**	ND < 1	
	7/20/2009	100.04	9.30	-	-	90.74	**51.6**	1.3	0.58	2.3	**55.78**	ND < 1	
	9/24/2009	100.04	10.00	-	-	90.04	**102**	3.8	0.90	**5.9**	**112.6**	ND < 1	
	12/3/2009	100.04	9.81	-	-	90.23	**147**	4.3	1.1	4.6	**157**	ND < 1	
	3/3/2010	100.04	8.90	-	-	91.14	**13.5**	ND < 1	ND < 1	ND < 1	**13.5**	ND < 1	
	6/7/2010	100.04	9.31	-	-	90.73	**50.3**	0.95	0.32	1.2	**52.77**	ND < 1	
	9/1/2010	100.04	10.36	-	-	89.68	**139**	3.4	1.2	3.7	**147.3**	ND < 1	
	12/3/2010	100.04	10.11	-	-	89.93	**114**	4	0.86	3.2	**122.06**	ND < 1	
	3/29/2011	100.04	8.60	-	-	91.44	**12.7**	ND < 1	ND < 1	ND < 1	**12.7**	ND < 1	
	6/16/2011	100.04	9.20	-	-	90.84	**41.4**	0.55	0.27	0.53	**42.75**	ND < 1	
	8/8/2011	100.04	9.87	-	-	90.17	**84.1**	0.77	ND < 1	ND < 1	**84.87**	ND < 1	
	9/19/2011	100.04	8.22	-	-	91.82	**3.8**	ND < 1	ND < 1	ND < 1	**3.8**	ND < 1	
	12/5/2011	100.04	9.19	-	-	90.85	**64**	0.39	0.22	0.60	**65.21**	ND < 0.18	
	3/16/2012	100.04	10.36	-	-	89.68	**91**	1.28	ND < 1	ND < 3	**92.28**	ND < 1	
	6/8/2012	100.04	9.62	-	-	90.42	**74.8**	ND < 1.00	ND < 1.00	ND < 3.00	**74.8**	ND < 1.00	
	9/7/2012	100.04	9.82	-	-	90.22	**117**	1.96	ND < 1.00	ND < 3.00	**118.96**	ND < 1.00	
	12/18/2012	100.04	9.84	-	-	90.20	**70.8**	1.60	ND < 1.00	ND < 3.00	**72.4**	ND < 1.00	
	3/14/2013	100.04	10.43	-	-	89.61	**20.2**	ND < 1.00	ND < 1.00	ND < 3.00	**20.2**	ND < 1.00	
	6/24/2013	100.04	8.50	-	-	91.54	**7.68**	ND < 1.00	ND < 1.00	ND < 3.00	**7.68**	ND < 1.00	
	9/4/2013	100.04	9.77	-	-	90.27	**44.2**	ND < 1.00	ND < 1.00	ND < 2.00	**44.2**	ND < 1.00	
	9/6/2013	100.04	9.85	-	-	90.19	**44.2**	ND < 1.00	ND < 1.00	ND < 2.00	**44.2**	ND < 1.00	
	12/10/2013	100.04	10.56	-	-	89.48	**51.9**	ND < 1.00	ND < 1.00	ND < 3.00	**51.9**	ND < 1.00	COULD NOT GAUGE
	1/21/2014	100.04	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	100.04	-	-	-	-	**8.32**	ND < 1.00	ND < 1.00	ND < 3.00	**8.32**	ND < 1.00	COULD NOT GAUGE
	6/3/2014	100.04	8.92	-	-	91.12	**4.91**	ND < 1.00	ND < 1.00	ND < 2.00	**4.91**	ND < 1.00	
	10/2/2014	100.04	10.49	-	-	89.55	**42.8**	ND < 1.00	ND < 1.00	ND < 2.00	**42.8**	ND < 1.00	
	12/3/2014	100.04	9.59	-	-	90.45	**20.2**	ND < 1.00	ND < 1.00	ND < 2.00	**20.2**	ND < 1.00	
	3/11/2015	100.04	9.34	-	-	90.70	**8.69**	ND < 1.00	ND < 1.00	ND < 2.00	**8.69**	ND < 1.00	
	6/18/2015	100.04	9.44	-	-	90.60	**34.2**	ND < 1.00	ND < 1.00	ND < 3.00	**34.2**	ND < 1.00	
	9/9/2015	100.04	9.97	-	-	90.07	**46.4**	ND < 1.00	ND < 1.00	ND < 3.00	**46.4**	ND < 1.00	
	12/10/2015	100.04	10.24	-	-	89.80	**38.3**	ND < 1.00	ND < 1.00	ND < 3.00	**38.3**	ND < 1.00	
	3/16/2016	100.04	9.28	-	-	90.76	**6.99**	ND < 1.00	ND < 1.00	ND < 3.00	**6.99**	ND < 1.00	
	6/15/2016	100.04	9.86	-	-	90.18	**37.1**	ND < 1.00	ND < 1.00	ND < 3.00	**37.1**	ND < 1.00	
	9/19/2016	100.04	10.52	-	-	89.52	**24.8**	ND < 10.0	ND < 10.0	ND < 30.0	**24.8**	ND < 10.0	
MW-15	9/27/2006	100.47	10.72	-	-	89.75	**616**	**21.1**	**21.7**	**64.4**	**723.2**	**425**	
	12/7/2006	100.47	9.29	-	-	91.18	**522**	**16.6**	**8.2**	**54.5**	**601.3**	**114**	
	3/29/2007	100.47	9.81	-	-	90.66	**389**	**14**	**5.9**	**30.7**	**439.6**	**59.5**	
	6/13/2007	100.47	8.99	-	-	91.48	**924**	**26.7**	**6**	**56.8**	**1,013.5**	**191**	
	9/19/2007	100.47	9.72	-	-	90.75	**747**	**16.6**	3.5	**34.1**	**801.2**	**104**	
	12/11/2007	100.47	10.29	-	-	90.18	**800**	**15.1**	2.8	**40**	**857.9**	**119**	
	3/13/2008	100.47	9.85	-	-	90.62	**662**	**6.4**	2.9	**15.2**	**686.5**	**83.4**	
	6/6/2008	100.47	9.63	-	-	90.84	**509**	**5.6**	1.2	**12.7**	**528.5**	**81.1**	
	12/30/2008	100.47	9.50	-	-	90.97	**164**	1.9	0.58	4.6	**171.08**	**16.8**	
	3/16/2009	100.47	10.69	-	-	89.78	**540**	**5.8**	1.2	**9.5**	**556.5**	**57.2**	
	6/8/2009	100.47	9.45	-	-	91.02	**141**	ND < 1	ND < 1	1	**142**	**14.8**	
	7/20/2009	100.47	9.33	-	-	91.14	**80.7**	1.2	0.93	3.7	**86.53**	**19.1**	
	9/24/2009	100.47	9.91	-	-	90.56	**162**	3.9	**7.3**	**8.6**	**181.8**	**74.5**	
	12/3/2009	100.47	9.98	-	-	90.49	**432**	**8.6**	**7.3**	**17.4**	**465.3**	**52.2**	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-15 (cont)	3/3/2010	100.47	9.41	-	-	91.06	**606**	**6.4**	**8.1**	**18.5**	**639**	**99.2**	
	6/7/2010	100.47	9.42	-	-	91.05	**200**	3.6	**6.2**	**6.3**	**216.1**	**24.7**	
	9/1/2010	100.47	10.06	-	-	90.41	**194**	3.6	2.8	**5.3**	**205.7**	**101**	
	12/3/2010	100.47	12.20	-	-	88.27	**405**	**7.6**	**6.9**	**13.7**	**433.2**	**93.3**	
	3/29/2011	100.47	9.52	-	-	90.95	**119**	0.86	ND < 1	0.89	**120.75**	**26.8**	
	6/16/2011	100.47	9.34	-	-	91.13	**8**	ND < 1	ND < 1	ND < 1	**8**	3.4	
	8/8/2011	100.47	9.93	-	-	90.54	**81.1**	2.3	0.85	4.2	**88.45**	**45.1**	
	9/19/2011	100.47	8.49	-	-	91.98	**43.2**	1.5	0.94	4.6	**50.24**	**25.8**	
	12/5/2011	100.47	9.40	-	-	91.07	**5**	ND < 0.15	ND < 0.21	0.51	**5.51**	5.4	
	3/16/2012	100.47	10.57	-	-	89.90	**31**	ND < 1	ND < 1	ND < 3	**31**	**58**	
	6/8/2012	100.47	9.67	-	-	90.80	**3.89**	ND < 1.00	ND < 1.00	ND < 3.00	**3.89**	8.11	
	9/7/2012	100.47	9.83	-	-	90.64	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	**10.2**	
	12/18/2012	100.47	9.99	-	-	90.48	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	**11.3**	
	3/14/2013	100.47	10.23	-	-	90.24	**6.60**	ND < 1.00	ND < 1.00	ND < 3.00	**6.6**	**30.5**	
	6/24/2013	100.47	8.98	-	-	91.49	**2.91**	ND < 1.00	ND < 1.00	ND < 3.00	**2.91**	2.21	
	9/6/2013	100.47	10.09	-	-	90.38	**1.77**	ND < 1.00	ND < 1.00	ND < 2.00	**1.77**	**13.0**	
	12/10/2013	100.47	10.31	-	-	90.16	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	**18.0**	COULD NOT GAUGE
	1/21/2014	100.47	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	100.47	-	-	-	-	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	**13.0**	COULD NOT GAUGE
	6/3/2014	100.47	9.70	-	-	90.77	**1.06**	ND < 1.00	ND < 1.00	ND < 2.00	**1.06**	3.54	
	10/2/2014	100.47	10.62	-	-	89.85	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	8.18	
	12/3/2014	100.47	10.21	-	-	90.26	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	4.11	
	3/11/2015	100.47	10.33	-	-	90.14	ND < 1.00	ND < 1.00	ND < 1.00	ND < 2.00	ND	9.97	
	6/18/2015	100.47	10.02	-	-	90.45	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	6.61	
	9/9/2015	100.47	10.25	-	-	90.22	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	6.55	
	12/10/2015	100.47	10.50	-	-	89.97	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	6.69	
	3/16/2016	100.47	10.12	-	-	90.35	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	3.18	
	6/15/2016	100.47	10.26	-	-	90.21	**2.49**	ND < 1.00	ND < 1.00	ND < 3.00	**2.49**	4.76	
	9/19/2016	100.47	10.59	-	-	89.88	ND < 1.00	ND < 1.00	ND < 1.00	ND < 3.00	ND	8.42	
MW-16	9/27/2006	100.42	11.90	-	-	88.52	**1,600**	**159**	**1,220**	**2,520**	**5,499**	2.3	
	12/7/2006	100.42	18.97	10.25	8.72	87.99	-	-	-	-	-	-	
	3/29/2007	100.42	11.36	-	-	89.06	**2,320**	**87.1**	**430**	**1,110**	**3,947.1**	ND < 20	
	6/13/2007	100.42	10.82	10.68	0.14	89.71	-	-	-	-	-	-	
	9/19/2007	100.42	10.98	10.76	0.22	89.61	-	-	-	-	-	-	
	12/11/2007	100.42	9.80	9.77	0.03	90.64	-	-	-	-	-	-	
	3/13/2008	100.42	10.89	-	-	89.53	**1,200**	**34.1**	**146**	**303**	**1,683.1**	ND < 10	
	6/6/2008	100.42	10.06	-	-	90.36	**1,350**	**49.6**	**225**	**394**	**2,018.6**	**16.1**	
	12/30/2008	100.42	9.66	-	-	90.76	**958**	**59.8**	**393**	**662**	**2,072.8**	7.7	
	3/16/2009	100.42	10.70	-	-	89.72	**1,320**	**44**	**141**	**222**	**1,727**	3.7	
	6/8/2009	100.42	9.64	-	-	90.78	**2,830**	**158**	**667**	**1,010**	**4,665**	ND < 20	
	7/20/2009	100.42	9.56	9.47	0.09	90.93	-	-	-	-	-	-	
	9/24/2009	100.42	9.96	9.80	0.16	90.58	-	-	-	-	-	-	
	12/3/2009	100.42	9.85	9.76	0.09	90.64	-	-	-	-	-	-	
	3/3/2010	100.42	8.90	-	-	91.52	**940**	**104**	**1,070**	**2,020**	**4,134**	3.5	
	6/7/2010	100.42	9.28	9.00	0.28	91.35	-	-	-	-	-	-	
	9/1/2010	100.42	10.21	-	-	90.21	**2,590**	**131**	**492**	**828**	**4,041**	ND < 20	
	12/3/2010	100.42	9.67	9.66	0.01	90.76	-	-	-	-	-	-	
	3/29/2011	100.42	8.45	-	-	91.97	**312**	**26.3**	**284**	**319**	**941.3**	ND < 2.5	
	6/16/2011	100.42	8.75	-	-	91.67	**1,490**	**76.6**	**433**	**634**	**2,633.6**	ND < 10	
	8/8/2011	100.42	9.44	9.41	0.03	91.00	-	-	-	-	-	-	
	9/19/2011	100.42	7.89	-	-	92.53	**68.3**	4.1	**59.9**	**77.1**	**209.4**	ND < 1	
	12/5/2011	100.42	8.77	-	-	91.65	**655**	**26**	**237**	**246**	**1,164**	ND < 0.37	
	3/16/2012	100.42	9.96	-	-	90.46	**1,400**	**59**	**157**	**342**	**1,958**	ND < 1	
	6/8/2012	100.42	9.22	-	-	91.20	**1,310**	**49.2**	**157**	**229**	**1,745.2**	ND < 1.00	
	9/7/2012	100.42	9.36	-	-	91.06	**2,060**	**81.1**	**303**	**380**	**2,824.1**	ND < 1.00	
	12/18/2012	100.42	9.56	-	-	90.86	**1,130**	**63.4**	**423**	**329**	**1,945.4**	ND < 1.00	
	3/14/2013	100.42	9.39	-	-	91.03	**1,140**	**59.3**	**159**	**261**	**1,619.3**	ND < 1.00	
	6/24/2013	100.42	8.23	-	-	92.19	**509**	**46.1**	**177**	**303**	**1,035.1**	ND < 1.00	
	9/4/2013	100.42	9.32	9.28	0.04	91.13	-	-	-	-	-	-	
	9/6/2013	100.42	9.57	9.36	0.21	91.01	-	-	-	-	-	-	
	9/26/2013	100.42	10.83	10.60	0.23	89.76	-	-	-	-	-	-	
	10/23/2013	100.42	10.08	9.83	0.25	90.53	-	-	-	-	-	-	
	11/11/2013	100.42	10.34	-	-	90.08	-	-	-	-	-	-	
	12/10/2013	100.42	10.75	-	-	89.67	**1,060**	**57.8**	**99.1**	**200**	**1,416.9**	1.30	COULD NOT GAUGE
	1/21/2014	100.42	9.68	9.56	0.12	90.83	-	-	-	-	-	-	
	3/10/2014	100.42	-	-	-	-	-	-	-	-	-	-	COULD NOT GAUGE
	6/3/2014	100.42	8.72	8.64	0.08	91.76	-	-	-	-	-	-	
	10/2/2014	100.42	9.85	-	-	90.57	**1,060**	**68.5**	**495**	**1,020**	**2,643.5**	ND < 10.0	SHEEN
	12/3/2014	100.42	9.25	-	-	91.17	**1,380**	**86.9**	**337**	**1,390**	**3,193.9**	ND < 1.00	
	3/11/2015	100.42	8.99	-	-	91.43	**524**	**80.5**	**590**	**1,190**	**2,384.5**	ND < 1.00	
	6/18/2015	100.42	9.08	-	-	91.34	**1,330**	**128**	**586**	**1,180**	**3,224**	ND < 1.00	
	9/9/2015	100.42	9.52	-	-	90.90	**1,040**	**106**	**522**	**1,130**	**2,798**	ND < 1.00	
	12/10/2015	100.42	9.84	-	-	90.58	**1,090**	**85.6**	**347**	**678**	**2,200.6**	ND < 1.00	
	3/16/2016	100.42	9.05	-	-	91.37	**333**	**108**	**621**	**1,150**	**2,212**	ND < 1.00	
	6/15/2016	100.42	9.62	-	-	90.80	**923**	**101**	**481**	**918**	**2,423**	ND < 5.00	
	9/19/2016	100.42	10.03	-	-	90.39	**978**	**108**	**534**	**1,010**	**2,630**	ND < 5.00	
MW-17	9/28/2006	100.05	10.59	-	-	89.46	**4.8**	**64.2**	**378**	**1,420**	**1,867**	**202**	
	12/7/2006	100.05	10.90	-	-	89.15	**19.9**	**97.6**	**335**	**1,090**	**1,542.5**	**29.8**	
	3/29/2007	100.05	10.18	-	-	89.87	**15.4**	**145**	**432**	**1,300**	**1,892.4**	**19.4**	
	6/13/2007	100.05	9.55	-	-	90.50	**11.1**	**76.9**	**228**	**695**	**1,011**	**21.3**	
	9/19/2007	100.05	9.71	-	-	90.34	**11.4**	**69.3**	**252**	**665**	**997.7**	**13.6**	
	12/11/2007	100.05	10.17	-	-	89.88	**4.8**	**32.9**	**148**	**386**	**571.7**	4.3	
	3/13/2008	100.05	9.17	-	-	90.88	**20.4**	**143**	**695**	**2,160**	**3,018.4**	8.2	
	6/6/2008	100.05	9.03	-	-	91.02	**2.6**	**14.2**	**63.7**	**178**	**258.5**	3.4	
	12/30/2008	100.05	8.51	-	-	91.54	**18.1**	**60.3**	**421**	**418**	**917.4**	2.3	
	3/16/2009	100.05	9.42	-	-	90.63	**3.8**	**20.4**	**134**	**184**	**342.2**	2.1	
	6/8/2009	100.05	8.19	-	-	91.86	**244**	**80.1**	**773**	**439**	**1,536.1**	7.7	

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-17 (cont)	7/20/2009	100.05	8.23	-	-	91.82	**27.4**	**145**	**726**	**1,100**	**1,998.4**	1.7	
	9/24/2009	100.05	8.93	-	-	91.12	**10.6**	**47.7**	**324**	**369**	**751.3**	ND < 1	
	12/3/2009	100.05	8.91	-	-	91.14	**32.7**	**161**	**854**	**1,170**	**2,217.7**	1.7	
	3/3/2010	100.05	8.02	-	-	92.03	**7.5**	**37.7**	**225**	**289**	**559.2**	1.4	
	6/7/2010	100.05	8.33	-	-	91.72	**7.6**	**35**	**259**	**274**	**575.6**	0.83	
	9/1/2010	100.05	9.01	-	-	91.04	**16.3**	**91.3**	**716**	**675**	**1,498.6**	ND < 2	
	12/3/2010	100.05	8.80	-	-	91.25	**19.8**	**103**	**757**	**881**	**1,760.8**	ND < 1	
	3/29/2011	100.05	7.83	-	-	92.22	**6.3**	**14.7**	**166**	**90.9**	**277.9**	1.2	
	6/16/2011	100.05	7.96	7.90	0.06	92.14	-	-	-	-	-	-	
	8/8/2011	100.05	8.62	8.58	0.04	91.46	-	-	-	-	-	-	
	9/19/2011	100.05	7.12	7.11	0.01	92.94	-	-	-	-	-	-	
	12/5/2011	100.05	7.86	-	-	92.19	**9.3**	**43**	**230**	**209**	**491.3**	1	
	3/16/2012	100.05	9.40	9.33	0.07	90.70	-	-	-	-	-	-	
	6/8/2012	100.05	8.49	-	-	91.56	**23.7**	**78.4**	**402**	**239**	**743.1**	ND < 1.00	
	9/7/2012	100.05	8.49	-	-	91.56	**24.6**	**89.0**	**279**	**304**	**696.6**	ND < 1.00	
	12/18/2012	100.05	8.62	-	-	91.43	**18.8**	**72.5**	**275**	**332**	**698.3**	ND < 1.00	
	3/14/2013	100.05	8.37	-	-	91.68	**3.85**	**21.2**	**80.2**	**69.1**	**174.35**	1.40	
	6/24/2013	100.05	7.41	-	-	92.64	**6.01**	**31.1**	**112**	**101**	**250.11**	1.02	
	9/4/2013	100.05	8.75	8.70	0.05	91.34	-	-	-	-	-	-	
	9/6/2013	100.05	9.74	9.70	0.04	90.34	-	-	-	-	-	-	
	9/26/2013	100.05	7.94	7.90	0.04	92.14	**4.58**	**21.3**	**84.9**	**63.5**	**174.28**	ND < 1.00	
	10/7/2013	100.05	7.93	-	-	92.12	-	-	-	-	-	-	
	10/23/2013	100.05	9.06	-	-	90.99	-	-	-	-	-	-	
	11/11/2013	100.05	9.52	-	-	90.53	-	-	-	-	-	-	
	12/10/2013	100.05	9.45	-	-	90.60	**10.2**	**80.4**	**562**	**719**	**1,371.6**	ND < 1.00	COULD NOT GAUGE
	1/21/2014	100.05	8.75	-	-	91.30	-	-	-	-	-	-	
	3/10/2014	100.05	-	-	-	-	-	-	-	-	-	-	COULD NOT GAUGE
	6/3/2014	100.05	7.86	7.85	0.01	92.20	**16.1**	**98.6**	**288**	**412**	**814.7**	ND < 1.00	
	10/2/2014	100.05	8.92	-	-	91.13	**32.5**	**232**	**1,230**	**1,500**	**2,994.5**	ND < 1.00	
	12/3/2014	100.05	8.21	-	-	91.84	**27.6**	**151**	**1,030**	**1,220**	**2,428.6**	ND < 1.00	
	3/11/2015	100.05	7.81	-	-	92.24	**10.2**	**77.4**	**757**	**796**	**1,640.6**	ND < 1.00	
	6/18/2015	100.05	8.09	-	-	91.96	**25.2**	**167**	**1,080**	**1,240**	**2,512.2**	ND < 1.00	
	9/9/2015	100.05	8.39	-	-	91.66	**18.8**	**120**	**832**	**1,050**	**2,020.8**	ND < 1.00	
	12/10/2015	100.05	8.88	-	-	91.17	**18.8**	**133**	**1,220**	**797**	**2,168.8**	ND < 1.00	
	3/16/2016	100.05	7.95	-	-	92.10	**15.6**	**95.5**	**708**	**757**	**1,576.1**	ND < 1.00	
	6/15/2016	100.05	8.31	-	-	91.74	**19.1**	**129**	**828**	**1,030**	**2,006.1**	ND < 5.00	
	9/19/2016	100.05	9.06	-	-	90.99	**37.7**	**159**	**1,060**	**1,190**	**2,446.7**	ND < 5.00	
MW-18	9/28/2006	101.41	12.54	-	-	88.87	**1,470**	**137**	**499**	**1,160**	**3,266**	5.8	
	12/7/2006	101.41	12.76	-	-	88.65	**2,490**	**210**	**518**	**1,820**	**5,038**	ND < 10	
	3/29/2007	101.41	12.33	-	-	89.08	**2,190**	**170**	**510**	**1,100**	**3,970**	ND < 20	
	6/13/2007	101.41	11.10	-	-	90.31	**2,400**	**296**	**1,040**	**3,360**	**7,096**	ND < 10	
	9/19/2007	101.41	12.02	-	-	89.39	**1,820**	**114**	**397**	**951**	**3,282**	ND < 2.5	
	12/11/2007	101.41	13.40	-	-	88.01	**1,670**	**63.6**	**241**	**439**	**2,413.6**	ND < 5	
	3/13/2008	101.41	13.12	-	-	88.29	**1,770**	**94.2**	**399**	**649**	**2,912.2**	ND < 10	
	6/6/2008	101.41	13.24	-	-	88.17	**2,410**	**156**	**746**	**1,220**	**4,532**	ND < 10	
	12/30/2008	101.41	12.58	-	-	88.83	**1,970**	**80.4**	**319**	**620**	**2,989.4**	ND < 5	
	3/16/2009	101.41	12.85	-	-	88.56	**1,850**	**79.7**	**254**	**417**	**2,600.7**	ND < 5	
	6/8/2009	101.41	12.51	-	-	88.90	**1,680**	**79.8**	**302**	**480**	**2,541.8**	ND < 10	
	7/20/2009	101.41	12.65	-	-	88.76	**1,570**	**83.7**	**301**	**537**	**2,491.7**	ND < 10	
	9/24/2009	101.41	12.96	-	-	88.45	**1,010**	**48.8**	**131**	**363**	**1,552.8**	ND < 1	
	12/3/2009	101.41	12.76	-	-	88.65	**1,380**	**57.2**	**355**	**720**	**2,512.2**	ND < 5	
	3/3/2010	101.41	11.90	-	-	89.51	**1,790**	**80.6**	**400**	**548**	**2,818.6**	ND < 10	
	6/7/2010	101.41	12.47	-	-	88.94	**1,630**	**103**	**502**	**548**	**2,783**	ND < 5	
	9/1/2010	101.41	12.83	-	-	88.58	**2,580**	**102**	**347**	**637**	**3,666**	ND < 20	
	12/3/2010	101.41	12.87	-	-	88.54	**1,020**	**39.4**	**119**	**175**	**1,353.4**	ND < 10	
	3/29/2011	101.41	10.46	-	-	90.95	**746**	**34.7**	**137**	**163**	**1,080.7**	ND < 5	
	6/16/2011	101.41	11.00	-	-	90.41	**2,180**	**123**	**548**	**738**	**3,589**	ND < 10	
	8/8/2011	101.41	10.71	-	-	90.70	**2,440**	**104**	**261**	**374**	**3,179**	ND < 10	
	9/19/2011	101.41	10.34	-	-	91.07	**1,200**	**64.8**	**318**	**425**	**2,007.8**	ND < 5	
	12/5/2011	101.41	9.90	-	-	91.51	**1,620**	**65**	**287**	**345**	**2,317**	ND < 0.92	
	3/16/2012	101.41	10.66	-	-	90.75	**1,740**	**101**	**1,310**	**1,510**	**4,661**	ND < 1	
	6/8/2012	101.41	9.83	-	-	91.58	**153**	**11.9**	**109**	**137**	**410.9**	ND < 1.00	
	9/7/2012	101.41	10.05	-	-	91.36	**1,070**	**53.8**	**451**	**337**	**1,911.8**	ND < 1.00	
	12/18/2012	101.41	10.18	-	-	91.23	**944**	**52.9**	**160**	**315**	**1,471.9**	ND < 1.00	
	3/14/2013	101.41	9.95	-	-	91.46	**780**	**31.3**	**89.2**	**137**	**1,037.5**	ND < 1.00	
	6/24/2013	101.41	8.85	-	-	92.56	**382**	**26.5**	**97.3**	**188**	**693.8**	ND < 1.00	
	9/4/2013	101.41	10.13	-	-	91.28	**1,150**	**87.8**	**371**	**522**	**2,130.8**	ND < 1.00	
	9/6/2013	101.41	10.66	-	-	90.75	**1,150**	**87.8**	**371**	**522**	**2,130.8**	ND < 1.00	
	12/10/2013	101.41	11.01	-	-	90.40	**820**	**55.1**	**122**	**176**	**1,173.1**	ND < 1.00	COULD NOT GAUGE
	1/21/2014	101.41	-	-	-	-	-	-	-	-	-	-	
	3/10/2014	101.41	-	-	-	-	**897**	**70.6**	**230**	**216**	**1,413.6**	ND < 1.00	COULD NOT GAUGE
	6/3/2014	101.41	9.45	-	-	91.96	**282**	**48.4**	**209**	**248**	**787.4**	ND < 1.00	
	10/2/2014	101.41	10.62	-	-	90.79	**858**	**65.1**	**175**	**175**	**1,273.1**	ND < 10.0	SHEEN
	12/3/2014	101.41	10.06	-	-	91.35	**1,300**	**102**	**330**	**404**	**2,136**	ND < 1.00	SHEEN
	3/11/2015	101.41	9.63	-	-	91.78	**1,220**	**104**	**520**	**376**	**2,220**	ND < 1.00	
	6/18/2015	101.41	9.76	-	-	91.65	**774**	**74.8**	**268**	**427**	**1,543.8**	ND < 1.00	
	9/9/2015	101.41	10.17	-	-	91.24	**1,340**	**89.4**	**237**	**370**	**2,036.4**	ND < 1.00	
	12/10/2015	101.41	10.86	-	-	90.55	**1,090**	**85.3**	**250**	**432**	**1,857.3**	ND < 1.00	
	3/16/2016	101.41	9.71	-	-	91.70	**302**	**77.2**	**170**	**596**	**1,145.2**	ND < 1.00	
	6/15/2016	101.41	10.22	-	-	91.19	**933**	**99.6**	**211**	**521**	**1,764.6**	ND < 5.00	
	9/19/2016	101.41	11.13	-	-	90.28	**1,110**	**130**	**255**	**716**	**2,211**	ND < 5.00	
MW-19	9/6/2013	NSD	9.41	-	-	-	**39.3**	**15.8**	**171**	**58.3**	**284.4**	ND < 1.00	NSD
	10/7/2013	NSD	9.58	-	-	-	-	-	-	-	-	-	NSD
	10/23/2013	NSD	9.89	-	-	-	-	-	-	-	-	-	NSD
	11/11/2013	NSD	10.42	-	-	-	-	-	-	-	-	-	NSD
	12/10/2013	NSD	10.29	-	-	-	**57.5**	**18.1**	**148**	**56.2**	**279.8**	4.75	NSD
	1/21/2014	NSD	9.49	-	-	-	-	-	-	-	-	-	

Table 1

HISTORICAL GROUNDWATER MONITORING SUMMARY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, NY

Well	Date	Casing Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted Groundwater Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes, Total (ug/L)	Total BTEX (ug/L)	MTBE (ug/L)	Comments
						NYSDEC TOGS 1.1.1 WQS	**1**	**5**	**5**	**5**	**NS**	**10**	
MW-19 (cont)	3/10/2014	NSD	-	-	-	-	**67.1**	**8.28**	**245**	**58.0**	**378.38**	2.75	COULD NOT GAUGE
	6/3/2014	NSD	8.58	-	-	-	**35.7**	4.06	**126**	**36.2**	**201.96**	ND < 1.00	
	10/2/2014	NSD	9.92	-	-	-	**68.9**	**12.9**	**183**	**40.5**	**305.3**	ND < 10.0	
	12/3/2014	NSD	9.15	-	-	-	**57.7**	**11.3**	**168**	**46.4**	**283.4**	ND < 1.00	
	3/11/2015	NSD	8.95	-	-	-	**28.8**	**6.76**	**102**	**32.0**	**169.56**	ND < 1.00	
	6/18/2015	NSD	9.08	-	-	-	**63.6**	**9.92**	**72.6**	**34.5**	**180.62**	2.40	
	9/9/2015	NSD	9.46	-	-	-	**52.3**	**13.7**	**89.3**	**47.9**	**203.2**	ND < 1.00	
	12/10/2015	NSD	9.82	-	-	-	**38.3**	**13.9**	**105**	**58.5**	**215.7**	ND < 1.00	
	3/16/2016	NSD	8.93	-	-	-	**40.5**	**12.8**	**123**	**52.8**	**229.1**	ND < 1.00	NSD
	6/15/2016	NSD	9.31	-	-	-	**43.0**	**10.3**	**87.6**	**57.2**	**198.1**	ND < 1.00	NSD
	9/19/2016	NSD	10.03	-	-	-	**50.9**	**19.1**	**72.0**	**68.2**	**210.2**	ND < 1.00	NSD
MW-20	9/6/2013	NSD	9.34	-	-	-	**44.5**	3.65	**44.6**	**15.4**	**108.15**	**29.2**	NSD
	10/7/2013	NSD	9.58	-	-	-	-	-	-	-	-	-	NSD
	10/23/2013	NSD	9.82	-	-	-	-	-	-	-	-	-	NSD
	11/11/2013	NSD	10.20	-	-	-	-	-	-	-	-	-	NSD
	12/10/2013	NSD	10.24	-	-	-	**145**	2.62	**89.1**	**21.1**	**257.82**	**47.4**	NSD
	1/21/2014	NSD	9.35	-	-	-	-	-	-	-	-	-	
	3/10/2014	NSD	-	-	-	-	**19.8**	ND < 1.00	2.63	ND < 3.00	**22.43**	**10.5**	COULD NOT GAUGE
	6/3/2014	NSD	8.38	-	-	-	**3.99**	ND < 1.00	ND < 1.00	ND < 2.00	**3.99**	2.97	
	10/2/2014	NSD	9.83	-	-	-	**5.98**	ND < 1.00	2.57	ND < 2.00	**8.55**	8.10	
	12/3/2014	NSD	9.11	-	-	-	**10.9**	ND < 1.00	**7.94**	4.12	**22.96**	6.57	
	3/11/2015	NSD	8.89	-	-	-	**50.1**	1.34	**5.24**	3.19	**59.87**	**14.5**	
	6/18/2015	NSD	9.04	-	-	-	**4.01**	ND < 1.00	ND < 1.00	ND < 3.00	**4.01**	3.64	
	9/9/2015	NSD	9.44	-	-	-	**4.15**	ND < 1.00	ND < 1.00	ND < 3.00	**4.15**	7.68	
	12/10/2015	NSD	9.74	-	-	-	**5.91**	ND < 1.00	ND < 1.00	ND < 3.00	**5.91**	5.26	
	3/16/2016	NSD	8.72	-	-	-	**1.65**	ND < 1.00	ND < 1.00	ND < 3.00	**1.65**	1.64	NSD
	6/15/2016	NSD	9.22	-	-	-	**3.71**	ND < 1.00	ND < 1.00	ND < 3.00	**3.71**	4.22	NSD
	9/19/2016	NSD	9.94	-	-	-	**8.53**	ND < 1.00	ND < 1.00	ND < 3.00	**8.53**	6.90	NSD

