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ENVIRONMENT

Nathan Putnam
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7015

Subject:
November, 2006 through July 2007 System Status Report
Soil Vapor Recovery System
United Stellar Industries Property,
131 Sunnyside Boulevard Site, Plainview, New York.

Date:
10 October 2007

Contact:
Doug Smolensky

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Our ref:
NY001422.0002.00002

Dear Mr. Putnam:

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) and Gertrude Discount (Discount), at the United Stellar Industries Property located at 131 Sunnyside Blvd. in Plainview, New York. A letter report, summarizing the results of the VRS pilot test was submitted to the 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 New York State Department of Environmental Protection (NYSDEC) on September 7, 2005, with NYSDEC comments, dated October 11, 2005, then revised and submitted by ARCADIS on November 18, 2005, with NYSDEC comments, dated February 2, 2006 and ARCADIS responses, dated May 15, 2006.

The following report provides documentation of all monitoring activities completed during the period beginning on November 1, 2006 and ending on July 31, 2007. During this reporting period the system was operated and six performance monitoring events were performed (November 3, 2006, December 5, 2006, April 26, 2007, May 29, 2007, June 27, 2007, and July 27, 2007). Performance sampling events were not completed during the months of January, February, and March of 2007. Frequent system shutdowns did not allow a representative sample to be collected during these months. Operational and volatile organic compound (VOC) data collected during the monitoring events are summarized in Tables 1, 2, and 3. A brief analysis of performance monitoring data is provided below.

Vapor Recovery System Operation

The VRS 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, a moisture separator and two 400-pound vapor phase granular activated carbon units (VPGACs). 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. All vapor samples were submitted to Air Toxics Laboratory in Folsom, CA for laboratory analysis via Method TO-14 (Direct Inject).

Results

Operational measurements including applied vacuum levels at each extraction point, extracted air flow rates, and Photo-ionization detector (PID) readings are summarized in Table 1. In summary, the VRS is operating as designed. Key observations are as follows:

- Air flow rates at the vacuum extraction points measured during the November, 2006 to July, 2007 operational period ranged from approximately 51 to 108 cubic feet per minute (cfm).

- VRS wellhead vacuum measurements during the November, 2006 to July, 2007 operational period ranged from -32 inches water column (i.w.c.) to -39 i.w.c.

- PID measurements during the November, 2006 to July, 2007 operational period were non-detect.

- Induced vacuum levels measured at the monitoring point locations (MP-1 through MP-6) are summarized below:

    - Negative vacuum levels were measured in monitoring points MP-1 through MP-5 during the November, 2006 and December, 2006 operational periods. During these operational periods, there was no induced vacuum measured at monitoring point MP-6. Following the December, 2006 operational period, negative vacuum levels were measured at MP-6.

- Negative vacuum levels were measured at all monitoring point locations (MP-1 through MP-6) during the April, 2007 operational period.

- Negative vacuum levels were measured at monitoring points MP-1 through MP-3 and monitoring points MP-5 through MP-6 during the May, 2007 and June, 2007 operational periods. There was no induced vacuum measured at monitoring point MP-4 during these operational periods.

- Negative vacuum levels were measured at monitoring points MP-1 through MP-2 and monitoring points MP-5 through MP-6 during the July, 2007 operational period. There was no induced vacuum measured at monitoring points MP-3 and MP-4 during this period.

Due to limited access to these monitoring point locations, the points could not be examined to determine the cause of the decrease in induced vacuum measurements.

Vapor sample analytical results are summarized in Tables 2 and 3. During the November, 2006 to July, 2007 operational period, the following VOCs were detected: trichloroethene (TCE), tetrachloroethene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), cis-1,2-dichloroethene (1,2-DCE), Freon 12, Freon 113, methylene chloride, toluene and 2-propanol. In all extraction points, VOC concentrations were less than levels observed during the last monitoring event of the pilot test (June 1, 2005). A summary of VOC analytical results is as follows:

- During the November, 2006 to July 2007 operational period, extraction point SVE-1 had TCE concentrations ranging from 650 ug/m^3 to 2,300 ug/m^3. Total volatile organic compound (TVOC) concentrations for SVE-1 ranged from 719 ug/m^3 to 2,692 ug/m^3. TCE and TVOC concentrations decreased from the previous sampling round conducted in October, 2006 and are below the June, 2006 levels for all sampling events completed during the November, 2006 to July, 2007 operating period.

- During the November, 2006 to July, 2007 operational period, extraction point SVE-2 had TCE concentrations ranging from 240 ug/m^3 to 4,300 ug/m^3. Total volatile organic compound (TVOC) concentrations for SVE-2 ranged from 505

ug/m^3 to 4,929 ug/m^3. TCE and TVOC concentrations decreased from the previous sampling round conducted in October, 2006 and are below June, 2006 levels for all sampling events completed during the November, 2006 to July, 2007 operating period.

- During the November, 2006 to July, 2007 operational period, extraction point SVE-3 had TCE concentrations ranging from 210 ug/m^3 to 480 ug/m^3. Total volatile organic compound (TVOC) concentrations for SVE-1 ranged from 460 ug/m^3 to 1,109 ug/m^3. TCE and TVOC concentrations decreased from the previous sampling round conducted in October, 2006 and are below June, 2006 levels for all sampling events completed during the November, 2006 to July, 2007 operating period.

- During the November, 2006 to July, 2007 reporting period, the lead VPGAC vessel had effluent TVOC concentrations ranging from 337 ug/m^3 to 3,700 ug/m^3. The stack had total effluent TVOC concentrations ranging from 34 ug/m^3 to 820 ug/m^3.

- In addition to the field and laboratory analytical results provided herein, ARCADIS calculated and is providing air modeling results for the six monitoring events (November 3, 2006 through July 27, 2007) completed during the current reporting period. Air modeling calculations were performed using both the influent and effluent concentrations, and the NYSDEC DAR-1 Annual Guidance Concentration (AGC) model. Modeling results are provided in Tables A1 through A6. As shown on the Tables A1 through A6, modeling results indicate that both the influent (i.e., untreated) and effluent (i.e., treated) vapor stream have been below NYSDEC AGCs during the last six monitoring events.

- Vapor samples were not collected during the January, 2007, February, 2007, and March, 2007 operational periods. Water accumulation in the system knock-out tank caused the system to shut down frequently. These system shutdowns prevented ARCADIS personnel from collecting an accurate sample. To decrease the amount of system downtime, O&M personnel visited the site approximately three times per week to shut the system down, manually drain the knock-out tank, and restart the system. Based on the decrease in water accumulation beginning in March, 2007, ARCADIS has determined that the water accumulation is a seasonal problem which occurs during the colder months.

There has been no water accumulation since the April, 2007 period, the system has been fully operational, and monthly performance sampling resumed.

