Summary of the Monitored Data for the Period from September 11th through September 24th, 2011

Preface

The first objective of this air monitoring study commissioned by the MTACC is to determine the air quality, dust and odor effects of the underground blasting (and other construction related activities) on the adjacent abutters and affected public. This is accomplished by measuring a variety of pollutant levels at multiple locations on 2nd Avenue between 69th and 87th streets during a four week period which started September 11th 2011.

Reference Levels

The data presented in this summary includes the two first weeks of the monitoring study from September 11th till September 24th. This summary presents the results for the particulate matter, both coarse (PM_{10}) and fine ($PM_{2.5}$), silica, carbon monoxide (CO), and volatile organic compounds (VOC).

The monitored concentrations collected at the ten monitored sites along the Second Avenue were compared to the reference levels which were either the levels of the applicable National Ambient Air Quality Standards (NAAQS) or other threshold limits. For the PM_{10}, $PM_{2.5}$ and CO the reference levels were the 24-hour and 1-hour NAAQS. The threshold for silica was based on the World Trade Center Air Task Force action level. The threshold for the VOC was the Community Air Monitoring Plan (CAMP) action level.

Validation Procedures

The monitored concentrations were validated to exclude the readings when instruments were not functioning properly either because of a technical problem or due to the weather conditions. The weather conditions that were taken into account were the rain or high humidity that affected the particulate matter readings.

The monitors registered one minute readings that were later averaged to the time periods corresponding to the threshold limits. In accordance with the USEPA recommendations, the time periods with less than 75 percent valid readings were excluded.

Monitored Concentrations

PM_{10} Concentrations

PM_{10} concentrations were compared to the 24-hour PM_{10} NAAQS of 150 $\mu g/m^3$.

The PM_{10} concentrations were monitored at 7 monitoring stations, four near the 69th -72nd Street shaft and three near 83rd -87th Street shaft. The results were divided into two corresponding sets; one for the 69th to 73rd street area, and th other for the 83rd to 87th street area. The PM_{10} concentrations did not exceeded the reference level during the first two weeks of monitoring at any monitoring location. The average PM_{10} concentrations near the 69th -72nd Street shaft were between

12.2 and 27.0 μg/m^3; and near the 83rd -87th Street shaft average concentrations varied from 16.9 to 30.4 μg/m^3.

$PM_{2.5}$ Concentrations

$PM_{2.5}$ concentrations were compared to the 24-hour $PM_{2.5}$ NAAQS of 35 μg/m^3.

The $PM_{2.5}$ concentrations were monitored at 3 monitoring sites, two near the 69th -72nd Street shaft and one at 83rd Street. The results were divided into the same two corresponding areas. During the first two weeks of monitoring, the $PM_{2.5}$ levels exceeded the reference level once at the 69th Street. The actual reading on Wednesday, September 14th was 36.3 μg/m^3. This is not an unusual level to be measured in the NYC area, since background levels could be in the 30 μg/m^3 range. The levels at all other stations during these two weeks were below the reference level. The average concentrations during this period were within 15.6-18.4 μg/m^3 range.

Silica Concentrations

Silica concentrations were compared to the WTC Air Task Force Action Level of 10 μg/m^3.

Silica concentrations were collected at 3 locations, at 70th Street, at 72nd Street and at 83rd Street. The site at 72nd Street started monitoring in the end of August; the other sites started collecting data from September 12. The concentrations monitored at all three sites were below the reference threshold.

CO Concentrations

CO concentrations were compared to the 1-hour CO NAAQS of 35 ppm.

CO concentrations were monitored at all 10 monitoring sites. The average monitored hourly CO levels ranged from 0.04 to 0.3 ppm.