NOTES:
TOGS 1.1.1 WQS = Ambient Water Quality Standards Guidance Values and Groundwater Effluent Limitations, amended April 2000
- = Not analyzed or measured
BOLD = Value exceeds regulatory limits
BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes
CNL = Could Not Locate
DRY = Insufficient water for sampling
ft = Feet
J = Estimated value
mg/L = Milligrams/Liter
MTBE = Methyl tertiary butyl ether
ND < # = Not detected. Where an analyte is not detected, a reporting limit is given.
NS = No Standard
NSD = No Survey Data
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per liter
NA = Not Analyzed
NM = Field Data Not Measured

Table 2

HISTORICAL SOIL ANALYTICAL DATA

Former Mobil Station # 17-EMW
304 Columbia Street
Brooklyn, New York

Compound	CP-51 SCG	Sample ID																					
		W-1	W-2	W-3	W-4	W-5	MW-6A (5-8')	MW-6A (8-12')	MW-7A (5-8')	MW-7A (8-12')	MW-8A (5-8')	MW-8A (8-12')	MW-9 (0-5')	MW-9 (8-12')	MW-10 (5-8')	MW-10 (8-12')	MW-11 (7-9')	MW-12 (7-9')	MW-13 (8-10')	MW-14 (8-10')	SB-1/MW-15 (8-9')	SB-2/MW-16 (7-8')	SB-3/MW-17 (8-9')	SB-7/MW-18 (8-10')
Date		**06/25/1990**					**5/12/2003**								**5/12/2003**		**2/9/2004**			**11/4/2004**	**9/27/2006**		**9/28/2006**	
Laboratory Analytical Method		**EPA Method 8260B STARS List**																						
Benzene	**60**	ND<5	ND<5	6,172	1,593	1,151	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.2	165	8.9	2,900	ND<2.0	120	ND<1.3	314 J	ND<1.1	239
Toluene	**700**	137	8.4	11,240	23,277	3,672	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.2	ND<51.0	20.2	70,500	ND<2.0	170	ND<1.3	241 J	ND<1.1	ND<160
Ethylbenzene	**1000**	ND<5	90	51,899	35,067	5,762	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.2	5,950	2.7	1,800	ND<2.0	ND<100	ND<1.3	10,700	ND<1.1	505
Total Xylenes	**260**	83	207	83,719	62,816	17,204	ND<2.2	ND<2.4	ND<2.1	ND<2.1	ND<2.2	ND<2.3	ND<2.3	ND<2.2	ND<2.3	7,080	66.3	100,000	ND<2.0	945	ND<2.5	19,800	ND<2.3	850
Total BTEX	**NS**	220	305.4	153,030	122,753	27,789	ND<5.5	ND<6.0	ND<5.4	ND<5.4	ND<5.5	ND<5.6	ND<5.9	ND<5.5	ND<5.9	13,195	98.1	175,200	ND<8.0	1,235	ND<6.4	31,100	ND<5.6	1,594
MTBE	**930**	-	-	-	-	-	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	4.4	ND<1.2	ND<1.1	ND<1.2	ND<51	3.6	ND<1,000	ND<2.0	ND<100	ND<1.3	ND<340	ND<1.1	ND<160
n-Butylbenzene	**12,000**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	3,190	7.0	17,900	ND<2.0	5,200	ND<6.3	6,730	ND<5.6	2,890
sec-Butylbenzene	**11,000**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	1,480	2.2	4,450	ND<2.0	2,360	ND<6.3	2,920	ND<5.6	1,350
tert-Butylbenzene	**5,900**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	ND<250	ND<2.0	ND<1,000	ND<2.0	ND<100	ND<6.3	ND<1,700	ND<5.6	ND<820
Isopropylbenzene	**2,300**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	3,870	6.7	12,600	ND<2.0	4,170	ND<6.3	8,470	ND<5.6	2,850
p-Isopropylbenzene	**10,000**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	2,990	1.9 J	3,850	ND<2.0	-	ND<6.3	1,480 J	ND<5.6	516 J
Naphthalene	**12,000**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	3,480	25.7	33,700	ND<2.0	1,760	ND<6.3	10,800	ND<5.6	1,480
n-Propylbenzene	**3,900**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	8,380	15.3	40,200	ND<2.0	15,600	ND<6.3	25,100	ND<5.6	9,960
1,2,4-Trimethylbenzene	**3,600**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	5,030	34.4	57,000	1.1 J	7,650	ND<6.3	13,500	ND<5.6	ND<820
1,3,5-Trimethylbenzene	**8,400**	-	-	-	-	-	ND<5.5	ND<6.1	ND<5.3	ND<5.4	ND<5.4	ND<5.7	ND<5.8	ND<5.4	ND<5.8	6,680	14.1	33,900	ND<2.0	2,080	ND<6.3	8,830	ND<5.6	276 J
Total STARS LISTED VOCs (µg/kg)*	**NS**	220	305	153,030	122,753	27,789	ND<55	ND<60.9	ND<53.1	ND<54	ND<54	ND<56.9	ND<58.1	ND<54.1	ND<58.1	48,295	205.4	378,800	1.1	40,055	ND<21.7	108,930	ND<56.0	20,916

Notes:

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VOCs = Volatile Organic Compounds
µg/kg = Micrograms/kilogram
\- = No Data
ND = Not detected
NS = No Standard
= One or more compounds are above the CP-51 SCG

Table 2

HISTORICAL SOIL ANALYTICAL DATA

Former Mobil Station # 17-EMW
304 Columbia Street
Brooklyn, New York

Compound	CP-51 SCG	Sample ID																			
		SB-8 (8-10')	SB-10 (10-15')	SB-10 (15-19')	SB-11 (5-10')	SB-11 (10-15')	SB-11 (15-20')	SB-11 (20-25')	SB-12 (10-15')	SB-12 (15-20')	SB-13 (10-15')	SB-14 (5-10')	SB-14 (10-15')	SB-14 (20-25')	SB-1 (5-10')	SB-1 (10-15')	SB-2 (4-9')	SB-2 (9-14')	SB-4 (5-10')	SB-7 (5-9')	SB-7 (9-13')
Date		**9/27/2006**	**2/19/2008**												**7/30/2002**		**7/24/2002**			**7/22/2002**	
Laboratory Analytical Method		**EPA Method 8260B STARS List**																			
Benzene	**60**	952	ND<3.6	ND<1.4	ND<4.7	188	2.9	ND<1.4	164	5.4	30.4	4.8	513	2.1	ND<1.3	ND<1.3	ND<1.4	187	ND<1.1	ND<1.5	ND<1.4
Toluene	**700**	319	ND<3.6	ND<1.4	2.5 J	91.5	3.7	ND<1.4	340	ND<1.5	14.4	2.4	132	ND<1.2	4.0	1.5	ND<1.4	ND<150	5.2	ND<1.5	ND<1.4
Ethylbenzene	**1000**	1,450	7.9	ND<1.4	5.7	6,170	186	8.9	11,400	1.0 J	19.2	10.5	2,290	0.72 J	2.7	ND<1.3	ND<1.4	2530	4.9	ND<1.5	ND<1.4
Total Xylenes	**260**	18,300	57.2	ND<2.8	17.0	3,890	65.9	3.0	23,200	2.1 J	427	38.0	9,220	ND<2.8	10.2	1.7 J	ND<2.8	5640	30.2	ND<3.0	12.2
Total BTEX	**NS**	21,000	65.1	ND<7.0	25.2	10,340	258.5	11.9	35,100	8.5	491	55.7	12,160	2.82	16.9	4.7	ND<7.0	8,357	41.9	3.6	12.2
MTBE	**930**	ND<68.0	ND<3.6	ND<1.4	ND<4.7	ND<65.0	7.9	11.4	ND<62.0	ND<1.5	13.1	ND<1.3	ND<63.0	ND<1.2	ND<1.3	1.5	ND<1.4	ND<150	1.6	3.6	ND<1.4
n-Butylbenzene	**12,000**	3,420	ND<18.0	ND<6.9	51.3	5,920	22.8	ND<6.9	2,830	ND<7.7	ND<35.0	37.9	4,740	ND<6.0	-	-	-	-	-	-	-
sec-Butylbenzene	**11,000**	1,210	52.0	ND<6.9	81.9	1,560	14.3	ND<6.9	712	ND<7.7	135	68.8	1,280	ND<6.0	-	-	-	-	-	-	-
tert-Butylbenzene	**5,900**	ND<340	ND<18.0	ND<6.9	ND<23.0	ND<320	ND<14.0	ND<6.9	ND<310	ND<7.7	ND<35.0	ND<6.4	ND<320	ND<6.0	-	-	-	-	-	-	-
Isopropylbenzene	**2,300**	3,160	87.7	ND<6.9	164	5,880	79.2	3.1 J	3,260	ND<7.7	313	184	4,380	ND<6.0	-	-	-	-	-	-	-
p-Isopropylbenzene	**10,000**	1,600	60.5	ND<6.9	19.2 J	1,780	26.9	ND<6.9	1,180	ND<7.7	88.5	ND<6.4	287 J	ND<6.0	-	-	-	-	-	-	-
Naphthalene	**12,000**	8,150	45.7	ND<6.9	ND<23.0	3,300	ND<14.0	ND<6.9	7,690	ND<7.7	65.8	ND<6.4	5,750	ND<6.0	-	-	-	-	-	-	-
n-Propylbenzene	**3,900**	7,030	140	ND<6.9	284	11,300	102	5.0 J	5,600	ND<7.7	734	436	12,100	1.5 J	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	**3,600**	53,700	522	1.5 J	15.4 J	1,130	4.7 J	ND<6.9	31,100	ND<7.7	1,660	21.1	11,000	2.4 J	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	**8,400**	18,500	184	ND<6.9	ND<23.0	4,480	ND<14.0	ND<6.9	9,750	ND<7.7	1,120	ND<6.4	3,940	1.9 J	-	-	-	-	-	-	-
Total STARS LISTED VOCs (µg/kg)*	**NS**	117,770	1,157	1.5	641	45,690	508.4	20.0	97,222	8.5	4,607.3	803.5	55,637	8.62	16.9	4.7	ND<7.0	8,357	41.9	3.6	12.2

Notes:

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µg/kg = Micrograms/kilogram
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ND = Not detected
NS = No Standard
= One or more compounds are above the CP-51 SCG

Table 2

HISTORICAL SOIL ANALYTICAL DATA

Former Mobil Station # 17-EMW
304 Columbia Street
Brooklyn, New York

Compound	CP-51 SCG	Sample ID																			
		SB-8 (4-8')	SB-8 (8-12')	SB-11 (6')	SB-11 (9')	SB-12 (5-10')	SB-12 (10-15')	SB-13 (5-10')	SB-14 (5-8')	SB-14 (8-12')	SB-15 (4-8')	SB-15 (8-12')	SB-16 (4-8')	SB-16 (8-12')	SB-17 (5-7')	SB-17 (10-12')	SB-18 (5-7')	SB-18 (10-15')	SB-19 (4-8')	SB-19 (8-12')	SB-20 (4-8')	SB-20 (8-12')
Date		**7/23/2002**		**7/26/2002**					**7/24/2002**		**7/23/2002**		**7/26/2002**					**7/24/2002**		**7/23/2002**		
Laboratory Analytical Method		**EPA Method 8260B STARS List**																				
Benzene	**60**	ND<1.2	ND<140	ND<1.4	17.6	ND<280	2,300	ND<11	403	300	ND<1.2	ND<8.6	ND<140	198	ND<1.4	525	715	4,290	ND<1.4	ND<6.3	ND<1.4	ND<8.3
Toluene	**700**	ND<1.2	ND<140	14.0	ND<1.6	443	10,900	227	1,310	2,440	2.2	22.5	ND<140	216	ND<1.4	ND<340	ND<150	ND<150	ND<1.4	ND<6.3	ND<1.4	ND<8.3
Ethylbenzene	**1000**	ND<1.2	451	9.7	68	23,100	59,400	2,430	27,200	20,900	ND<1.2	ND<8.6	ND<140	4,720	ND<1.4	6180	833	86300 b	ND<1.4	ND<6.3	ND<1.4	95.4
Total Xylenes	**260**	ND<2.4	821	64.0	200	101,000	436,000	9,620	50,300	56,500	9.4	436	ND<270	17,900	8.8	26100	16,890	27,500	ND<2.7	ND<13	ND<2.7	424
Total BTEX	**NS**	ND<6.0	1,272	89.0	327.3	124,543	508,600	11,928	79,213	80,140	11.6	459	10.2	23,034	8.8	32,805	3,238	88,188	ND<6.9	ND<31.9	ND<6.9	519
MTBE	**930**	ND<1.2	ND<140	1.3 J	41.4	ND<280	ND<290	11.4	ND<150	ND<130	ND<1.2	ND<8.6	ND<140	ND<140	ND<1.4	ND<340	ND<150	ND<150	ND<1.4	ND<6.30	ND<1.4	ND<8.3
n-Butylbenzene	**12,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	**11,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	**5,900**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	**2,300**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p-Isopropylbenzene	**10,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	**12,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	**3,900**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	**3,600**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	**8,400**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total STARS LISTED VOCs (µg/kg)*	**NS**	ND<6.0	1,272	89.0	327.3	124,543	508,600	11,928.4	79,213	80,140	11.6	458.5	89.0	23,034	8.8	32,805	3,238	88,188	ND<6.9	ND<31.9	ND<6.9	519

Notes:

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* = Total VOC Concentration excluding MTBE
VOCs = Volatile Organic Compounds
µg/kg = Micrograms/kilogram
\- = No Data
ND = Not detected
NS = No Standard
= One or more compounds are above the CP-51 SCG

Table 2

HISTORICAL SOIL ANALYTICAL DATA

Former Mobil Station # 17-EMW
304 Columbia Street
Brooklyn, New York

Compound	CP-51 SCG	Sample ID																						
		SB101 (10-15')	SB101 (15-20')	SB102 (8-10')	SB102 (10-15')	SB103 (8-10')	SB103 (15-20')	SB103 (25-30')	SB104 (8-10')	SB104 (24-25')	SB105 (8-10')	SB105 (24-25')	SB106 (10-15')	SB106 (20-25')	SB107 (10-15')	SB107 (15-20')	WO-E (7')	WO-W (7')	WO-S (7')	WO-N (7')	WO-Bot (7')	TF-Bot C (11.5')	TF-Bot A,B (11.5')	TF-Bot D (11.5')	TF-SW Wall (11.5')
Date		7/11/2012															4/25/1997								
Laboratory Analytical Method		EPA Method 8260B STARS List																							
Benzene	**60**	4.34	ND<1.78	ND<1.79	ND<1.79	ND<95.8	ND<183	ND<1.73	4,490	ND<1.72	204	ND<1.89	ND<92.8	ND<1.76	113	4.91	-	-	-	-	-	801	330	162	ND
Toluene	**700**	ND<1.91	ND<1.78	ND<1.79	ND<1.79	298	ND<183	ND<1.73	3,070	ND<1.72	ND<196	ND<1.89	ND<92.8	ND<1.76	266	ND<1.88	-	-	-	-	-	3,350	384	1,620	ND
Ethylbenzene	**1000**	39.6	3.34	ND<1.79	4.56	14,900	2,570	ND<1.73	140	3.43	3,640	ND<1.89	14,300	3.67	39,400	84.8	ND	3.1	ND	ND	ND	51,800	-	736	ND
Total Xylenes	**260**	133	ND<4.45	ND<4.46	13.3	12,500	4,610	ND<4.33	51,200	12.2	2,770	ND<4.72	29,200	5.92	30,100	20.2	5.5	21.9	2.3	602	ND	209,300	494	2,779	ND
Total BTEX	**NS**	176.94	3.34	ND<9.83	17.86	27,698	7,180	ND<9.52	58,900	15.63	6,614	ND<10.39	43,500	9.59	69,879	109.91	5.5	25	2.3	602	ND	265,251	1,208	5,297	ND
MTBE	**930**	ND<1.91	ND<1.78	ND<1.79	ND<1.79	ND<95.8	ND<183	ND<1.73	ND<83.9	ND<1.72	ND<196	ND<1.89	ND<92.8	2.67	ND<91.6	4.27	ND	ND	90.0	ND	284	3,300	3,640	124	9.8
n-Butylbenzene	**12,000**	64.1	ND<1.78	ND<1.79	ND<1.79	5,010	626	2.12	11,000	ND<1.72	4,980	ND<1.89	4,150	2.01	8,140	11.2	8.9	10.6	3	641	ND	15,500	400	ND	ND
sec-Butylbenzene	**11,000**	25	ND<1.78	ND<1.79	ND<1.79	1,570	ND<183	ND<1.73	2,120	ND<1.72	1,830	ND<1.89	620	ND<1.76	1,470	3.45	2.7	4.2	ND	196	ND	2,660	174	40	ND
tert-Butylbenzene	**5,900**	3.1	ND<1.78	ND<1.79	ND<1.79	1,800	ND<183	ND<1.73	ND<83.9	ND<1.72	ND<196	ND<1.89	ND<92.8	ND<1.76	ND<91.6	ND<1.88	-	-	-	-	-	-	-	-	-
Isopropylbenzene	**2,300**	67.6	ND<1.78	ND<1.79	ND<1.79	5,590	552	ND<1.73	9,110	ND<1.72	4,250	ND<1.89	2,980	ND<1.76	7,950	17.9	ND	ND	ND	210	ND	9,870	174	65	ND
p-Isopropylbenzene	**10,000**	39.4	ND<1.78	ND<1.79	ND<1.79	3,080	252	ND<1.73	3,770	ND<1.72	1,220	ND<1.89	1,370	ND<1.76	3,220	6.07	4.4	8.2	ND	224	ND	4,710	127	91	ND
Naphthalene	**12,000**	43.7	ND<4.45	ND<4.46	ND<4.47	8,660	1,070	ND<4.33	19,300	ND<4.31	2,580	ND<4.72	6,360	ND<4.39	13,600	20.2	ND	ND	2.7	1440	ND	20,900	280	217	ND
n-Propylbenzene	**3,900**	123	ND<1.78	ND<1.79	ND<1.79	9,000	870	ND<1.73	16,200	2.39	12,300	ND<1.89	5,330	1.88	11,000	23.8	2.4	6.2	1.3	ND	ND	18,500	550	304	ND
1,2,4-Trimethylbenzene	**3,600**	68.4	ND<1.78	ND<1.79	5.58	12,600	4,800	3.98	75,800	7.2	1,090	ND<1.89	24,800	7.1	19,100	ND<1.88	6.9	24.6	3.8	196	ND	144,000	925	1,390	ND
1,3,5-Trimethylbenzene	**8,400**	31.3	ND<1.78	ND<1.79	1.95	2,890	1,500	ND<1.73	32,700	2.58	725	ND<1.89	11,600	4.21	21,600	9.49	1.5	13.4	3.8	7,470	ND	46,200	148	846	ND
Total STARS LISTED VOCs (µg/kg)*	**NS**	642.54	3.34	ND<28.61	25.39	77,898	16,850	6.1	228,900	20.6	35,589	ND<30.23	100,710	24.79	155,959	202.02	32.3	92.2	17	10,979	284	527,591	3,986	8,250	ND

Notes:

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APPENDIX A

Site History

SITE HISTORY

Former Mobil Station #17-EMW
304 Columbia Street
Brooklyn, New York

The site is currently an automobile repair facility. There are currently three (3) closed New York State Department of Environmental Conservation (NYSDEC) Spills associated with the site:

- NYSDEC Spill #93-12498 was opened on January 24, 1994 in response to a tank test failure. The spill was closed on May 14, 2003.

- NYSDEC Spill #05-02047 was opened on May 19, 2005 in response to a used oil spill. The spill was closed on April 26, 2010.

- NYSDEC Spill #06-10200 was opened on December 7, 2006 in response to an unknown spill event. The spill was closed on April 26, 2010.

There is one (1) active NYSDEC Spill associated with the site:

- NYSDEC Spill #89-04339 was opened on August 1, 1989 during UST removal activities. The spill remains open.

Information pertaining to the active spill, along with historical investigation and remedial activities conducted at the site, has been summarized below.

- July 1989 – A tank removal and replacement event was conducted on behalf of Mobil Oil Corporation. Fifteen (15) underground storage tanks (USTs) were removed from the site and four new USTs were installed. Petroleum-impacted soil and liquid phase hydrocarbons (LPH) were discovered during tank removal activities. Approximately 650 tons of petroleum-impacted soil was excavated and disposed at a state-certified landfill.

- August 1, 1989 – Spill #89-04339 was assigned to the site by the NYSDEC.

- July 25, 1990 – A site assessment was conducted at the site. Five (5) monitoring wells were installed (W-1 through W-5). LPH was present in wells W-2 and W-3.

- December 1996 – A subsurface investigation was conducted prior to site divestment, and included the installation of three (3) direct-push soil borings.

- April 22 through 25, 1997 – Site divestment activities were conducted and included the removal of one (1) 1,000-gallon waste oil UST, one (1) 4,000-gallon abandoned single-walled steel gasoline tank, two (2) 4,000-gallon double-walled gasoline fiberglass tanks, one (1) 4,000-gallon abandoned double-walled fiberglass gasoline tank, one (1) pump island, all associated piping, and three (3) hydraulic lifts. Approximately 235.06 tons of petroleum-contaminated soil was excavated and disposed at a state-certified landfill. Seven (7) on-site monitoring wells were destroyed during tank closure activities and site renovations.

- March 25 and April 6, 1998 – A subsurface investigation was conducted which included the installation of four (4) groundwater monitoring wells (MW-1 through MW-3 and MW-5).

- October 11, 1999 – An Environmental Site Assessment was conducted and included the installation of five (5) soil borings (B-1 through B-5) to varying depths between 8 and 34 feet below ground surface (bgs).

- May 10 and 15, 2002 – A *Site Investigation Work Plan* was submitted for proposed delineation and included the installation of ten (10) on-site soil borings and four (4) off-site soil borings (along the north side of Hamilton Avenue) using a direct-push drill rig to 16 feet bgs with groundwater sampling.

- June 24, 2002 – The NYSDEC approved the *Site Investigation Work Plan* and proposed schedules submitted on May 10 and 15, 2002. The NYSDEC requested four (4) additional soil borings along Columbia Street and two additional soil borings along Woodhull Street. The NYSDEC also requested a Sensitive Receptor Survey (SRS) and UST investigation of the former tank field to evaluate the existence and/or proper abandonment of 1,000-gallon USTs from 1997.

- July 22 through 26, 2002 – A subsurface investigation was conducted and included the installation of six (6) on-site soil borings (SB-1, SB-2, SB-4, SB-7, SB-8, and SB-9) and ten (10) off-site soil borings (SB-11 through SB-20).

- December 2, 2002 – A *Subsurface Investigation Report (SIR)* was submitted to the NYSDEC for fieldwork completed in July 2002. Recommendations were made for additional off-site borings/monitoring wells along Hamilton Avenue.

- February 10, 2003 – NYSDEC and ExxonMobil visited the site to discuss proposed monitoring well locations.

- February 21, 2003 – A revised proposed monitoring well/soil boring location map was submitted to the NYSDEC via email in accordance with site discussions on February 10, 2003.

- March 20, 2003 – A letter was received from the NYSDEC to ExxonMobil approving the on- and off-site boring and monitoring well locations submitted on the February 21, 2003 revised map.

- May 12, 2003 – A subsurface investigation was conducted which included the installation of five (5) monitoring wells (MW-6A, MW-7A, MW-8A, MW-9 and MW-10).

- September 16, 2003 – A *Corrective Action Plan (CAP)* was submitted which included a proposed pilot test and future remedial plan.

- September 25, 2003 – The NYSDEC requested the CAP be expanded to include details of the pilot test and the possible installation of additional wells.

- November 18, 2003 – Letter from the NYSDEC approving the amended CAP.

- February 9, 2004 – A subsurface investigation was conducted which included the installation of three (3) soil borings which were completed as monitoring wells (MW-11 through MW-13).

- February 27, 2004 – A high vacuum dual-phase extraction (HVDPE)/enhanced fluid recovery (EFR) event was conducted. During the event, preliminary data was collected to conduct an HVDPE/EFR pilot test.

- November 4, 2004 – A supplemental subsurface investigation was conducted in which one (1) soil boring was installed and completed as a monitoring well (MW-14).

- January 2005 through March 2006 – Enhanced fluid recovery events (EFR) were conducted on a monthly basis. A passive bailer was installed in monitoring well (MW-14) on September 23, 2005. Monitoring wells MW-6, MW-7, and MW-8 were destroyed during construction activities and MW-6A was destroyed in March 2005 during construction for a billboard sign.

- June 2008 – Subsurface investigation was conducted to further evaluate current soil and groundwater hydrocarbon concentrations for additional on- and off-site delineation.

- June 15 through 16, 2009 – Chemical oxidation injections were performed where approximately 1,800 gallons of sodium persulfate and 2,700 gallons of ISOTEC's patented catalyst were injected into twelve injection points located on site (IP-1 through IP-12).

- June 22 and 23, 2010 - Approximately 1,680 gallons of a diluted EnviroClean surfactant solution was injected at MW-1, MW-2, MW-3, MW-13, and MW-16 in order to address LPH observed at the site prior to continuation of chemical injections. On June 24, 25, and 28, 2010, approximately 710 gallons of fluids were recovered during EFR events from the five injection wells.

- July 26 through 28 and August 2 through 4, 2010 – Surfactant injection and recovery events were performed. A diluted EnviroClean surfactant solution was injected at MW-1 through MW-3, MW-13, and MW-16. Approximately 836 gallons of fluids were recovered during EFR events from the five injection wells.

- December 6 through 9, 2010 –An In-Situ Chemical Oxidation (ISCO) pilot test was conducted targeting off-site areas within the eastern sidewalk along Hamilton Avenue and onsite areas within the former gasoline UST area. Twelve injection points were installed. A total of 7,200 gallons of sodium persulfate (at approximately 10.0% concentration) activated with chelated iron catalyst (ASP), including 2,400 gallons of catalyst and 4,800 gallons of oxidizer, were injected.

- August 15 and August 18, 2011 – An ISCO event was conducted targeting off-site areas within the eastern sidewalk along Hamilton Avenue and on-site areas within the former gasoline underground storage tank (UST) area. A total of 7,200 gallons of Activated

Sodium Persulfate (ASP), including 2,400 gallons of catalyst and 4,800 gallons of oxidizer, were injected.

- July 9 through 11, 2012 – A Limited Off-Site Investigation was conducted within the eastern sidewalk along Hamilton Avenue to delineate soil impacts. Vertical Delineation: Soil analytical data results reported concentrations of STARS list compounds above CP-51 soil cleanup levels ranging from 8 to 20 feet below ground surface. Groundwater was encountered between 7 and 10 feet below ground surface within the recently advanced boring locations. This is evidence of a saturated smear zone that exists below the eastern sidewalk of Hamilton Avenue. Horizontal Delineation: Soil analytical data results reported concentrations of STARS list compounds above CP-51 soil cleanup levels within soil borings SB103 through SB107. Soil borings could not be completed south of SB107 due to underground utility obstructions. MW-17, located north of SB103, has contained measurable LPH within the last year. Horizontal delineation of soil impacts extend from SB101 south to MW-16 where increases of BTEX and MTBE have been reported in groundwater within the last year.

- December 18, 2012 – A Site Conceptual Model (SCM) and Remedial Alternatives Analysis (RAA) Report was submitted to NYSDEC.

- July 25, 2013 – A *Surfactant Injection and Well Installation Work Plan* was submitted to the NYSDEC detailing a proposed plan to conduct on-site surfactant injection/extraction activities to reduce the presence of liquid-phase hydrocarbons (LPH) in the vicinity of the western property boundary.

- July 29, 2013 – GES received approval of the July 2013 *Surfactant Injection and Well Installation Work Plan*.

- August 2, 2013 – An Underground Injection Control (UIC) Notification letter was submitted to the U.S. Environmental Protection Agency (EPA) requesting permission to conduct remedial activities at the Site involving the injection of surfactant solution into the subsurface. A copy of the letter was forwarded to the NYSDEC.

- August 29 and September 4, 2013 – Well installation activities were conducted which included the installation of two (2) monitoring wells (MW-19 and MW-20) on the west-central portion of the Site. The wells were installed in accordance with the July 2013 *Surfactant Injection and Well Installation Work Plan*.

- October 7 through 11, 2013 – A surfactant injection and extraction event was conducted at the Site to reduce the presence of LPH along the western property boundary. On October 7, 2013, 750 gallons of surfactant solution were injected into monitoring wells MW-1, MW-2, MW-11, MW-17, MW-19 and MW-20. Between October 8 and 11 of 2013, a total of 1,022 gallons of fluids were extracted from the same monitoring wells.

- October 15, 2013 – A *Monitoring Well Installation Report* was submitted to the NYSDEC detailing the August and September 2013 well installation activities.

- November 11 through 14, 2013 – A surfactant injection and extraction event was conducted at the Site. On November 11, 2013, a total of 500 gallons of surfactant solution was injected into monitoring wells MW-1, MW-2, MW-13 and MW-16. Between November 12 and 14 of 2013, a total of 1,008 gallons of fluids were extracted from the same monitoring wells.

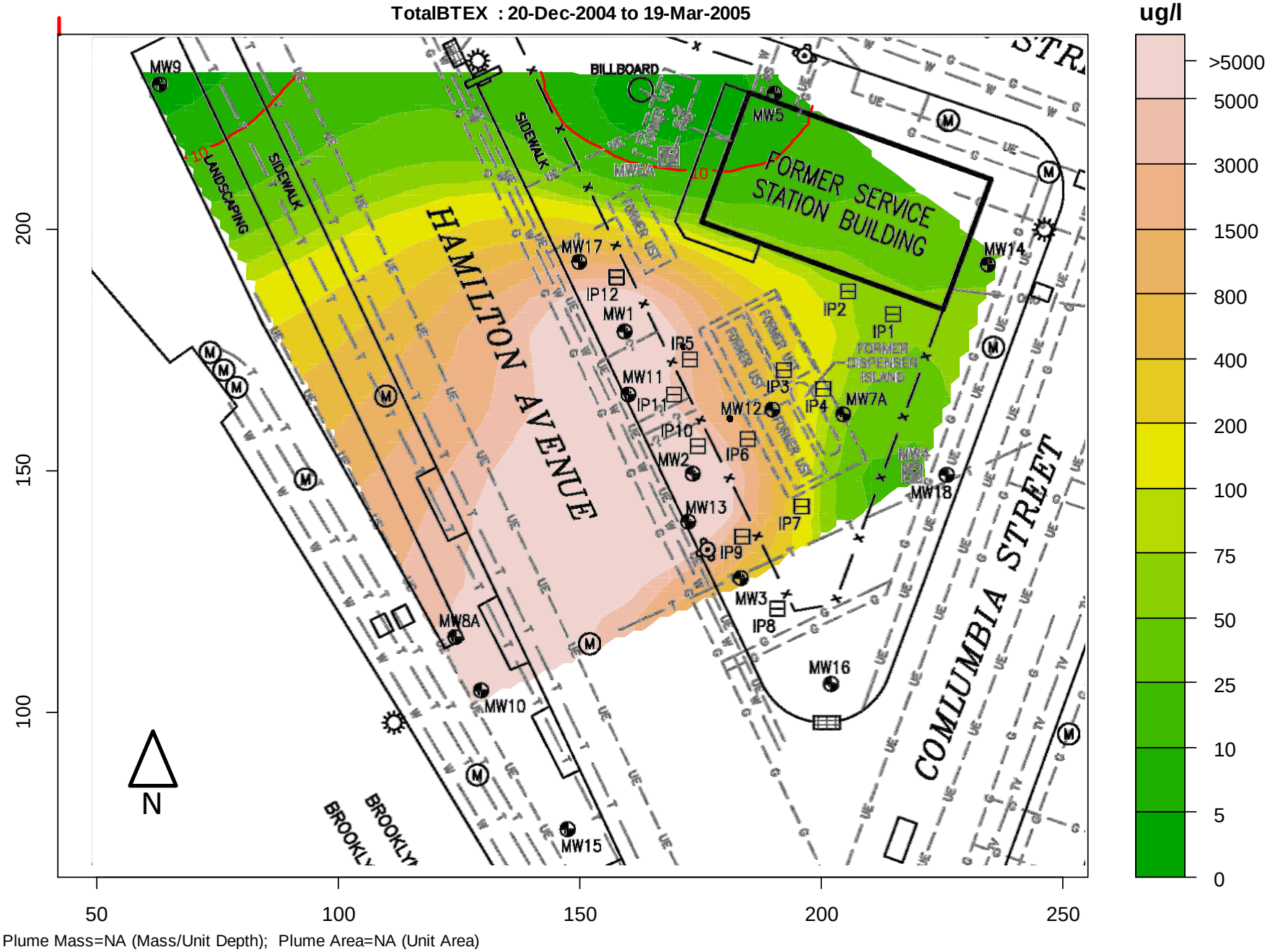
- January 21, 2014 – Conducted post-surfactant injection groundwater monitoring activities which included the gauging of nine (9) monitoring wells (MW-1 through MW-3, MW-11, MW-13, MW-16, MW-17, MW-19 and MW-20). Monitoring well MW-12 was not gauged as it was inaccessible. LPH was detected in two (2) monitoring wells (MW-1 and MW-16).

