ARCADIS

Infrastructure, environment, facilities

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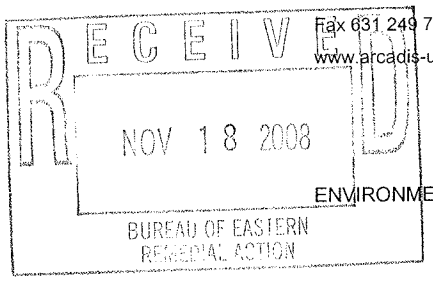

Subject:
August, 2007 through February 2008 System Status Report
Soil Vapor Recovery System
United Stellar Industries Property,
131 Sunnyside Boulevard Site, Plainview, New York.

Date:
16 June 2008

Contact:
Doug Smolensky

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(631) 391 5290

Email:
Doug.Smolensky@arcadis-us.com

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 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, 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 August 1, 2007 and ending on February 29, 2008. During this reporting period the system was operated and seven performance monitoring events were performed (September 6, 2007, September 28, 2007, October 25, 2007, December 13, 2007, December 27, 2007, February 5, 2008 and February 26, 2008). 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 August, 2007 to February, 2008 operational period ranged from approximately 60 to 120 cubic feet per minute (cfm).
- VRS wellhead vacuum measurements during the August, 2007 to February, 2008 operational period ranged from -28 inches water column (i.w.c.) to -42 i.w.c.
- PID measurements during the August, 2007 to February, 2008 operational period ranged from 0.0 parts per million (ppm) to 2.0 ppm.
- 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, MP-2, MP-5, and MP-6 during the August, 2007 to February, 2008 operational period.
    - Negative vacuum levels were measured in monitoring point MP-3 during the August, 2007 and October, 2007 operational periods.

- There was no induced vacuum measured at monitoring point MP-3 during the September, 2007, and November, 2007 to February, 2008 operational periods.

- Negative vacuum levels were measured in monitoring point MP-4 during the August, 2007 and February, 2008 operational periods. There was no induced vacuum measured at monitoring point MP-4 during the September, 2007 to January, 2008 operational periods.

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

Vapor sample analytical results are summarized in Tables 2 and 3. 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 August, 2007 to February, 2008 operational period, extraction point SVE-1 had TCE concentrations ranging from 900 ug/m^3 to 2,500 ug/m^3. Total volatile organic compound (TVOC) concentrations for SVE-1 ranged from 1,038 ug/m^3 to 2,967 ug/m^3. TCE and TVOC concentrations decreased from the previous sampling round conducted in July, 2007 for all sampling events completed during the August, 2007 to February, 2008 operational period, excluding the December, 2007 and January, 2008 sampling events. TCE and TVOC concentrations observed during these two sampling events were only slightly higher than those observed during the July, 2007 sampling event. TCE and TVOC concentrations are below the June, 2006 levels for all sampling events completed during the August, 2007 to February, 2008 operating period.

- During the August, 2007 to February, 2008 operational period, extraction point SVE-2 had TCE concentrations ranging from 1,600 ug/m^3 to 3,400 ug/m^3. TVOC concentrations for SVE-2 ranged from 1,788 ug/m^3 to 3,785 ug/m^3. TCE and TVOC concentrations decreased from the previous sampling round conducted in July, 2007 and are below June, 2006 levels for all sampling events completed during the August, 2007 to February, 2008 operating period.

- During the August, 2007 to February, 2008 operational period, extraction point SVE-3 had TCE concentrations ranging from 71 ug/m^3 to 340 ug/m^3. TVOC concentrations for SVE-3 ranged from 190 ug/m^3 to 745 ug/m^3. TCE and TVOC concentrations decreased from the previous sampling round conducted in July, 2007 and are below June, 2006 levels for all sampling events completed during the August, 2007 to February, 2008 operating period.

- During the August, 2007 to February, 2008 reporting period, the lead VPGAC vessel had effluent TVOC concentrations ranging from 883 ug/m^3 to 2,970 ug/m^3. The stack had total effluent TVOC concentrations ranging from 460 ug/m^3 to 682 ug/m^3.

- In addition to the field and laboratory analytical results provided herein, ARCADIS calculated and is providing air modeling results for the seven monitoring events (September 6, 2007 through February 26, 2008) 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 A7. As shown on the Tables A1 through A7, 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 seven monitoring events.

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 seven 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 seven 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 lack of induced vacuum levels in monitoring points MP-3 and 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 Industries, Plainview, New York.

		SVE - 1 Extraction Well Parameters				SVE - 2 Extraction Well Parameters				SVE - 3 Extraction Well Parameters			
Date	Time	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)
07/28/06	11:57 AM	-36.0	2,637	60.4	0.0	-35.8	1,950	44.7	0.0	-37.9	2,678	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	101.7	--	-34.0	3,081	70.5	--	-36.1	3,521	80.6	--
09/08/06	12:00 AM	-34.0	3,756	86.0	0.0	-34.0	3,467	79.4	0.0	-36.0	4,232	96.9	0.0
10/05/06	2:30 PM	-34.0	2,788	63.8	0.0	-34.0	1,729	39.6	0.0	-36.0	2,950	67.5	0.0
11/03/06	11:00 AM	-35.0	3,500	80.1	0.0	-34.0	3,500	80.1	0.0	-36.0	3,500	80.1	0.0
12/05/06	1:00 PM	-36.0	3,297	75.5	0.0	-35.0	2,240	51.3	0.0	-37.0	2,840	65.0	0.0
04/26/07	6:30 AM	-37.0	3,240	74.2	--	-39.0	2,908	66.6	--	-37.0	2,552	58.4	--
05/29/07	3:30 PM	-36.0	3,800	87.0	0.0	-38.0	4,122	94.4	0.0	-36.0	3,937	90.1	0.0
06/27/07	4:00 PM	-34.5	4,575	104.8	0.0	-36.0	4,635	106.1	0.0	-36.0	4,680	107.2	0.0
07/26/07	3:00 PM	-32.0	4,561	104.4	0.0	-33.5	4,638	106.2	0.0	-31.5	4,702	107.7	0.0
09/6/07 [6]	12:30 PM	-34.0	5,230	119.8	0.0	-38.0	5,187	118.8	0.0	-33.5	5,183	118.7	0.0
09/28/07	12:00 PM	-34.0	5,213	119.4	0.0	-36.0	5,244	120.1	0.0	-33.0	5,030	115.2	0.0
10/25/07	3:30 PM	-34.0	3,401	77.9	0.0	-36.5	3,343	76.5	0.0	-34.5	3,414	78.2	0.0
12/13/07 [7]	7:50 AM	-38.0	3,170	72.6	--	-39.0	2,591	59.3	--	-37.0	2,690	61.6	--
12/27/07	3:00 PM	-39.0	3,456	79.1	2.0	-41.0	3,022	69.2	2.0	-38.0	3,063	70.1	0.0
02/5/08 [8]	3:00 PM	-41.0	3,120	71.4	1.1	-42.0	2,747	62.9	1.5	-40.0	2,842	65.1	0.0
2/26/08 [9]	3:00 PM	-37.0	3,120	71.4	0.0	-38.0	2,747	62.9	0.0	-37.0	2,842	65.1	0.0

See notes last page.

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industries, 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)
07/28/06	11:57 AM	-49.8	8.5	7.0	115 [5]	--	--	0.0	0.0	107.0 [5]	1,530	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	465.3	--
09/08/06	12:00AM	-48.0	9.5	--	--	--	--	--	0.0	107.7	3,130	279.9	0.0
10/05/06	2:30 PM	-48.0	10.0	--	120.0	3,040	271.8	0.0	0.0	97.8	2,150	192.2	0.0
11/03/06	11:00 AM	-50.0	10.0	8.0	--	--	--	0.0	0.0	82.0	2,950	263.8	0.0
12/05/06	1:00 PM	-50.0	10.0	8.0	100.5	5,530	494.5	0.0	0.0	76.2	3,290	294.2	0.0
04/26/07	6:30 AM	-49.5	6.0	8.0	106.0	3,565	318.8	--	0.0	85.1	1,721	153.9	--
05/29/07	3:30 PM	-51.0	5.0	8.5	121.0	--	--	0.0	0.0	105.4	3,237	289.4	0.0
06/27/07	4:00 PM	-49.0	5.0	8.0	129.2	5,627	503.1	0.0	0.0	113.5	2,770	247.7	0.0
07/26/07	3:00 PM	-53.0	4.0	7.5	--	--	--	--	0.0	111.0	2,577	230.4	0.0
09/6/07 [6]	12:30 AM	-48.5	2.0	4.0	--	--	--	--	0.0	103.1	4,095	366.2	0.0
09/28/07	12:00 PM	-48.5	2.0	4.0	--	--	--	0.0	0.0	105.8	3,184	284.7	0.0
10/25/07	3:30 PM	-50.0	2.0	4.0	--	--	--	0.0	0.0	92.8	2,321	207.5	0.0
12/13/07 [7]	7:50 AM	-52.0	0.5	8.5	--	--	--	--	0.0	75.3	2,023	180.9	--
12/27/07	3:00 PM	-53.0	0.0	8.0	--	--	--	0.0	0.0	83.3	2,077	185.7	0.0
02/5/08 [8]	3:00 PM	-54.0	0.0	8.0	--	--	--	0.6	0.0	82.5	1,955	174.8	0.0
2/26/08 [9]	3:00 PM	-49.5	0.0	8.2	--	--	--	0.0	0.0	86.3	1,955	174.8	0.0

See notes last page.

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industries, 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.)
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 (2)
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 (3)	-0.05	-0.05 (3)
11/03/06	11:00 AM	-0.04	-0.05	-0.04	-0.09	-0.04	0.00 (2)
12/05/06	1:00 PM	-0.03	-0.04	-0.06	-0.03	-0.01	0.00 (2)
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 (4)	-0.09	-0.05
06/27/07	4:00 PM	-0.02	-0.04	-0.01	0.00 (4)	-0.09	-0.07
07/26/07	3:00 PM	-0.02	-0.06	0.00 (5)	0.00 (4)	-0.09	-0.05
09/6/07 (6)	12:30 AM	-0.06	-0.15	-0.06	-0.01	-0.14	-0.10
09/28/07	12:30 PM	-0.04	-0.13	0.00 (5)	0.00 (4)	-0.13	-0.10
10/25/07	3:30 PM	-0.05	-0.15	-0.07	0.00 (4)	-0.15	-0.13
12/13/07 (7)	7:50 AM	-0.06	-0.12	0.00 (5)	0.00 (4)	-0.10	-0.09
12/27/07	3:00 PM	-0.07	-0.15	0.00 (5)	0.00 (4)	-0.09	-0.07
02/5/08 (8)	3:00 PM	-0.09	-0.16	0.00 (5)	0.00 (4)	-0.09	-0.08
2/26/08 (9)	3:00 PM	-0.08	-0.12	0.00 (5)	-0.03	-0.09	-0.08

See notes last page.

Table 1. System Operational Data, Vapor Recovery System, United Stellar Industries, 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. An induced vacuum reading of "0" was recorded at the MP-6 monitoring location during the 8/25/06, 11/3/06, and 12/5/06 O&M site visits.
3. Reading was taken at the wellhead.
4. An induced vacuum reading of "0" was recorded at the MP-4 monitoring location during the 5/29/07, 6/27/07, 7/26/07, 9/28/07, 10/25/07, 12/13/07, 12/27/07, and 2/5/08 O&M site visits.
5. An induced vacuum reading of "0" was recorded at the MP-3 monitoring location during the 7/26/07, 9/28/07, 12/13/07, 12/27/07, 2/5/08, and 2/26/08 O&M site visit.
6. Due to Department of Transportation shipping training requirements, the August monthly compliance sampling event was delayed until September 6, 2007.
7. Samples collected during the November 2007 operational period arrived at the laboratory flat. Re-sampling was completed on December 13, 2007.
8. Samples collected during the January 2008 operational period were delivered to the laboratory outside of the recommended holding time. Re-sampling was completed on February 5, 2008.
9. Air flow readings were not collected during the February monthly compliance sampling event due to a non-working anemometer. Air flow readings shown were recorded on February 5, 2008.

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
--	Parameter was not measured
O&M	Operation and maintenance

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] Date: 7/28/06	SVE-1 [1] 8/11/06	SVE-1 [1] 8/25/06	SVE-1 [1] 9/8/06	SVE-1 [1] 10/5/06	SVE-1 [1] 11/3/06	SVE-1 [1] 12/5/06	SVE-1 [1] 4/26/07	SVE-1 [1] 5/29/07	SVE-1 [1] 6/27/07	SVE-1 [1] 7/26/07	SVE-1 [1,3] 9/6/07
Freon 12	ND	29	ND	ND	25	29	28	ND	ND	ND	ND	ND
Freon 113	70	100	44	52	67	51	45	ND	ND	ND	ND	ND
Chloroform	ND	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	210	340	87	98	110	76	53	27	34	34	48	28
Trichloroethene	1,400	3,200	980	1,700	3,000	2,300	1,400	650	1,300	1,300	1,700	900
Tetrachloroethene	46	140	ND	60	130	110	ND	ND	38	51	68	ND
cis-1,2-Dichloroethene	80	180	71	90	130	110	97	42	71	70	86	52
1,1-Dichloroethane	20	32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	24	ND	ND	ND	ND	ND	ND	ND	ND	30
2-Propanol	ND	14	ND	100	45	16	12	ND	ND	36	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]	**1,826**	**4,068**	**1,206**	**2,100**	**3,507**	**2,692**	**1,635**	**719**	**1,443**	**1,491**	**1,902**	**1,038**

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] Date: 9/28/07	SVE-1 [1] 10/25/07	SVE-1 [1,4] 12/13/07	SVE-1 [1] 12/27/07	SVE-1 [1,5] 2/5/08	SVE-1 [1] 2/26/08
Freon 12	ND	ND	33	53	33	28
Freon 113	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	42	59	45	29
Trichloroethene	1,300	1,200	1,200	2,500	2,000	1,400
Tetrachloroethene	ND	ND	36	100	75	59
cis-1,2-Dichloroethene	51	59	76	120	110	84
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	30	71	ND	40
2-Propanol	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	34	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	30	ND	ND
Total VOCs [2]	**1,351**	**1,259**	**1,417**	**2,967**	**2,263**	**1,640**