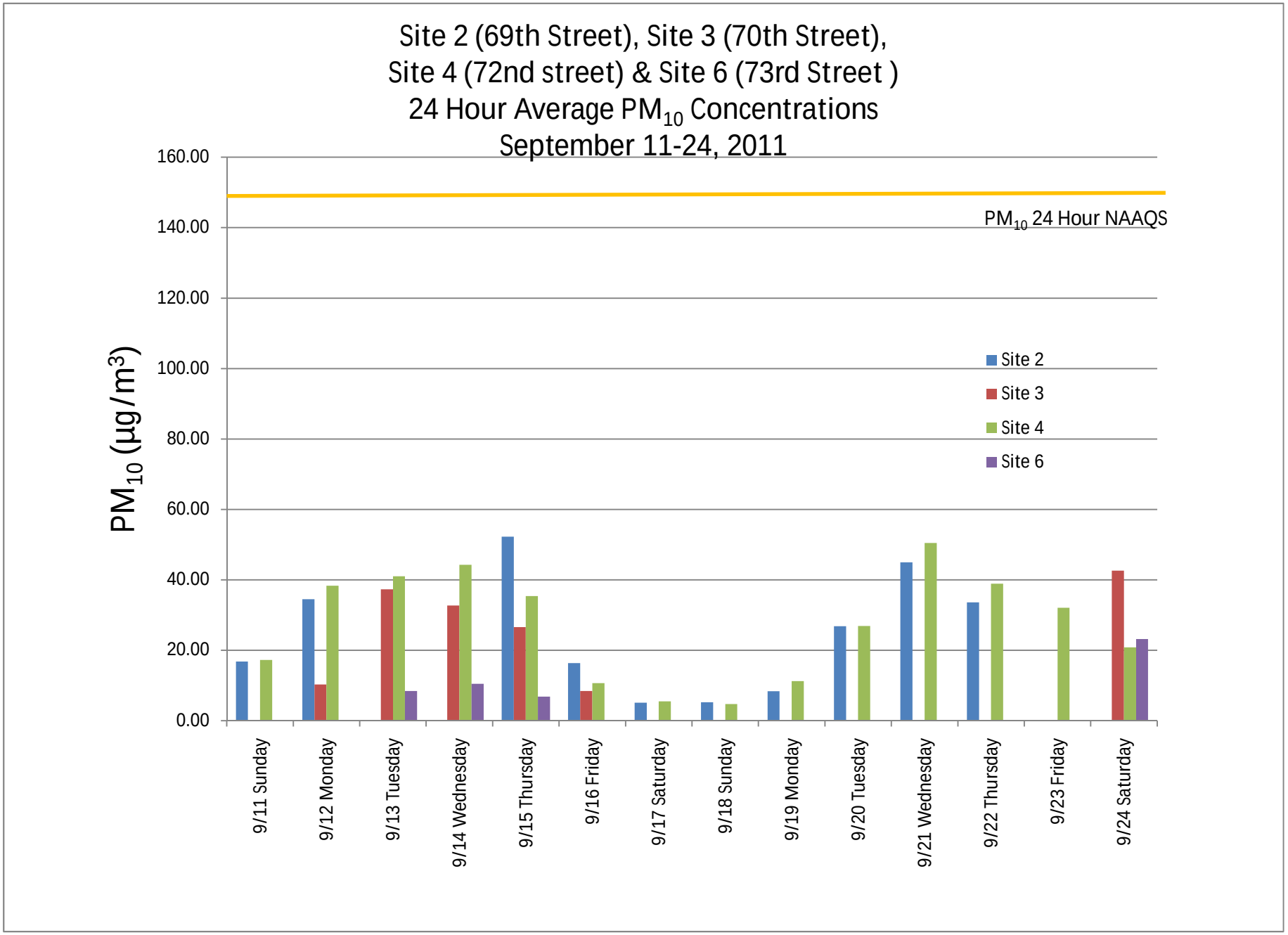
The only occurrence of high CO concentrations happened at Site 4 on 72nd Street at ground level on Wednesday, September 14th from 7 PM to 8 PM. The actual high levels occurred for 13 minutes from 7:30 to 7:43. These higher levels brought the hourly average to 33.4 ppm for this hour, which is still below the NAAQS. We do not have a firm explanation for the cause of this short term peak. The last blast in the vicinity of the monitor on that day was conducted at 5:46 PM and could not have influenced this peak level. We do have knowledge that welding activities occurred in the vicinity of the monitor during that week and could have been a possible source of high CO levels.