- September 8 through 12, 2014 - Conducted a Surfactant Enhanced Groundwater Extraction Event which included the injection of approximately 500 gallons of surfactant into monitoring wells MW-1, MW-2, MW-11, MW-13, MW-16 and MW-17 on September 8, 2014 and the extraction of approximately 1,059 gallons of surfactant/groundwater mixture from these wells between September 9 through 12, 2014.

- December 8 through 12, 2014 – Conducted a Surfactant Enhanced Groundwater Extraction Event which included the injection of approximately 500 gallons of surfactant into monitoring wells MW-1, MW-2, MW-11, MW-13, MW-16 and MW-17 on December 8, 2014 and the extraction of approximately 1,450 gallons of surfactant/groundwater mixture from these wells between December 9 through 12, 2014.

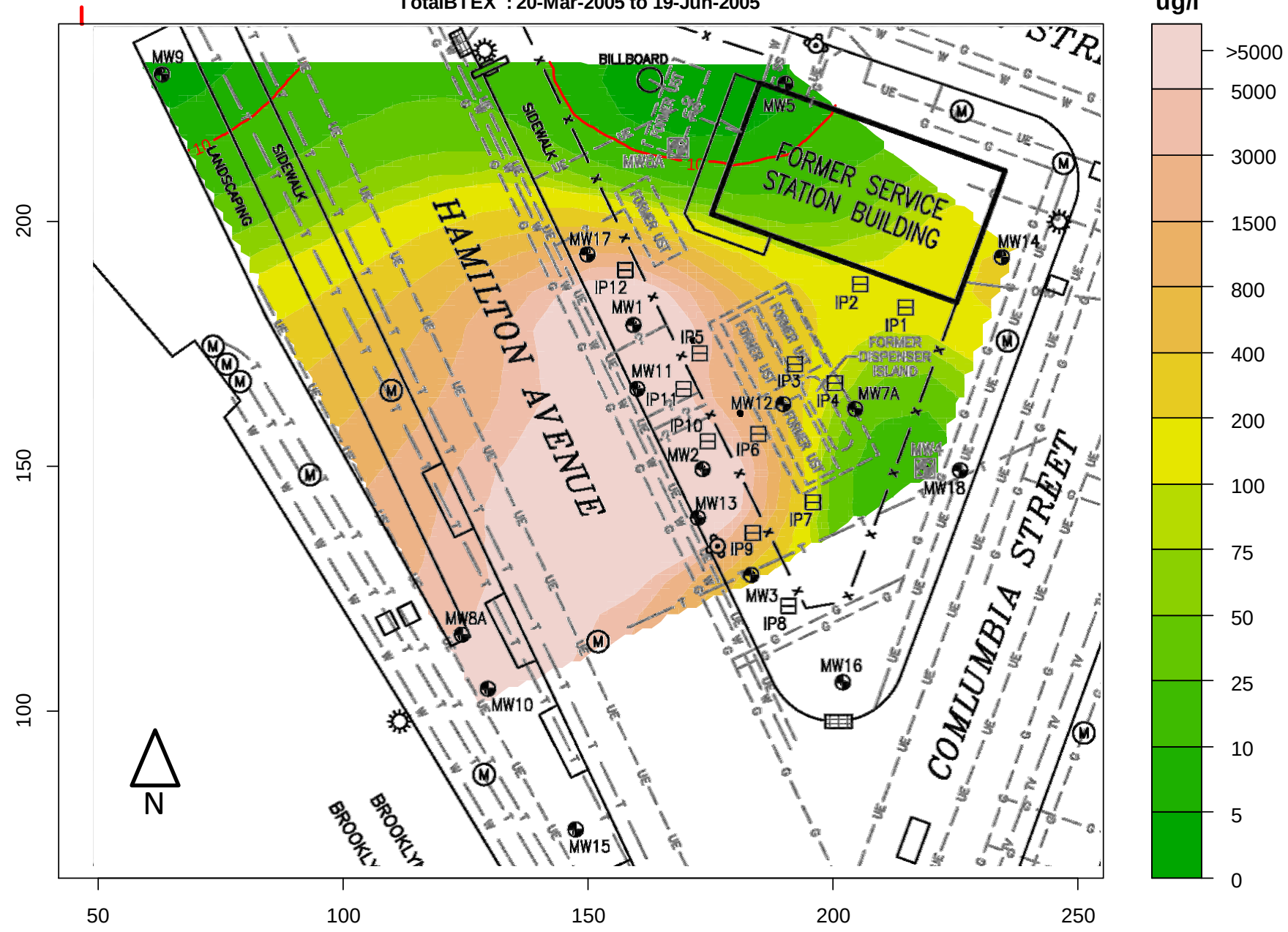
APPENDIX B

Dissolved-Phase Total BTEX Plume Maps (April 2005-September 2016)

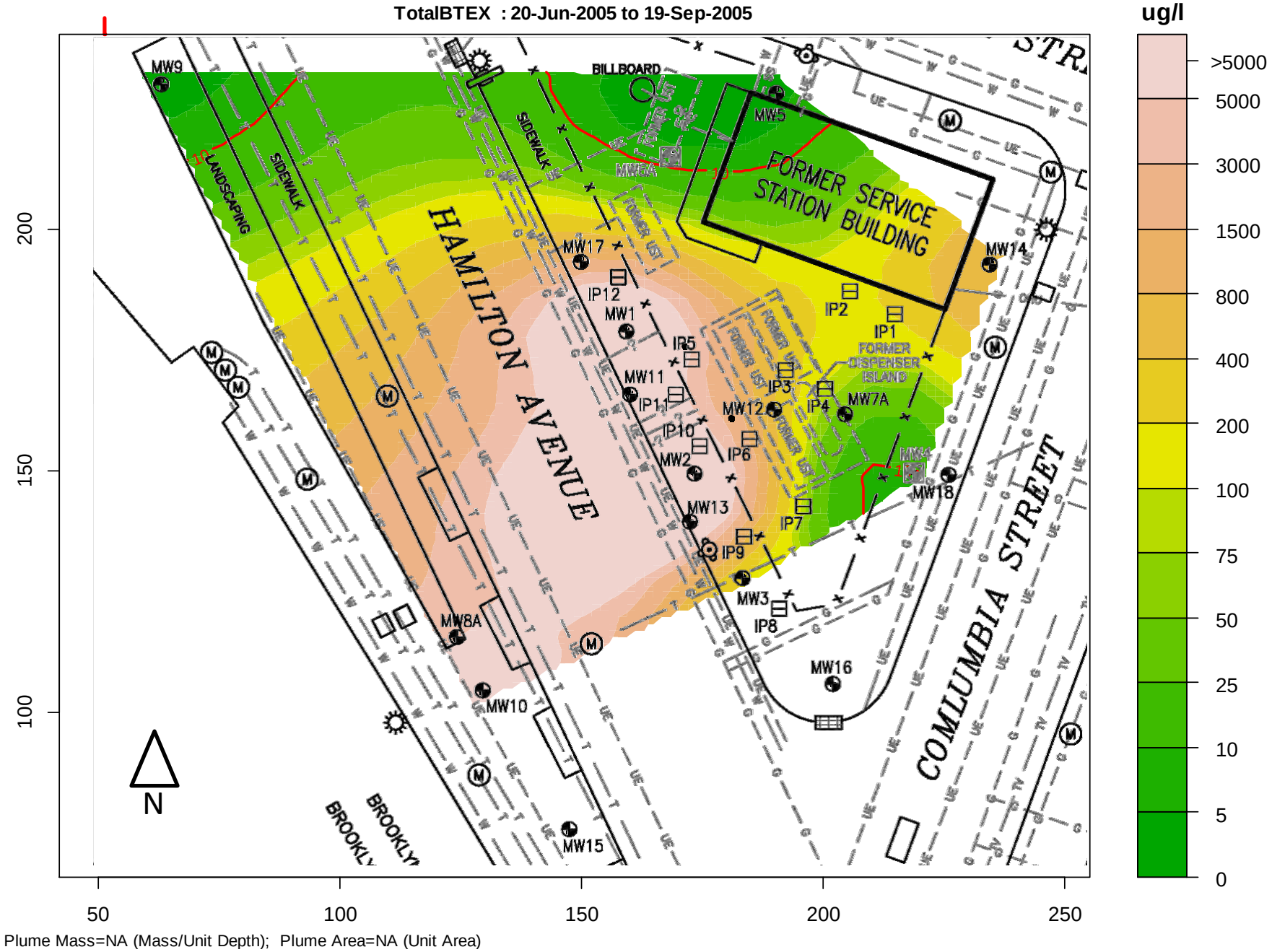


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

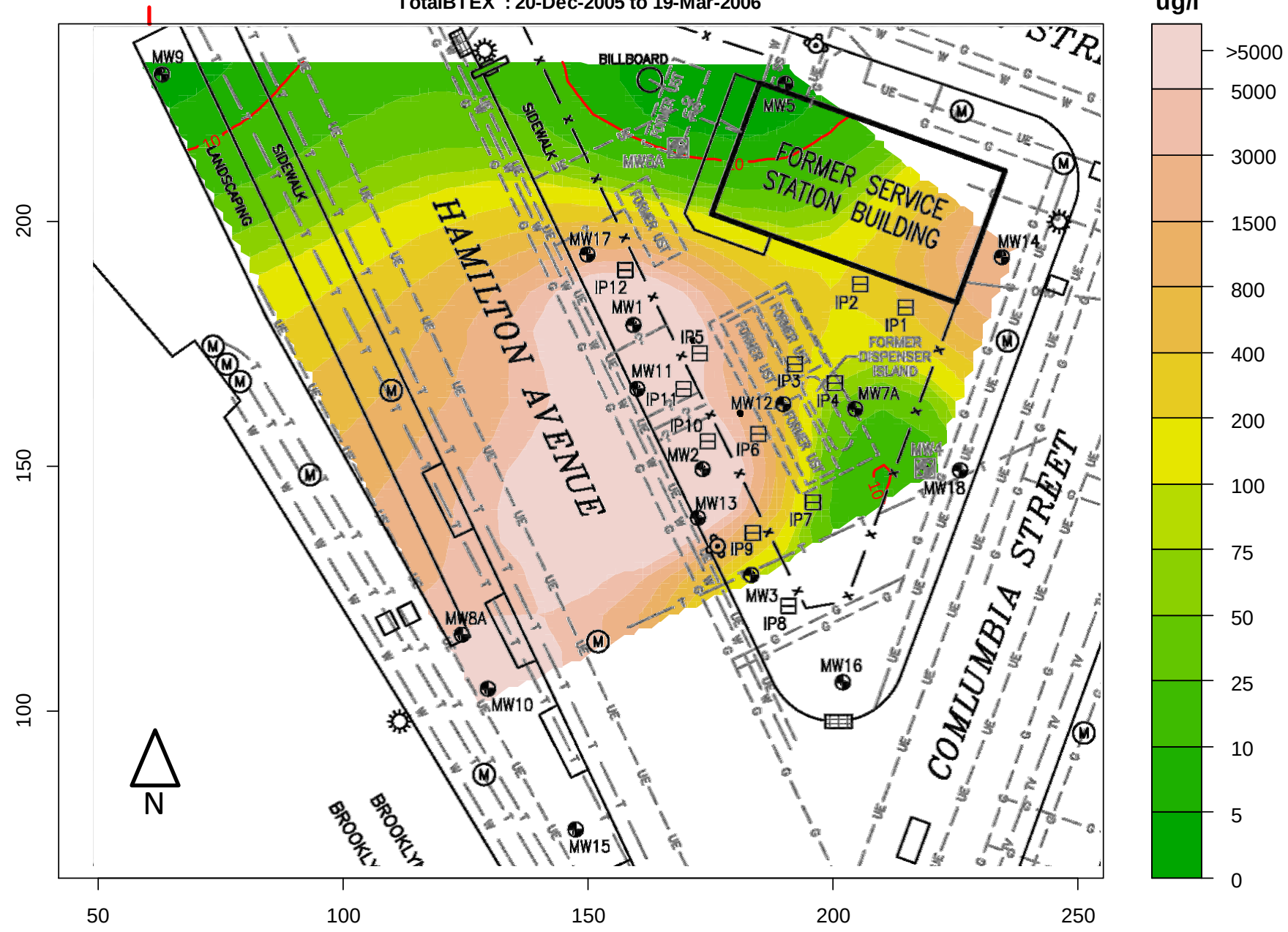
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Mar-2005 to 19-Jun-2005



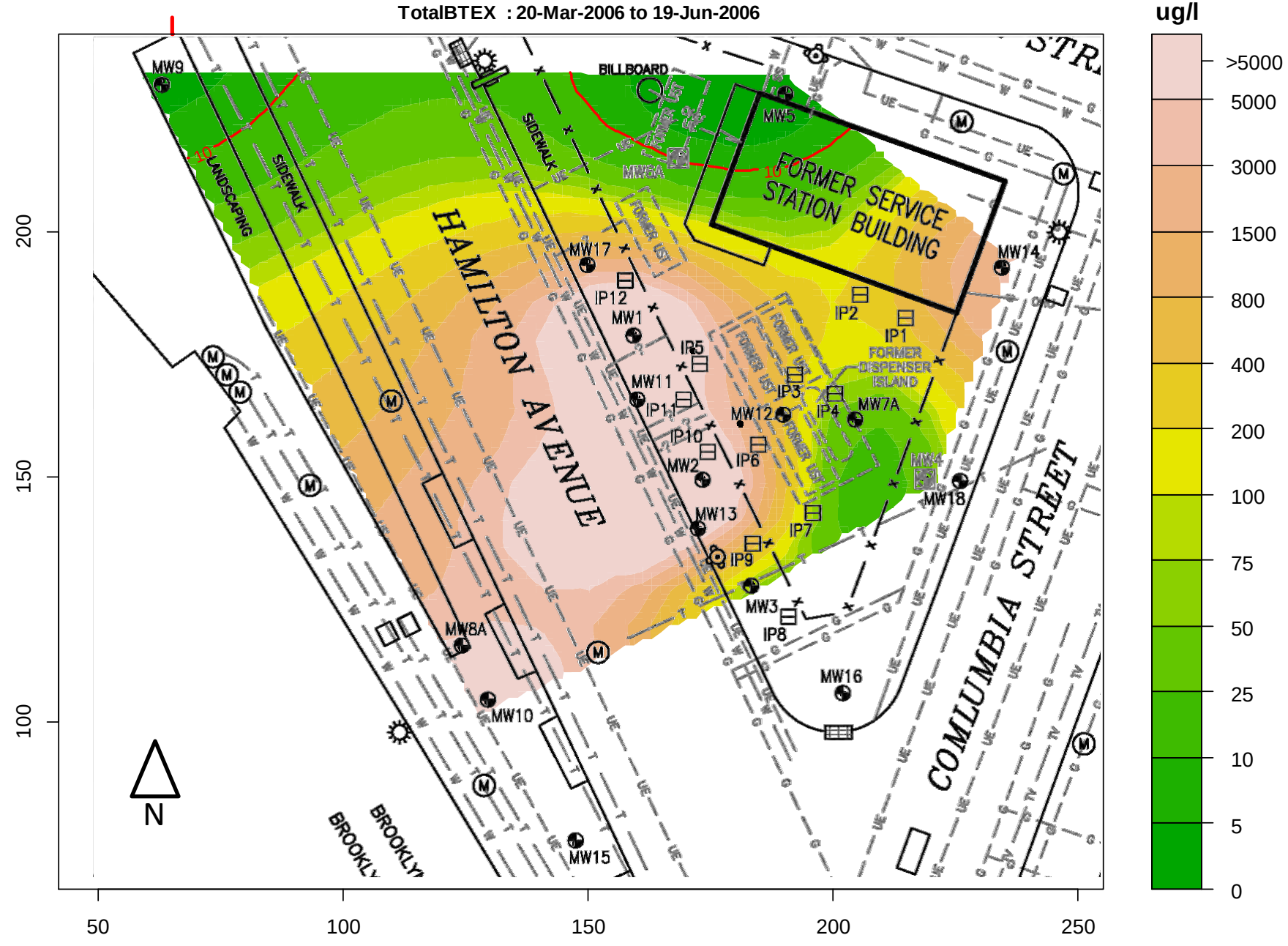
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



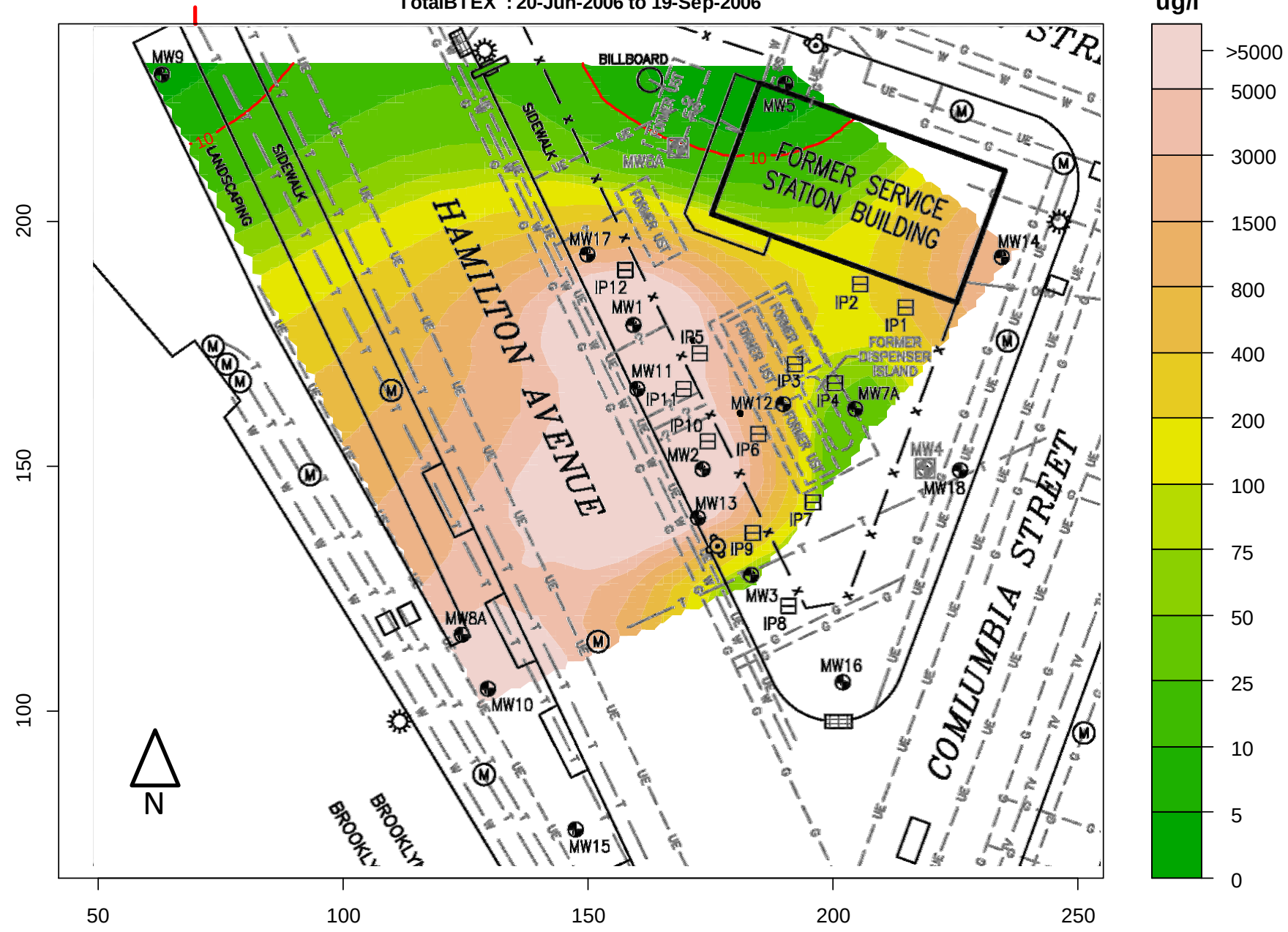
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



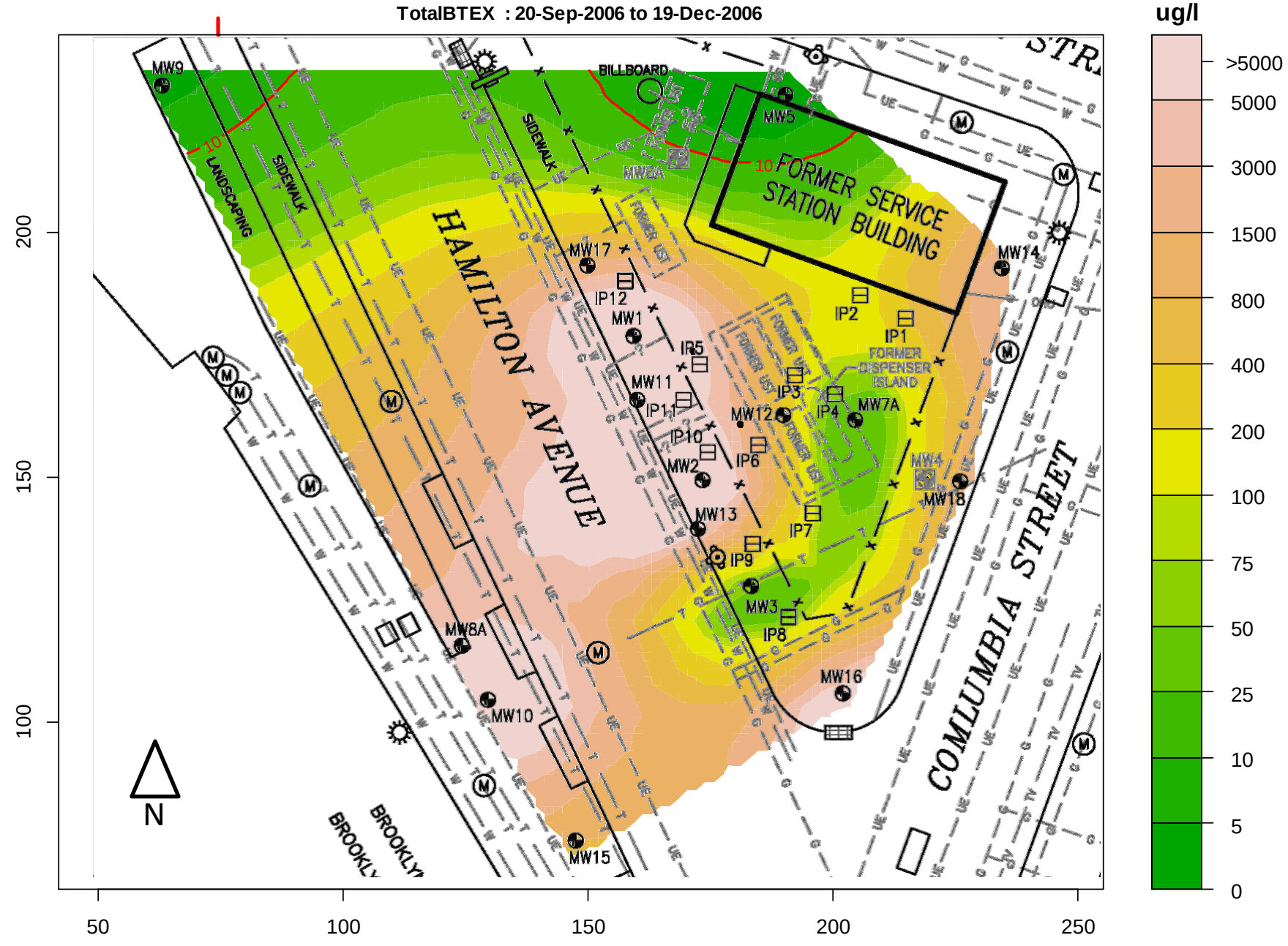
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

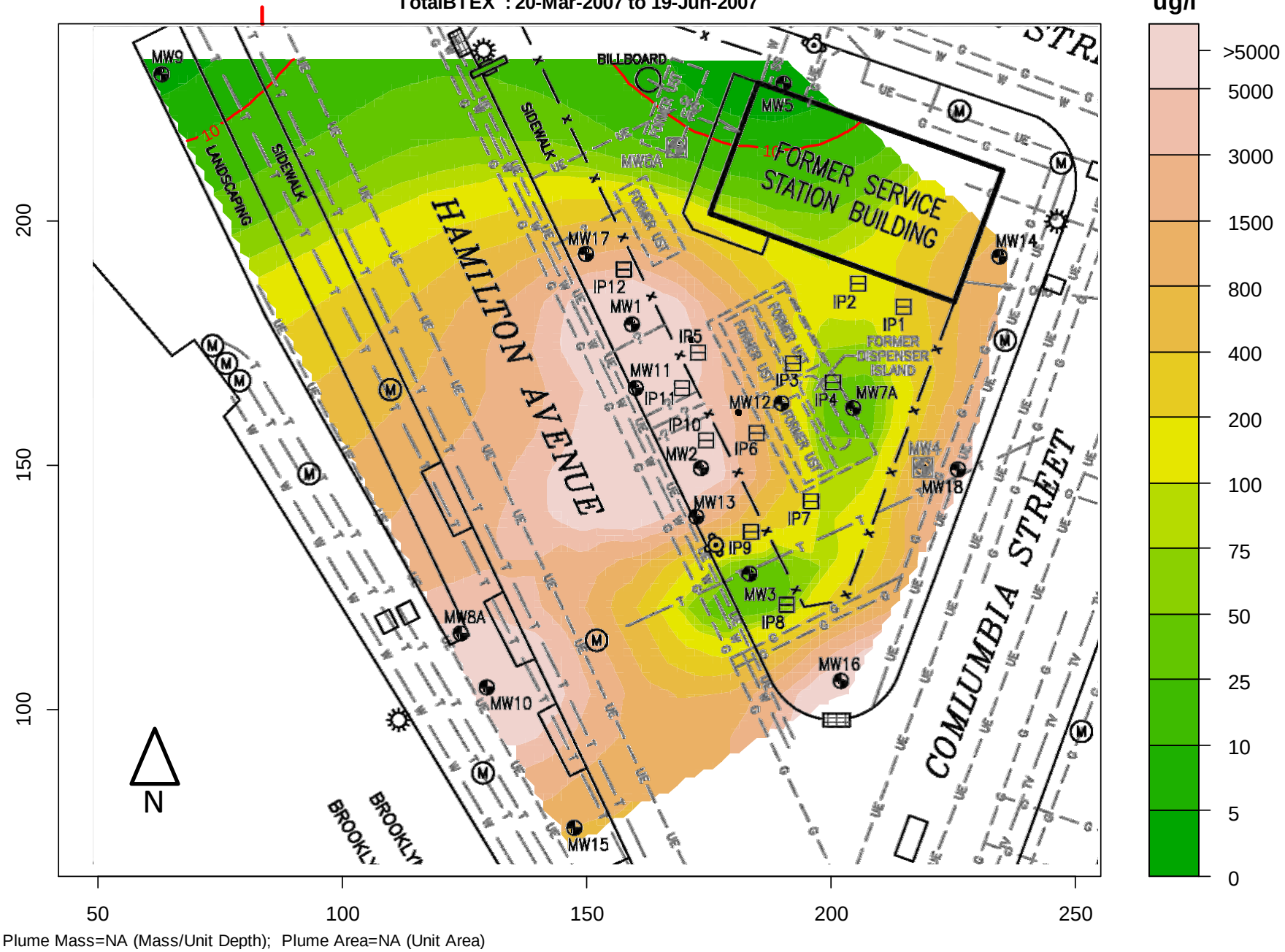


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

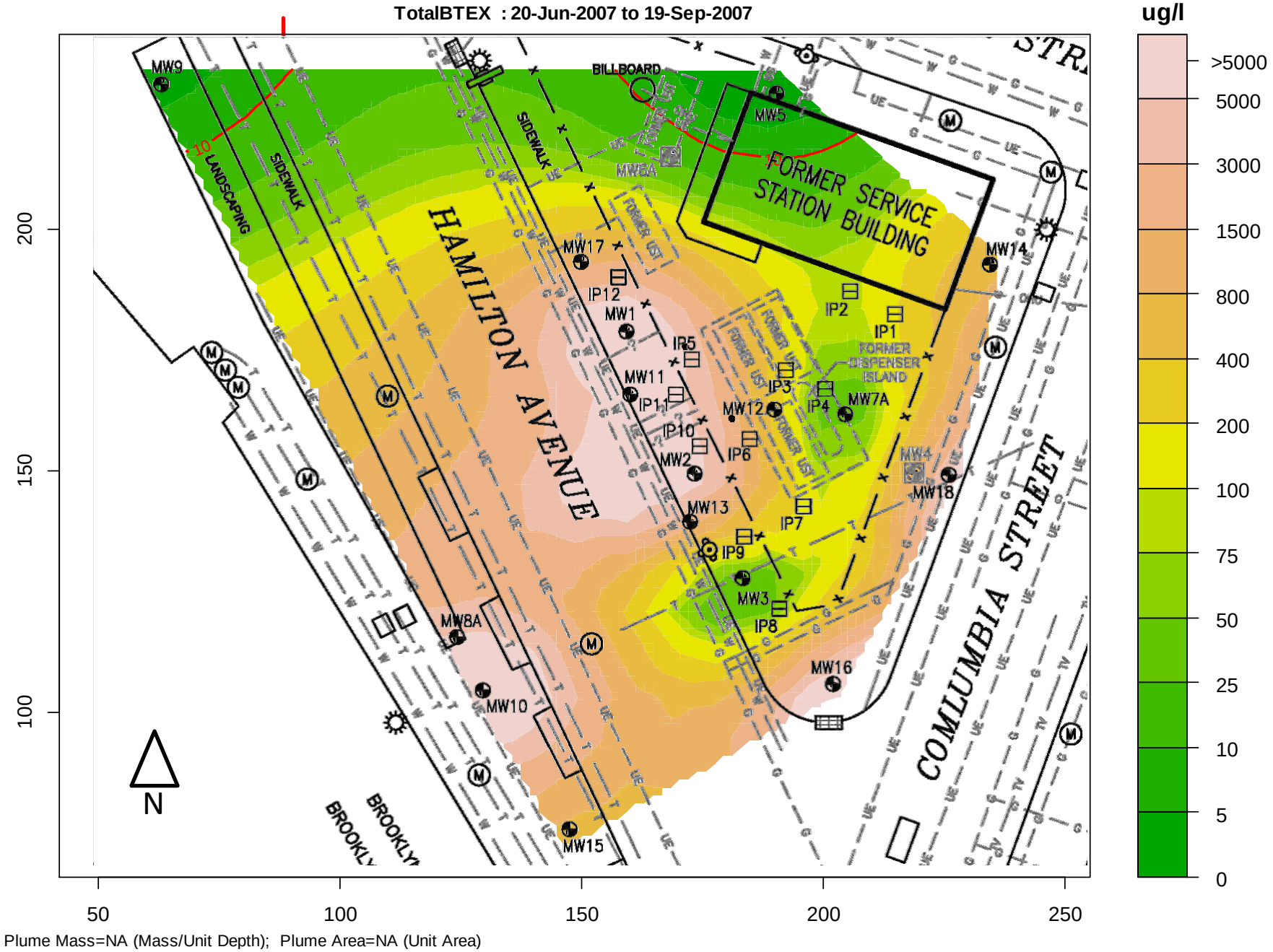


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)


Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Sep-2006 to 19-Dec-2006
ug/l
>5000
5000
3000
1500
800
400
200
100
75
50
25
10
5
0
MW9
MW5
MW8A
MW17
MW14
IP12
IP2
IP1
MW1
IP5
MW11
IP3
IP4
MW7A
IP11
MW12
IP10
IP6
MW2
MW4
MW18
MW13
IP7
IP9
MW3
IP8
MW16
MW8A
MW10
MW15
BILLBOARD
FORMER SERVICE STATION BUILDING
FORMER DISPENSER ISLAND
HAMILTON AVENUE
COMLUMBIA STREET
LANDSCAPING
SIDEWALK
SIDEWALK
10
10
N
200
150
100
50
100
150
200
250
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

