Reference No. 081618



June 4, 2018

Mr. Steven Scharf New York State Department of Environmental Conservation Division of Solid & Hazardous Materials Bureau of Solid Waste and Corrective Action 625 Broadway Albany, New York 12233-7015

Dear Mr. Scharf:

Re: 1 Enterprise Sub-Slab Venting System Preliminary Test Results RUCO Polymer Corp. Site Hicksville, New York

1. Introduction

The assessment and potential remediation of off-site soil vapor associated with the RUCO Polymer Corp. Site in Hicksville, NY was designated as Operable Unit 05 (OU5) by the New York State Department of Environmental Conservation (NYSDEC) and is subject to NYSDEC Order on Consent and Administrative Settlement (Order) Index #A1-0799-12-10, effective September 30, 2013.

In accordance with the Record of Decision (ROD) issued March 31, 2017 for Operable Unit 05: Offsite Soil Vapor, GHD, on behalf of Covestro and Glenn Springs Holdings Inc. (GSH), prepared a Remedial Design (RD) for the installation, operation, maintenance, and monitoring of a sub-slab depressurization (SSD) system underneath the Simone Enterprises building located at 1 Enterprise Place in Hicksville, New York. The RD was submitted to the NYSDEC on January 16, 2018 and approved by NYSDEC on January 25, 2018. The objective of this remedial action is to mitigate the potential for migration of residual sub-slab soil vapors located beneath the building slab into the Simone building.

The RD includes a phased approach consisting of a Preliminary Test at one location to establish an effective radius of influence beneath the floor slab. The data from this test would be used to prove that a vacuum can be induced below the floor slab, to determine the extent of the area affected by this test, and to determine whether the proposed Phase I installation of one horizontal extraction pipe should proceed as planned or whether design changes may be warranted.

This letter presents the data from the Preliminary Test, an evaluation of those data, and recommendations regarding design of the Phase I system. Figure 1 shows the layout of the area. Figure 2 focuses on the 1 Enterprise Place building area and the planned mitigation system. Figure 2 also shows the location of the Preliminary Test area and the vapor point monitoring locations. The data obtained in the field during the test are presented in Attachment 1.





2. Preliminary Test Procedure

The test was conducted on May 9, 2018 by NAC Consultants of Kings Park, NY and AARCO Environmental of Farmingdale, NY, under the supervision of GHD. The outline for the test was presented in Section 3.1 of the RD and was completed as follows:

One 2-inch diameter extraction well was installed through a 4-inch penetration of the concrete floor adjacent to the SSV-5 location as shown on Figure 2. The concrete slab in this location was 4-inch thick. The sub-base material in this area was a fine to medium brown sand, which was removed by hand to accommodate the screened section of the extraction point. The top of an 8-inch section of polyvinyl chloride (PVC) well screen (10 slot) was placed at the base of the concrete floor slab with 6-inches exposed beneath the floor slab. Two inches of the screen at the bottom were covered by the PVC well cap. The annular section between the PVC extraction point and the concrete floor slab was sealed with quick set cement and allowed to cure for approximately 2 hours.

Six soil vapor monitoring points (vapor pins) were installed in 5/8-inch diameter holes drilled through the concrete floor to a depth of 6 inches at distances of 5 feet, 15 feet, and 25 feet in a northward direction and 10 feet, 20 feet and 30 feet in a southward direction from the extraction point as shown in the detail on Figure 2.

An AirTech 3BA1500 Model 7AS35 rotary vane blower rated at a maximum flow of 78 cubic feet per minute (CFM) and -72-inches water column (in. H_2O) vacuum was used to conduct the test.

A Fluke Model 922 digital micro-manometer was used to record the vacuum readings.

Pressure and flow to the extraction well were regulated using a flow manifold with separate 2-inch diameter inlets for fresh air and for connection to the extraction well. A ball valve on each inlet was used to control the air entry from each inlet, varying the vacuum and flow to the well.

Following a baseline sub-slab pressure reading, a negative pressure test consisting of seven steps (runs) of at least 15-minutes duration were conducted, controlling the flow rate applied to the extraction well for each step in order to vary the applied vacuum at the measurement manifold. The initial and final flow rates as well as the resulting vacuum at each of the monitoring points was measured and reported during each run following an initial 15-minute run time.

One measurement of volatile organic vapor using a photoionization detector (PID) was made at the conclusion of each run at the inlet to the measurement manifold. All PID readings were 0.0 during the test.

The results obtained during each of the seven runs conducted during the preliminary test are discussed in Section 3 below.