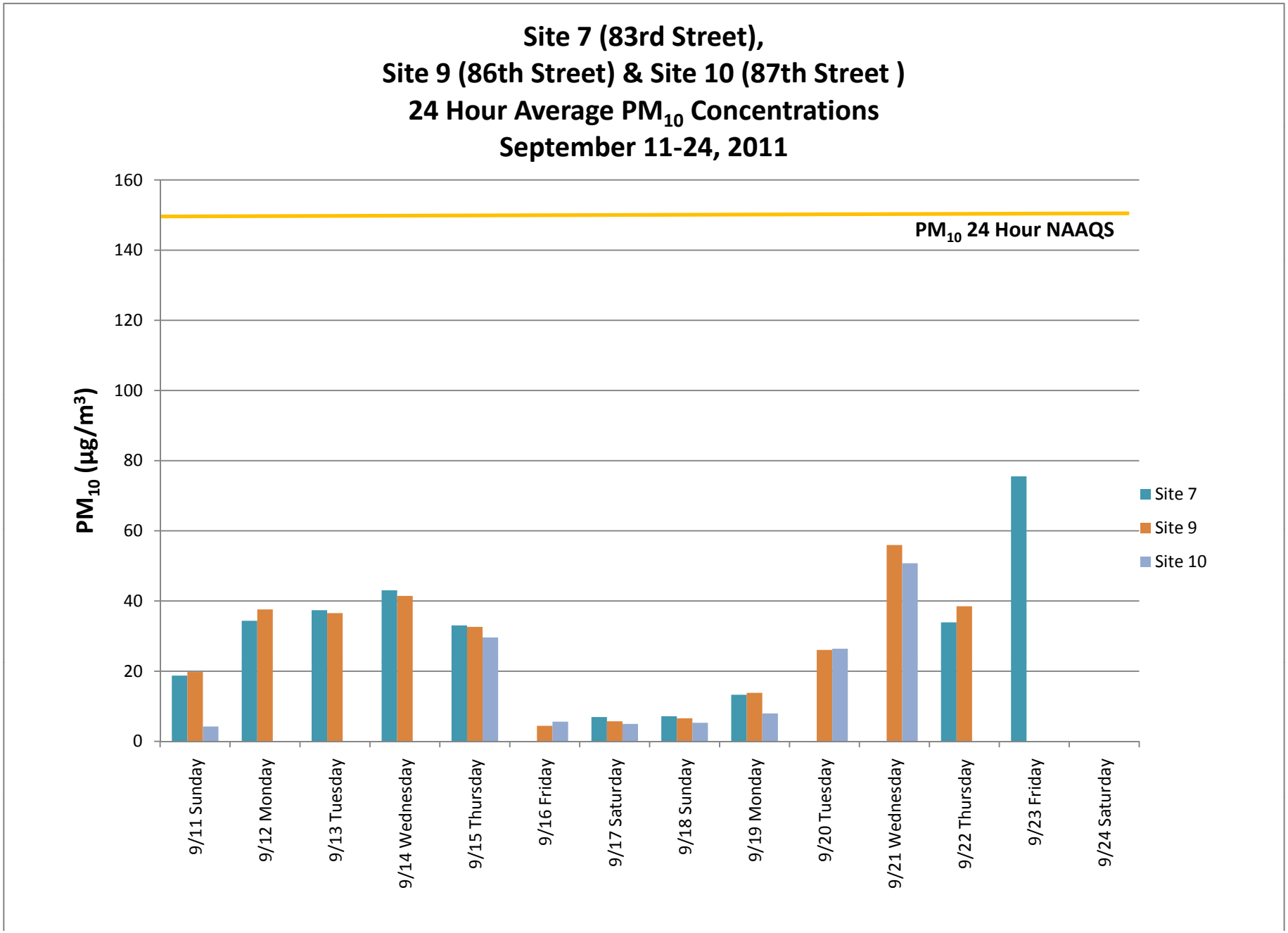
VOC Concentrations

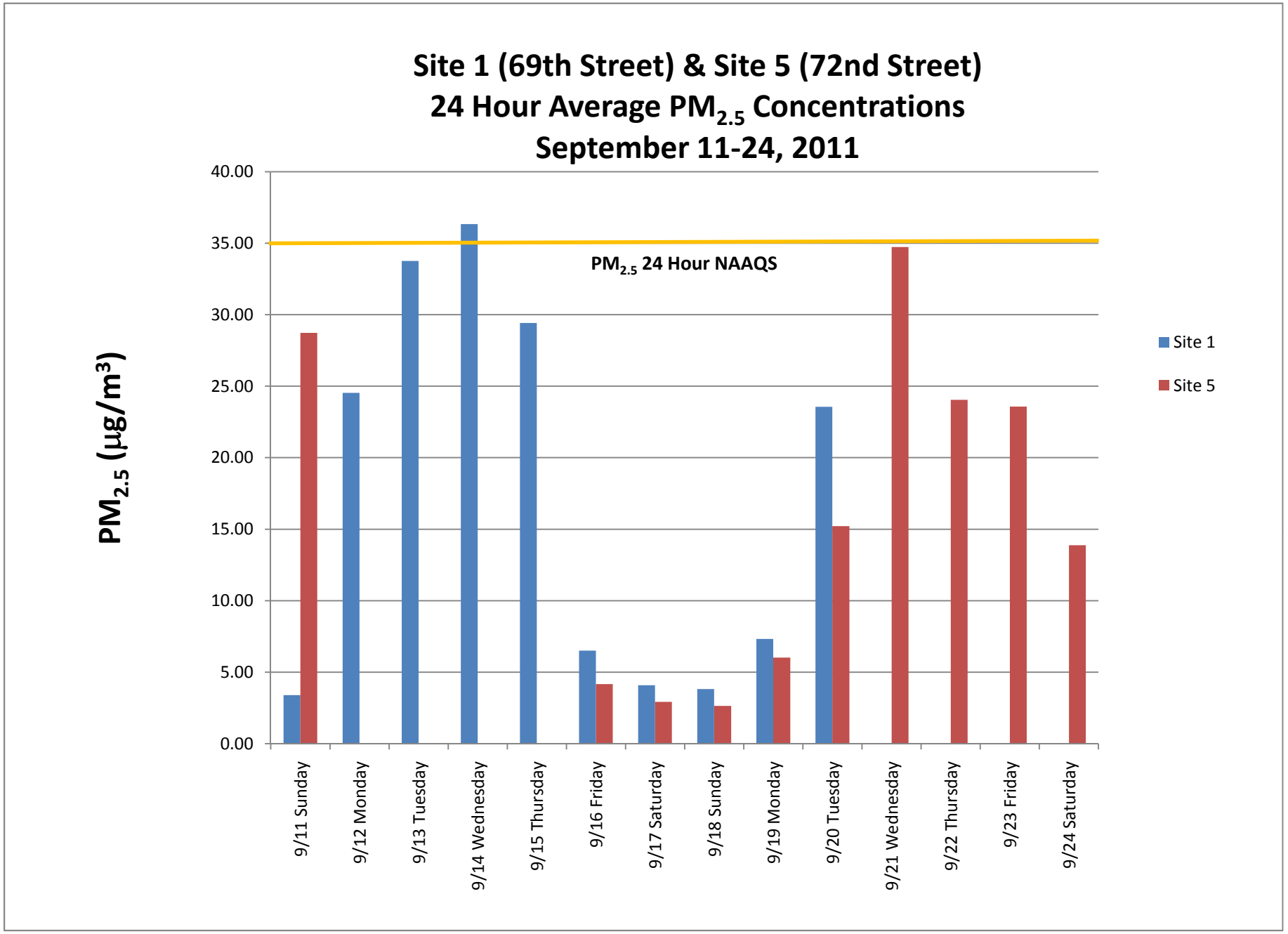
VOC concentrations were compared to the CAMP 15-minute VOC Action Level of 5 ppm.