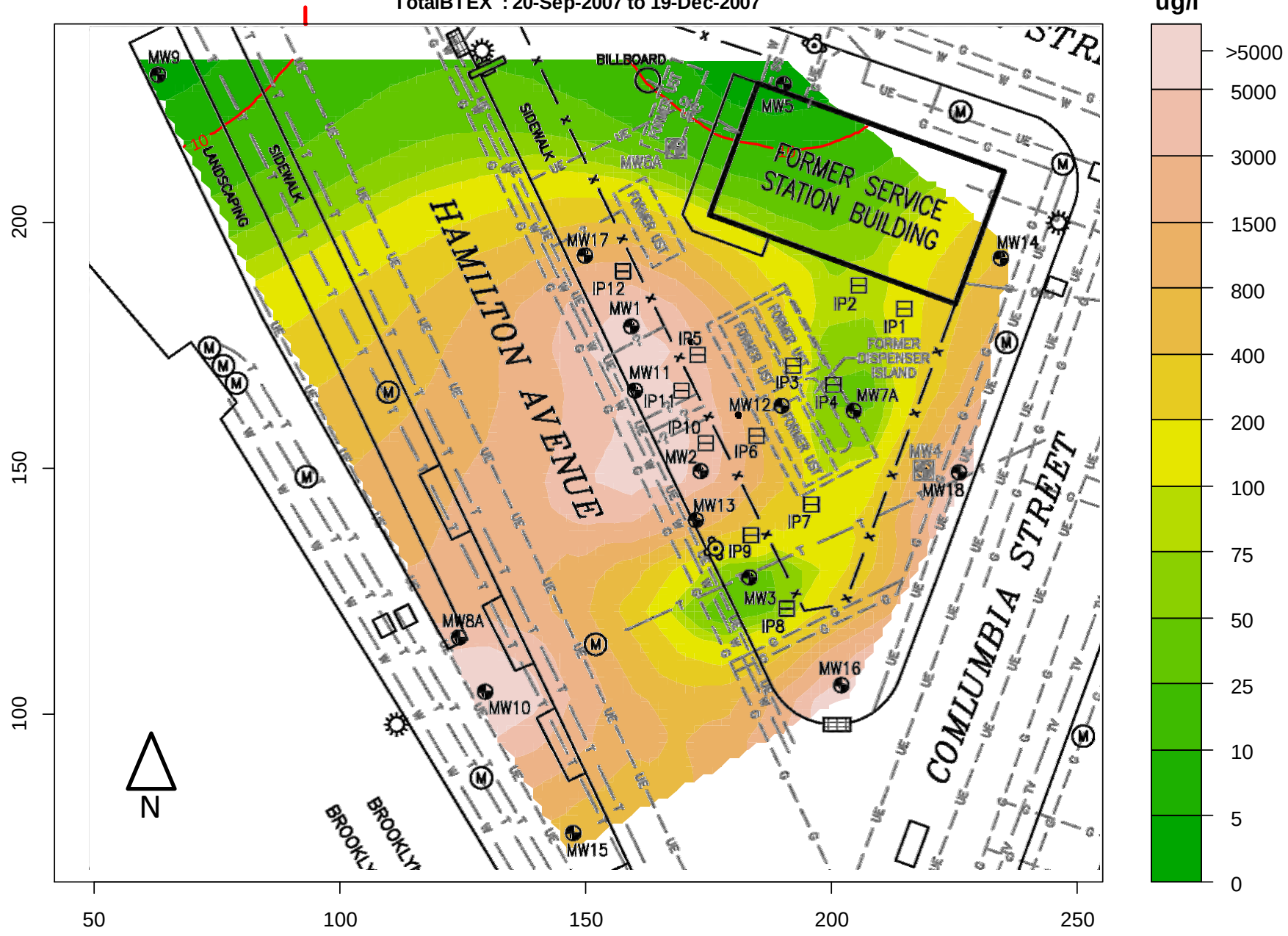


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

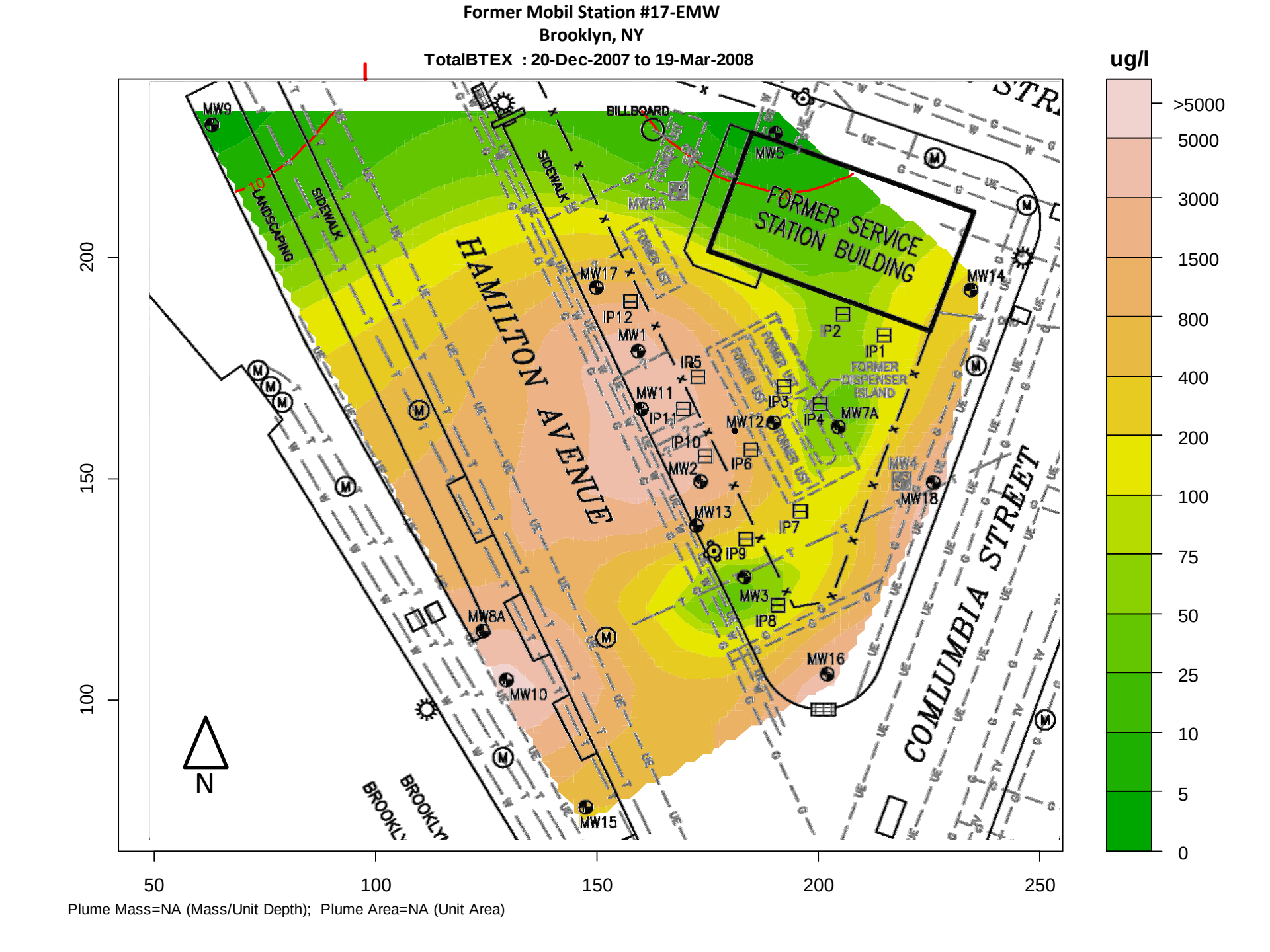


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

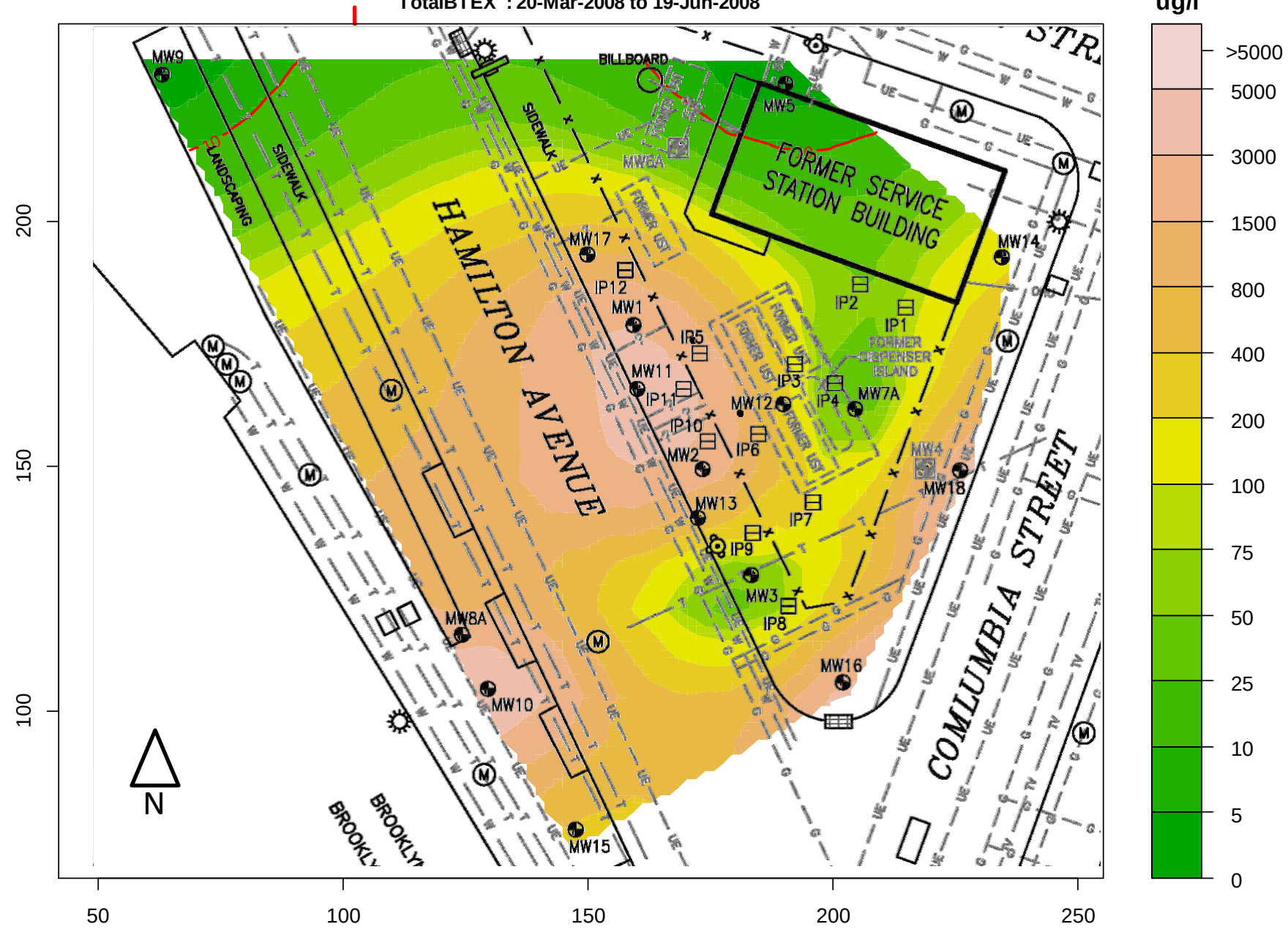
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Sep-2007 to 19-Dec-2007



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

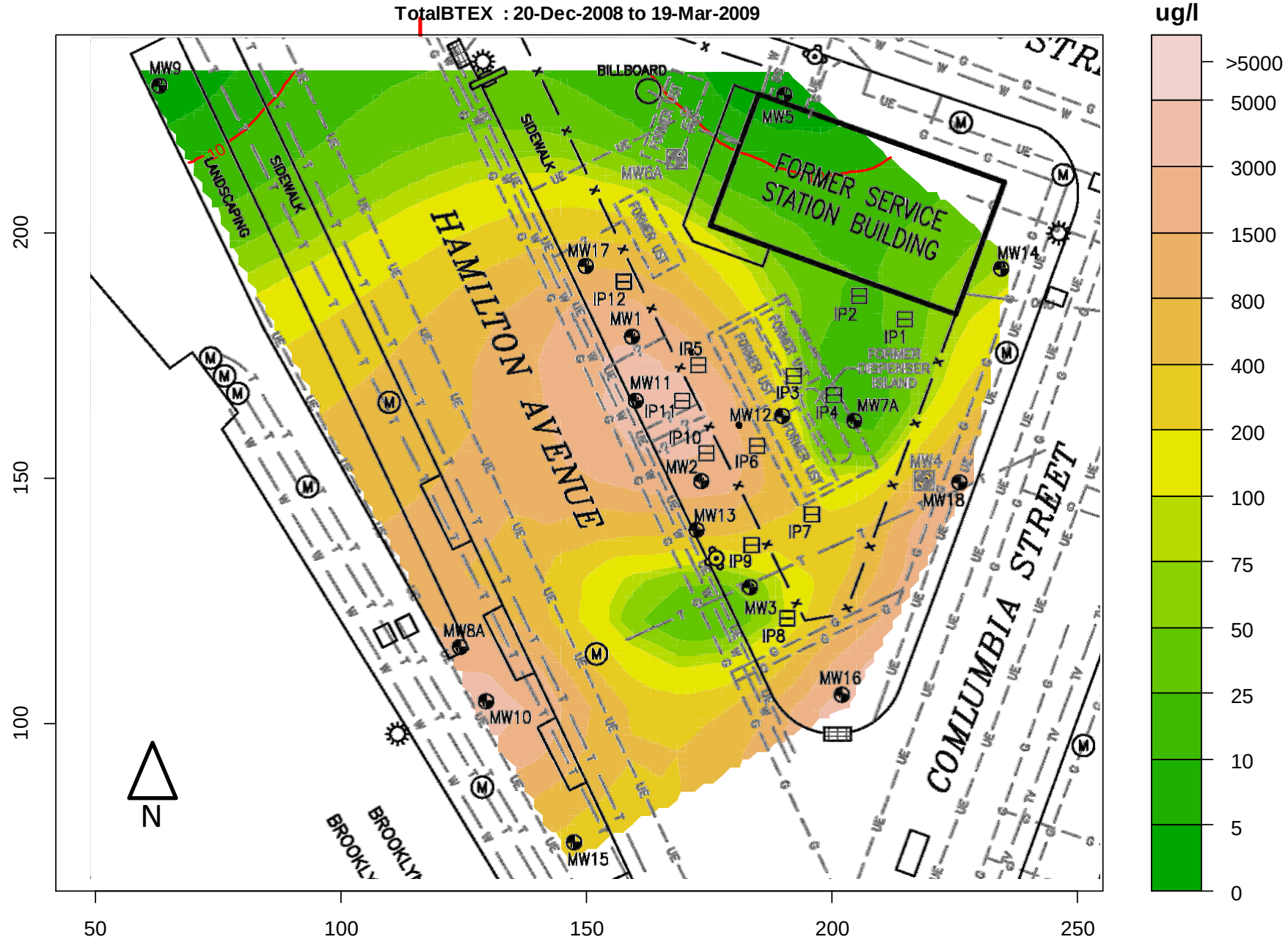


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



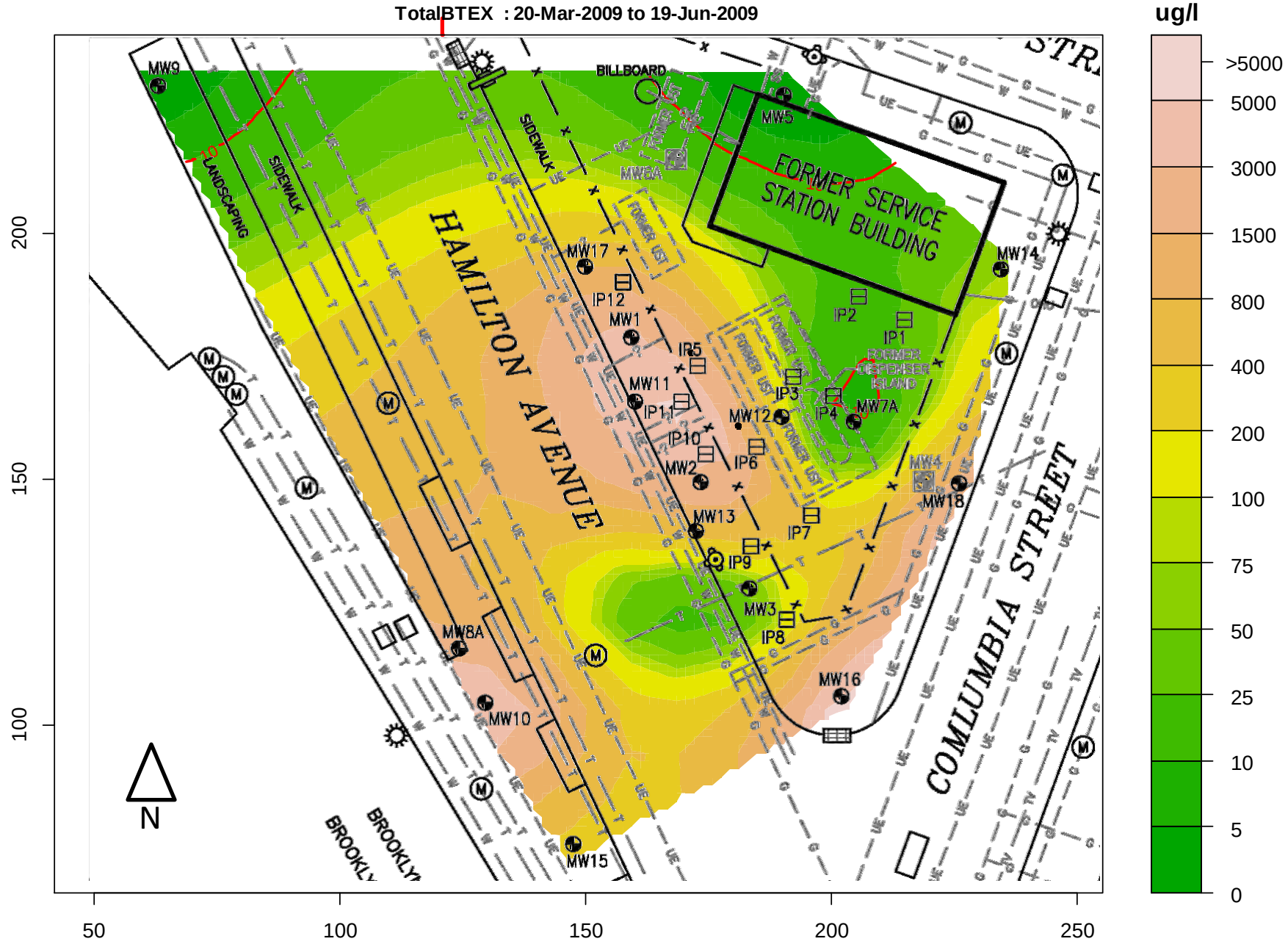
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Dec-2008 to 19-Mar-2009



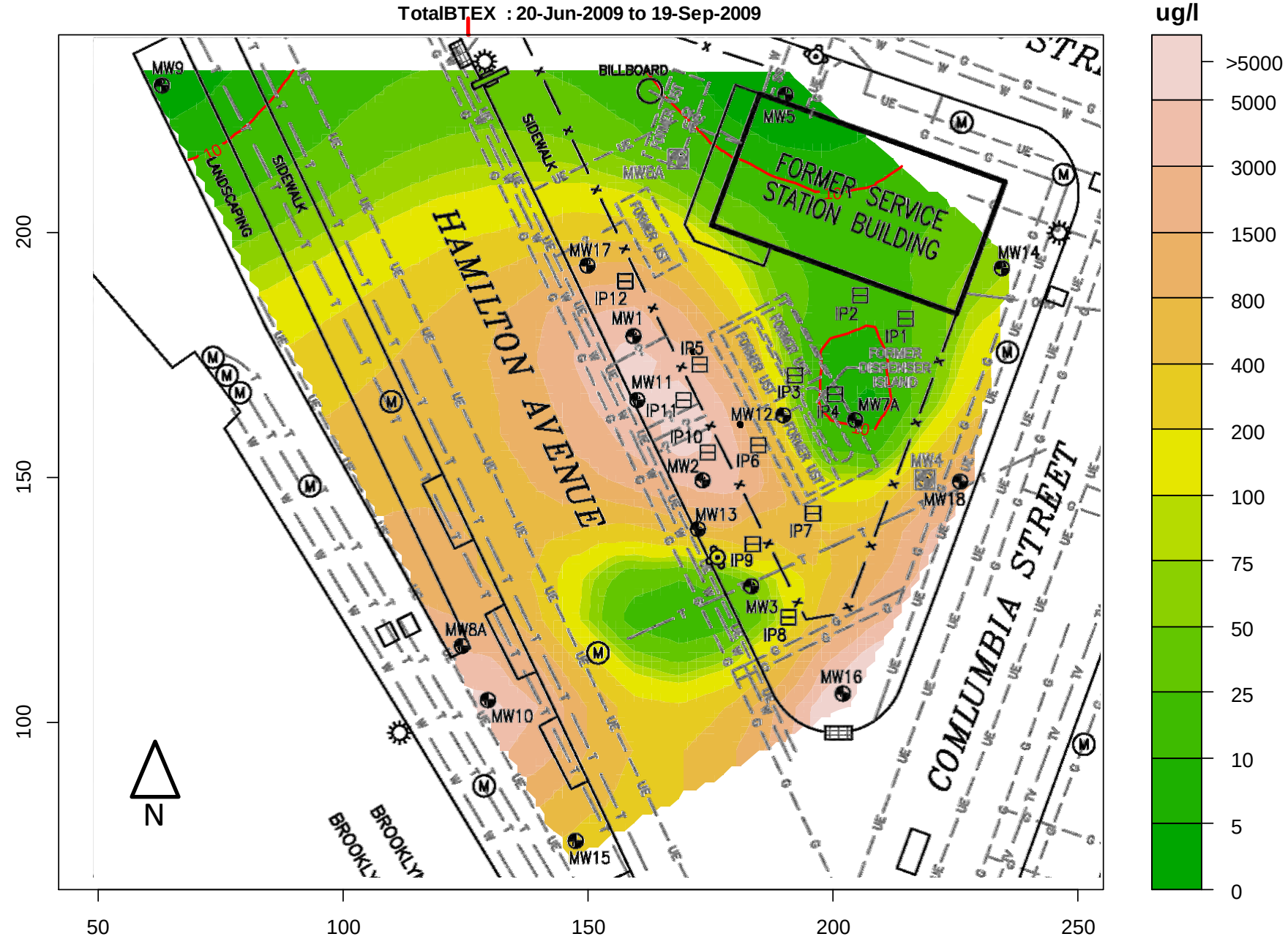
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Mar-2009 to 19-Jun-2009

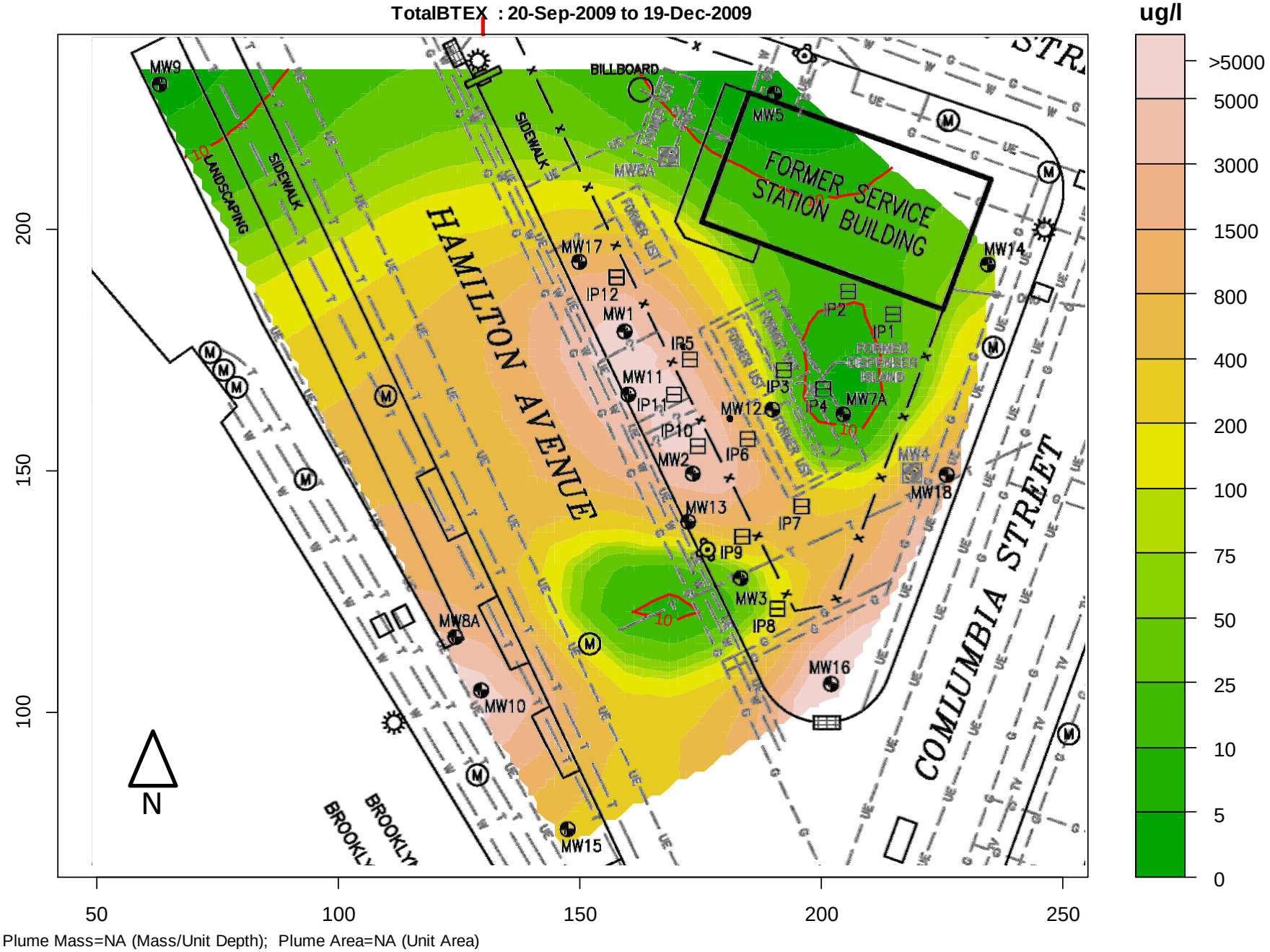


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

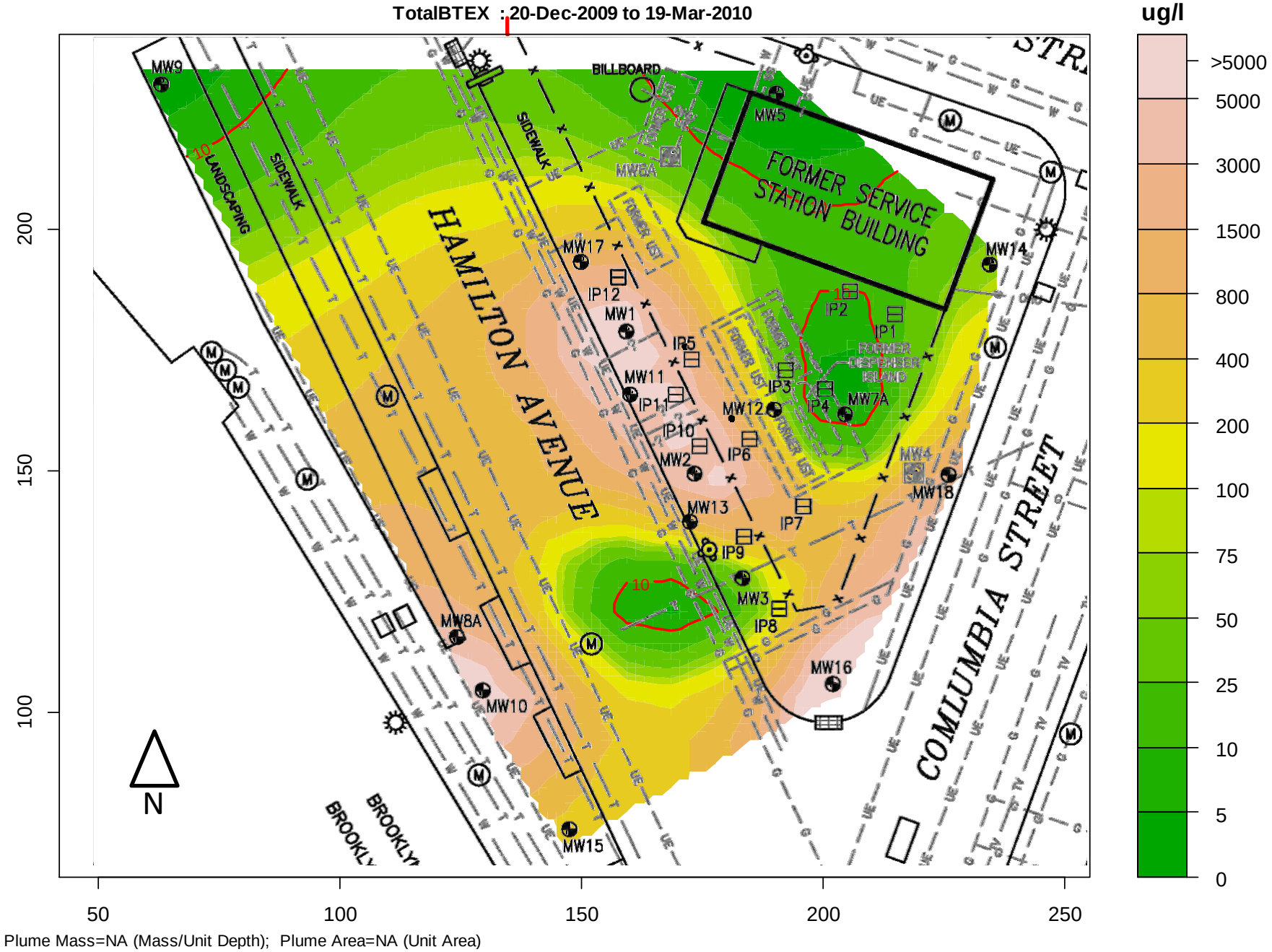
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Jun-2009 to 19-Sep-2009