3. Preliminary Test Results

The distances from the extraction well to the soil vapor monitoring points (SVMP) were as follows:

- SVMP 3 is located 5 feet north of the extraction well
- SVMP 4 is located 10 feet south of the extraction well
- SVMP 2 is located 15 feet north of the extraction well
- SVMP 5 is located 20 feet south of the extraction well
- SVMP 1 is located 25 feet north of the extraction well
- SVMP 6 is located 30 feet south of the extraction well

Weather data for May 9, 2018 is presented in Attachment 2. The weather recorded during the test was clear, with winds from the south-southeast ranging from 6 to 12 mph. Barometric pressure increased slightly and then dropped during the time period of the test, fluctuating from 30.15-inches mercury (Hg) to a high of 30.18-inches Hg at the end of Run 3 into the start of Run 4, then dropping to 30.14 toward the end of Run 7. This variation in barometric pressure could account for some of the readings noted in Runs 3, 4 and 5 as discussed below.

Baseline – The baseline readings measured approximately 2.5 hours post extraction well/monitoring point installation, and prior to starting the blower, indicate a very low positive pressure is present below the floor slab compared to the indoor air environment. Pressure at SVMP-1 was noted to be an order of magnitude higher than pressures measured at the other monitoring points. The elevated reading could be the result of an isolated area of low permeability soil.

<u>Run 1</u> – This run was conducted with a manifold vacuum of -5.23 in. H₂O and a flow rate of 28.3 CFM measured at the extraction well. After 15 minutes of run time, vacuum at each of the six monitoring points were measured. Vacuum was observed at each of the monitoring points. As expected, SVMP 3, located 5 feet from the extraction point showed the greatest response. Vacuum response declined with distance, with the three points located at 20, 25 and 30 feet showing a very slight vacuum of less than 1 pascal (0.004 in. H₂O). SVMP-2 located 15 feet north of the extraction point showed less response than expected during this run compared to response at the more distant monitoring points. The total length of the test was 22 minutes.

<u>**Run 2**</u> – This run was conducted with a manifold vacuum of -10.56 in. H_2O and a flow rate of 34.5 CFM measured at the extraction well. After 15 minutes of run time, vacuum at each of the six monitoring points were measured. An increased vacuum response was observed at all monitoring points and decreased with distance from the extraction point. The measured response at SVMP-2 was 0.004 in. H_2O , and again was less than the vacuum measured at monitoring points more distant. SVMP-2 showed very little change in vacuum response throughout the remainder of the Runs. The duration of this test was 26 minutes.



<u>**Run 3**</u> – This run was conducted with a manifold vacuum of -21.5 in. H_2O and a flow rate of 38.2 CFM measured at the extraction well. Vacuum response at the three closer monitoring points increased during this test while the three outlying monitoring points showed slightly less vacuum than Run 2. The vacuum at SVMP-2 peaked at -0.007 in. H2O during this run.

<u>Run 4</u> – This run was conducted with a manifold vacuum of -29.0 in. H_2O and a flow rate of 37.1 CFM measured at the extraction well. Vacuum response at the two closest monitoring points increased during this test while the four outlying monitoring points showed less vacuum than Run 3, and three of these four points had a measured positive pressure which could be the result of barometric pressure fluctuation. It should also be noted that while vacuum increased for this run, the flow rate dropped, indicating that the air volume available for extraction from the affected area had peaked. The duration of this test was 26 minutes.

<u>**Run 5**</u> – This run was conducted with a manifold vacuum of -38.5 in. H_2O and a flow rate of 48.6 CFM measured at the extraction well. While showing an increasing vacuum response at the above manifold vacuum and flow rate, the vacuum measured at the four outlying monitoring points was very similar to the measurements from Run 3. SVMP-6 located 30 feet from the extraction well was measured at a slight positive pressure.

<u>Run 6</u> – This run was conducted with a manifold vacuum of -49.0 in. H_2O and a flow rate of 50.6 CFM measured at the extraction well. Increased vacuum influence compared to the previous runs was noted at the closest two monitoring points and at SVMP-5 and SVMP-6, located furthest from the extraction point. SVMP-1 located 25 feet from the extraction well showed a relatively high positive pressure during this run.

<u>Run 7</u> – This run was conducted with at the maximum performance of the blower, with a manifold vacuum of -60.5 in. H_2O and a flow rate of 65.0 CFM measured at the extraction well. Increased vacuum influence was noted at the two closest monitoring points and at SVMP-5. Vacuum at the two outermost monitoring points was less than the previous run.

4. Conclusions

Data from SVMP-2, located 15 feet northward of the extraction well, while showing vacuum fluctuation throughout the pilot test, showed only a very slight change or no change at all in response to the increasing manifold vacuum and flow rates and is therefore considered to be an unreliable monitoring point.