VOC concentrations were monitored at all ten monitoring sites. The 15-minute levels did not exceed the reference level at any station during the first two weeks of monitoring. The average VOC levels ranged from 0.1 to 0.5 ppm; the maximum levels were from 0.7 ppm to 4.7 ppm.

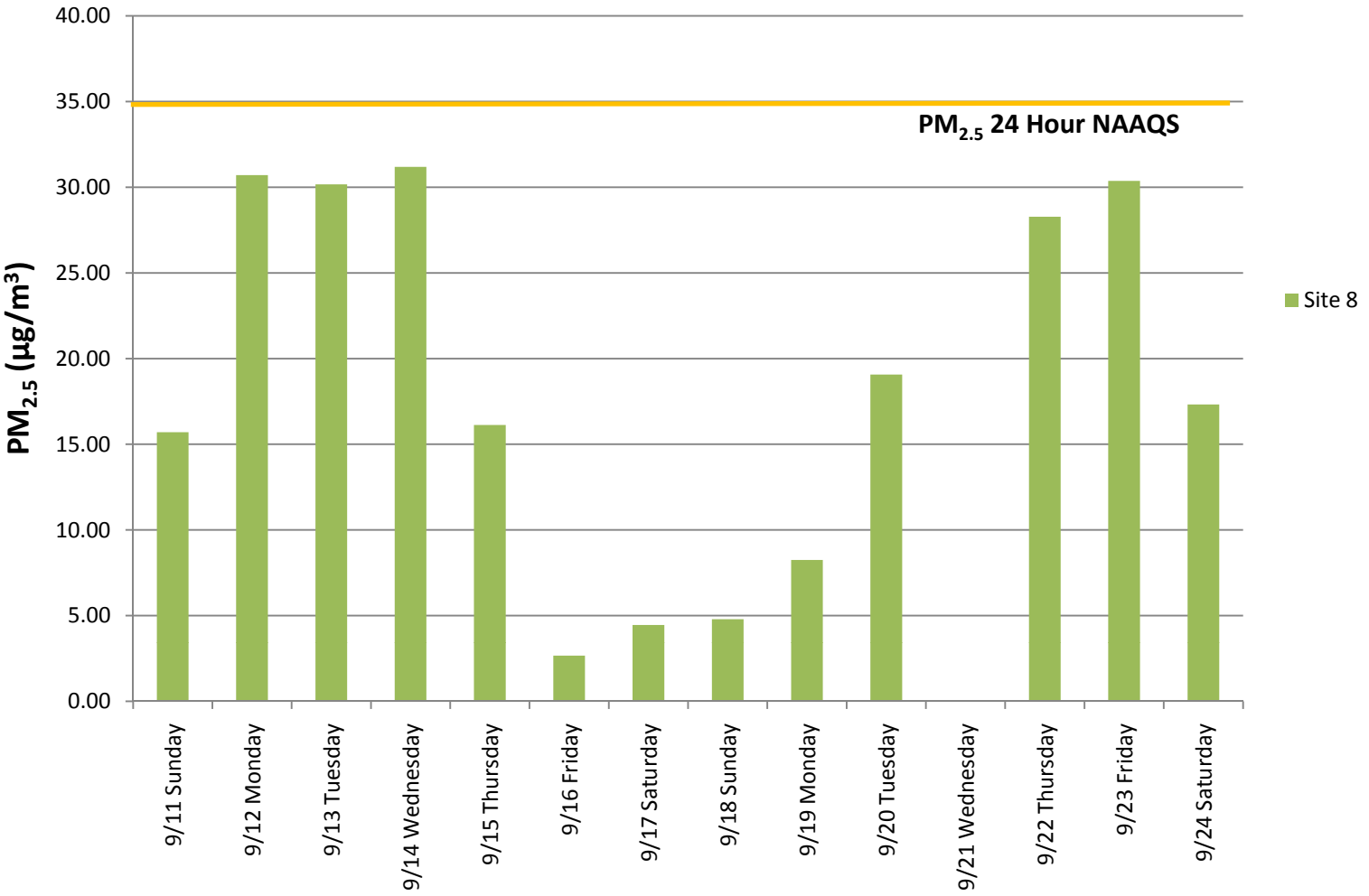
Attached is a PDF with the plots and tables.

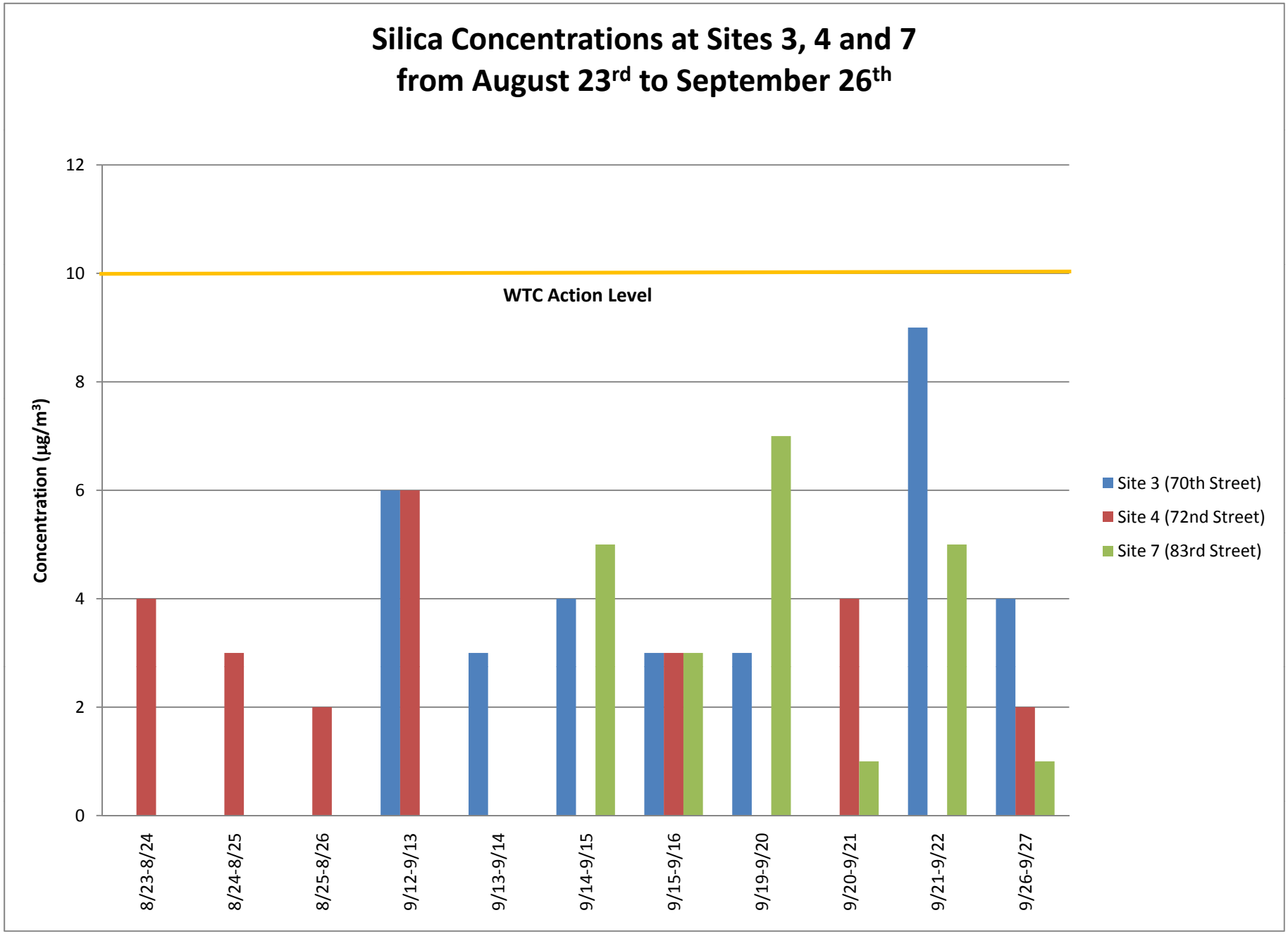

Site 2 (69th Street), Site 3 (70th Street),
Site 4 (72nd street) & Site 6 (73rd Street)
24 Hour Average PM10 Concentrations
September 11-24, 2011
PM10 (µg/m3)
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
PM10 24 Hour NAAQS
Site 2
Site 3
Site 4
Site 6
9/11 Sunday
9/12 Monday
9/13 Tuesday
9/14 Wednesday
9/15 Thursday
9/16 Friday
9/17 Saturday
9/18 Sunday
9/19 Monday
9/20 Tuesday
9/21 Wednesday
9/22 Thursday
9/23 Friday
9/24 Saturday


Site 7 (83rd Street),
Site 9 (86th Street) & Site 10 (87th Street)
24 Hour Average PM10 Concentrations
September 11-24, 2011
PM10 (µg/m3)
160
140
120
100
80
60
40
20
0
PM10 24 Hour NAAQS
Site 7
Site 9
Site 10
9/11 Sunday
9/12 Monday
9/13 Tuesday
9/14 Wednesday
9/15 Thursday
9/16 Friday
9/17 Saturday
9/18 Sunday
9/19 Monday
9/20 Tuesday
9/21 Wednesday
9/22 Thursday
9/23 Friday
9/24 Saturday


Site 1 (69th Street) & Site 5 (72nd Street)
24 Hour Average PM2.5 Concentrations
September 11-24, 2011
PM2.5 (µg/m3)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
PM2.5 24 Hour NAAQS
Site 1
Site 5