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

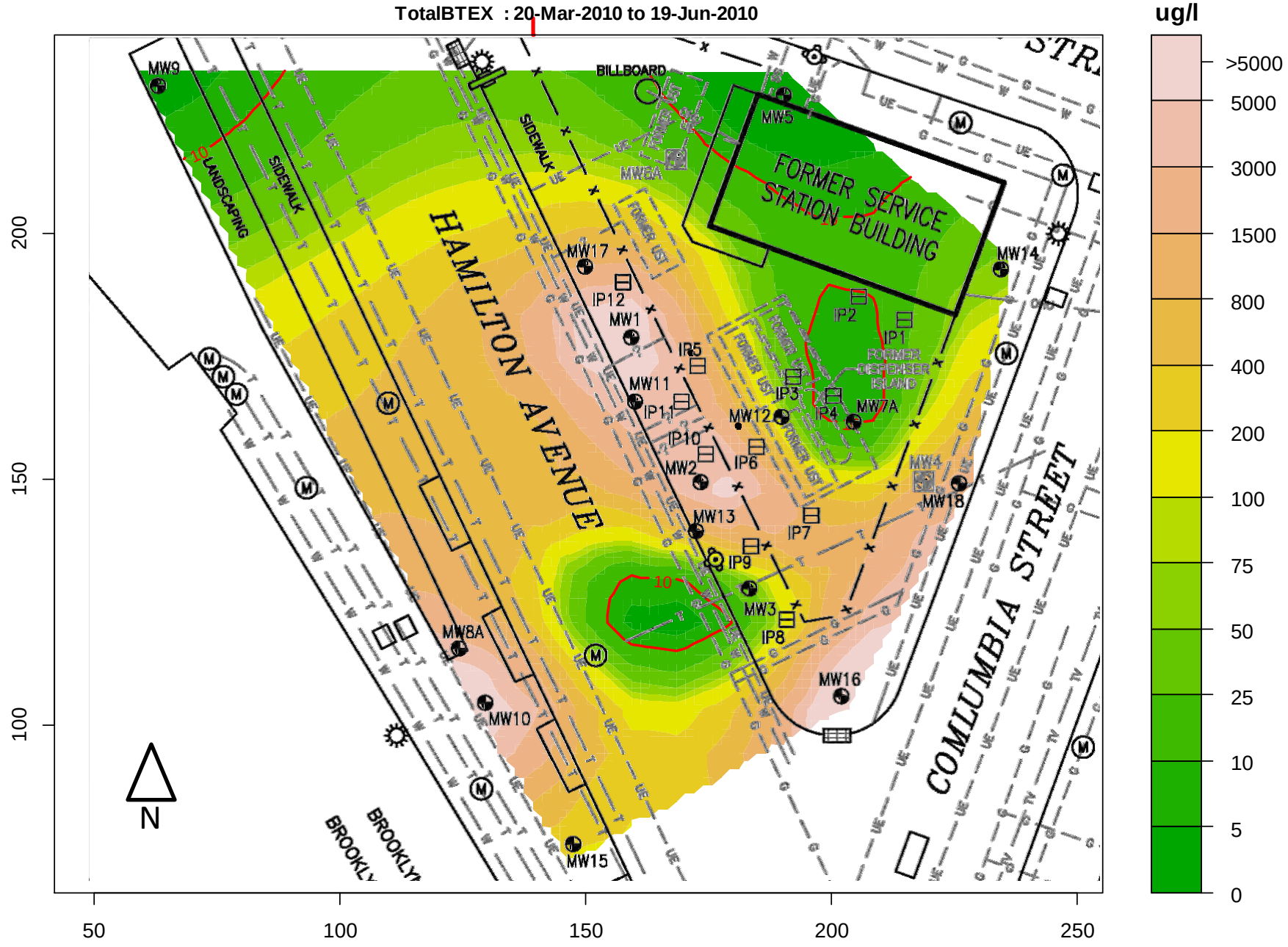


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

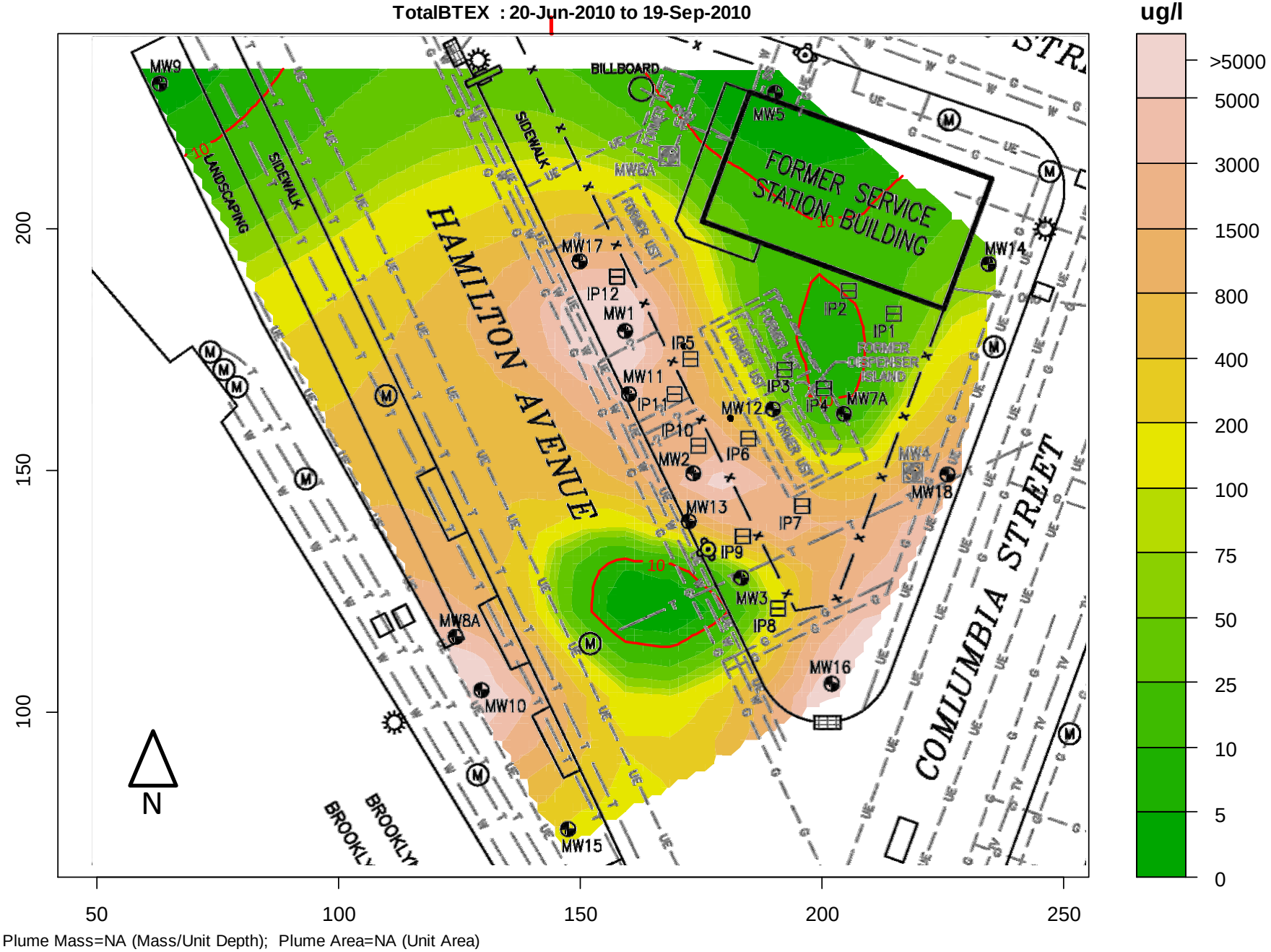


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

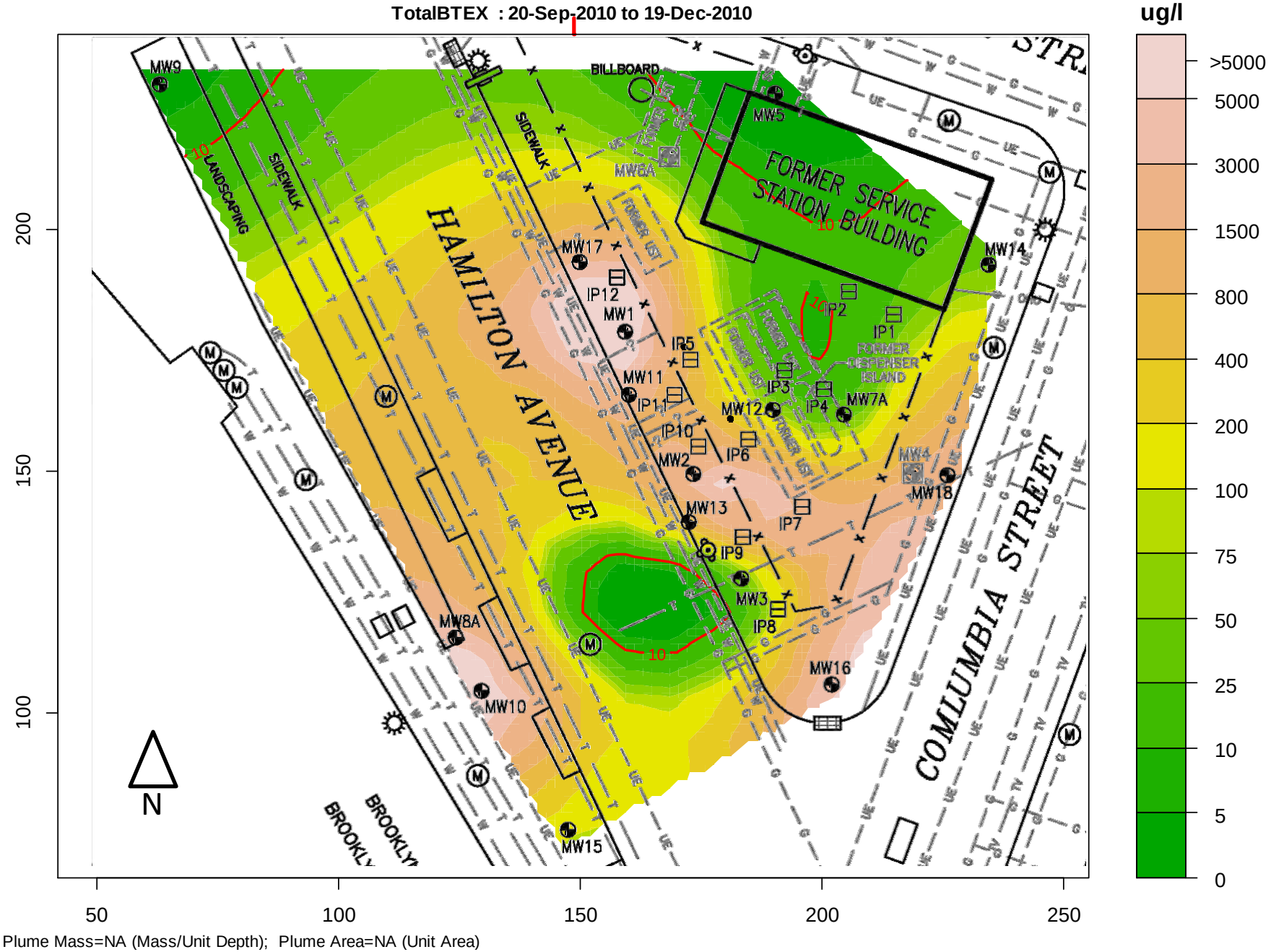
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Mar-2010 to 19-Jun-2010



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

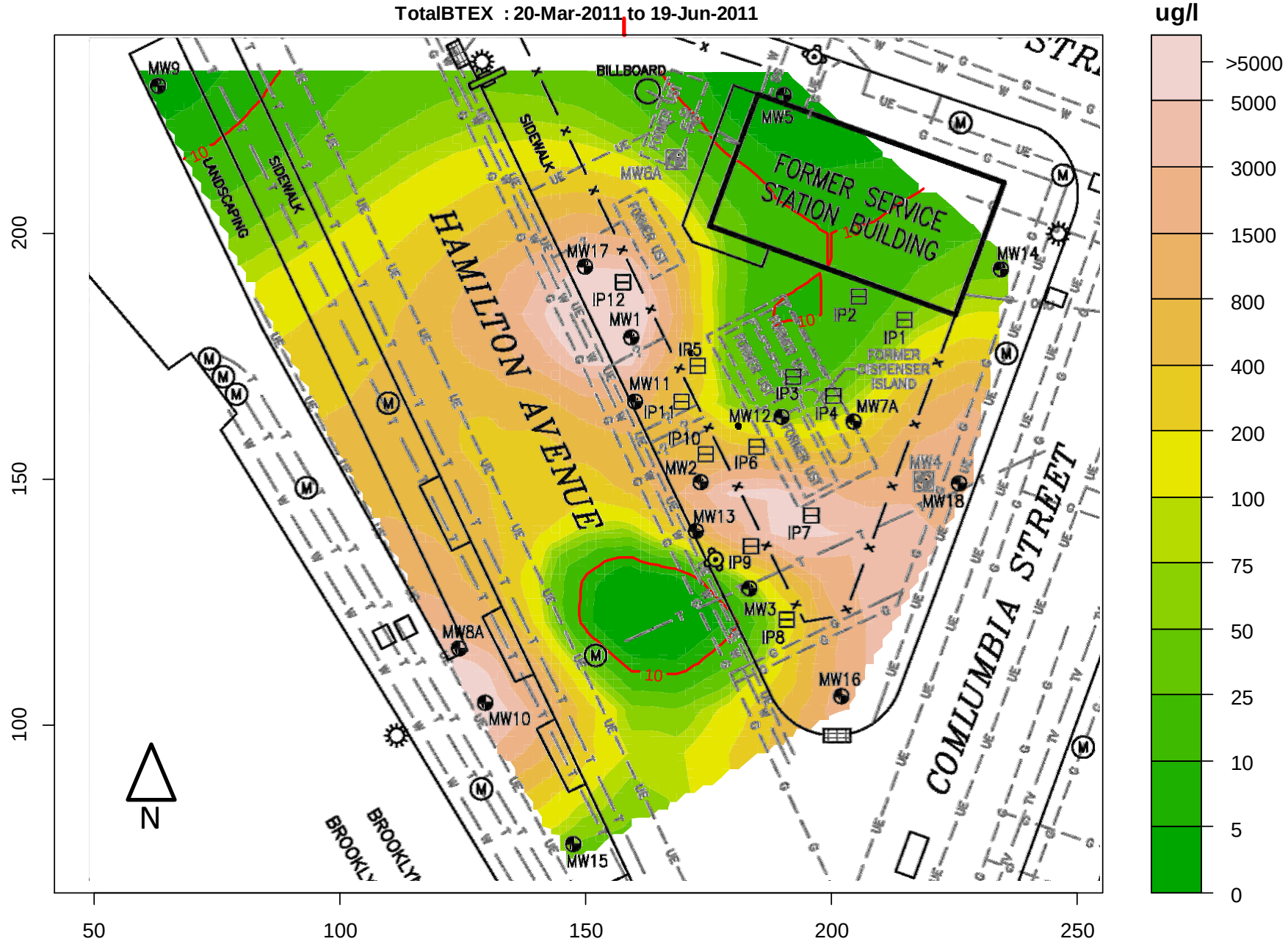


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



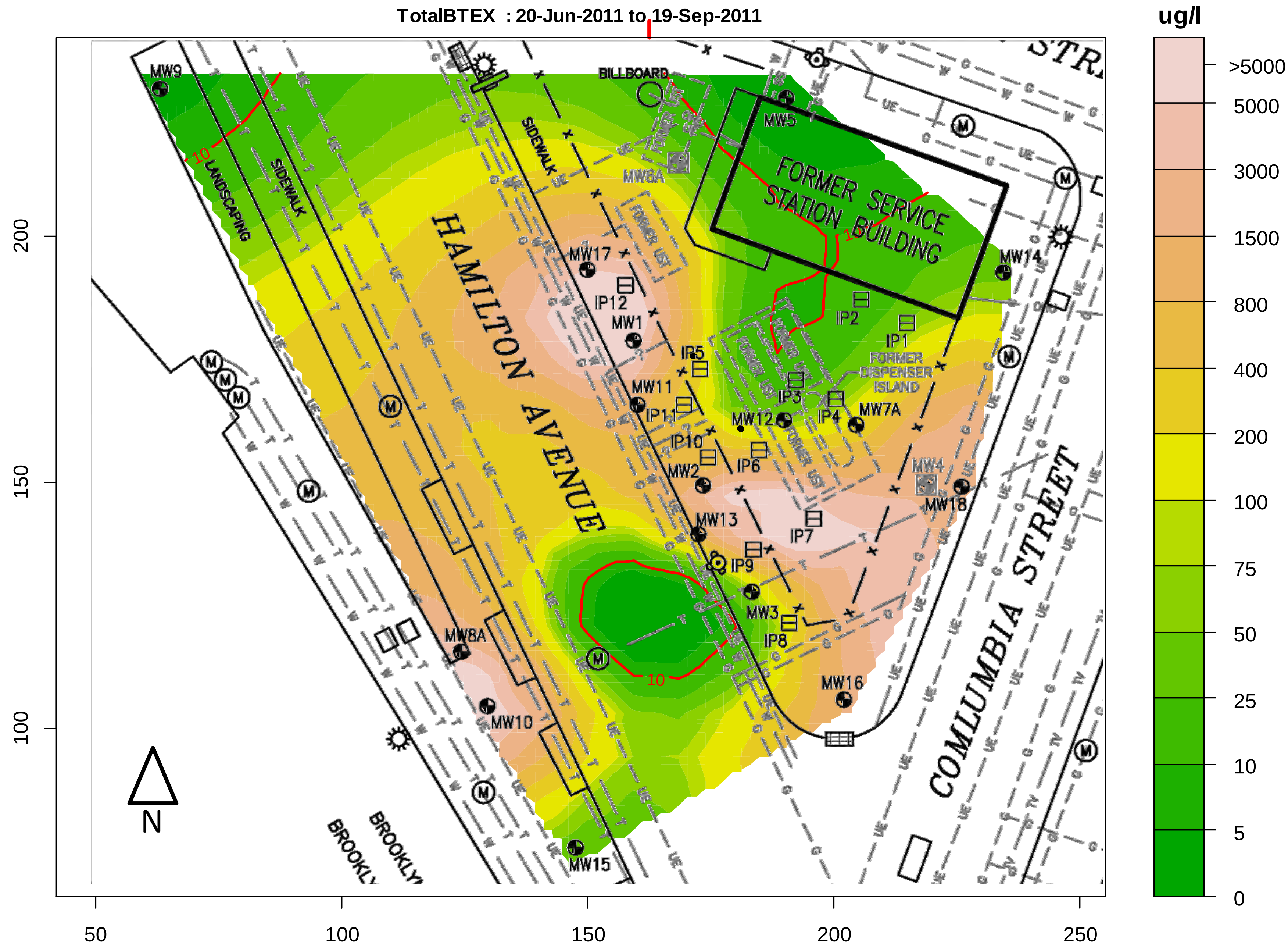
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Mar-2011 to 19-Jun-2011



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Jun-2011 to 19-Sep-2011



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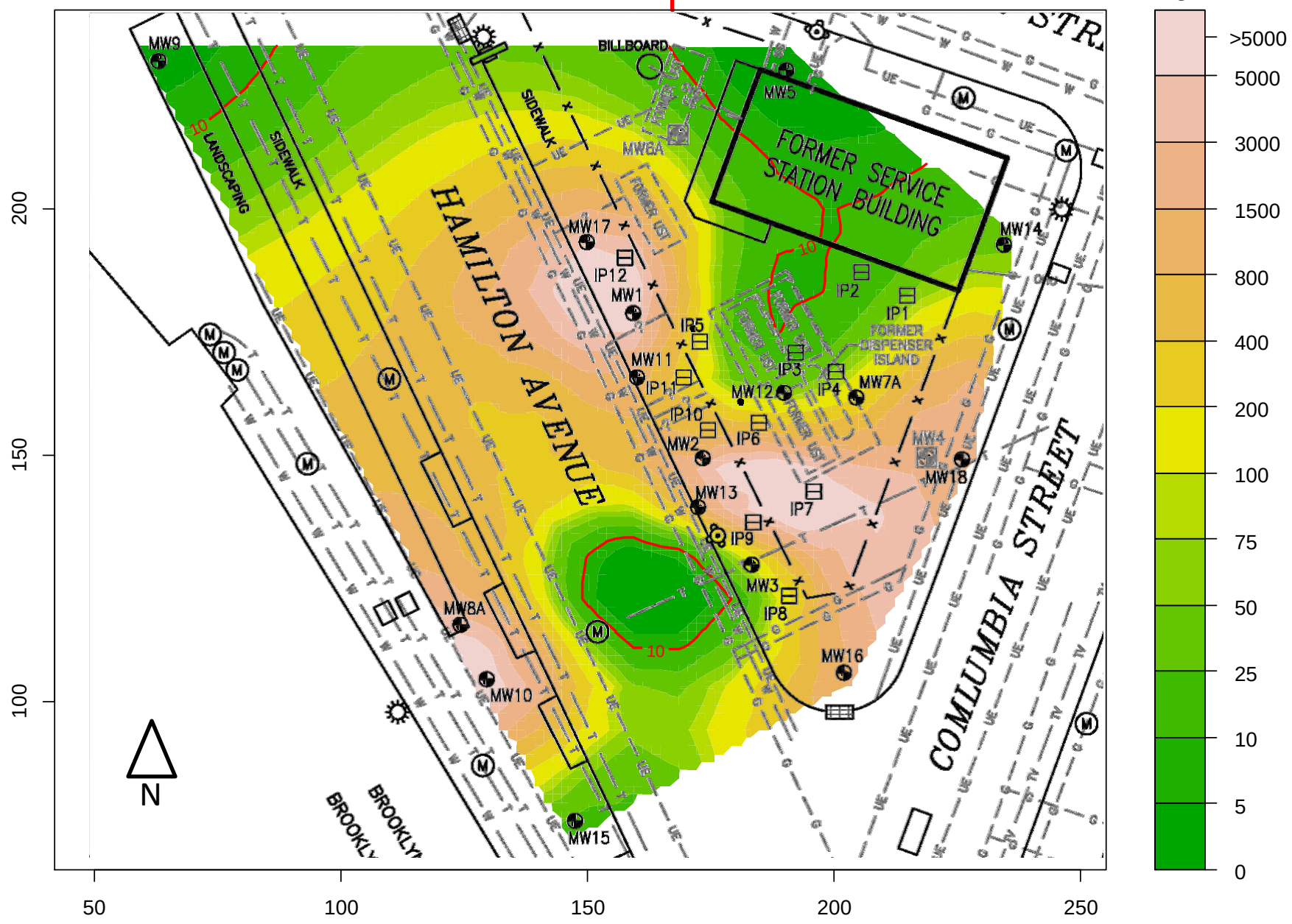
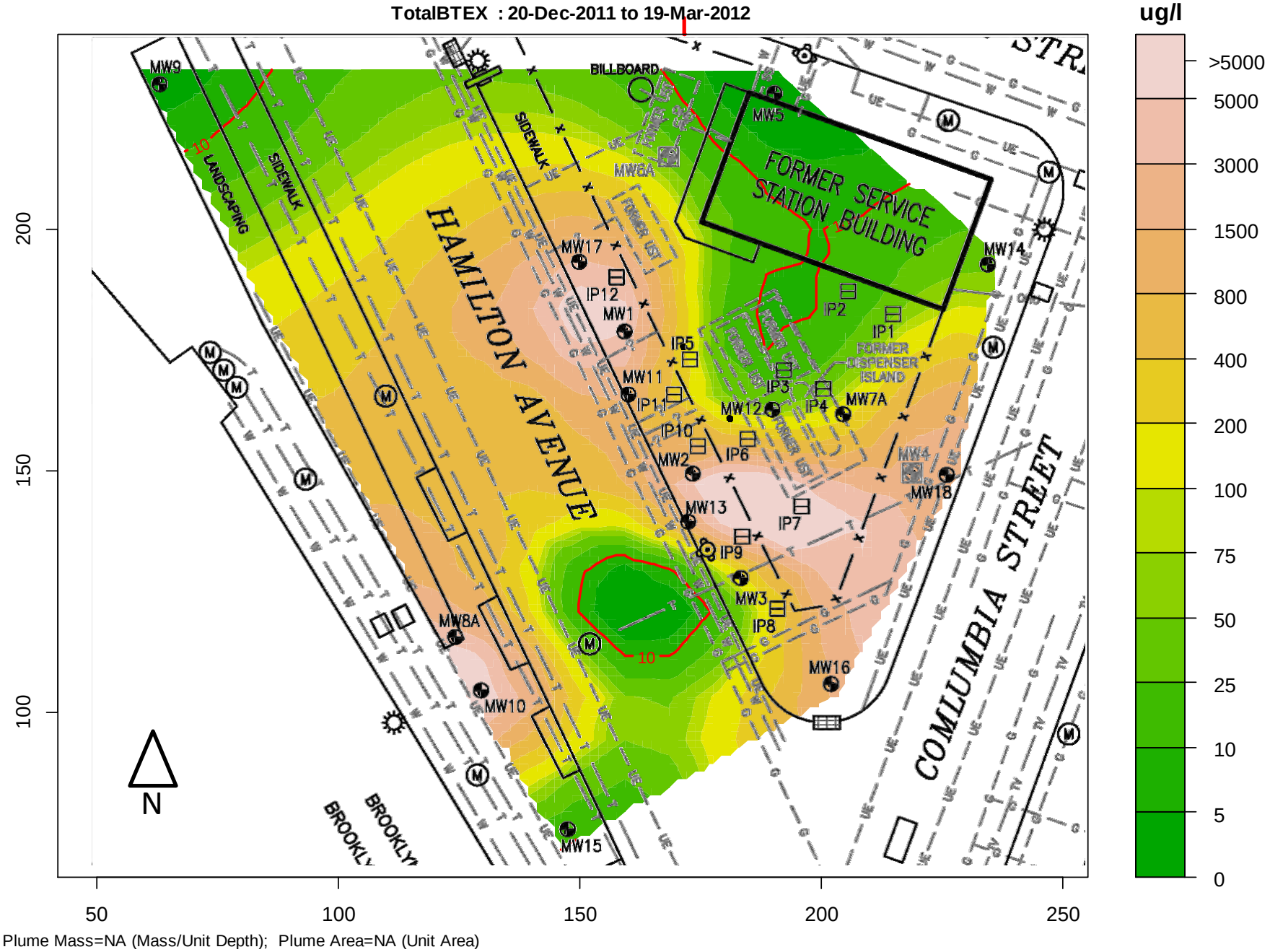
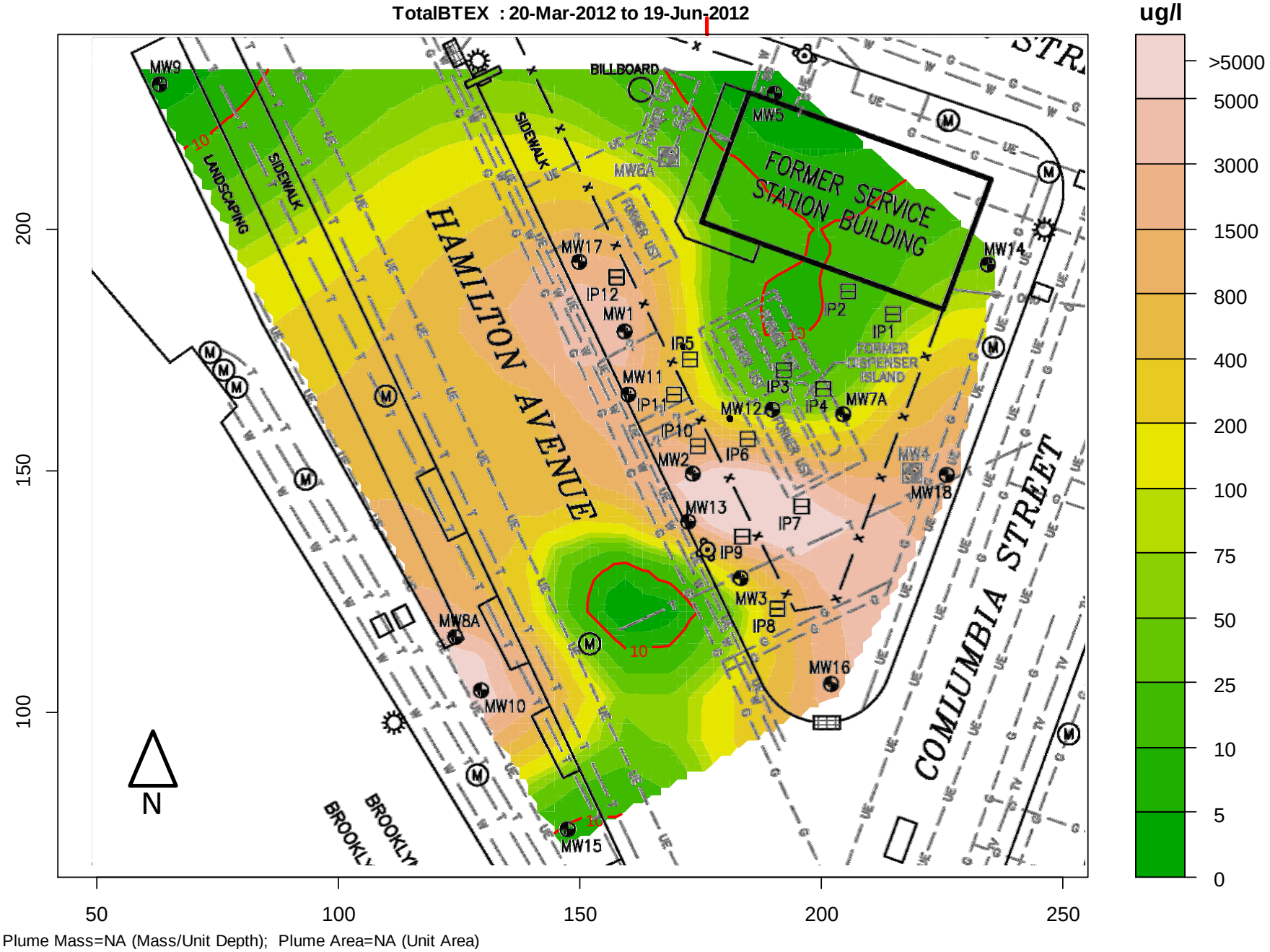
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Sep-2011 to 19-Dec-2011