Flow rates showed very little change in response to the three-fold increase in manifold vacuum from Run 2 to Run 4, indicating that the maximum extraction rate beneath the floor slab was between 34 and 38 CFM.

The increase in barometric pressure beginning at the end of Run 2 and peaking during Run 4 before decreasing again may account for some of the variability in vacuum measurements observed during the later runs. It should be noted that 1 in. Hg is equivalent to 13.96 in. H_20 . Therefore, the 0.03 Hg barometric



change that occurred during the runs could affect the sub-slab pressure differentials measured. The effect at each point may vary depending on local permeability and lag time to equilibrate with atmospheric pressure.

The extraction well was located 10 feet from the west wall of the building. No short-circuiting of building air to the sub-slab environment was noted during the test and the floor/wall joint in the test area appeared well sealed. However, it is possible that some short circuiting from this joint, or some floor cracks in the vicinity of the extraction well could have occurred, which could account for some of the variability in vacuum results in points greater than 10 feet distant from the extraction well and the higher flow rates obtained during the later runs.

Based on review of the data, it appears that the maximum vacuum influence measured at all the monitoring points occurred during Run 2. The vacuum at the outlying monitoring points did not increase or decrease during Run 3 through Run 7. Run 2 applied vacuum and flow rates are comparable to the design parameters expected from the wind powered turbines to be used.

It must be noted that the test data were generated based on a test with sub-slab soil vapor extracted from a single 2-inch diameter extraction well and the design of the extraction system calls for 25-foot long horizontal pipes to be placed beneath the building floor slab. The longer extraction pipe is expected to substantially increase the area over which soil vapor will be extracted compared to this test.

5. Recommendations

Based on the affected area observed during Run 2, which showed acceptable sub-slab vacuum to be present as much as 30 feet southward from the extraction well, it is recommended that the Phase I horizontal extraction well be installed using the wind powered rotary turbine and the six-month monitoring of the performance of this installation be conducted. The presence of sand rather than gravel beneath the floor slab indicates that screened pipe may be preferable to a perforated pipe.

Should you have any questions on the above, please do not hesitate to contact the undersigned at 519-340-4313 or email john.pentilchuk@GHD.com.