9/11 Sunday
9/12 Monday
9/13 Tuesday
9/14 Wednesday
9/15 Thursday
9/16 Friday
9/17 Saturday
9/18 Sunday
9/19 Monday
9/20 Tuesday
9/21 Wednesday
9/22 Thursday
9/23 Friday
9/24 Saturday

Site 8 (83rd Street)
24 Hour Average $PM_{2.5}$ Concentrations
September 11-24, 2011




Silica Concentrations at Sites 3, 4 and 7
from August 23rd to September 26th
Concentration (µg/m³)
12
10
8
6
4
2
0
WTC Action Level
8/23-8/24
8/24-8/25
8/25-8/26
9/12-9/13
9/13-9/14
9/14-9/15
9/15-9/16
9/19-9/20
9/20-9/21
9/21-9/22
9/26-9/27
Site 3 (70th Street)
Site 4 (72nd Street)
Site 7 (83rd Street)

Measured Hourly Pollutant Levels
Period September 11-24, 2011
Part Per Million (PPM)

Pollutant		Monitoring Station									
		1	2	3	4	5	6	7	8	9	10
CO	Avg	0.2	0.04	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.1
	Max	2.0	1.4	11.7	33.4	3.4	8.6	0.8	1.7	1.6	3.0

Measured 15 Minutes VOC Levels
Period September 11-24, 2011
Part Per Million (PPM)

Pollutant		Monitoring Station									
		1	2	3	4	5	6	7	8	9	10
VOC	Avg	0.1	0.2	0.5	0.2	0.2	0.1	0.2	0.01	0.1	0.1
	Max	2.2	0.7	4.7	1.6	0.9	0.4	4.7	0.1	2.5	0.7