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

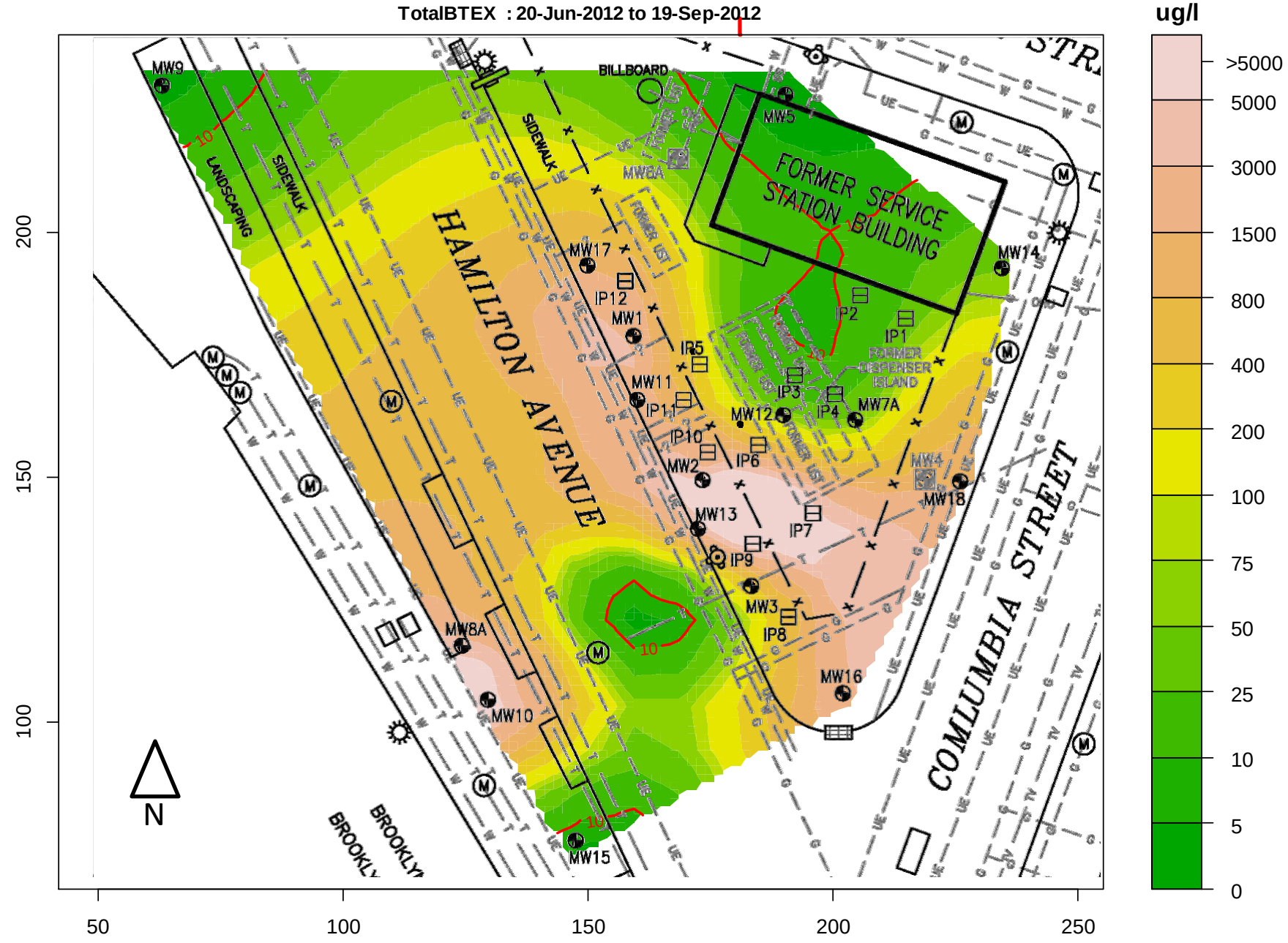


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

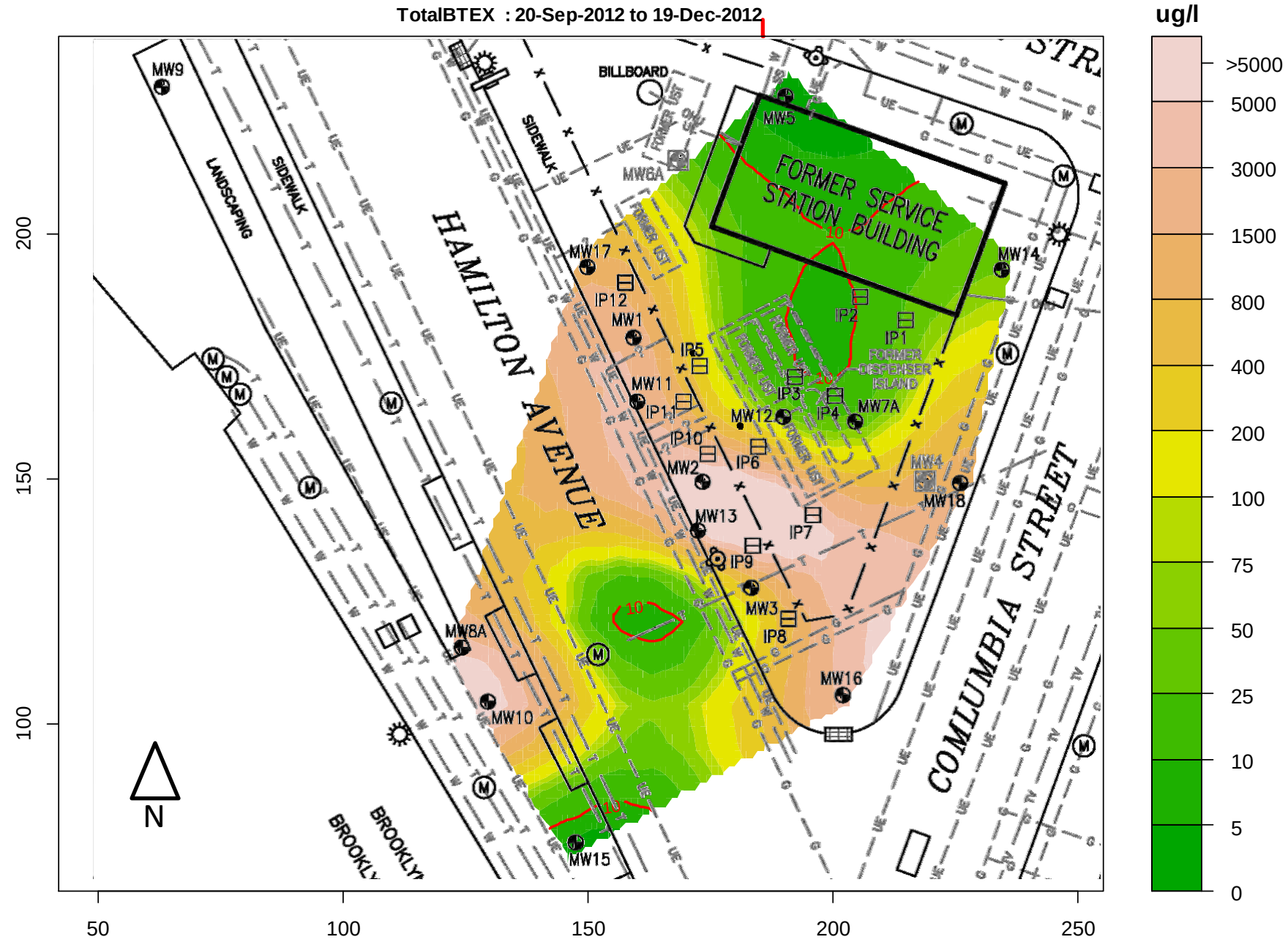


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

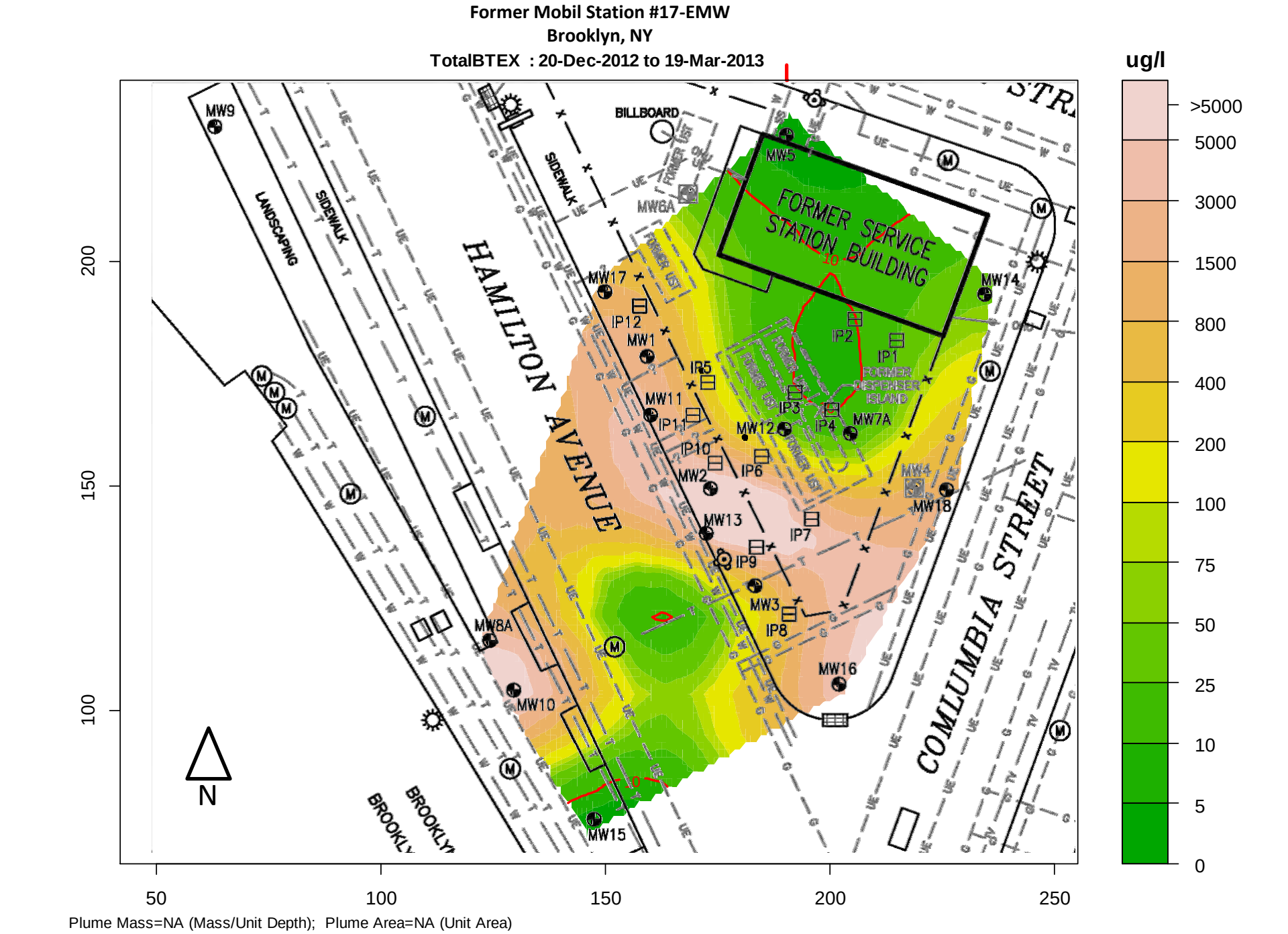
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Jun-2012 to 19-Sep-2012



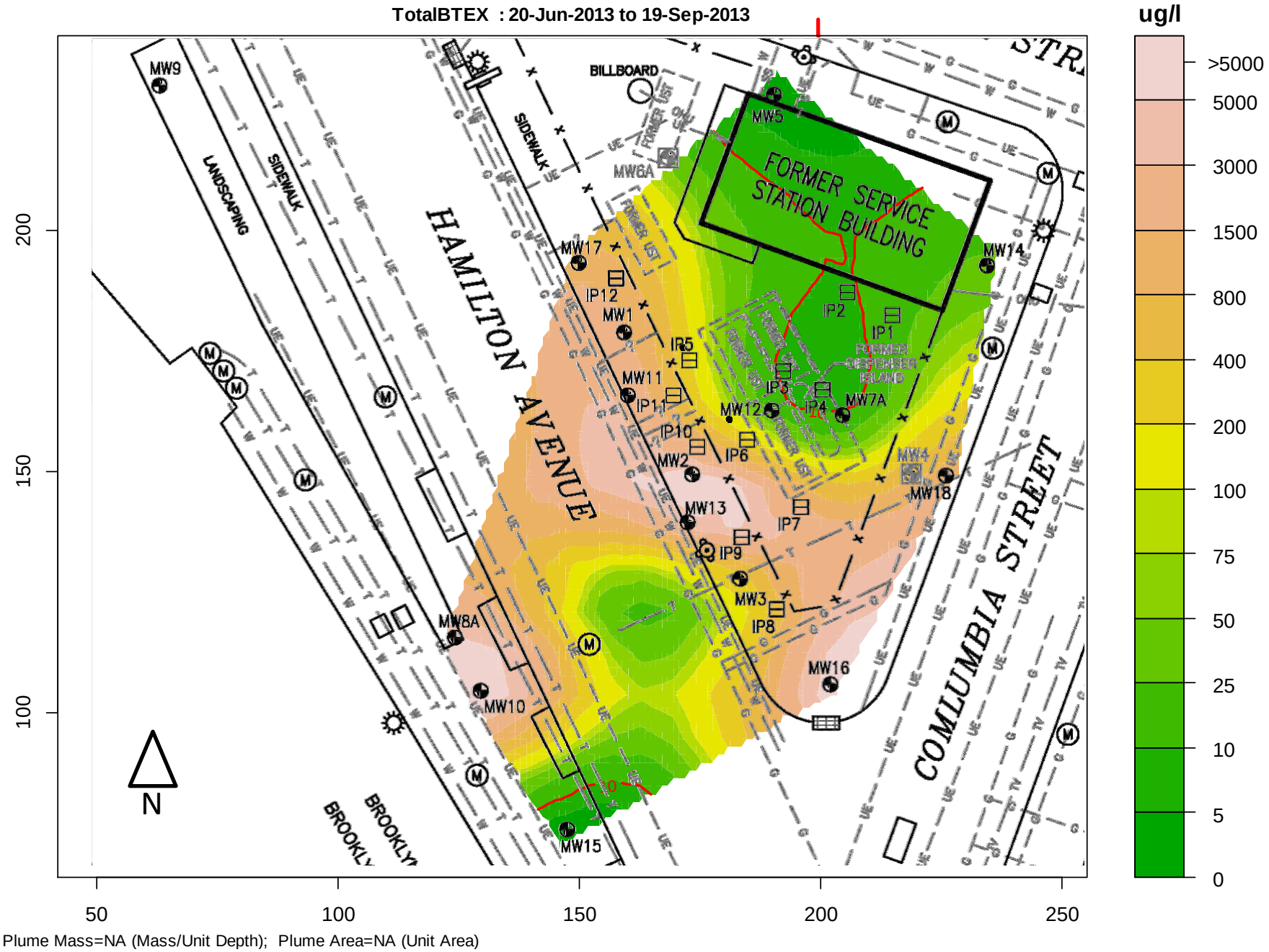
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

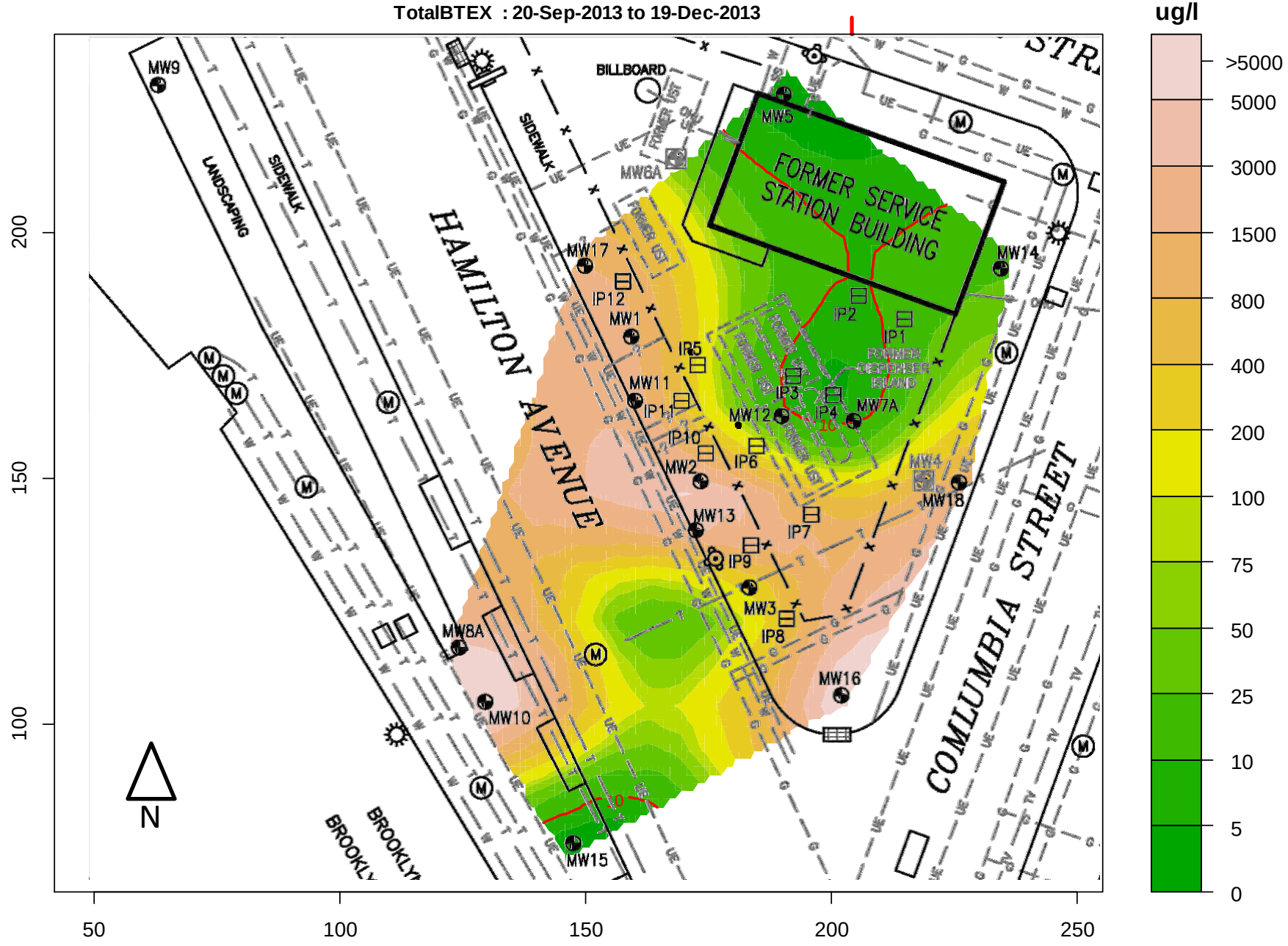


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

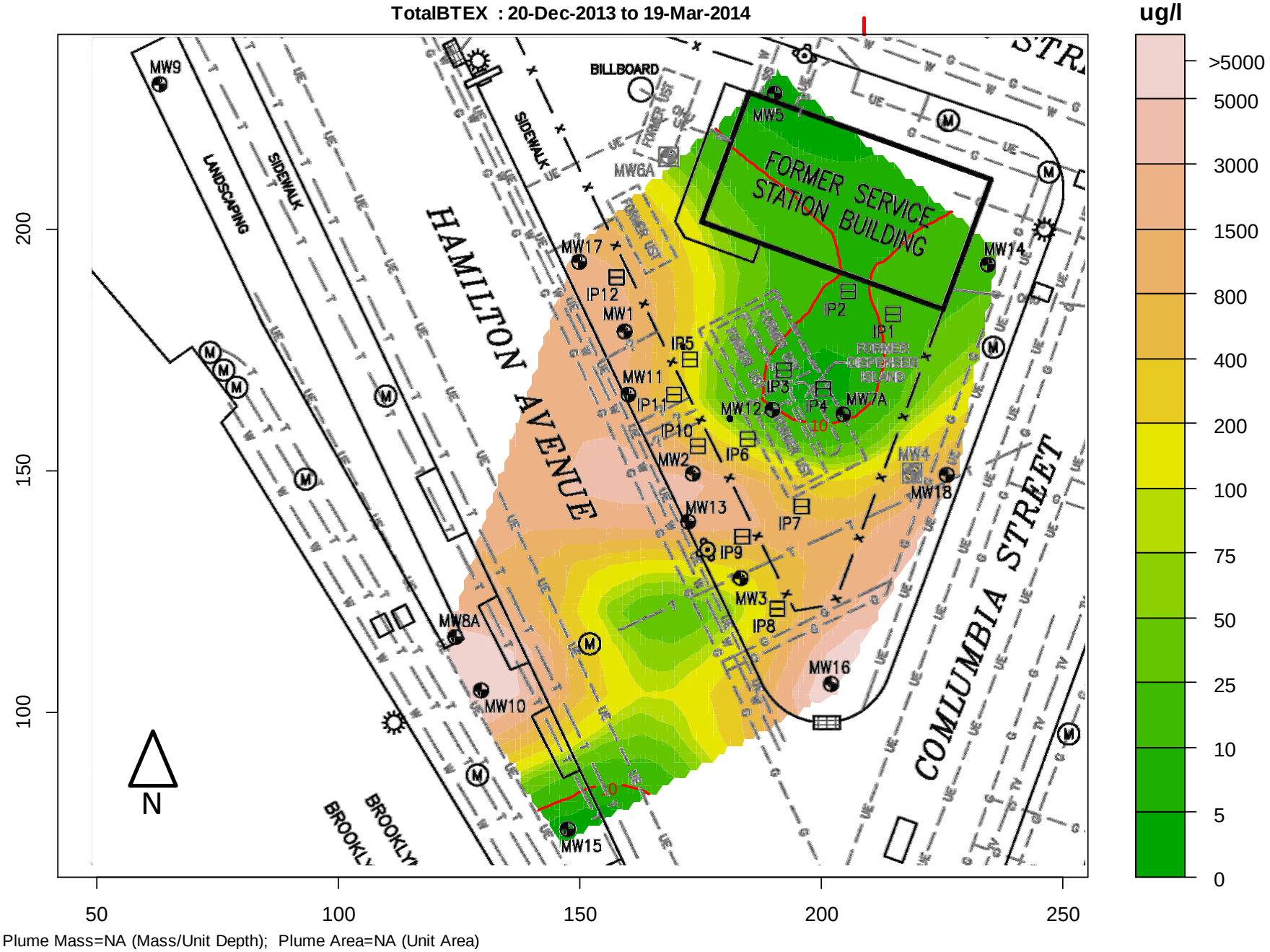


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

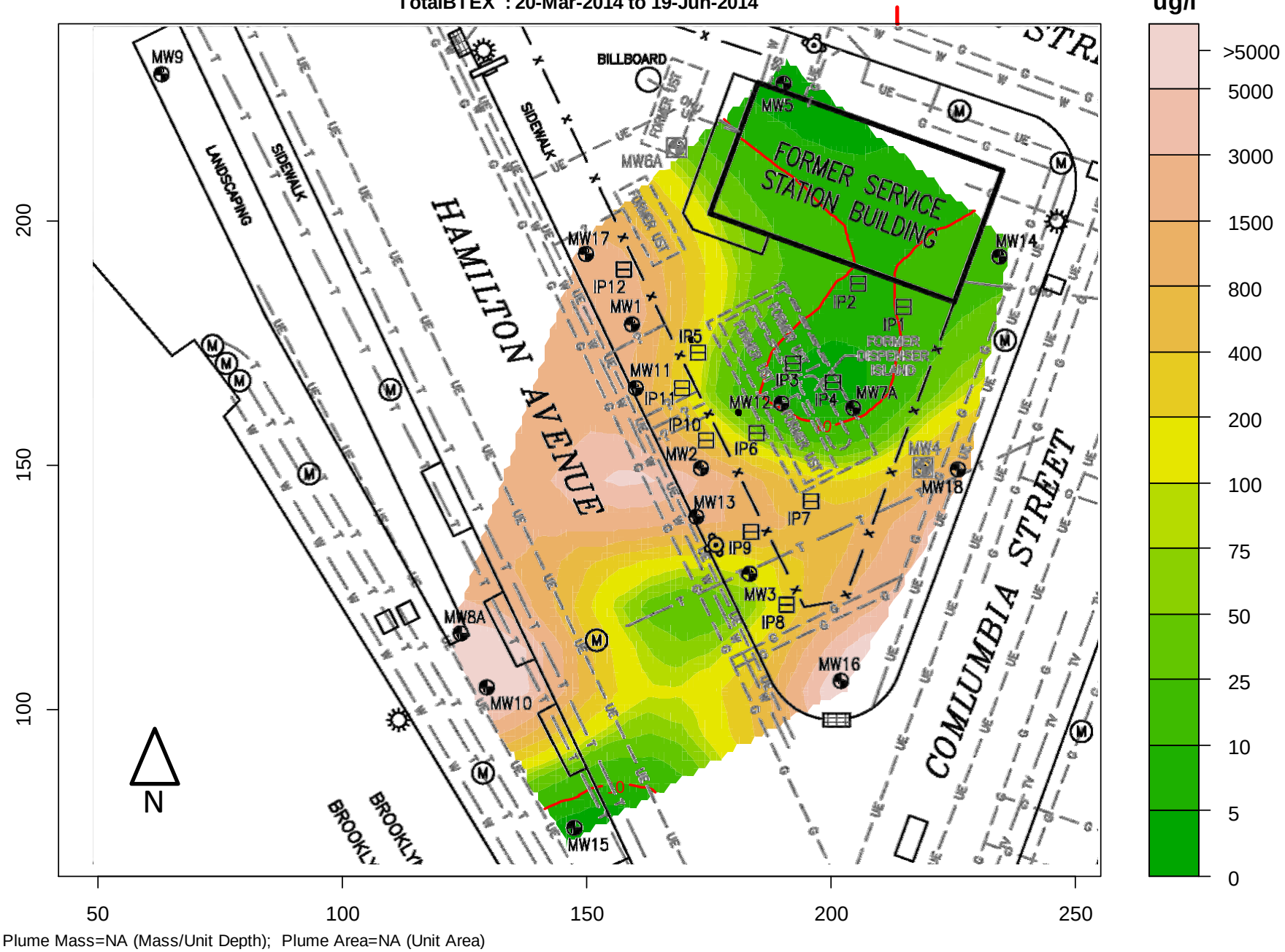
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Sep-2013 to 19-Dec-2013



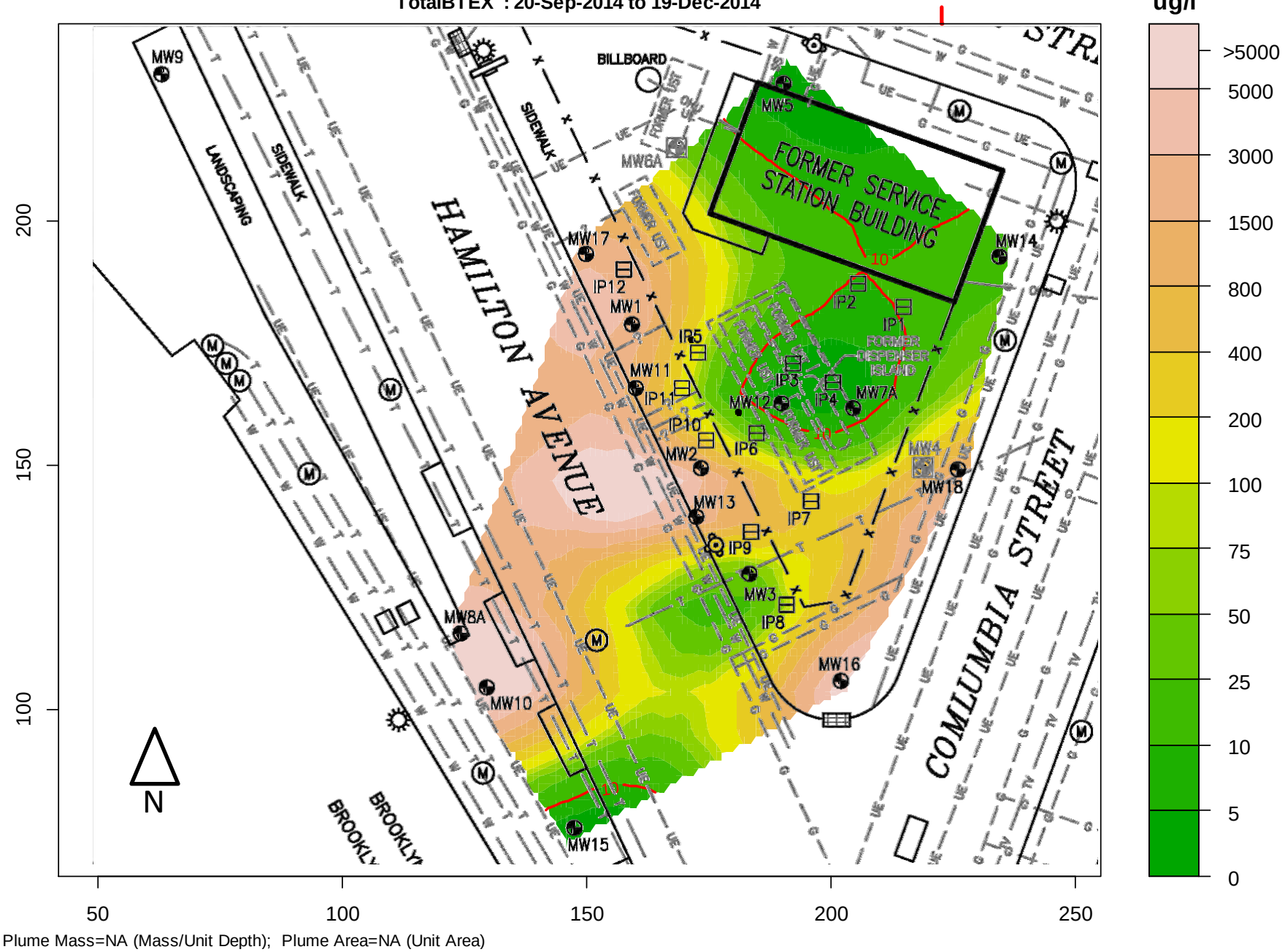
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)

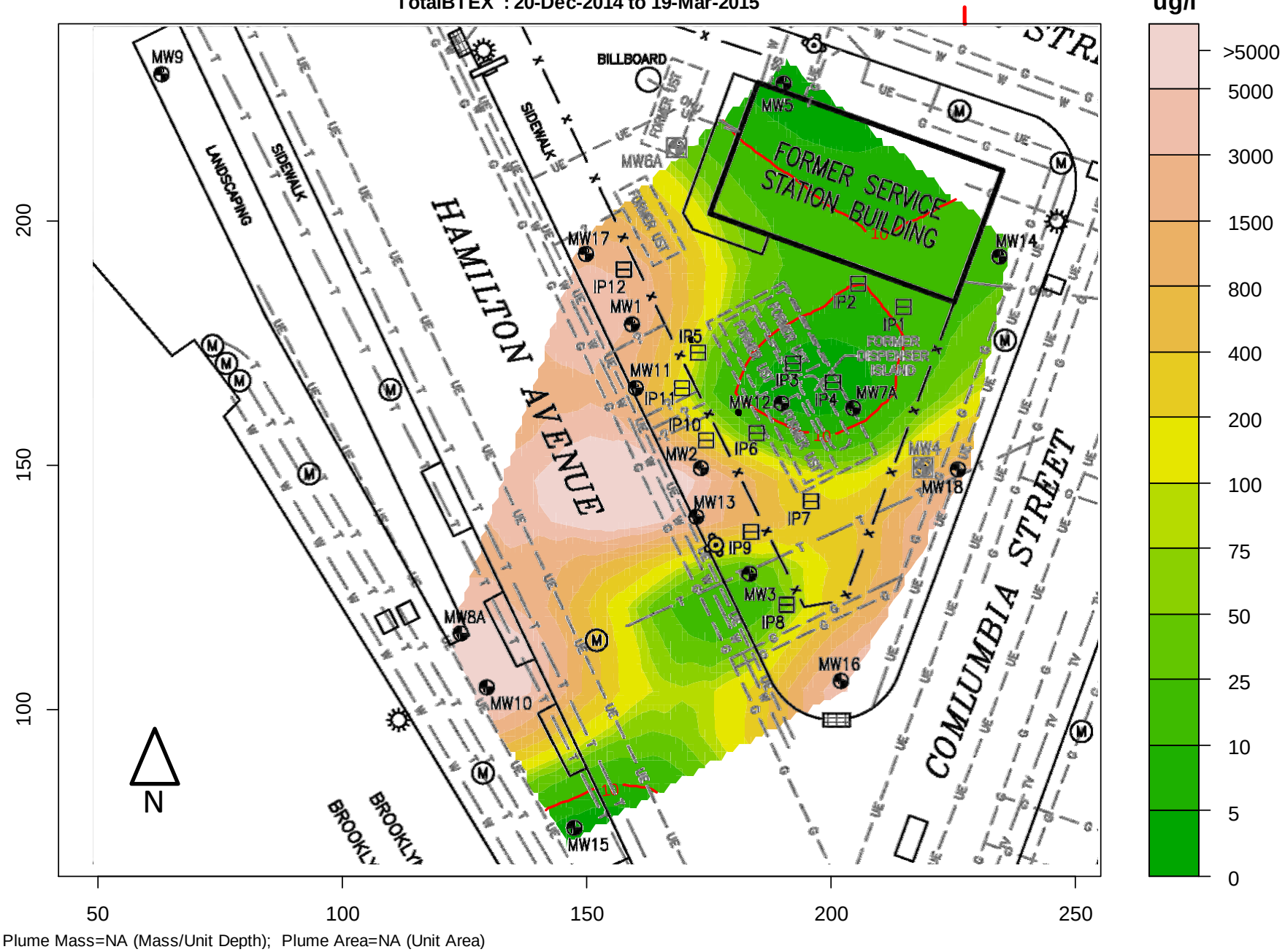


Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)


Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Sep-2014 to 19-Dec-2014
ug/l
>5000
5000
3000
1500
800
400
200
100
75
50
25
10
5
0
MW9
BILLBOARD
MW5
MW6A
FORMER SERVICE STATION BUILDING
MW14
MW17
IP12
MW1
IP2
IP1
FORMER DISPENSER ISLAND
IP5
MW11
IP11
IP3
IP4
MW7A
MW12
IP10
IP6
MW2
MW4
MW18
MW13
IP7
IP9
MW3
IP8
MW16
MW8A
MW10
MW15
HAMILTON AVENUE
COMLUMBIA STREET
LANDSCAPING
SIDEWALK
N
200
150
100
50
100
150
200
250
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



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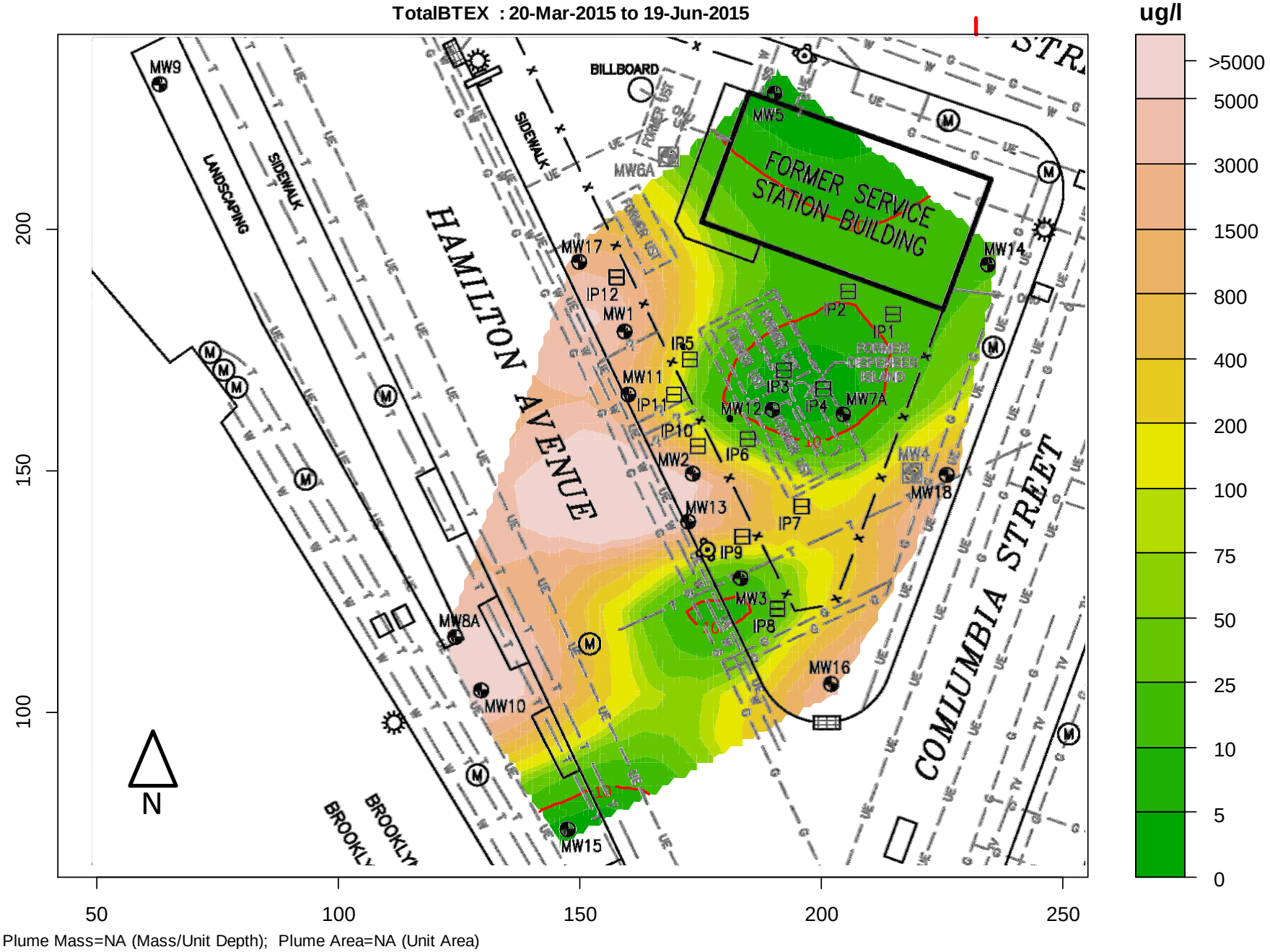