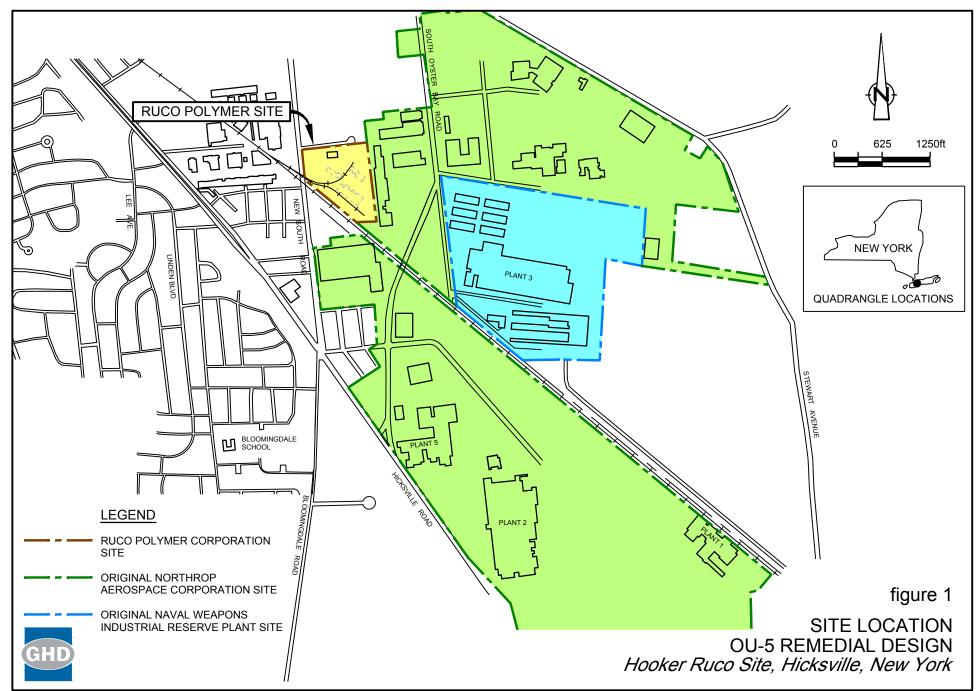
Yours truly,

GHD

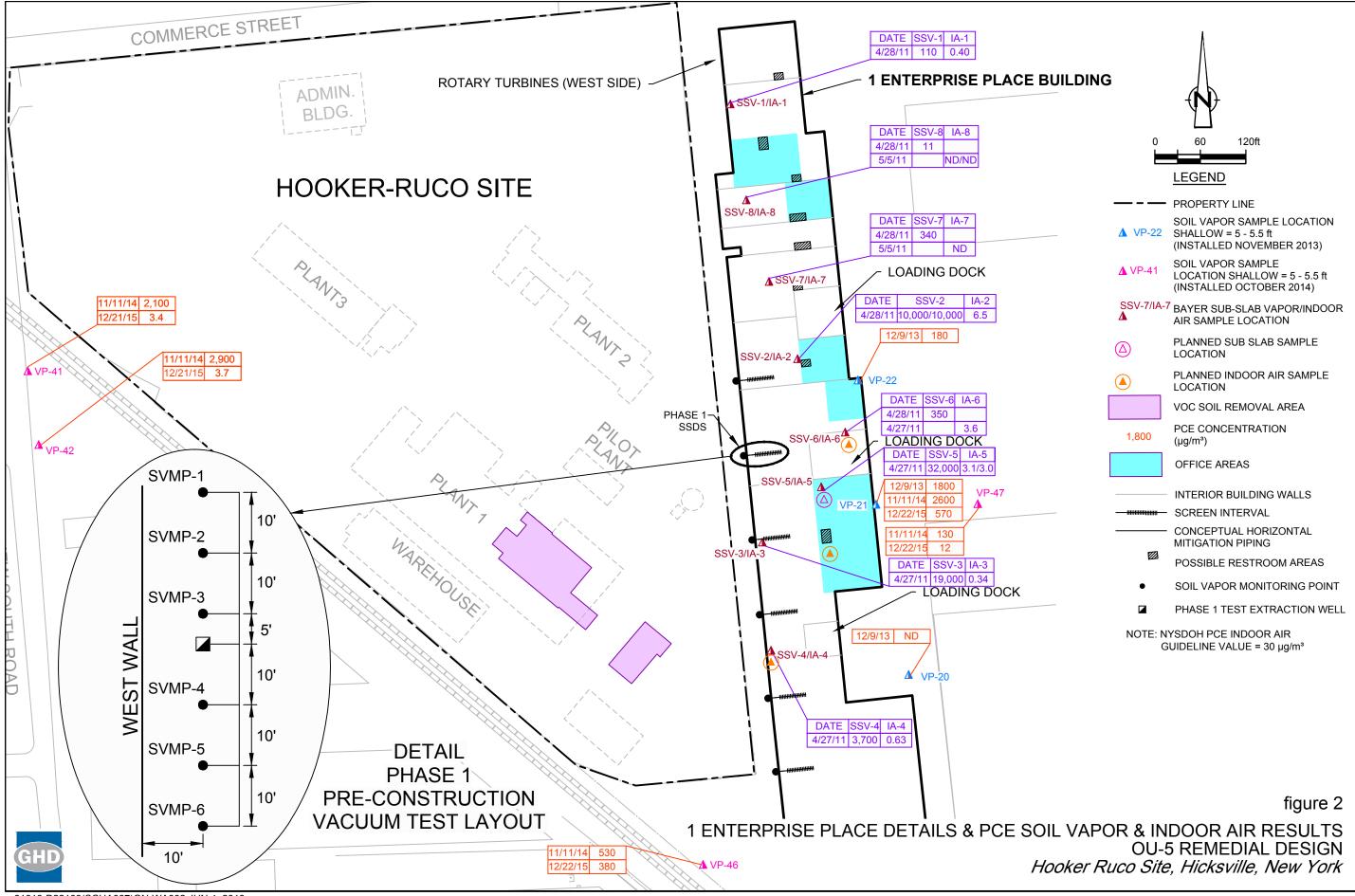
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John Pentilchuk JP/kf/67

Encl.



81618-D22103(SCHA067)GN-WA001 JUN 4, 2018



81618-D22103(SCHA067)GN-WA002 JUN 4, 2018

Attachment A Field Data

Date	5/9/2018	Date	5/9/2018
Run Number	Background	Run Number	Run #1
Blower Start Time	11:00	Blower Start Time	11:10
Initial Manifold Vacuum ("WC)	N/A	Initial Manifold Vacuum ("WC)	-5.23
Initial Manifold Flow (cfm)	N/A	Initial Manifold Flow (cfm)	29.1
Measurement Time	N/A	Measurement Time	11:32
Manifold Vacuum ("WC)	-0.008	Manifold Vacuum ("WC)	-5.23
Manifold Flow (cfm)	N/A	Manifold Flow (cfm)	28.3
Location	Vacuum ("WC)	Location	Vacuum ("WC)
SVMP- 1	0.012	SVMP- 1	-0.003
SVMP- 2	0.002	SVMP- 2	-0.002
SVMP- 3	0.005	SVMP- 3	-0.302
SVMP- 4	0.001	SVMP- 4	-0.065
SVMP- 5	0.003	SVMP- 5	-0.007
SVMP- 6	0.002	SVMP- 6	-0.002
<u>Notes:</u>			

Date	5/9/2018		Date	5/9/2018			
Run Number	Run #2		Run Number	Run #3			
Blower Start Time	11:46		Blower Start Time	12:47			
Initial Manifold Vacuum ("WC)	-10.35		Initial Manifold Vacuum ("WC)	-21.5			
Initial Manifold Flow (cfm)	34.5		Initial Manifold Flow (cfm)	38.2			
Measurement Time	12:12		Measurement Time	13:02			
Manifold Vacuum ("WC)	-10.56		Manifold Vacuum ("WC)	-21.5			
Manifold Flow (cfm)	34.5		Manifold Flow (cfm)	38.2			
Location	Vacuum ("WC)		Location	Vacuum ("WC)			
SVMP- 1	-0.015		SVMP- 1	-0.013			
SVMP- 2	-0.004		SVMP- 2	-0.007			
SVMP- 3	-0.582		SVMP- 3	-1.136			
SVMP- 4	-0.124		SVMP- 4	-0.232			
SVMP- 5	-0.021		SVMP- 5	-0.019			
SVMP- 6	-0.007		SVMP- 6	-0.003			
<u>Notes:</u>	Notes:						
	Small leak was fixe	ed be	etween #2 and #3.				

Date	5/9/2018		Date	5/9/2018			
Run Number			Run Number	Run #5			
Blower Start Time	13:14		Blower Start Time	13:55			
Initial Manifold Vacuum ("WC)	-30.5		Initial Manifold Vacuum ("WC)	-39.0			
Initial Manifold Flow (cfm)	38.2		Initial Manifold Flow (cfm)	43.6			
Measurement Time	13:40		Measurement Time	14:20			
Manifold Vacuum ("WC)	-29.0		Manifold Vacuum ("WC)	-38.5			
Manifold Flow (cfm)	37.1		Manifold Flow (cfm)	48.6			
Location	Vacuum ("WC)		Location	Vacuum ("WC)			
SVMP- 1	0.010		SVMP- 1	-0.004			
SVMP- 2	0.003		SVMP- 2	-0.006			
SVMP- 3	-1.492		SVMP- 3	-1.962			
SVMP- 4	-0.300		SVMP- 4	-0.400			
SVMP- 5	-0.010		SVMP- 5	-0.019			
SVMP- 6	0.003		SVMP- 6	0.001			
Notes:							

Date	5/9/2018	Date	5/9/2018
Run Number	Run #6	Run Number	Run #7
Blower Start Time	14:24	Blower Start Time	14:55
Initial Manifold Vacuum ("WC)	-49.0	Initial Manifold Vacuum ("WC)	-59.0
Initial Manifold Flow (cfm)	51.7	Initial Manifold Flow (cfm)	62.2
Measurement Time	14:45	Measurement Time	15:20
Manifold Vacuum ("WC)	-49.0	Manifold Vacuum ("WC)	-60.5
Manifold Flow (cfm)	50.6	Manifold Flow (cfm)	65
Location	Vacuum ("WC)	Location	Vacuum ("WC)
SVMP- 1	0.011	SVMP- 1	-0.004
SVMP- 2	-0.003	SVMP- 2	-0.004
SVMP- 3	-2.430	SVMP- 3	-2.855
SVMP- 4	-0.494	SVMP- 4	-0.588
SVMP- 5	-0.026	SVMP- 5	-0.032
SVMP- 6	-0.011	SVMP- 6	-0.001
Notes:			

Attachment B Weather Data

Hicksville, New York Wed, May 9th 2018 Source: LocalConditions.com

Time (EDT)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph)	Wind Direction

TITLE (EDT)	remp. (=r)	Humaily (%)	Dew Point (=1)	Barometer (IIIAG)	wind Speed (mpn)	wind Direction
12:00 AM	51.8	87.48	48.2	30.2	-	-
No data pro	vided from 1	2:00 AM to 3:50	AM			
3:50 AM	48.2	100	48.2	30.19	-	-
3:53 AM	48.92	100	48.92	30.19	-	-
3:55 AM	48.2	100	48.2	30.19	-	-
4:00 AM	48.2	100	48.2	30.19	-	-
4:05 AM	48.2	100	48.2	30.19	-	-
4:10 AM	48.2	100	48.2	30.19	-	-
4:15 AM	48.2	100	48.2	30.19	-	-
4:45 AM	46.4	100	46.4	30.18	-	-
4:50 AM	46.4	100	46.4	30.18	-	-
4:51 AM	46.4	100	46.4	30.18	-	-
4:53 AM	46.94	100	46.94	30.18	-	-
4:55 AM	46.4	100	46.4	30.18	-	-
4:58 AM	46.94	96.66	46.04	30.18	-	-
5:00 AM	46.4	100	46.4	30.18	-	-
5:02 AM	46.94	96.66	46.04	30.18	3	3 nne
5:05 AM	46.4	100	46.4	30.18	-	-
5:10 AM	46.4	100	46.4	30.18	-	-
5:15 AM	46.4	100	46.4	30.18	-	-
5:45 AM	46.4	100	46.4	30.18	-	-
5:50 AM	46.4	100	46.4	30.18	-	-
5:53 AM	46.94	96.66	46.04	30.18	-	-
5:55 AM	46.4	100	46.4	30.18	-	-
6:00 AM	46.4	100	46.4	30.18	-	-
6:05 AM	46.4	100	46.4	30.18	-	-
6:10 AM	46.4	100	46.4	30.18	-	-
6:15 AM	48.2	93.45	46.4	30.18	-	-
6:45 AM	48.2	100	48.2	30.19	-	-
6:50 AM	50	93.5	48.2	30.19	-	-
6:53 AM	50	96.06	48.92	30.19	-	-
6:55 AM	50	93.5	48.2	30.19	-	-
7:00 AM	51.8	87.48	48.2	30.19	-	-
7:30 AM	53.6	87.57	50	30.18	-	-
7:35 AM	53.6	93.6	51.8	30.19	-	-
7:40 AM	53.6	93.6	51.8	30.19	-	-
7:45 AM	55.4	87.66	51.8	30.19	-	-
8:00 AM	55.4	87.66	51.8	30.19	-	-
8:05 AM	55.4	87.66	51.8	30.19	3	8 ese
8:10 AM	55.4	87.66	51.8	30.19	3	8 ese
8:15 AM	57.2	82.14	51.8	30.18	3	3 ne
8:45 AM	60.8	72.23	51.8	30.18	-	-
8:50 AM	60.8	72.23	51.8	30.18	3	8 ene

Hicksville, New York Wed, May 9th 2018 Source: LocalConditions.com

ne (EDT)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph)	Wind Direction	-			
8:53 AN	A 60.98	69.89	51.08	30.18	4	le	-			
8:55 AN	A 60.8	72.23	51.8	30.18	3	3 e				
9:00 AN	A 60.8	72.23				-				
9:05 AN	A 62.6	67.79	51.8	30.18	i -	-				
9:10 AN	A 62.6	67.79	51.8	30.18	5 -	-				
9:15 AN	A 62.6	63.42	50	30.18	i -	-				
9:45 AN	Л 64.4	63.64	51.8	30.17	3	3 e				
9:50 AN	Л 64.4	63.64	51.8	30.17	1 _	-				
9:53 AN		62.76			(_	-				
9:55 AN	Л 64.4	63.64	51.8	30.17	3	3 e				
10:45 AN		56.19				l sse				
10:50 AN		52.57				-				
10:53 AN		54.71				-				
10:55 AN		56.19				3 s	Background			
11:25 AN		64.1) sse				
11:30 AN		60.03				3 sse				
11:35 AN		60.03					Run 1	11:10-11:32		
11:40 AN		64.1				/ sse				
11:45 AN		64.1				3 sse				
11:50 AN		63.87) sse				
11:53 AN		63.13) s				
11:55 AN		63.87) sse				
12:00 PN		63.87				2 sse				
12:05 PN		67.99				Ls				
12:10 PN		67.99					Run 2	11:46 - 12:12		
12:45 PN		72.23				7 s				
12:50 PN		77.17) sse				
12:53 PN		72.25) sse				
12:55 PN		72.23) sse				
1:00 PN		72.23					Run 3	12:47 - 13:02		
1:05 PN		72.23				2 sse	indir 0	10101		
1:10 PN		72.23) se				
1:15 PN		72.23) se				
1:45 PN		67.79					Run 4	13:14 - 13:40		
1:50 PN		63.64				5 se				
1:53 PN		67.38				5 s				
1:55 PN		67.79				l sse				
2:00 PN		63.64				/ se				
2:00 PN		63.64				/ se				
2:10 PN		63.64					Run 5	13:55 - 14:20		
3:00 PN		63.64				7 s		13.33 14.20	No Baro for Run 6	14:24 - 14:45
3:05 PN		63.64				5 sse			Wunderground = 30	
3:10 PN		63.64					Run 7	14:55 - 15:20	Wunderground – 50	.13 - 14.33
3.10 FN	04.4	03.04	51.8	50.14	0		null /	17.55 - 15.20		

Hicksville, New York Wed, May 9th 2018 Source: LocalConditions.com

Time (EDT)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph) Wind Direction
3:45 PM	64.4	59.54	50	30.13	6 se
3:50 PM	62.6	59.3	48.2	30.13	5 sse
3:53 PM	62.96	65.18	51.08	30.13	6 sse
3:55 PM	62.6	67.79	51.8	30.13	5 sse
4:00 PM	62.6	63.42	50	30.13	6 sse
4:05 PM	62.6	63.42	50	30.13	7 sse
4:10 PM	64.4	59.54	50	30.12	6 sse
4:15 PM	64.4	55.67	48.2	30.12	5 se
4:45 PM	62.6	59.3	48.2	30.13	8 sse
4:50 PM	62.6	59.3	48.2	30.13	7 sse
4:53 PM	62.96	60.15	48.92	30.13	8 sse
4:55 PM	62.6	59.3	48.2	30.13	7 sse
5:00 PM	62.6	59.3	48.2	30.13	8 sse
5:05 PM	62.6	55.41	46.4	30.13	7 se
5:10 PM	62.6	55.41	46.4	30.13	6 ese
5:30 PM	60.8	67.57	50	30.12	6 s
5:35 PM	60.8	67.57	50	30.12	4 s
5:40 PM	62.6	59.3	48.2	30.12	7 sse
5:45 PM	62.6	59.3	48.2	30.11	7 sse
5:50 PM	62.6	59.3	48.2	30.12	10 se
5:53 PM	62.06	55.71	46.04	30.11	10 se
5:55 PM	60.8	59.05	46.4	30.11	11 sse
6:00 PM	60.8	59.05	46.4	30.11	10 sse
6:05 PM	60.8	63.18	48.2	30.11	10 se
6:10 PM	60.8	63.18	48.2	30.11	9 ese
6:45 PM	59				
6:50 PM	59	72.04	50	30.09	9 se
6:53 PM	59	72.04	50		
6:55 PM	59	72.04	50	30.09	6 ese
7:00 PM					
7:05 PM	59	72.04	50		
7:10 PM	59				
7:15 PM	59	72.04	50	30.09	8 se
7:45 PM	59	67.36	48.2	30.09	8 ese
7:50 PM	57.2	71.85			
7:53 PM	57.92	74.88	50	30.09	6 se
7:55 PM					
8:00 PM	57.2	76.85			
8:30 PM					
8:35 PM					
8:40 PM			51.8		
8:45 PM					
8:50 PM	55.4	87.66	51.8	30.09	6 ese

Hicksville, New York Wed, May 9th 2018 Source: LocalConditions.com

Time (EDT)	Temp. (⁰f)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph) Wind Direction
8:53 PM	55.94	86.54	51.98	30.09	6 ese
8:55 PM	55.4	87.66	51.8	30.09	5 ese
9:00 PM	55.4	87.66	51.8	30.09	5 ese
9:30 PM	53.6	100	53.6	30.11	6 sse
9:35 PM	53.6	100	53.6	30.11	6 se
9:40 PM	53.6	100	53.6	30.11	5 ese
9:45 PM	53.6	100	53.6	30.11	4 se
9:50 PM	55.4	93.65	53.6	30.11	4 ese
9:53 PM	55.04	96.14	53.96	30.11	4 ese
9:55 PM	53.6	100	53.6	30.11	4 ese
10:00 PM	55.4	93.65	53.6	30.11	3 ese
10:05 PM	55.4	93.65	53.6	30.11	3 ese
10:08 PM	55.04	96.14	53.96	30.11	4 sse
10:10 PM	55.4	93.65	53.6	30.12	4 se
10:15 PM	55.4	93.65	53.6	30.12	5 se
10:30 PM	53.6	100	53.6	30.12	4 sse
10:35 PM	53.6	100	53.6	30.12	
10:40 PM	53.6	100	53.6	30.12	
10:45 PM	53.6	100	53.6	30.12	
11:00 PM	53.6	100	53.6	30.12	
11:05 PM	55.4	93.65	53.6	30.12	
11:10 PM	53.6	100	53.6	30.12	
11:15 PM	53.6	100	53.6	30.11	
11:16 PM	53.96	100	53.96	30.11	
11:30 PM	55.4	93.65	53.6	30.11	
11:35 PM	55.4	93.65	53.6	30.11	
11:40 PM	55.4	93.65	53.6	30.11	
11:45 PM	55.4	93.65	53.6	30.11	3 se
11:50 PM	55.4	93.65	53.6	30.1	3 ese
11:51 PM	55.4	93.65	53.6	30.1	3 ese
11:53 PM	55.04	96.14	53.96	30.1	3 ese
11:55 PM	55.4	93.65	53.6	30.1	3 ese