Conclusions

ARCADIS has drawn the following conclusions based on the results provided herein:

- The VRS operated as intended (i.e., a negative vacuum was maintained throughout the building footprint and contaminant mass was removed).
- TCE and TVOC concentrations are generally stable to decreasing (from 2006 levels) in each of the three VRS extraction points.
- The highest VOC concentrations were observed in SVE-2 with lower concentrations present at SVE-1 and SVE-3.
- NYSDEC DAR-1 AGC emissions calculations indicate that the effluent vapor stream has been below the NYSDEC AGC limits for the last six monitoring events. Additional NYSDEC DAR-1 AGC emissions calculations indicate that the influent vapor stream has also been below NYSDEC AGC limits for the last six monitoring events.

Recommendations

ARCADIS of New York, Inc. recommends the following based on the results provided herein:

- Continued operation of the VRS.
- Investigate the cause of the decreasing induced vacuum levels in monitoring point MP-4.
- Discontinuing the use of the two VPGAC units for the following reasons:
    - Influent (untreated) vapor emissions are well below NYSDEC emission guidelines; and,

- The existing treatment shed is located away from any potential human or environmental receptors (including building HVAC intakes).

Please call if you have questions or require additional information.

Sincerely,

ARCADIS of New York, Inc.

Douglas A. Smolensky
Associate Vice President
ARCADIS Engineers & Architects of New York, P.C.

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Table 1. System Operational Data, Vapor Recovery System, United Stellar Industris, Plainview, New York.

Date	Time	SVE - 1 Extraction Well Parameters				SVE - 2 Extraction Well Parameters				SVE - 3 Extraction Well Parameters			
		Wellhead Vacuum (in.W.C.)	Air Velocity (fpm)	Air Flow Rate [1] (cfm)	PID Measured Concentration (ppmv)	Wellhead Vacuum (in.W.C.)	Air Velocity (fpm)	Air Flow Rate [1] (cfm)	PID Measured Concentration (ppmv)	Wellhead Vacuum (in.W.C.)	Air Velocity (fpm)	Air Flow Rate [1] (cfm)	PID Measured Concentration (ppmv)
06/08/06	1:40 PM [2]	0.0	--	--	--	--	--	--	--	--	--	--	--
	2:45 PM [3]	-40.0	--	--	0.0	-39.0	--	--	0.0	-41.0	--	--	0.0
	4:45 PM	-40.0	--	--	0.0	-39.0	--	--	0.0	-42.0	--	--	0.0
	6:10 PM	-40.0	3,600.0	82.4	0.0	-39.0	2,600.0	59.5	0.0	-42.0	3,400.0	77.9	0.0
06/09/06	11:30 AM	-56.0	--	--	--	-56.0	--	--	--	0.0 [4]	--	--	--
06/12/06	10:00 AM	-56.0	--	--	--	-56.0	--	--	--	0.0 [4]	--	--	--
06/16/06	2:30 PM	-39.0	4,400.0	100.8	0.0	-38.0	3,800.0	87.0	0.0	40.0 [7]	3,200.0	73.3	0.0
06/30/06	12:10 PM	-38.0	4,650.0	106.5	0.0	-38.0	4,520.0	103.5	0.0	-40.0	4,800.0	109.9	0.0
07/14/06	2:14 PM	-42.0	2,517.0	57.6	0.0	-42.5	2,730.0	62.5	0.0	-51.0	1,882.0	43.1	0.0
07/28/06	11:57 AM	-36.0	2,637.0	60.4	0.0	-35.8	1,950.0	44.7	0.0	-37.9	2,678.0	61.3	0.0
08/11/06	4:00 PM	-36.0	--	--	0.0	-37.0	--	--	0.0	-37.0	--	--	0.0
08/25/06	1:35 PM	-34.5	4,441.0	101.7	--	-34.0	3,081.0	70.5	--	-36.1	3,521.0	80.6	--
09/08/06	12:00 AM	-34.0	3,756.0	86.0	0.0	-34.0	3,467.0	79.4	0.0	-36.0	4,232.0	96.9	0.0
10/05/06	2:30 PM	-34.0	2,788.0	63.8	0.0	-34.0	1,729.0	39.6	0.0	-36.0	2,950.0	67.5	0.0
11/03/06	11:00 AM	-35.0	3,500.0	80.1	0.0	-34.0	3,500.0	80.1	0.0	-36.0	3,500.0	80.1	0.0
12/05/06	1:00 PM	-36.0	3,297.0	75.5	0.0	-35.0	2,240.0	51.3	0.0	-37.0	2,840.0	65.0	0.0
04/26/07	6:30 AM	-37.0	3,240.0	74.2	--	-39.0	2,908.0	66.6	--	-37.0	2,552.0	58.4	--
05/29/07	3:30 PM	-36.0	3,800.0	87.0	0.0	-38.0	4,122.0	94.4	0.0	-36.0	3,937.0	90.1	0.0
06/27/07	4:00 PM	-34.5	4,575.0	104.8	0.0	-36.0	4,635.0	106.1	0.0	-36.0	4,680.0	107.2	0.0
07/26/07	3:00 PM	-32.0	4,561.0	104.4	0.0	-33.5	4,638.0	106.2	0.0	-31.5	4,702.0	107.7	0.0

See notes last page.

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industris, Plainview, New York.

		Blower Parameters		GAC 500 Parameters					GAC 600 Parameters				
Date	Time	Influent Vacuum (in.W.C.)	Effluent Pressure (in.W.C.)	Discharge Pressure (in.W.C.)	Discharge Temperature (Degrees F)	Air Velocity (fpm)	Air Flow Rate [1] (cfm)	PID Measured Concentration (ppmv)	Discharge Pressure (in.W.C.)	Discharge Temperature (Degrees F)	Air Velocity (fpm)	Air Flow Rate [1] (cfm)	PID Measured Concentration (ppmv)
06/08/06	1:40 PM [2]	--	--	--	--	--	--	--	--	--	--	--	--
	2:45 PM [3]	-52.0	5.0	2.0	--	--	--	14.0	--	--	--	--	0.0
	4:45 PM	-51.0	6.0	2.0	--	--	--	10.5	--	--	--	--	--
	6:10 PM	-51.0	6.0	2.0	--	--	--	4.4	--	--	3,000.0	268.2	--
06/09/06	11:30 AM [4]	-64.0	4.0	1.0	115.0 [5]	--	--	--	--	100.0 [5]	0.0	--	--
06/12/06	10:00 AM	-65.0	4.0	1.0	--	--	--	--	--	--	--	--	--
06/16/06	2:30 PM	-50.0	4.0	-- [6]	--	--	--	--	--	120.0	3,800.0	339.8	0.0
06/30/06	12:10PM	-50.0	8.0	-- [6]	--	--	--	--	0.0	100.0	4,250.0	380.0	0.0
07/14/06	2:14PM	-51.0	8.0	7.0	--	--	--	0.0	0.0	108.8	1,883.0	168.4	0.0
07/28/06	11:57 AM	-49.8	8.5	7.0	115 [5]	--	--	0.0	0.0	107.0 [5]	1,530.0	136.8	0.0
08/11/06	4:00 PM	-49.0	9.0	--	--	--	--	--	--	--	--	--	--
08/25/06	1:35 PM	-48.5	9.0	7.5	--	--	--	--	0.0	98.6	5,204.0	465.3	--
09/08/06	12:00AM	-48.0	9.5	--	--	--	--	--	0.0	107.7	3,130.0	279.9	0.0
10/05/06	2:30 PM	-48.0	10.0	--	120.0	3,040.0	271.8	0.0	0.0	97.8	2,150.0	192.2	0.0
11/03/06	11:00 AM	-50.0	10.0	8.0	--	--	--	0.0	0.0	82.0	2,950.0	263.8	0.0
12/05/06	1:00 PM	-50.0	10.0	8.0	100.5	5,530.0	494.5	0.0	0.0	76.2	3,290.0	294.2	0.0
04/26/07	6:30 AM	-49.5	6.0	8.0	106.0	3,565.0	318.8	--	0.0	85.1	1,721.0	153.9	--
05/29/07	3:30 PM	-51.0	5.0	8.5	121.0	--	--	0.0	0.0	105.4	3,237.0	289.4	0.0
06/27/07	4:00 PM	-49.0	5.0	8.0	129.2	5,627.0	503.1	0.0	0.0	113.5	2,770.0	247.7	0.0
07/26/07	3:00 PM	-53.0	4.0	7.5	--	--	--	--	0.0	111.0	2,577.0	230.4	0.0