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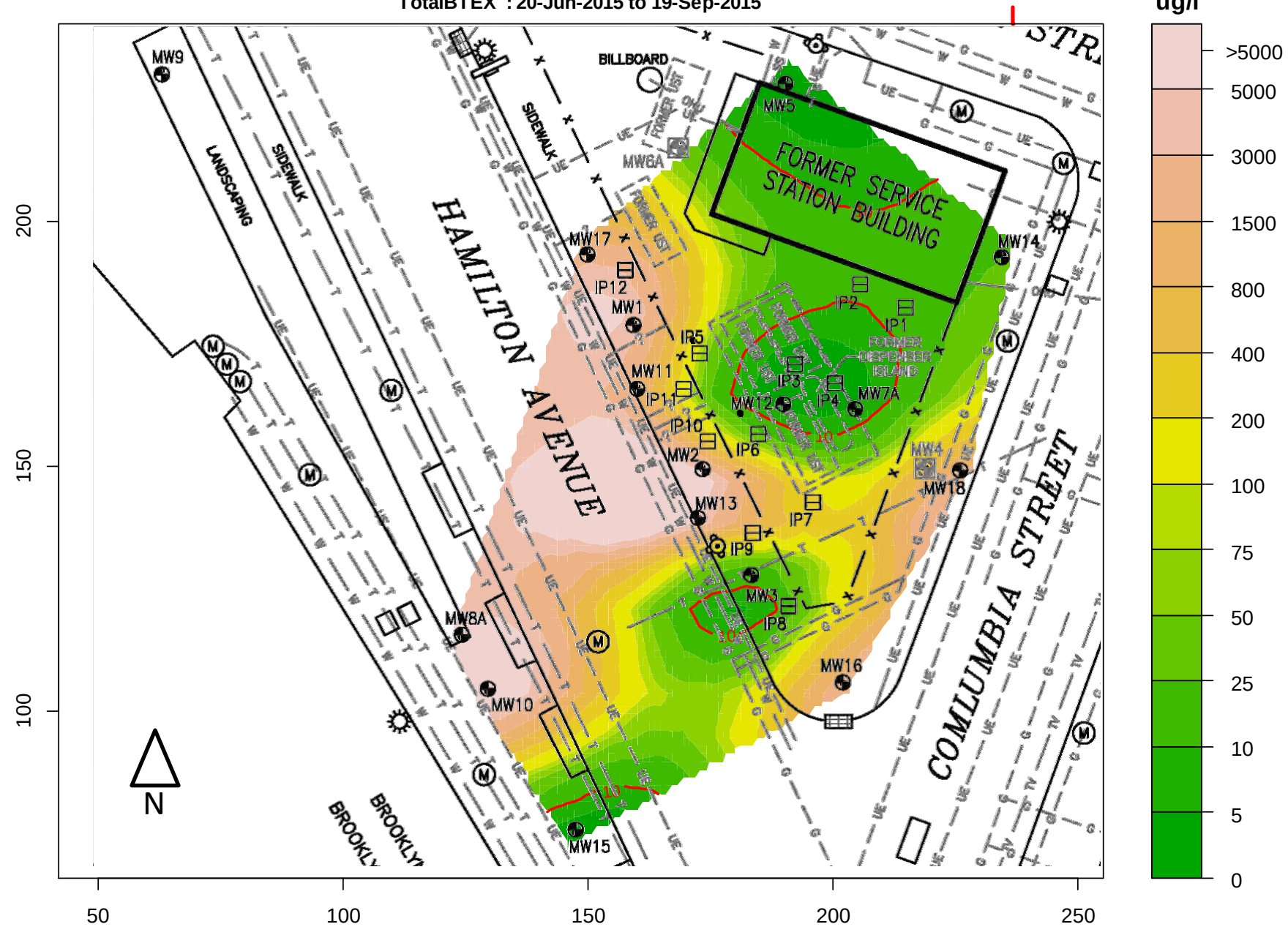
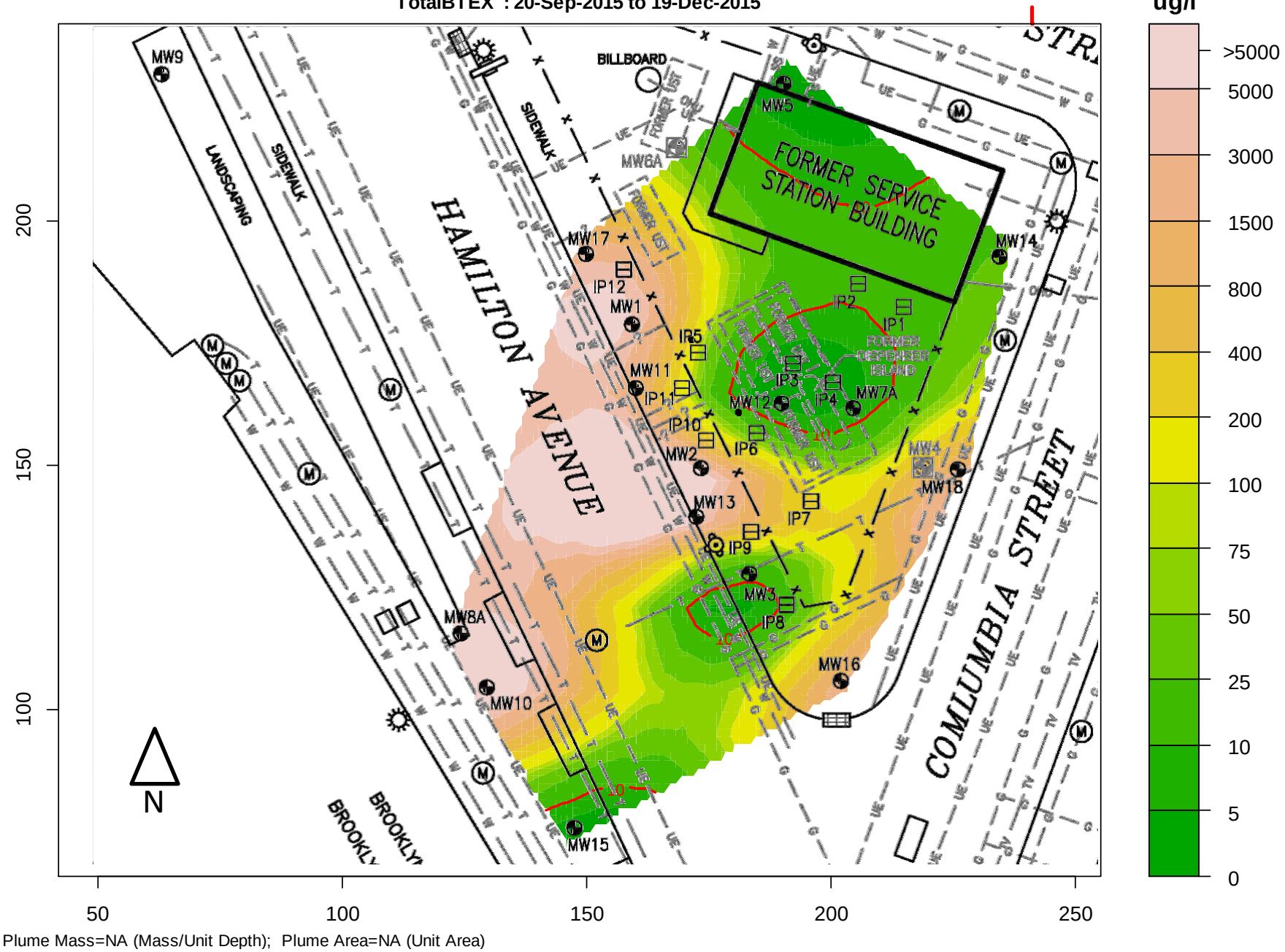

Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Jun-2015 to 19-Sep-2015
ug/l
>5000
5000
3000
1500
800
400
200
100
75
50
25
10
5
0
MW9
BILLBOARD
MW5
MW6A
FORMER SERVICE STATION BUILDING
MW17
IP12
MW1
IP2
IP1
MW14
IP5
FORMER DISPENSER ISLAND
MW11
IP11
IP3
IP4
MW7A
MW12
IP10
IP6
MW2
MW4
MW18
MW13
IP7
IP9
MW3
IP8
MW8A
MW16
MW10
MW15
HAMILTON AVENUE
COMLUMBIA STREET
LANDSCAPING
SIDEWALK
N
200
150
100
50
100
150
200
250
Plume Mass=NA (Mass/Unit Depth); Plume Area=NA (Unit Area)



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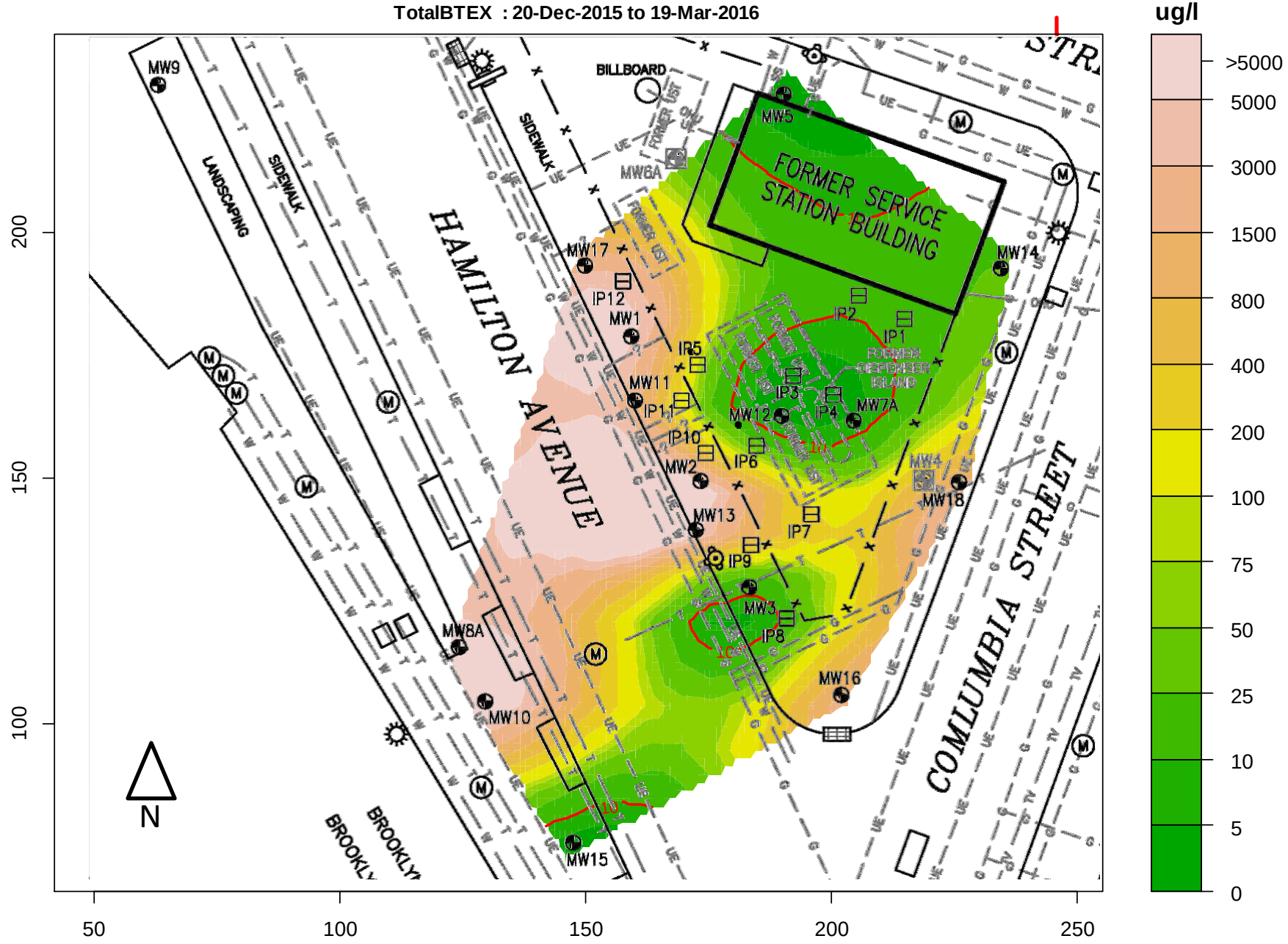
Former Mobil Station #17-EMW
Brooklyn, NY
TotalBTEX : 20-Dec-2015 to 19-Mar-2016



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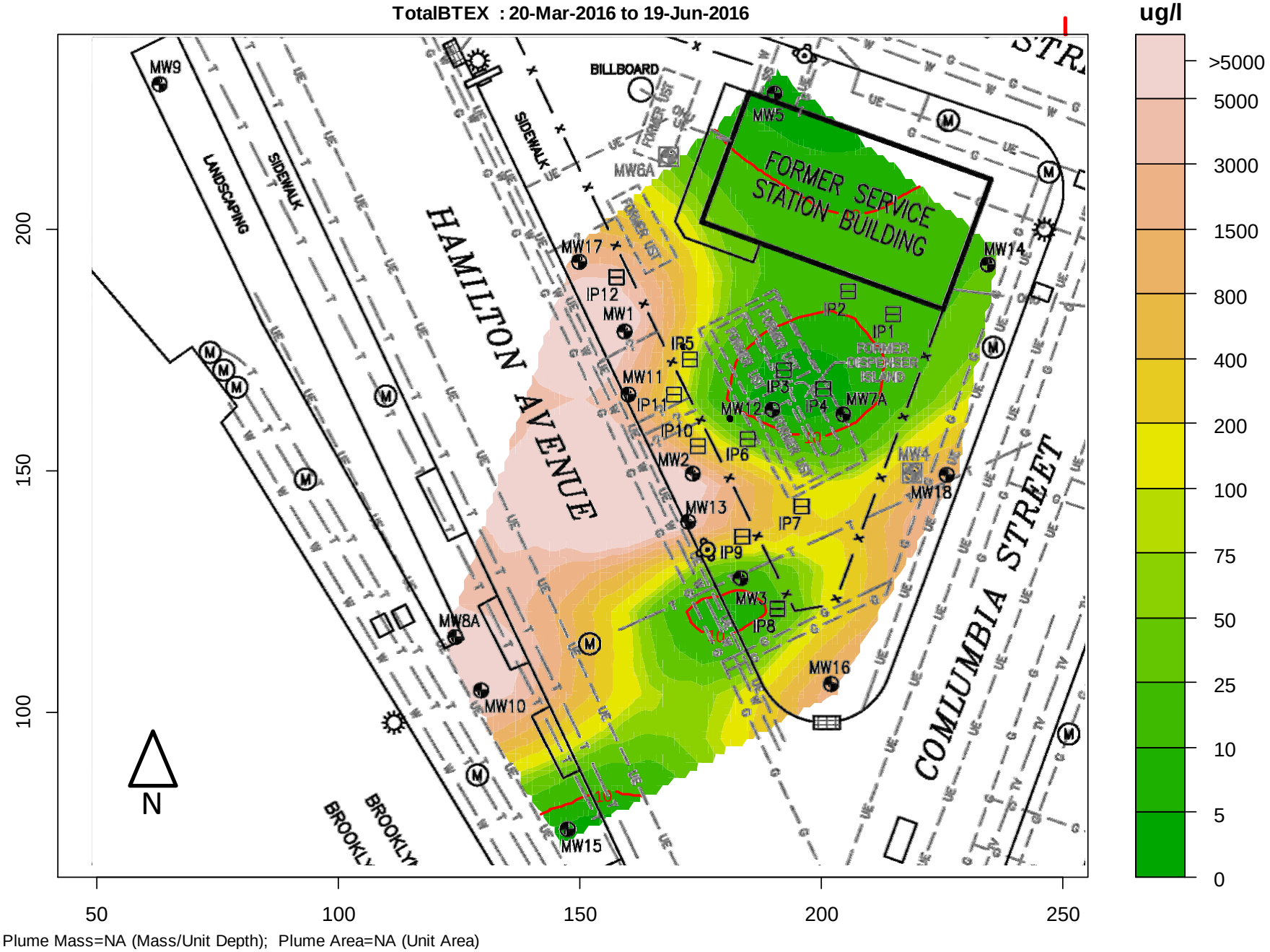

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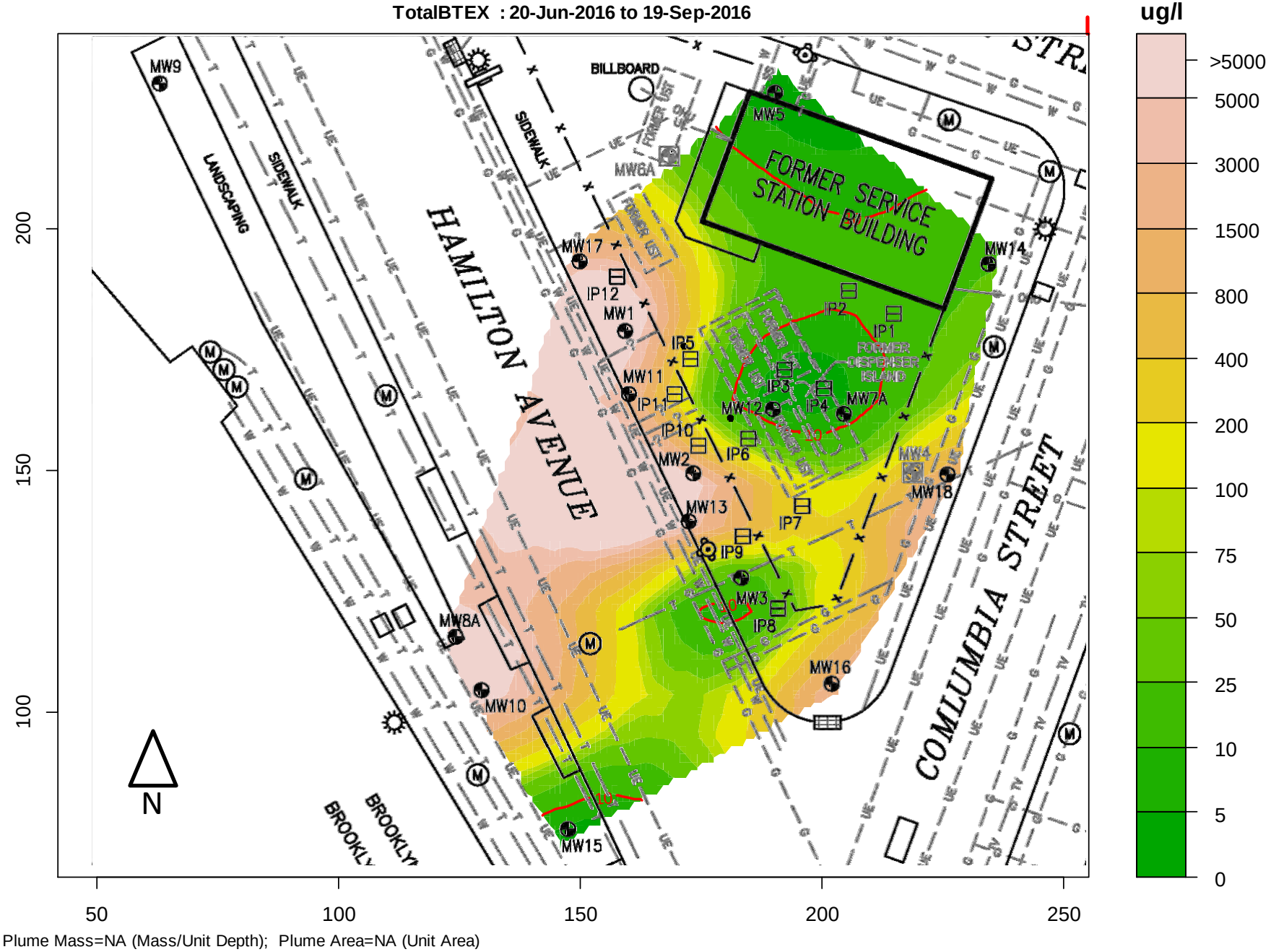

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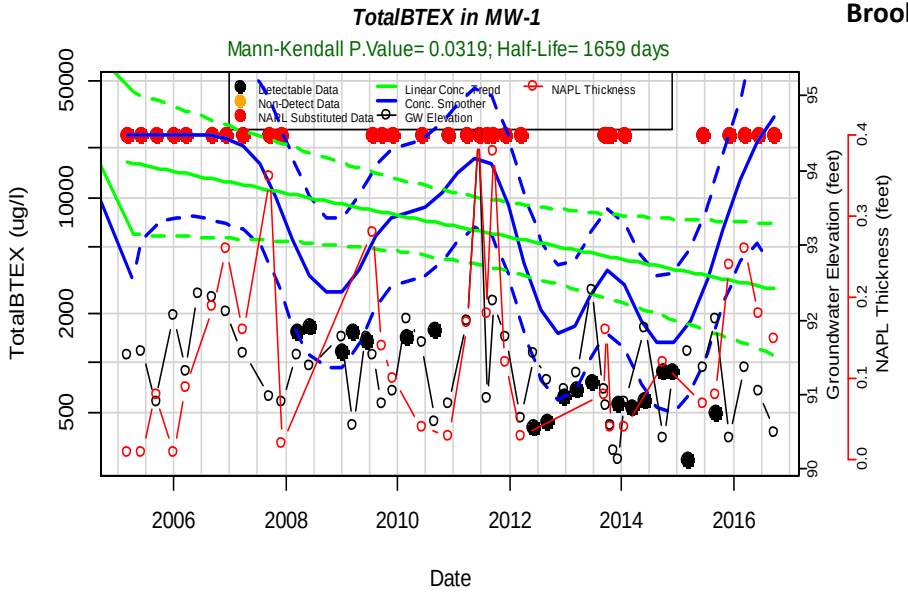
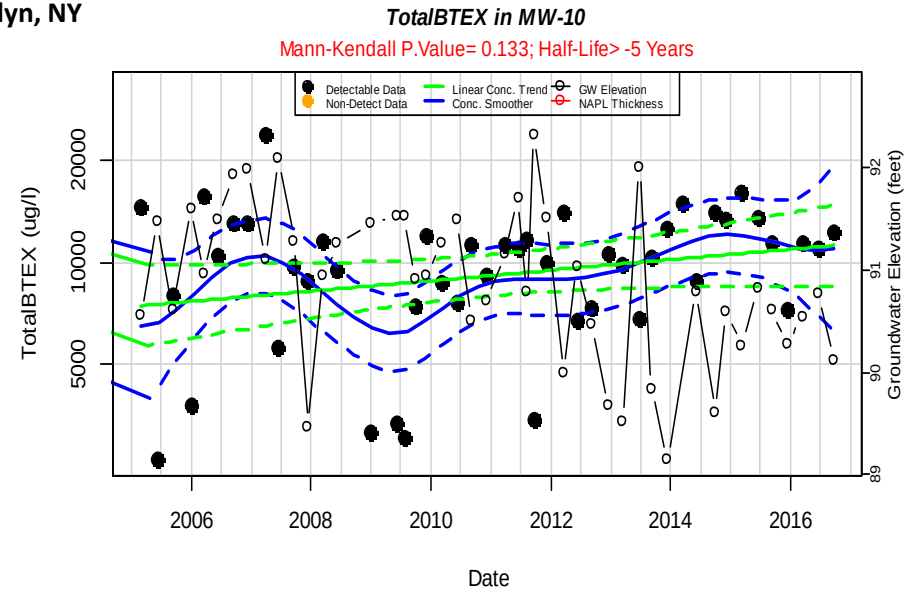
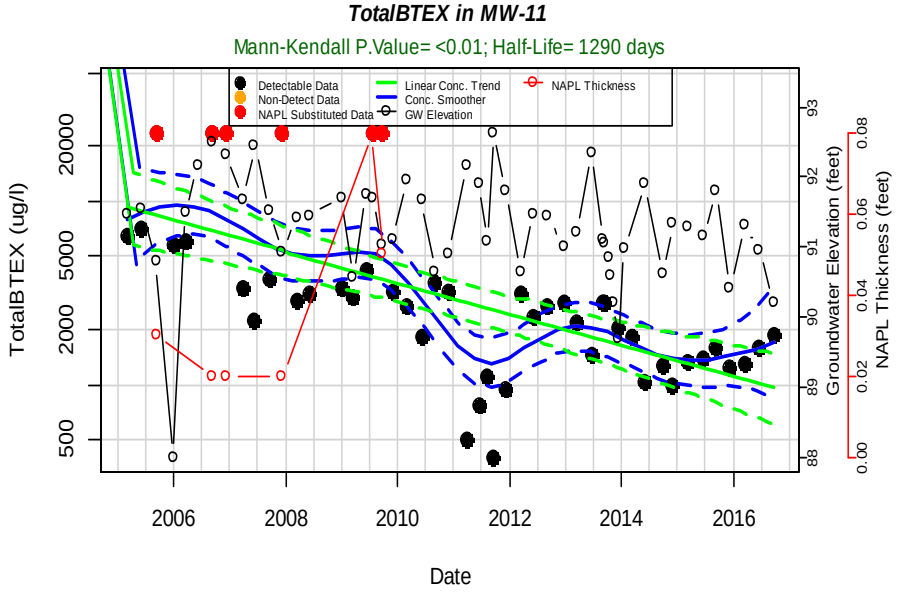
APPENDIX C