Hourly Weather History & Observ	/ations
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Time (EDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Conditions
3:53 AM	48.9 °F	48.9 °F	100%	30.19 in	0.2 mi	Calm	Calm	Fog
4:51 AM	46.4 °F	46.4 °F	100%	30.18 in	0.8 mi	Calm	Calm	Mist
4:53 AM	46.9 °F	46.9 °F	100%	30.19 in	0.8 mi	Calm	Calm	Mist
4:58 AM	46.9 °F	46.0 °F	97%	30.18 in	2.0 mi	Calm	Calm	Mostly Cloudy
5:02 AM	46.9 °F	46.0 °F	97%	30.18 in	7.0 mi	NNE	3.5 mph	
5:53 AM	46.9 °F	46.0 °F	97%	30.19 in	9.0 mi	Calm	Calm	Clear
6:53 AM	50.0 °F	48.9 °F	96%	30.19 in	8.0 mi	Calm	Calm	Clear
7:53 AM	55.9 °F	52.0 °F	87%	30.19 in	10.0 mi	Calm	Calm	Clear
8:53 AM	61.0 °F	51.1 °F	70%	30.18 in	10.0 mi	East	4.6 mph	Clear
9:53 AM	64.0 °F	51.1 °F	63%	30.17 in	10.0 mi	Calm	Calm	Clear
10:53 AM	68.0 °F	51.1 °F	55%	30.15 in	10.0 mi	Calm	Calm	Clear
11:53 AM	66.9 °F	54.0 °F	63%	30.16 in	10.0 mi	South	11.5 mph	Clear
12:53 PM	61.0 °F	52.0 °F	72%	30.18 in	10.0 mi	SSE	11.5 mph	Clear
1:53 PM	63.0 °F	52.0 °F	67%	30.16 in	10.0 mi	South	6.9 mph	Clear
2:53 PM	64.9 °F	50.0 °F	58%	30.15 in	10.0 mi	SSE	9.2 mph	Clear
3:53 PM	63.0 °F	51.1 °F	65%	30.13 in	10.0 mi	SSE	6.9 mph	Clear
4:53 PM	63.0 °F	48.9 °F	60%	30.13 in	10.0 mi	SSE	9.2 mph	Clear
5:53 PM	62.1 °F	46.0 °F	56%	30.12 in	10.0 mi	SE	11.5 mph	Clear
6:53 PM	59.0 °F	50.0 °F	72%	30.10 in	10.0 mi	ESE	9.2 mph	Clear
7:53 PM	57.9 °F	50.0 °F	75%	30.09 in	10.0 mi	SE	6.9 mph	Clear
8:53 PM	55.9 °F	52.0 °F	87%	30.09 in	10.0 mi	ESE	6.9 mph	Clear
9:17 PM	55.0 °F	52.0 °F	89%	30.10 in	10.0 mi	SE	5.8 mph	Scattered Clouds
9:25 PM	54.0 °F	53.1 °F	97%	30.10 in	10.0 mi	SSE	6.9 mph	Mostly Cloudy
9:53 PM	55.0 °F	54.0 °F	96%	30.11 in	10.0 mi	ESE	4.6 mph	Overcast
10:08 PM	55.0 °F	54.0 °F	96%	30.11 in	10.0 mi	SSE	4.6 mph	Overcast
10:53 PM	54.0 °F	53.1 °F	97%	30.12 in	5.0 mi	Calm	Calm	Overcast
11:16 PM	54.0 °F	54.0 °F	100%	30.11 in	2.5 mi	Calm	Calm	Overcast
11:27 PM	55.0 °F	54.0 °F	96%	30.11 in	4.0 mi	Calm	Calm	Overcast
11:51 PM	55.4 °F	53.6 °F	94%	30.10 in	2.0 mi	ESE	3.5 mph	Overcast
	55.0 °F	54.0 °F	96%	30.10 in	2.0 mi	ESE	3.5 mph	Overcast