See notes last page.

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industris, Plainview, New York.

Date	Time	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.)
06/08/06	1:40 PM [2]	0.00	0.00	0.00	0.00	0.00	0.00
	2:45 PM [3]	-0.14	-0.11	-0.08	-0.16	-0.09	-0.13
	4:45 PM	-0.11	-0.09	-0.07	-0.16	-0.07	-0.11
	6:10 PM	-0.13	-0.09	-0.07	-0.16	-0.07	-0.11
06/09/06	11:30 AM	-0.14	-0.12	-0.08	0.00	-0.01	-0.13
06/12/06	10:00 AM	--	--	--	--	--	
06/16/06	2:30 PM	-0.09	-0.09	-0.08	-0.17	-0.05	-0.10
06/30/06	12:10 PM	--	--	--	--	--	--
07/14/06	2:14 PM	-0.10	-0.10	-0.15	-0.18	-0.08	-0.12
07/28/06	11:57 AM	-0.07	-0.10	-0.09	-0.16	-0.07	-0.01
08/11/06	4:00 PM	-0.045	-0.045	-0.04	-0.075	-0.042	-0.08
08/25/06	1:35 PM	-0.03	-0.037	-0.03	-0.065	-0.025	0.00 [8]
09/08/06	12:00 AM	-0.04	-0.04	-0.04	-0.08	-0.05	-0.07
10/05/06	2:30 PM	-0.05	-0.04	-0.04	-0.04 [9]	-0.05	-0.05 [9]
11/03/06	11:00 AM	-0.04	-0.05	-0.04	-0.09	-0.04	0.00 [8]
12/05/06	1:00 PM	-0.03	-0.04	-0.06	-0.03	-0.01	0.00 [8]
04/26/07	6:30 AM	-0.06	-0.14	-0.04	-0.02	-0.15	-0.10
05/29/07	3:30 PM	-0.02	-0.08	-0.01	0.00 [10]	-0.09	-0.05
06/27/07	4:00 PM	-0.02	-0.04	-0.01	0.00 [10]	-0.09	-0.07
07/26/07	3:00 PM	-0.02	-0.06	0.00 [11]	0.00 [10]	-0.09	-0.05

See notes last page.

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Table 1. System Operational Data, Vapor Recovery System, United Stellar Industris, Plainview, New York.

Notes:

1. The air flow rate was calculated by multiplying the measured air velocity in feet per minute by the cross sectional area of the pipe.
2. The Soil Vapor Extraction System baseline reading was taken at 1:45 PM on June 8, 2006.
3. The system was started at 2:30 PM on June 8, 2006. The first reading was taken at 15 minutes after start-up.
4. SVE-3 was valved off on June 9, 2006 after a leak was discovered in well head.
5. Temperature taken using a handheld infra red thermometer.
6. GAC 500 was temporarily removed until a replacement vessel arrived.
7. The leak at the SVE-3 well was sealed and the well was brought on line on June 16, 2006.
8. The MP-6 remote monitoring location was inoperational during the 8/25/06, 11/3/06, and 12/5/06 O&M site visits.
9. This reading was taken at the wellhead.
10. The MP-4 monitoring location was inoperational during the 5/29/07, 6/27/07, and 7/26/07 O&M site visits.
11. The MP-3 monitoring location was inoperational during the 7/26/07 O&M site visit.
12. Following the 9/6/2007 monthly compliance sampling event, the system was shut down and the air filter on the influent blower line was replaced. System parameters were recorded prior to and after the filter replacement.

in. W.C.	Inches of water column
fpm	Feet per minute
cfm	Cubic feet per minute
ppmv	Parts per million by volume
Degree F	Degrees Farenheit
NM	Parameter was not measured
--	There is no location to measure these parameters in the system.

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Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID:	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]
	Date:	6/16/2006 [3]	6/30/2006	7/14/2006	7/28/2006	8/11/2006	8/25/2006	9/8/2006	10/5/2006	11/3/2006	12/5/2006	4/26/2007
Freon 12		ND J	ND	ND	ND	29	ND	ND	25	29	28	ND
Freon 113		280 J	410	61	70	100	44	52	67	51	45	ND
Chloroform		51 J	160	ND	ND	33	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		150 J	1,100	220	210	340	87	98	110	76	53	27
Trichloroethene		5,200 J	5,900	840	1,400	3,200	980	1,700	3,000	2,300	1,400	650
Tetrachloroethene		210 J	220	ND	46	140	ND	60	130	110	ND	ND
trans-1,2-Dichloroethene		ND J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		140 J	160	42	80	180	71	90	130	110	97	42
1,1-Dichloroethane		ND J	ND	ND	20	32	ND	ND	ND	ND	ND	ND
Toluene		32 J	ND	ND	ND	ND	24	ND	ND	ND	ND	ND
2-Propanol		200 J	130	ND	ND	14	ND	100	45	16	12	ND
Methylene Chloride		ND J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide		ND J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]		**6,263**	**8,080**	**1,163**	**1,826**	**4,068**	**1,206**	**2,100**	**3,507**	**2,692**	**1,635**	**719**

See notes last page.

Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID:	SVE-1 [1]	SVE-1 [1]	SVE-1 [1]
	Date:	5/29/2007	6/27/2007	7/26/2007
Freon 12		ND	ND	ND
Freon 113		ND	ND	ND
Chloroform		ND	ND	ND
1,1,1-Trichloroethane		34	34	48
Trichloroethene		1,300	1,300	1,700
Tetrachloroethene		38	51	68
trans-1,2-Dichloroethene		ND	ND	ND
cis-1,2-Dichloroethene		71	70	86
1,1-Dichloroethane		ND	ND	ND
Toluene		ND	ND	ND
2-Propanol		ND	36	ND
Methylene Chloride		ND	ND	ND
Carbon Disulfide		ND	ND	ND
Total VOCs [2]		**1,443**	**1,491**	**1,902**

See notes last page.

Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID:	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]	SVE-2 [1]
	Date:	6/30/2006	7/14/2006	7/28/2006	8/11/2006	8/25/2006	9/8/2006	10/5/2006	11/3/2006	12/5/2006	4/26/2007	5/29/2007
Freon 12		ND	ND	ND	ND	170	280	ND	ND	ND	ND	ND
Freon 113		580	190	180	310	ND	ND	250	240	210	110	190
Chloroform		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		52	ND	ND	46	ND	39	35	36	ND	ND	29
Trichloroethene		16,000	3,300	3,200	8,100	3,400	6,700	5,500	4,200	2,300	1,400	4,300
Tetrachloroethene		190	46	39	140	45	120	130	130	53	ND	110
trans-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		290	88	84	160	82	140	100	89	65	38	300
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene		ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND
2-Propanol		130	ND	ND	27	12	120	41	16	13	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]		**17,242**	**3,624**	**3,503**	**8,783**	**3,709**	**7,399**	**6,056**	**4,711**	**2,662**	**1,548**	**4,929**

See notes last page.

Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID: SVE-2 [1] Date: 6/27/2007	SVE-2 [1] 7/26/2007
Freon 12	ND	ND
Freon 113	ND	210
Chloroform	ND	ND
1,1,1-Trichloroethane	ND	40
Trichloroethene	240	3,700
Tetrachloroethene	ND	130
trans-1,2-Dichloroethene	ND	ND
cis-1,2-Dichloroethene	ND	84
1,1-Dichloroethane	ND	ND
Toluene	95	ND
2-Propanol	170	ND
Methylene Chloride	50	ND
Carbon Disulfide	ND	ND
Total VOCs [2]	**505**	**4,164**

See notes last page.

Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID:	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]	SVE-3 [1]
	Date:	6/30/2006	7/14/2006	7/28/2006	8/11/2006	8/25/2006	9/8/2006	10/5/2006	11/3/2006	12/5/2006	4/26/2007	5/29/2007
Freon 12		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113		320	110	73	79	93	110	91	110	100	70	110
Chloroform		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene		1,000	290	180	310	270	480	450	480	350	210	340
Tetrachloroethene		49	ND	ND	ND	ND	34	ND	37	ND	ND	34
trans-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		150	71	38	60	76	140	170	240	240	180	300
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol		150	ND	26	ND	ND	72	32	14	16	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]		**1,669**	**471**	**317**	**449**	**439**	**836**	**743**	**881**	**706**	**460**	**784**

See notes last page.

Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID: SVE-3 [1] Date: 6/27/2007	SVE-3 [1] 7/26/2007
Freon 12	ND	ND
Freon 113	120	160
Chloroform	ND	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	340	460
Tetrachloroethene	42	69
trans-1,2-Dichloroethene	ND	ND
cis-1,2-Dichloroethene	300	420
1,1-Dichloroethane	ND	ND
Toluene	ND	ND
2-Propanol	37	ND
Methylene Chloride	ND	ND
Carbon Disulfide	ND	ND
Total VOCs [2]	**839**	**1,109**

See notes last page.

Table 2. Summary of Extraction Well Vapor Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Notes:

1. Samples collected by ARCADIS personnel during the periods shown and submitted to Air Toxics Laboratories., Folsom, CA. for volatile organic compound (VOC) analyses using Direct Inject Method TO-14. Only VOCs detected at any time during system operation at any location are presented on this table.
2. Total VOCs calculated by summing concentrations of individual analytes.
3. Due to laboratory error, samples SVE-1, SVE-2, SVE-2 duplicate and SVE-3 were analyzed outside of the recommended hold time. Although subsequent laboratory testing indicating the results are representative, these results are nonetheless considered estimated and are noted with a J qualifier.
4. Due to lack of appropriate DOT training, the August monthly compliance sampling event could not be completed until 9/6/2007.

ug/m^3 Micrograms per cubic meter

ND Analyte not detected at, or above its laboratory quantification limit

J The compound was positively identified, however, the associated numerical value is an estimated concentration only.

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Table 3. Summary of Carbon Effluent Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID: Date:	EFF-1 [1] 6/30/2006	EFF-1 [1] 7/28/2006	EFF-1 [1] 8/11/2006	EFF-1 [1] 8/25/2006	EFF-1 [1] 9/8/2006	EFF-1 [1] 10/5/2006
Freon 113		ND	ND	ND	ND	49	72
Chloroform		ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	ND
Trichloroethene		140	54	ND	ND	ND	120
Tetrachloroethene		ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		ND	21	79	110	140	140
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND
Toluene		ND	ND	ND	ND	ND	ND
2-Propanol		170	58	27	ND	70	46
Benzene		18	ND	ND	ND	ND	ND
MTBE		ND	ND	ND	ND	ND	ND
1,1 DCE		ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	ND
Total VOCs [2]		**328**	**133**	**106**	**110**	**259**	**378**

See notes last page.

Table 3. Summary of Carbon Effluent Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID: / Date:	EFF-1 [1] 11/3/2006	EFF-1 [1] 4/26/2007	EFF-1 [1] 5/29/2007	EFF-1 [1] 6/27/2007	EFF-1 [1] 7/26/2007
Freon 113		64	74	ND	ND	340
Chloroform		ND	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	120
Trichloroethene		160	200	390	130	2,800
Tetrachloroethene		ND	ND	ND	ND	ND
trans-1,2-Dichloroethene		ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		93	68	84	26	440
1,1-Dichloroethane		ND	ND	ND	ND	ND
Toluene		ND	ND	77	60	ND
2-Propanol		20	61	39	81	ND
Benzene		ND	54	ND	ND	ND
MTBE		ND	ND	ND	ND	ND
1,1 DCE		ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	18	85	ND
Total VOCs [2]		**337**	**457**	**608**	**382**	**3,700**

See notes last page.

Table 3. Summary of Carbon Effluent Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID: Date:	EFF-2 [1] 6/30/2006	EFF-2 [1] 7/28/2006	EFF-2 [1] 8/11/2006	EFF-2 [1] 8/25/2006	EFF-2 [1] 9/8/2006	EFF-2 [1] 10/5/2006
Freon 113		ND	ND	ND	ND	ND	ND
Chloroform		ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	ND
Trichloroethene		340	51	ND	ND	ND	29
Tetrachloroethene		ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND
Toluene		48	ND	ND	ND	ND	ND
2-Propanol		51	32	29	13	140	65
Benzene		ND	ND	ND	ND	ND	ND
MTBE		ND	53	ND	ND	ND	ND
1,1 DCE		ND	29	ND	ND	ND	ND
Methylene Chloride		ND	24	ND	ND	ND	ND
Total VOCs [2]		**439**	**189**	**29**	**13**	**140**	**94**

See notes last page.