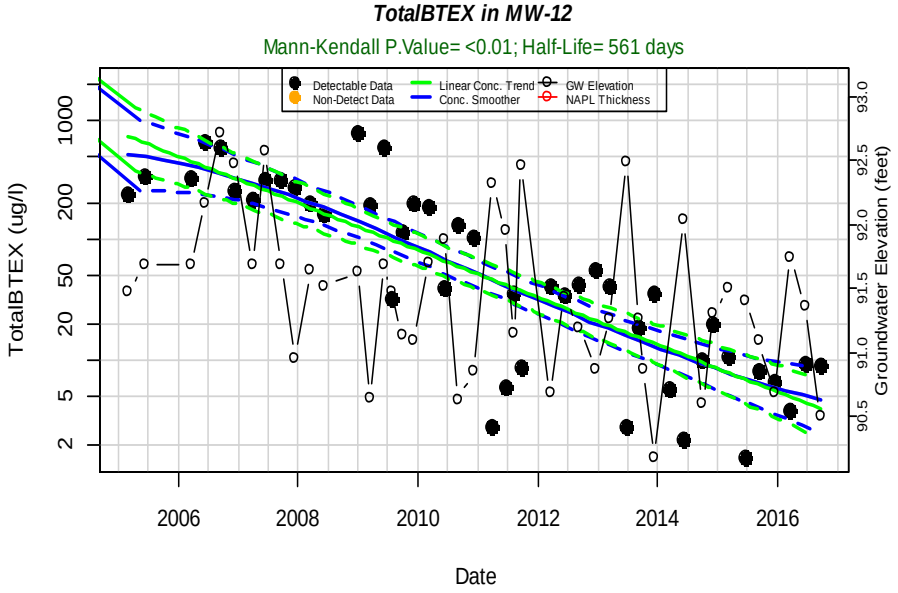
GWSDAT Well Report Analysis

Former Mobil Station #17-EMW
Brooklyn, NY

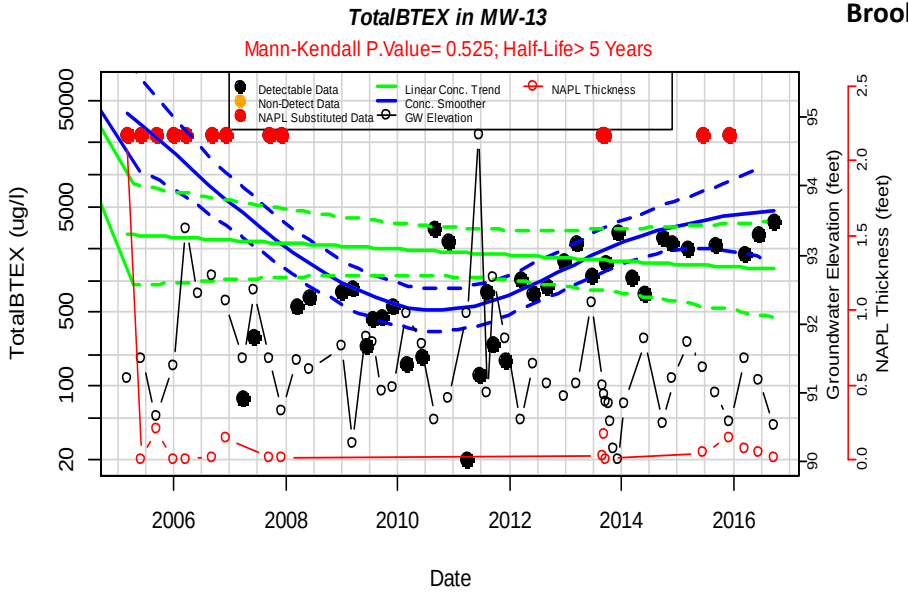


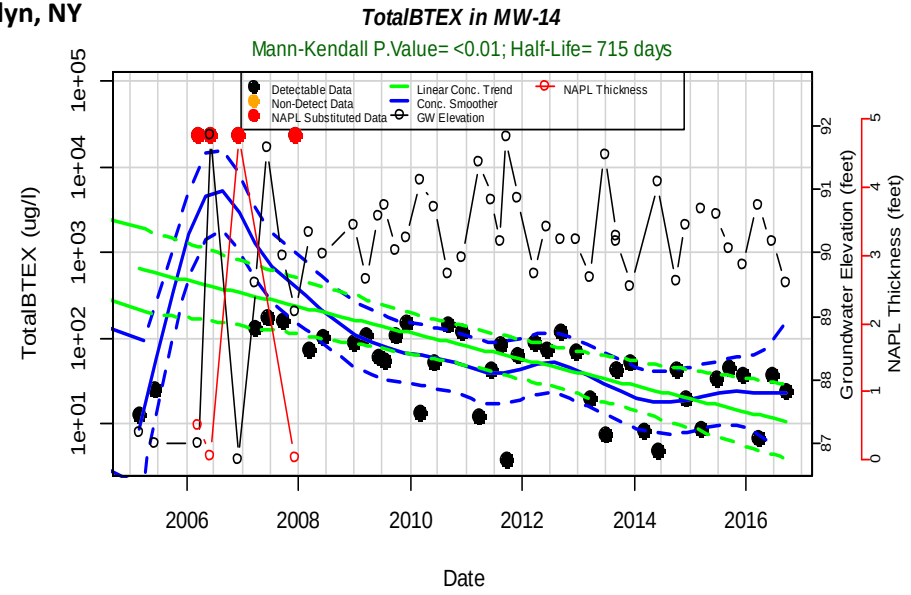


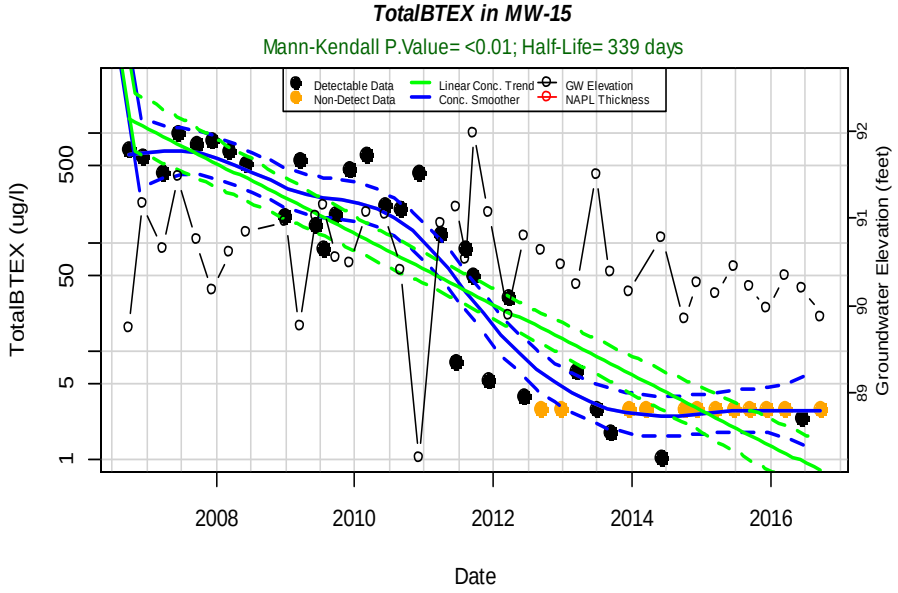


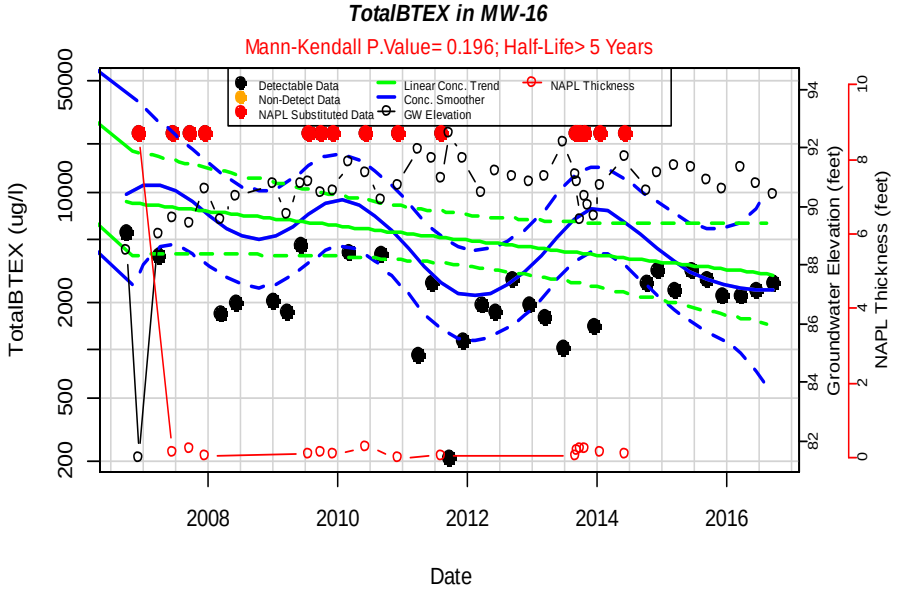


Former Mobil Station #17-EMW
Brooklyn, NY

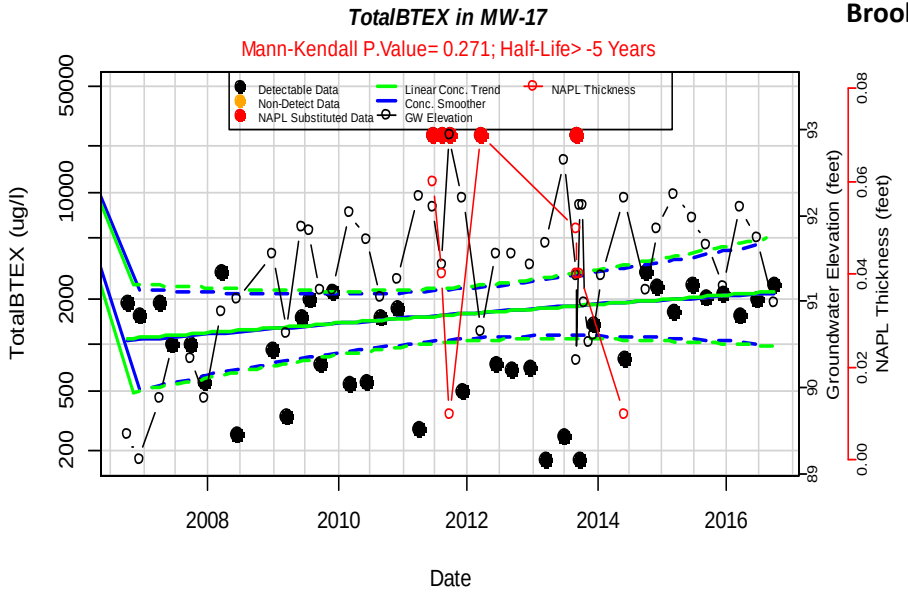


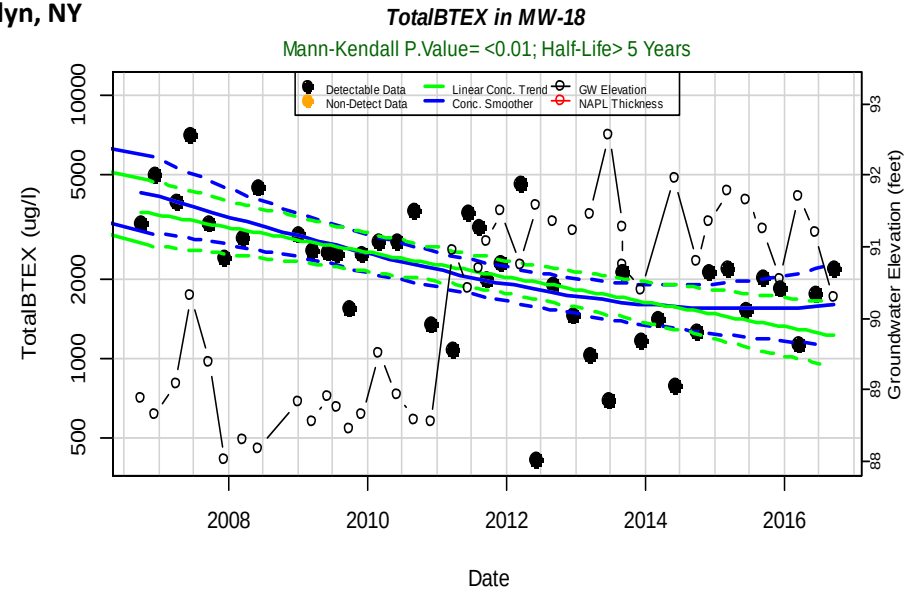


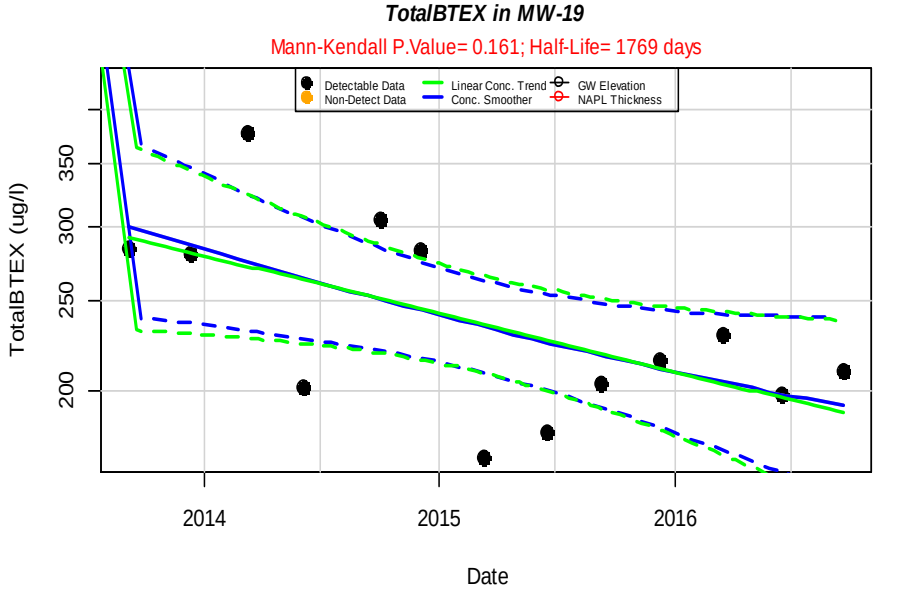


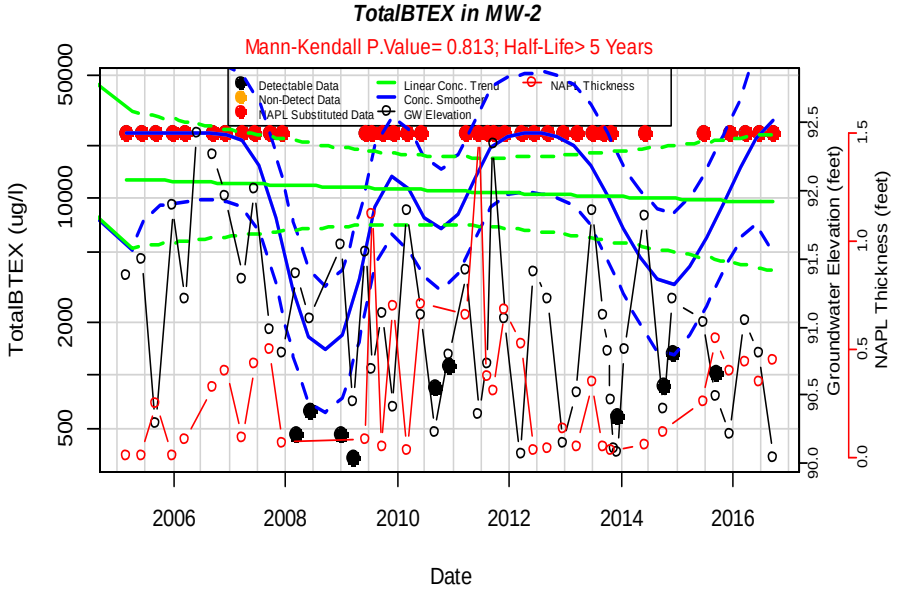


Former Mobil Station #17-EMW
Brooklyn, NY

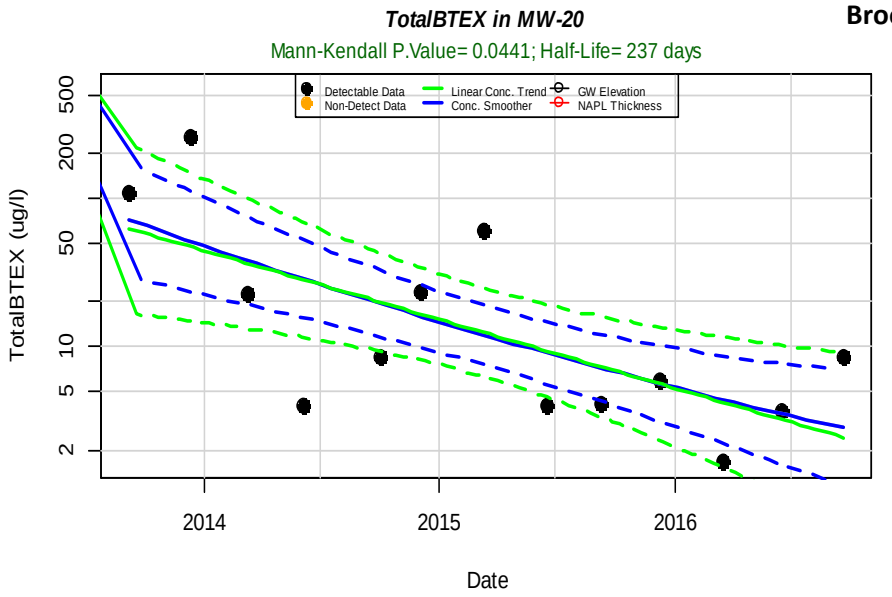


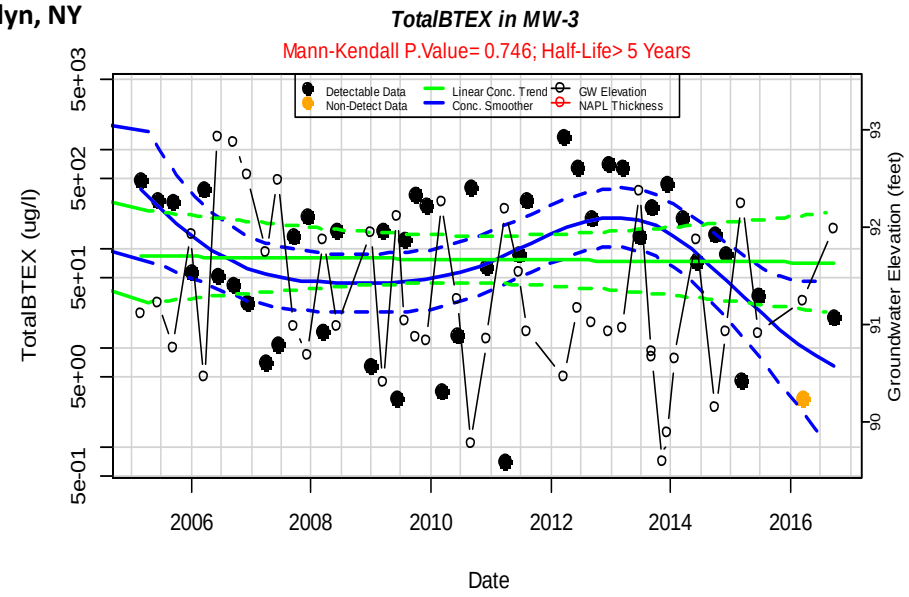


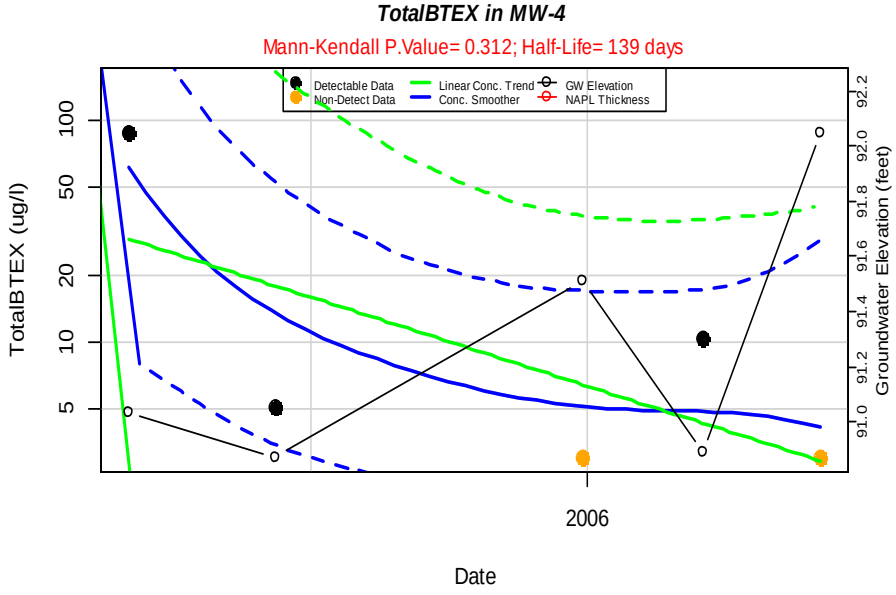


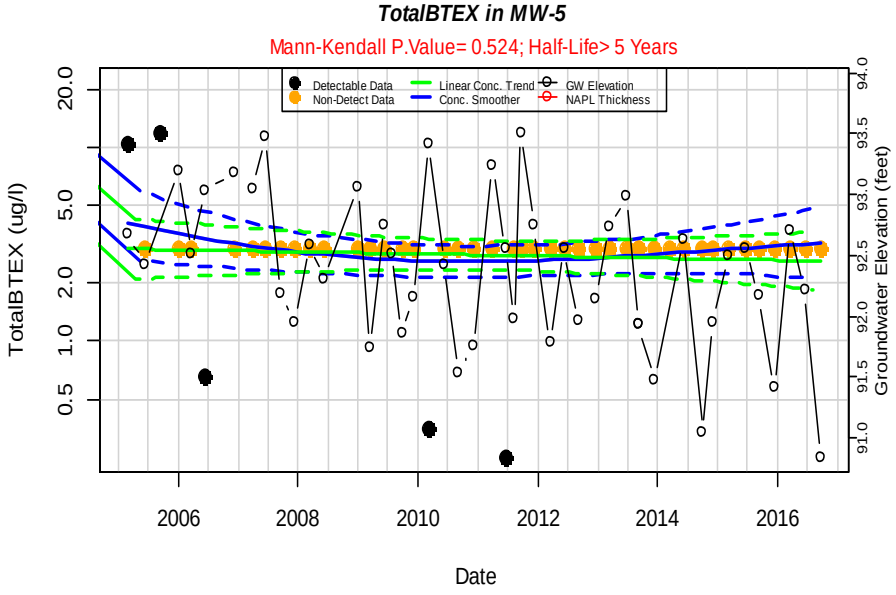


Former Mobil Station #17-EMW
Brooklyn, NY



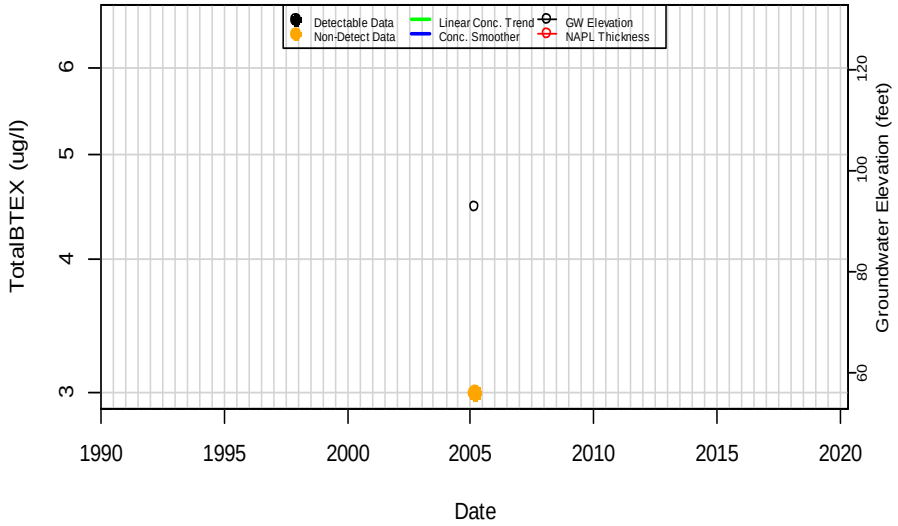






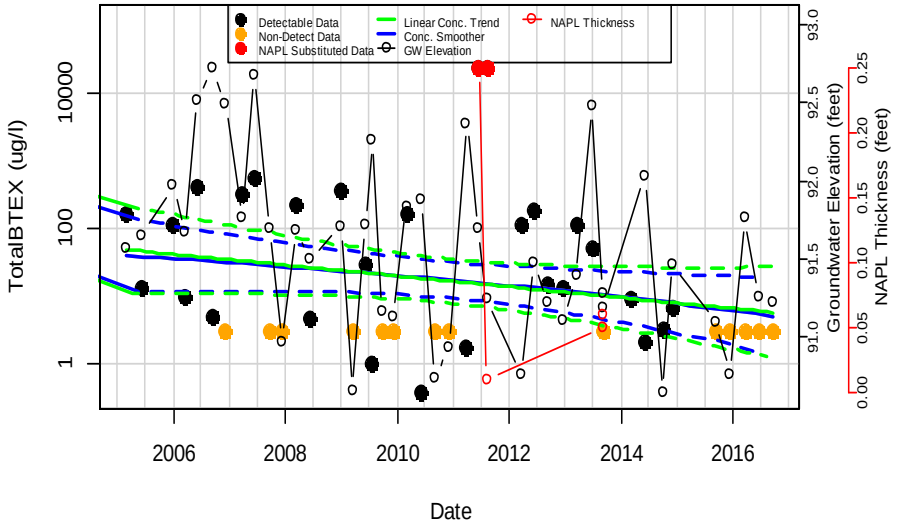
Former Mobil Station #17-EMW
Brooklyn, NY

TotalBTEX in MW-6A



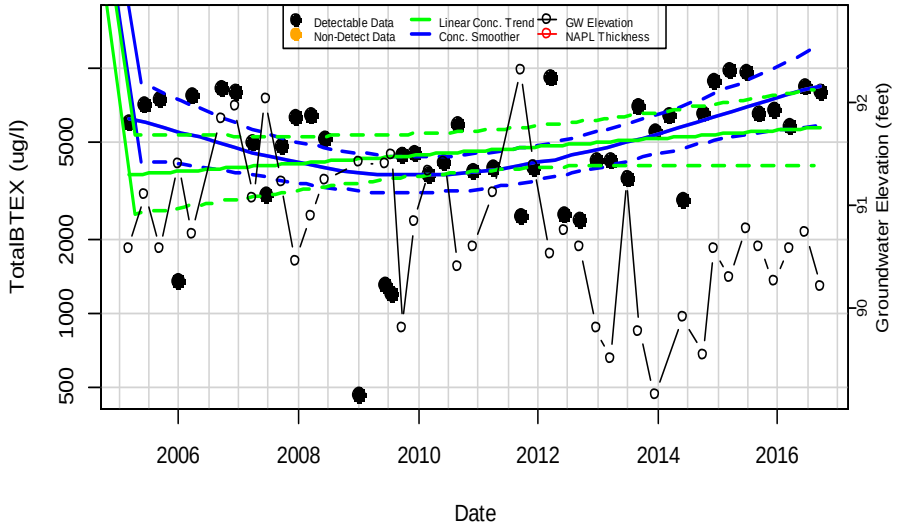
TotalBTEX in MW-7A

Mann-Kendall P.Value= 0.0259; Half-Life= 1367 days



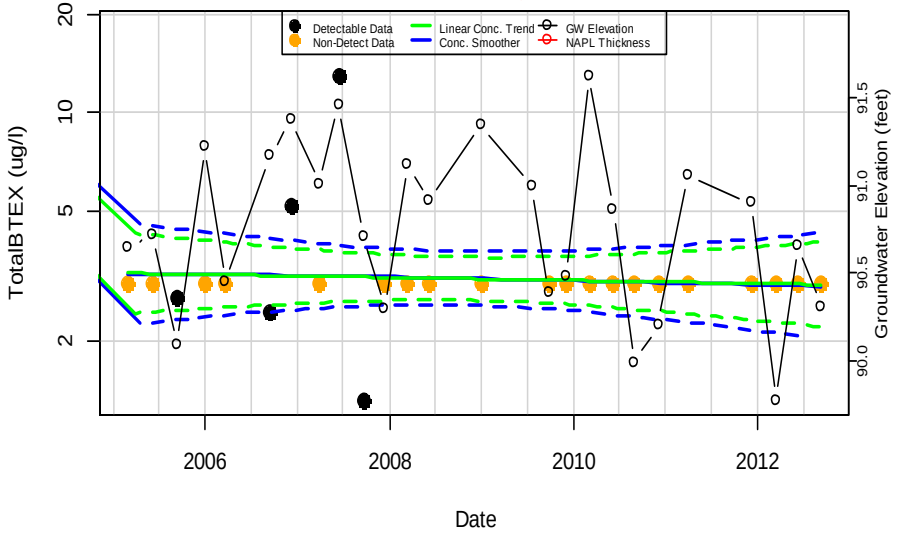
TotalBTEX in MW-8A

Mann-Kendall P.Value= 0.192; Half-Life> -5 Years



TotalBTEX in MW-9

Mann-Kendall P.Value= 0.614; Half-Life> 5 Years



APPENDIX D

March 2010 Sensitive Receptor Survey

ExxonMobil Sensitive Receptor Survey

Site ID or MRN: 17EMW

Facility Name: 17EMW (Name) | (ID Number) Service Stations Only

Location:

304 Columbia St (Street Address)

Brooklyn (City) | Kings (County) | NY (State) | 11231 (Zip / Postcode)

(Latitude) | (Longitude) | United States (Country)

Receptor Information Complete? (✓ = Yes; ✗ = No)

- ✓ General Site Information
- ✓ Public Supply Wells
- ✓ Private Wells
- ✓ Surface Water / Wetlands
- ✓ Residential Buildings
- ✓ Public Use Areas
- ✓ Basements / Subgrade Parking
- ✓ Subways / Tunnels
- ✓ Sewers and Utility Corridors
- ✓ "Other" Receptors

Prepared By:	Kleinfelder (Company)	Joel Adrian (Contact Person)	03/22/2010 (Date)
Updated By:			
Reviewed By:	ExxonMobil		

Ether Amended Fuels Status

Is this facility currently or likely in the future to handle ether amended fuels above deminimus levels (i.e., 0.5%) ?	○ Yes ◉ No

Groundwater Resources

General

Is groundwater within 1,500m of the site being used for drinking water?	○ Yes ◉ No
If yes, is it considered a sole source aquifer[1]?	
Is groundwater in the region used for irrigation or other non-potable uses?	○ Yes ◉ No
Estimated depth to "first groundwater"[2] (includes perched GW):	3.0 m ☐ Unknown
Is the first groundwater located in limestone or fractured rock?	○ Yes ◉ No ○ Unknown
Estimated depth to "utilized regional aquifer"[3]:	m ◉ Not Applicable ○ Unknown
Is the utilized regional aquifer located in limestone or fractured rock?	○ Yes ○ No ◉ Not Applicable ○ Unknown

Public Water Supply Wells

Is a public water supply well(s)[4] located within 1,500 meters of the site?	○ Yes ◉ No *For receptor data, see Annex "Public Water Supply Wells"*
Number of public water supply wells within 1,500 meters[5]:	

Private Water Wells

Are there any regulations that prevent the installation of private water wells within 300 m?	◉ Yes ○ No ○ Unknown
If yes, describe the regulations:	may not be used for potable purposes

Onsite Private Water Wells

Are any private water wells[6] located *on* the site?	○ Yes ◉ No *For receptor data, see Annex "Private Water Wells"*
Number of private *onsite* water wells[5]:	
If onsite private well, could site be connected to public water supply?	

Offsite Potable Private Water Wells

Are any *potable* private water wells located within 300 m of the site?	○ Yes ◉ No *For receptor data, see Annex "Private Water Wells"*
Number of private *potable* offsite water wells within 300 m of the site[5]:	

Offsite Non-Potable Private Water Wells

Are any *non-potable* private water wells located within 300 m of the site?	○ Yes ◉ No *For receptor data, see Annex "Private Water Wells"*
Number of private *non-potable* water wells within 300 m of the site[5]:	

Surface Water Bodies and Wetlands

Is a surface water body, wetland, or specially designated environmental habitat[7] located within 300 m of the site?	○ Yes ◉ No *For receptor data, see Annex "Surface Water Bodies and Wetlands "*
Number of surface water bodies, wetlands, or specially designated environmental habitats[7] within 300 m of the site:	

ExxonMobil **Sensitive Receptor Survey** Site ID or MRN: **17EMW**

Residential Buildings

Are residential buildings located within 100 m of the site?	(●) Yes ( ) No	*For receptor data, see Annex "Residential Buildings"*
Number of residential buildings within 100 m of the site:	22	

Public Use Areas

Is a public use area (medical facility, nursing home, school, child care center, religious center, playground, recreational area) located within 100 m of the site?	( ) Yes (●) No	*For receptor data, see Annex "Public Use Areas"*
Number of public use areas within 100 m of the site:		

Sub-Grade Structures

Basements or Below Grade Parking in Other Buildings

Do any other buildings located within 100 m of the site and not already identified above have basements or below grade parking?	(●) Yes ( ) No	*For receptor data, see Annex "Sub-Grade Structures"*
Number of basements or buildings with below grade parking within 100 m of the site:	3	

Subways/Transportation Tunnels

Is there a subsurface mass transit system or tunnel located within 100 m of the site?	(●) Yes ( ) No	*For receptor data, see Annex "Subways/Transportation Tunnels"*
Number of subways/tunnels within 100 m of the site:	1	

Sewers and Utility Corridors

Are there any storm or sanitary sewers or utility corridors that can act as preferential conduits for potential offiste migration?	(●) Yes ( ) No	*For receptor data, see Annex "Storm and Sanitary Sewers"*
Number of Sewers or Utility Corridors:	4	

"Other" Receptors

Do any other receptors or important facts not captured in this form, need to be identified?	( ) Yes (●) No	*For receptor data, see Annex "Other Receptors"*
Describe below:		

ExxonMobil **Sensitive Receptor Survey** **Site ID or MRN:** 17EMW

Drawings (Optional)			
If available, provide existing drawings. See details below of example content.			
Onsite receptors identified on form			
• ***Local Area Map or Aerial Photo (Site plus approximately 300 m in all directions)***			
Offsite Public Wells	Surface Water Bodies	Wetlands	Sensitive Public Use Areas
Offsite Private Wells	Subways/Tunnels	Buildings	Other Receptors
• ***Regional Area Map (Site plus approximately 1,500 m in all directions)***			
Offsite Public Wells	Topography	Major Surface Water Bodies	

Notes:
1. Sole Source Aquifer: The groundwater unit must be designated as such by a regulatory authority or the groundwater unit that would be impacted by a release is the only source of drinking water for local users.
2. First Groundwater: The first (i.e., shallowest) groundwater-bearing unit encountered below ground surface; includes perched groundwater.
3. Utilized Regional Groundwater: A groundwater-bearing unit present at a site which is utilized for drinking water or other beneficial use (i.e., agriculture or industry).
4. Public Water Supply Wells: Include both large community public wells for municipalities and smaller systems for housing developments, non-transient non-community public wells for schools, daycare centers, hospitals, and apartment complexes, and transient non-community public wells for restaurants and campgrounds.
5. For Public Water Supply and Private Well locations, use local records and drive the area to identify well locations.
6. Private Wells: Do not include monitoring or observation wells.
7. Specially designated environmental habitats: Include government-designated wildlife refuges, game preserves, marine sanctuaries, protected rivers, wildlife corridors, etc.

ExxonMobil Sensitive Receptor Survey	Site ID or MRN: 17EMW

RECEPTOR DATA ANNEX

Groundwater Resources	
Public Water Supply Wells	
Well Number:	
Well Identification:	
Owner:	
Water Use:	
If other, describe:	
Type of Public Supply Well[1,2,3]:	
Active:	
Distance from the Site (m):	
Direction From The Site:	
Is site located over a Designated Source Water Protection Zone[4]:	
If yes, provide the Protection Zone designation and description:	
Topographically/Hydraulically downgradient:	
Approximate Capacity (m^3/hr):	
Screened Interval--Top (m, BGS):	
Screened Interval--Bottom (m, BGS):	
Confining Layer Present:	
Information Verified in Field or with Owner:	

Private Water Wells
Well Number
Is the well onsite or offsite:
Well Identification:
Owner:
Street Address:
Water Use:
If other, describe:
Active:
Distance from the Site (m):
Direction From The Site:
Topographically/Hyrdraulically Downgradient:
Approximate Capacity (m^3/hr):
Screened Interval--Top (m, BGS):
Screened Interval--Bottom (m, BGS):
Confining Layer Present:
Information Verified in Field or with Owner:

ExxonMobil Sensitive Receptor Survey

Site ID or MRN: 17EMW

RECEPTOR DATA ANNEX

Surface Water Bodies and Wetlands

Surface Water Body Number:	
Name:	
Potable Use:	
Type of Resource:	
Uses of Surface Water Body:	
Distance from Site to Resource (m):	
Direction from Site to Resource:	
Information Verified in Field:	

Residential Buildings

Residential Building Number:	1	2	3	4	5
Type of Residential Building:	Apartment	Single Family	Single Family	Single Family	Apartment
Owner:	15 Woodhull Street	301 Columbia St	303 Columbia St	305 Columbia St	311 Columbia St
Estimated Occupancy:	< 10	< 10	< 10	< 10	10 - 50
Distance from Site to Residential Building (m):	20	40	30	25	30
Direction from Site to Residential Building:	N	NE	NE	NE	E
Topographically/Hydraulically Downgradient:	Unknown	Unknown	Unknown	Unknown	Unknown
Basement Present in Residential Building:	Yes	Yes	Yes	Yes	Yes
Below Grade Parking Present in Residential Building:	No	Yes	Yes	Yes	No
Water Supply Source for Residential Building:	Public Supply	Public Supply	Public Supply	Public Supply	Public Supply
Information Verified in Field:	Yes	Yes	Yes	Yes	Yes

Public Use Areas

Public Use Area Number:	
Name:	
Type of Public Use Area:	
Distance from Site to Public Use Area (m):	
Direction from Site to Public Use Area:	
Topographically/Hydraulically Downgradient:	
Basement present in Public Use Building:	
Below Grade Parking Present in Public Use Building:	
Likely to have a sump in Basement or Below Grade Parking:	
Water Supply Source for Public Use Area:	
Information Verified in Field:	

ExxonMobil Sensitive Receptor Survey | **Site ID or MRN:** 17EMW

RECEPTOR DATA ANNEX

Sub-Grade Structures

Basements or Below Grade Parking in Other Buildings			
Basement or Below Grade Parking Number:	1	2	3
Type of Other Building:	Commercial	Other	Commercial
If other, describe:		321 Columbia- residential apartment w/ basement	
Type of Subsurface Structure:	Basement	Basement	Basement
Likely to have a sump in Basement:	Unknown	Unknown	Unknown
Distance from Site to Other Building (m):	30	30	35
Topographically/Hydraulically Downgradient:	Unknown	Unknown	Unknown
Information Verified in Field:	Yes	Yes	Yes

Subways/Transportation Tunnels	
Subway / Tunnel Number:	1
Description:	Brooklyn-Battery Tunnel
Direction from Site to Subway / Tunnel:	S
Is Subway / Tunnel Topographically / Hydraulically downgradient from Site:	Unknown
Information Verified in Field:	Yes

Sewers and Utility Corridors				
Sewer or Utility Corridor Number:	1	2	3	4
Type:	Storm Sewer	Storm Sewer	Storm Sewer	Storm Sewer
Perimeter Location:	NW	NW	NE	S
Depth to base (bottom) of Sewer / Utility Corridor:	10	10	10	10
Information Verified in Field:	Yes	Yes	Yes	Yes

ExxonMobil Sensitive Receptor Survey

RECEPTOR DATA ANNEX

Sub-Grade Structures

Basements or Below Grade Parking in Other Buildings

Basement or Below Grade Parking Number:
Type of Other Building:
If other, describe:
Type of Subsurface Structure:
Likely to have a sump in Basement:
Distance from Site to Other Building (m):
Topographically/Hydraulically Downgradient:
Information Verified in Field:

Subways/Transportation Tunnels

Subway / Tunnel Number:
Description:
Direction from Site to Subway / Tunnel:
Is Subway / Tunnel Topographically / Hydraulically downgradient from Site:
Information Verified in Field:

Sewers and Utility Corridors

Sewer or Utility Corridor Number:
Type:
Perimeter Location:
Depth to base (bottom) of Sewer / Utility Corridor:
Information Verified in Field: