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ENVIRONMENT

Subject:
January 2018 – December 2018 System Status Report
Sub-Slab Depressurization System
United Stellar Industries Property (Site 130115)
131 Sunnyside Boulevard Site, Plainview, New York

Date:
March 11, 2019

Contact:
Steven M. Feldman

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Our ref:
NY001422.0010.00001

Dear Mr. Jones:

ARCADIS of New York, Inc. (Arcadis) has prepared this system status report for the Vapor Recovery System (VRS), on behalf of 131 Sunnyside, LLC (Sunnyside), at the United Stellar Industries Property located at 131 Sunnyside Blvd. in Plainview, New York. The following report provides documentation of all monitoring activities and data evaluation conducted between January 1, 2018 and December 31, 2018 (hereinafter referred to as the reporting period).

BACKGROUND

A letter report, summarizing the results of the VRS pilot test was submitted to the New York State Department of Environmental Conservation (NYSDEC) by ARCADIS on May 11, 2005. The VRS was restarted and is being operated in accordance with the VRS pilot test extension letter originally submitted to the NYSDEC on September 7, 2005, and modified based on the following:

- Revised and submitted by ARCADIS on November 18, 2005 based on NYSDEC comments, dated October 11, 2005.
- ARCADIS responses, dated May 15, 2006 based on NYSDEC comments, dated February 2, 2006.

On September 22, 2009, the NYSDEC accepted the system modifications proposed in the August 20, 2009 submittal, “Air Emission Regulatory Review and Current Status, Related Calculations, and Proposed Modifications to Current System Configuration and Monitoring Procedures” (Regulatory Review). As

recommended in the Regulatory Review, the vapor phase granular activated carbon (VPGAC) was taken off-line on December 3, 2009 and the frequency of performance and compliance monitoring was decreased from monthly to quarterly beginning with the Fourth Quarter of 2009. No complications were encountered during the system modification.

A system status report covering the period of July 2012 through December 2014 was submitted on April 14, 2015. Recommendations made in the report to operate the VRS as a sub-slab depressurization system (SSDS) were accepted by the NYSDEC, with concurrence from the NYSDOH, in a letter dated April 30, 2015. Therefore, the system is hereafter referred to as the SSDS.

SUB-SLAB DEPRESSURIZATION SYSTEM OPERATION

The SSDS consists of three vacuum extraction locations (SVE-1, SVE-2 and SVE-3), six induced vacuum/vapor monitoring points (MP-1 through MP-6), a 5-horsepower regenerative blower, and a moisture separator. As previously discussed, the two 400-pound VPGACs were removed from system operation on December 3, 2009. Control valves, monitoring gauges, and sample ports were installed as necessary to adjust system operation and provide a means for collecting the data provided within this report.

Operational data collected during the quarterly monitoring events are summarized in Table 1. A summary and analysis of performance monitoring data is provided below.

RESULTS

Operational measurements including applied vacuum levels at each extraction point and extraction air flow rates are summarized in Table 1. In summary, the SSDS is operating as designed. Key observations are as follows:

- Air flow rates at the vacuum extraction points measured during this reporting period ranged from approximately 31.1 to 76.3 actual cubic feet per minute (acfm).
- SSDS wellhead vacuum measurements during this reporting period ranged from -36.0 to -44.0 inches water column (iwc).
- Induced vacuum levels (i.e., negative pressure) measured at monitoring point locations (MP-1 through MP-6) indicate that all of the 24 induced vacuum measurements recorded during 2018 exhibited negative pressure.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results provided herein, Arcadis concludes the following:

- The SSDS operated as intended (i.e., effectively maintaining a negative pressure beneath the building slab, mitigating the potential vapor intrusion pathway).
- Operation of the SSDS should be continued in order to maintain a negative pressure beneath the building slab, thereby mitigating the potential vapor intrusion pathway.

- Collection of quarterly induced vacuum measurements should be continued to evaluate the ongoing effectiveness of the SSDS in maintaining a negative pressure beneath the building slab.

Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

Arcadis of New York, Inc.

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Principle Scientist

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Table 1. System Operational Data, Vapor Recovery System, United Stellar Industries, Plainview, New York.[1]

ARCADIS Design & Consultancy for natural and built assets

	SVE - 1 Extraction Well Parameters			SVE - 2 Extraction Well Parameters			SVE - 3 Extraction Well Parameters		
Date	Wellhead Vacuum (in.W.C.)	Air Velocity (fpm)	Air Flow Rate [2] (acfm)	Wellhead Vacuum (in.W.C.)	Air Velocity (fpm)	Air Flow Rate [2] (acfm)	Wellhead Vacuum (in.W.C.)	Air Velocity (fpm)	Air Flow Rate [2] (acfm)
3/27/2018	-42.0	3,333	76.3	-44.0	1,357	31.1	-42.0	2,921	66.9
6/26/2018	-38.0	3,100	71.0	-40.0	1,900	43.5	-37.0	2,550	58.4
9/20/2018	-38.0	2,940	67.3	-39.0	1,835	42.0	-36.0	2,330	53.4
12/19/2018	-42.0	3,209	73.5	-42.0	2,770	63.4	-40.0	2,770	63.4

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industries, Plainview, New York.[1]

ARCADIS Design & Consultancy for natural and built assets

	Blower Parameters [4]		GAC 500 Parameters [3]				Discharge Parameters			
Date	Influent Vacuum (in.W.C.)	Influent Pressure (in.W.C.)	Influent Temperature (Degrees F)	Air Velocity (fpm)	Air Flow Rate [2] (acfm)	PID Measured Concentration (ppmv)	Discharge Pressure (in.W.C.)	Discharge Temperature (Degrees F)	Air Velocity (fpm)	Air Flow Rate [2] (acfm)
3/27/2018	-64.0	NA	NA	NA	NA	NA	NM	94.6	1,877	167.8
6/26/2018	-60.0	NA	NA	NA	NA	NA	NM	101.3	1,730	154.7
9/20/2018	-60.0	NA	NA	NA	NA	NA	NM	118.2	1,675	149.8
12/19/2018	-64.0	NA	NA	NA	NA	NA	NM	95	1,710	152.9

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industries, Plainview, New York.[1]

Date	Induced Vacuum Measurements					
	MP-1 (in.W.C.)	MP-2 (in.W.C.)	MP-3 (in.W.C.)	MP-4 (in.W.C.)	MP-5 (in.W.C.)	MP-6 (in.W.C.)
03/27/18	-0.02	-0.04	-0.04	-0.01	-0.04	-0.04
06/26/18	-0.04	-0.05	-0.01	-0.02	-0.04	-0.06
09/20/18	-0.07	-0.08	-0.18	-0.08	-0.07	-0.07
12/19/18	-0.01	-0.03	-0.03	-0.01	-0.03	-0.03

Notes and Abbreviations:

acfm	actual cubic feet per minute
fpm	feet per minute
in. W.C	inches of water column
NA	not applicable
NM	not measured
NYSDEC	New York State Department of Environmental Conservation
ppmv	parts per million by volume

1. Data in this table corresponds to the current reporting period (January 1, 2018 to December 31, 2018).
2. The air flow rate was calculated by multiplying the measured air velocity in feet per minute by the cross sectional area of the pipe.
3. Per NYSDEC approval the vapor phase carbon treatment (GAC 500) was removed from system operation on December 3, 2009.
4. Gauge range is too high to record effluent pressure losses since the carbon treatment was removed.