Table 3. Summary of Carbon Effluent Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Constituents (units in ug/m^3)	Sample ID: Date:	EFF-2 [1] 11/3/2006	EFF-2 [1] 12/5/2006	EFF-2 [1] 4/26/2007	EFF-2 [1] 5/29/2007	EFF-2 [1] 6/27/2007	EFF-2 [1] 7/26/2007
Freon 113		ND	ND	ND	ND	110	280
Chloroform		ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	ND
Trichloroethene		ND	94	ND	ND	ND	ND
Tetrachloroethene		ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		ND	22	ND	310	360	540
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND
Toluene		ND	19	ND	ND	ND	ND
2-Propanol		34	21	52	ND	38	ND
Benzene		ND	ND	ND	ND	ND	ND
MTBE		ND	ND	ND	ND	ND	ND
1,1 DCE		ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	ND
Total VOCs [2]		**34**	**156**	**52**	**310**	**508**	**820**

See notes last page.

Table 3. Summary of Carbon Effluent Sample Analytical Results, Vapor Recovery System, United Stellar Industries, Plainview, New York.

Notes:

1. Samples collected by ARCADIS personnel during the periods shown and submitted to Air Toxics Laboratories., Folsom CA for volatile organic compound (VOC) analyses using Direct Inject Method TO-14. Only VOCs detected at any time during system operation at any location are presented on this table
2. Total VOCs calculated by summing individual analyte concentrations.
3. Due to lack of DOT training, August monthly compliance sampling could not be completed until 9/6/2007.

ug/m^3 Micrograms per cubic meter

ND Analyte not detected at, or above its laboratory quantification limit

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Table A1. NYSDEC DAR-1 November 3, 2006, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	263.8	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	80.1	0.33
SVE-2 Measured Flowrate (ACFM) =	80.1	0.33
SVE-3 Measured Flowrate (ACFM) =	80.1	0.33
Sum of Individual Flows (ACFM) =	240.3	

	Lab Data (ug/m^3)			Mass Balance Concentration [1]	Actual Effluent Concentration
	SVE-1	SVE-2	SVE-3	(ug/m^3)	(ug/m^3)
Freon 12	29	0	0	10	0
Freon 113	51	240	110	134	0
1,1,1-Trichloroethane	76	36	0	37	0
Trichloroethene	2,300	4,200	480	2,327	0
Tetrachloroethene	110	130	37	92	0
cis-1,2-Dichloroethene	110	89	240	146	0
2-Propanol	16	16	14	15	34

Notes/Assumptions:

1. Mass balance concentration = Lab Data Concentration SVE-1 x SVE-1 % of Total Flow + Lab Data Concentration SVE-2 x SVE-2 % of Total Flow + Lab Data Concentration SVE-3 x SVE-3 % of Total Flow.

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Table A1. NYSDEC DAR-1 November 3, 2006, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 11/3/2006 Sampling Event

Discharge Temperature [1]	T	542	°R
Ambient Temperature [2]	Ta	518	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	49.2	fps
Exit Flow	Q	257	acfm
Exit Flow	Q	251	scfm
Stack Height	h_s	12	ft
Building Height	h_b	10	ft
Ratio of Heights	h_s/h_b	1.20	
Plume rise credit? $h_s/h_b > 1.5$?	(If no, $h_e=h_s$)	No	
Momentum Flux	Fm = Ta/T * V2 * R2	n/a	ft^4/s^2
Effective Stack Height	h_e	12.0	ft
Reduction Factor? $2.5 > h_s/h_b > 1.5$?		No, do not reduce impact	
Actual Annual Impact	C_a	$RF*6*Q_a/h_e^{2.25}$	
Mass Flow	Q_a	S lbs emitted for last 12 months	

Abbreviations:

°R: Degrees Rankine
in: Inches
ft: Feet
fps: Feet per second
acfm: Actual cubic feet per minute
scfm: Standard cubic feet per minute
s: Second
lbs: Pounds

Notes/Assumptions:

1. The stack discharge temperature is based on recorded parameters.
2. The ambient temperature based on www.weather.com historic temperatures.

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Table A1. NYSDEC DAR-1 November 3, 2006, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC based on Effluent Results From 11/3/2006 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Actual Effluent Emissions C_a	Mass Flow per Hour (Based on Actual Effluent Emission)	Actual Mass Flow per Year (Based on Actual Effluent Emissions)	**Percent of Annual (Based on Actual Effluent Emissions)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	0.00	0.00E+00	0.00000	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	0.00	0.00E+00	0.00000	**0.00**
Trichloroethene	0.5	22.33	0.00	0.00E+00	0.00000	**0.00**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	0.00	0.00E+00	0.00000	**0.00**
2-Propanol	7000	312,683.23	34.00	3.19E-05	0.28720	**0.00**

Calculation of AGC based on Influent Results From 11/3/2006 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour (Based on Influent Concentrations)	Actual Mass Flow per Year (Based on Influent Concentrations)	**Percent of Annual (Based on Influent Concentrations)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	9.67	9.08E-06	0.08165	**0.00**
Freon 113	180,000.00	8,040,425.98	133.67	1.26E-04	1.12908	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	37.33	3.51E-05	0.31536	**0.00**
Trichloroethene	0.5	22.33	2,326.67	2.19E-03	19.65338	**88.00**
Tetrachloroethene	1.0	44.67	92.33	8.67E-05	0.77994	**1.75**
cis-1,2-Dichloroethene	1,900.0	84,871.16	146.33	1.37E-04	1.23608	**0.00**
2-Propanol	7000	312,683.23	15.33	1.44E-05	0.12952	**0.00**

Notes/Assumptions:

1. Calculations assume that the system will run with the maximum allowable concentrations between quarterly readings.
2. AGC refers to the Annual Guideline Concentration as determined using the hand calculations in the DAR-1 AGC/SGC Tables dated December 22, 2003.

Abbreviations:

ug/m^3: micrograms per cubic meter
lb/yr: pounds per year
lb/hr: pounds per hour

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Table A2. NYSDEC DAR-1 December 5, 2006, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	294.2	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	75.5	0.39
SVE-2 Measured Flowrate (ACFM) =	51.3	0.27
SVE-3 Measured Flowrate (ACFM) =	65.0	0.34
Sum of Individual Flows (ACFM) =	191.8	

	Lab Data (ug/m^3)			Mass Balance Concentration [1]	Actual Effluent Concentration
	SVE-1	SVE-2	SVE-3	(ug/m^3)	(ug/m^3)
Freon 12	28	0	0	11	0
Freon 113	45	210	100	108	0
1,1,1-Trichloroethane	53	0	0	21	0
Trichloroethene	1,400	2,300	350	1,285	94
Tetrachloroethene	0	53	0	14	0
cis-1,2-Dichloroethene	97	65	240	137	22
Toluene	0	21	0	6	19
2-Propanol	12	13	16	14	21

Notes/Assumptions:

1. Mass balance concentration = Lab Data Concentration SVE-1 x SVE-1 % of Total Flow + Lab Data Concentration SVE-2 x SVE-2 % of Total Flow + Lab Data Concentration SVE-3 x SVE-3 % of Total Flow.

Table A2. NYSDEC DAR-1 December 5, 2006, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 12/5/2006 Sampling Event

Discharge Temperature [1]	T	536	°R
Ambient Temperature [2]	Ta	518	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	54.8	fps
Exit Flow	Q	287	acfm
Exit Flow	Q	283	scfm
Stack Height	h_s	12	ft
Building Height	h_b	10	ft
Ratio of Heights	h_s/h_b	1.20	
Plume rise credit? $h_s/h_b > 1.5$?	(If no, $h_e=h_s$)	No	
Momentum Flux	Fm = Ta/T * V2 * R2	n/a	ft^4/s^2
Effective Stack Height	h_e	12.0	ft
Reduction Factor? $2.5 > h_s/h_b > 1.5$?		No, do not reduce impact	
Actual Annual Impact	C_a	$RF*6*Q_a/h_e^{2.25}$	
Mass Flow	Q_a	S lbs emitted for last 12 months	

Abbreviations:

°R: Degrees Rankine
in: Inches
ft: Feet
fps: Feet per second
acfm: Actual cubic feet per minute
scfm: Standard cubic feet per minute
s: Second
lbs: Pounds

Notes/Assumptions:

1. The stack discharge temperature is based on recorded parameters.
2. The ambient temperature based on www.weather.com historic temperatures.

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Table A2. NYSDEC DAR-1 December 5, 2006, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC based on Effluent Results From 12/5/2006 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Actual Effluent Emissions C_a	Mass Flow per Hour (Based on Actual Effluent Emissions)	Actual Mass Flow per Year (Based on Actual Effluent Emissions)	**Percent of Annual (Based on Actual Effluent Emissions)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	0.00	0.00E+00	0.00000	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	0.00	0.00E+00	0.00000	**0.00**
Trichloroethene	0.5	22.33	94.00	9.95E-05	0.88553	**3.96**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	22.00	2.33E-05	0.20725	**0.00**
Toluene	400.0	17,867.61	19.00	2.01E-05	0.17899	**0.00**
2-Propanol	7000	312,683.23	21.00	2.22E-05	0.19783	**0.00**

Calculation of AGC based on Influent Results From 12/5/2006 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour (Based on Influent Concentrations)	Actual Mass Flow per Year (Based on Influent Concentrations)	**Percent of Annual (Based on Influent Concentrations)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	11.02	1.17E-05	0.10383	**0.00**
Freon 113	180,000.00	8,040,425.98	107.77	1.14E-04	1.01527	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	20.86	2.21E-05	0.19654	**0.00**
Trichloroethene	0.5	22.33	1,284.88	1.36E-03	12.10430	**54.20**
Tetrachloroethene	1.0	44.67	14.18	1.50E-05	0.13354	**0.30**
cis-1,2-Dichloroethene	1,900.0	84,871.16	136.90	1.45E-04	1.28970	**0.00**
Toluene	400.0	17,867.61	5.62	5.95E-06	0.05291	**0.00**
2-Propanol	7000	312,683.23	13.62	1.44E-05	0.12834	**0.00**

Notes/Assumptions:

1. Calculations assume that the system will run with the maximum allowable concentrations between quarterly readings.
2. AGC refers to the Annual Guideline Concentration as determined using the hand calculations in the DAR-1 AGC/SGC Tables dated December 22, 2003.

Abbreviations:

ug/m^3: micrograms per cubic meter

lb/yr: pounds per year

lb/hr: pounds per hour

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Table A3. NYSDEC DAR-1 April 26, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	153.9	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	74.2	0.37
SVE-2 Measured Flowrate (ACFM) =	66.6	0.33
SVE-3 Measured Flowrate (ACFM) =	58.4	0.29
Sum of Individual Flows (ACFM) =	199.2	

	Lab Data (ug/m^3)			Mass Balance Concentration [1] (ug/m^3)	Actual Effluent Concentration (ug/m^3)
	SVE-1	SVE-2	SVE-3		
Freon 12	0	0	0	0	0
Freon 113	0	110	70	57	0
1,1,1-Trichloroethane	27	0	0	10	0
Trichloroethene	650	1,400	210	772	0
Tetrachloroethene	0	0	0	0	0
cis-1,2-Dichloroethene	42	38	180	81	0
2-Propanol	0	0	0	0	52

Notes/Assumptions:

1. Mass balance concentration = Lab Data Concentration SVE-1 x SVE-1 % of Total Flow + Lab Data Concentration SVE-2 x SVE-2 % of Total Flow + Lab Data Concentration SVE-3 x SVE-3 % of Total Flow.

Table A3. NYSDEC DAR-1 April 26, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 4/26/2007 Sampling Event

Discharge Temperature [1]	T	545	°R
Ambient Temperature [2]	Ta	518	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	28.7	fps
Exit Flow	Q	150	acfm
Exit Flow	Q	145	scfm
Stack Height	h_s	12	ft
Building Height	h_b	10	ft
Ratio of Heights	h_s/h_b	1.20	
Plume rise credit? $h_s/h_b > 1.5$?	(If no, $h_e=h_s$)	No	
Momentum Flux	Fm = Ta/T * V2 * R2	n/a	ft^4/s^2
Effective Stack Height	h_e	12.0	ft
Reduction Factor? $2.5 > h_s/h_b > 1.5$?		No, do not reduce impact	
Actual Annual Impact	C_a	$RF*6*Q_a/h_e^{2.25}$	
Mass Flow	Q_a	S lbs emitted for last 12 months	

Abbreviations:

°R: Degrees Rankine
in: Inches
ft: Feet
fps: Feet per second
acfm: Actual cubic feet per minute
scfm: Standard cubic feet per minute
s: Second
lbs: Pounds

Notes/Assumptions:

1. The stack discharge temperature is based on recorded parameters.
2. The ambient temperature based on www.weather.com historic temperatures.

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Table A3. NYSDEC DAR-1 April 26, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC based on Effluent Results From 4/26/2007 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Actual Effluent Emissions C_a	Mass Flow per Hour (Based on Actual Effluent Emission)	Actual Mass Flow per Year (Based on Actual Effluent Emissions)	**Percent of Annual (Based on Actual Effluent Emissions)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	0.00	0.00E+00	0.00000	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	0.00	0.00E+00	0.00000	**0.00**
Trichloroethene	0.5	22.33	0.00	0.00E+00	0.00000	**0.00**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	0.00	0.00E+00	0.00000	**0.00**
2-Propanol	7000	312,683.23	52.00	2.83E-05	0.25625	**0.00**

Calculation of AGC based on Influent Results From 4/26/2007 Sampling Event[2]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour (Based on Influent Concentrations)	Actual Mass Flow per Year (Based on Influent Concentrations)	**Percent of Annual (Based on Influent Concentrations)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	57.30	3.12E-05	0.28236	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	10.06	5.48E-06	0.04956	**0.00**
Trichloroethene	0.5	22.33	771.76	4.21E-04	3.80314	**17.03**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	81.12	4.42E-05	0.39975	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**

Notes/Assumptions:

1. Calculations assume that the system will run with the maximum allowable concentrations between quarterly readings.
2. AGC refers to the Annual Guideline Concentration as determined using the hand calculations in the DAR-1 AGC/SGC Tables dated December 22, 2003.

Abbreviations:

ug/m^3: micrograms per cubic meter

lb/yr: pounds per year

lb/hr: pounds per hour

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Table A4. NYSDEC DAR-1 May 29, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	289.4	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	87.0	0.32
SVE-2 Measured Flowrate (ACFM) =	94.4	0.35
SVE-3 Measured Flowrate (ACFM) =	90.1	0.33
Sum of Individual Flows (ACFM) =	271.5	

	Lab Data (ug/m^3)			Mass Balance Concentration [1]	Actual Effluent Concentration
	SVE-1	SVE-2	SVE-3	(ug/m^3)	(ug/m^3)
Freon 12	0	0	0	0	0
Freon 113	0	190	110	103	0
1,1,1-Trichloroethane	34	29	0	21	0
Trichloroethene	1,300	4,300	340	2,025	0
Tetrachloroethene	38	110	34	62	0
cis-1,2-Dichloroethene	71	300	300	227	310
2-Propanol	0	0	0	0	0

Notes/Assumptions:

1. Mass balance concentration = Lab Data Concentration SVE-1 x SVE-1 % of Total Flow + Lab Data Concentration SVE-2 x SVE-2 % of Total Flow + Lab Data Concentration SVE-3 x SVE-3 % of Total Flow.

Table A4. NYSDEC DAR-1 May 29, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 5/29/2007 Sampling Event

Discharge Temperature [1]	T	565	°R
Ambient Temperature [2]	Ta	518	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	54.0	fps
Exit Flow	Q	282	acfm
Exit Flow	Q	264	scfm
Stack Height	h_s	12	ft
Building Height	h_b	10	ft
Ratio of Heights	h_s/h_b	1.20	
Plume rise credit? $h_s/h_b > 1.5$?	(If no, $h_e=h_s$)	No	
Momentum Flux	Fm = Ta/T * V2 * R2	n/a	ft^4/s^2
Effective Stack Height	h_e	12.0	ft
Reduction Factor? $2.5 > h_s/h_b > 1.5$?		No, do not reduce impact	
Actual Annual Impact	C_a	$RF*6*Q_a/h_e^{2.25}$	
Mass Flow	Q_a	S lbs emitted for last 12 months	

Abbreviations:

°R: Degrees Rankine
in: Inches
ft: Feet
fps: Feet per second
acfm: Actual cubic feet per minute
scfm: Standard cubic feet per minute
s: Second
lbs: Pounds

Notes/Assumptions:

1. The stack discharge temperature is based on recorded parameters.
2. The ambient temperature based on www.weather.com historic temperatures.

Table A4. NYSDEC DAR-1 May 29, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC based on Effluent Results From 5/29/2007 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Actual Effluent Emissions C_a	Mass Flow per Hour (Based on Actual Effluent Emission)	Actual Mass Flow per Year (Based on Actual Effluent Emissions)	**Percent of Annual (Based on Actual Effluent Emissions)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	0.00	0.00E+00	0.00000	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	0.00	0.00E+00	0.00000	**0.00**
Trichloroethene	0.5	22.33	0.00	0.00E+00	0.00000	**0.00**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	310.00	3.06E-04	2.87333	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC based on Influent Results From 5/29/2007 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour (Based on Influent Concentrations)	Actual Mass Flow per Year (Based on Influent Concentrations)	**Percent of Annual (Based on Influent Concentrations)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	102.57	1.01E-04	0.95068	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	20.98	2.07E-05	0.19444	**0.00**
Trichloroethene	0.5	22.33	2,024.51	2.00E-03	18.76478	**84.02**
Tetrachloroethene	1.0	44.67	61.71	6.10E-05	0.57195	**1.28**
cis-1,2-Dichloroethene	1,900.0	84,871.16	226.62	2.24E-04	2.10049	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**

Notes/Assumptions:

1. Calculations assume that the system will run with the maximum allowable concentrations between quarterly readings.
2. AGC refers to the Annual Guideline Concentration as determined using the hand calculations in the DAR-1 AGC/SGC Tables dated December 22, 2003.

Abbreviations:

ug/m^3: micrograms per cubic meter

lb/yr: pounds per year

lb/hr: pounds per hour

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Table A5. NYSDEC DAR-1 June 27, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	247.7	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	104.8	0.33
SVE-2 Measured Flowrate (ACFM) =	106.1	0.33
SVE-3 Measured Flowrate (ACFM) =	107.2	0.34
Sum of Individual Flows (ACFM) =	318.1	

	Lab Data (ug/m^3)			Mass Balance Concentration [1] (ug/m^3)	Actual Effluent Concentration (ug/m^3)
	SVE-1	SVE-2	SVE-3		
Freon 12	0	0	0	0	0
Freon 113	0	0	120	40	110
1,1,1-Trichloroethane	34	0	0	11	0
Trichloroethene	1,300	240	340	623	0
Tetrachloroethene	51	0	42	31	0
cis-1,2-Dichloroethene	70	0	300	124	360
Toluene	0	95	0	32	0
2-Propanol	36	170	37	81	38
Methylene Chloride	0	50	0	17	0

Notes/Assumptions:

1. Mass balance concentration = Lab Data Concentration SVE-1 x SVE-1 % of Total Flow + Lab Data Concentration SVE-2 x SVE-2 % of Total Flow + Lab Data Concentration SVE-3 x SVE-3 % of Total Flow.

Table A5. NYSDEC DAR-1 June 27, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 6/27/2007 Sampling Event

Discharge Temperature [1]	T	573	°R
Ambient Temperature [2]	Ta	518	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	46.2	fps
Exit Flow	Q	242	acfm
Exit Flow	Q	223	scfm
Stack Height	h_s	12	ft
Building Height	h_b	10	ft
Ratio of Heights	h_s/h_b	1.20	
Plume rise credit? $h_s/h_b > 1.5$?	(If no, $h_e=h_s$)	No	
Momentum Flux	Fm = Ta/T * V2 * R2	n/a	ft^4/s^2
Effective Stack Height	h_e	12.0	ft
Reduction Factor? $2.5 > h_s/h_b > 1.5$?		No, do not reduce impact	
Actual Annual Impact	C_a	$RF*6*Q_a/h_e^{2.25}$	
Mass Flow	Q_a	S lbs emitted for last 12 months	

Abbreviations:

°R: Degrees Rankine
in: Inches
ft: Feet
fps: Feet per second
acfm: Actual cubic feet per minute
scfm: Standard cubic feet per minute
s: Second
lbs: Pounds

Notes/Assumptions:

1. The stack discharge temperature is based on recorded parameters.
2. The ambient temperature based on www.weather.com historic temperatures.

Table A5. NYSDEC DAR-1 June 27, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC based on Effluent Results From 6/27/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC^2)	Maximum Mass Flow Q_a	Actual Effluent Emissions C_a	Mass Flow per Hour (Based on Actual Effluent Emission)	Actual Mass Flow per Year (Based on Actual Effluent Emissions)	**Percent of Annual (Based on Actual Effluent Emissions)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	110.00	9.17E-05	0.87248	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	0.00	0.00E+00	0.00000	**0.00**
Trichloroethene	0.5	22.33	0.00	0.00E+00	0.00000	**0.00**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	360.00	3.00E-04	2.85538	**0.00**
Toluene	400.0	17,867.61	0.00	0.00E+00	0.00000	**0.00**
2-Propanol	7000	312,683.23	38.00	3.17E-05	0.30140	**0.00**
Methylene Chloride	2.1	93.80	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC based on Influent Results From 6/27/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC^2)	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour (Based on Influent Concentrations)	Actual Mass Flow per Year (Based on Influent Concentrations)	**Percent of Annual (Based on Influent Concentrations)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	40.44	3.37E-05	0.32075	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	11.20	9.34E-06	0.08885	**0.00**
Trichloroethene	0.5	22.33	622.92	5.19E-04	4.94078	**22.12**
Tetrachloroethene	1.0	44.67	30.96	2.58E-05	0.24553	**0.55**
cis-1,2-Dichloroethene	1,900.0	84,871.16	124.16	1.03E-04	0.98481	**0.00**
Toluene	400.0	17,867.61	31.69	2.64E-05	0.25133	**0.00**
2-Propanol	7000	312,683.23	81.03	6.75E-05	0.64271	**0.00**
Methylene Chloride	2.1	93.80	16.68	1.39E-05	0.13228	**0.14**

Notes/Assumptions:

1. Calculations assume that the system will run with the maximum allowable concentrations between quarterly readings.
2. AGC refers to the Annual Guideline Concentration as determined using the hand calculations in the DAR-1 AGC/SGC Tables dated December 22, 2003.

Abbreviations:

ug/m^3: micrograms per cubic meter
lb/yr: pounds per year
lb/hr: pounds per hour

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Table A6. NYSDEC DAR-1 July 26, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	230.4	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	104.4	0.33
SVE-2 Measured Flowrate (ACFM) =	106.2	0.33
SVE-3 Measured Flowrate (ACFM) =	107.7	0.34
Sum of Individual Flows (ACFM) =	318.3	

	Lab Data (ug/m^3)			Mass Balance Concentration [1] (ug/m^3)	Actual Effluent Concentration (ug/m^3)
	SVE-1	SVE-2	SVE-3		
Freon 12	0	0	0	0	0
Freon 113	0	210	160	124	280
1,1,1-Trichloroethane	48	40	0	29	0
Trichloroethene	1,700	3,700	460	1,948	0
Tetrachloroethene	68	130	69	89	0
cis-1,2-Dichloroethene	86	84	420	198	540
2-Propanol	0	0	0	0	0

Notes/Assumptions:

1. Mass balance concentration = Lab Data Concentration SVE-1 x SVE-1 % of Total Flow + Lab Data Concentration SVE-2 x SVE-2 % of Total Flow + Lab Data Concentration SVE-3 x SVE-3 % of Total Flow.

Table A6. NYSDEC DAR-1 July 26, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 7/26/2007 Sampling Event

Discharge Temperature [1]	T	571	°R
Ambient Temperature [2]	Ta	518	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	43.0	fps
Exit Flow	Q	225	acfm
Exit Flow	Q	208	scfm
Stack Height	h_s	12	ft
Building Height	h_b	10	ft
Ratio of Heights	h_s/h_b	1.20	
Plume rise credit? $h_s/h_b > 1.5$?	(If no, $h_e=h_s$)	No	
Momentum Flux	Fm = Ta/T * V2 * R2	n/a	ft^4/s^2
Effective Stack Height	h_e	12.0	ft
Reduction Factor? $2.5 > h_s/h_b > 1.5$?		No, do not reduce impact	
Actual Annual Impact	C_a	$RF*6*Q_a/h_e^{2.25}$	
Mass Flow	Q_a	S lbs emitted for last 12 months	

Abbreviations:

°R: Degrees Rankine
in: Inches
ft: Feet
fps: Feet per second
acfm: Actual cubic feet per minute
scfm: Standard cubic feet per minute
s: Second
lbs: Pounds

Notes/Assumptions:

1. The stack discharge temperature is based on recorded parameters.
2. The ambient temperature based on www.weather.com historic temperatures.

Table A6. NYSDEC DAR-1 July 26, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC based on Effluent Results From 7/26/2007 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC^2)	Maximum Mass Flow Q_a	Actual Effluent Emissions C_a	Mass Flow per Hour (Based on Actual Effluent Emission)	Actual Mass Flow per Year (Based on Actual Effluent Emissions)	**Percent of Annual (Based on Actual Effluent Emissions)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	280.00	2.18E-04	2.06611	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	0.00	0.00E+00	0.00000	**0.00**
Trichloroethene	0.5	22.33	0.00	0.00E+00	0.00000	**0.00**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	540.00	4.21E-04	3.98464	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC based on Influent Results From 7/26/2007 Sampling Event[1]

Compounds	Maximum Limit on C_a (AGC^2)	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour (Based on Influent Concentrations)	Actual Mass Flow per Year (Based on Influent Concentrations)	**Percent of Annual (Based on Influent Concentrations)**
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	0.00	0.00E+00	0.00000	**0.00**
Freon 113	180,000.00	8,040,425.98	124.20	9.67E-05	0.91649	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	29.09	2.27E-05	0.21465	**0.00**
Trichloroethene	0.5	22.33	1,947.73	1.52E-03	14.37223	**64.35**
Tetrachloroethene	1.0	44.67	89.02	6.93E-05	0.65691	**1.47**
cis-1,2-Dichloroethene	1,900.0	84,871.16	198.34	1.54E-04	1.46358	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**

Notes/Assumptions:

1. Calculations assume that the system will run with the maximum allowable concentrations between quarterly readings.
2. AGC refers to the Annual Guideline Concentration as determined using the hand calculations in the DAR-1 AGC/SGC Tables dated December 22, 2003.

Abbreviations:

ug/m^3: micrograms per cubic meter

lb/yr: pounds per year

lb/hr: pounds per hour