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: 7/28/06	SVE-2 [1] 8/11/06	SVE-2 [1] 8/25/06	SVE-2 [1] 9/8/06	SVE-2 [1] 10/5/06	SVE-2 [1] 11/3/06	SVE-2 [1] 12/5/06	SVE-2 [1] 4/26/07	SVE-2 [1] 5/29/07	SVE-2 [1] 6/27/07	SVE-2 [1] 7/26/07	SVE-2 [1,3] 9/6/07
Freon 12	ND	ND	170	280	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	180	310	ND	ND	250	240	210	110	190	ND	210	170
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	46	ND	39	35	36	ND	ND	29	ND	40	29
Trichloroethene	3,200	8,100	3,400	6,700	5,500	4,200	2,300	1,400	4,300	240	3,700	2,600
Tetrachloroethene	39	140	45	120	130	130	53	ND	110	ND	130	58
cis-1,2-Dichloroethene	84	160	82	140	100	89	65	38	300	ND	84	63
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	21	ND	ND	95	ND	ND
2-Propanol	ND	27	12	120	41	16	13	ND	ND	170	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	50	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]	**3,503**	**8,783**	**3,709**	**7,399**	**6,056**	**4,711**	**2,662**	**1,548**	**4,929**	**555**	**4,164**	**2,920**

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: / Date:	SVE-2 [1] 9/28/07	SVE-2 [1] 10/25/07	SVE-2 [1,4] 12/13/07	SVE-2 [1] 12/27/07	SVE-2 [1,5] 2/5/08	SVE-2 [1] 2/26/08
Freon 12		ND	ND	ND	ND	ND	ND
Freon 113		ND	ND	76	92	94	97
Chloroform		ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	29	ND	ND
Trichloroethene		3,400	2,100	1,600	3,400	2,100	2,000
Tetrachloroethene		ND	ND	73	210	120	110
cis-1,2-Dichloroethene		ND	ND	39	54	43	38
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND
Toluene		ND	ND	ND	ND	24	ND
2-Propanol		ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	ND
Carbon Disulfide		ND	ND	ND	ND	ND	ND
Hexane		ND	ND	ND	ND	ND	ND
2-Butanone		ND	ND	ND	ND	ND	ND
Total VOCs [2]		**3,400**	**2,100**	**1,788**	**3,785**	**2,381**	**2,245**

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: 7/28/06	SVE-3 [1] 8/11/06	SVE-3 [1] 8/25/06	SVE-3 [1] 9/8/06	SVE-3 [1] 10/5/06	SVE-3 [1] 11/3/06	SVE-3 [1] 12/5/06	SVE-3 [1] 4/26/07	SVE-3 [1] 5/29/07	SVE-3 [1] 6/27/07	SVE-3 [1] 7/26/07	SVE-3 [1,3] 9/6/07
Freon 12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	73	79	93	110	91	110	100	70	110	120	160	110
Chloroform	ND	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	ND
Trichloroethene	180	310	270	480	450	480	350	210	340	340	460	310
Tetrachloroethene	ND	ND	ND	34	ND	37	ND	ND	34	42	69	ND
cis-1,2-Dichloroethene	38	60	76	140	170	240	240	180	300	300	420	230
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol	26	ND	ND	72	32	14	16	ND	ND	37	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]	**317**	**449**	**439**	**836**	**743**	**881**	**706**	**460**	**784**	**839**	**1,109**	**650**

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: 9/28/07	SVE-3 [1] 10/25/07	SVE-3 [1,4] 12/13/07	SVE-3 [1] 12/27/07	SVE-3 [1,5] 2/5/08	SVE-3 [1] 2/26/08
Freon 12	ND	ND	ND	ND	ND	ND
Freon 113	100	92	44	48	44	ND
Chloroform	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	340	260	130	170	92	71
Tetrachloroethene	55	ND	ND	39	ND	ND
cis-1,2-Dichloroethene	250	270	140	170	110	92
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	27
2-Propanol	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	19	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	23	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND
Total VOCs [2]	**745**	**622**	**356**	**427**	**246**	**190**

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 on the dates shown and submitted to Air Toxics Laboratories in Folsom, CA. for VOC analysis using Direct Inject Method TO-14. Only VOCs detected at or above their respective laboratory quantification limits at any sample location during the project are presented in this table.
2. "Total VOCs" represents the sum of individual concentrations of compounds listed in this table.
3. Due to Department of Transportation shipping training requirements, the August monthly compliance sampling event was delayed until September 6, 2007.
4. Samples collected during the November 2007 operational period arrived at the laboratory flat. Re-sampling was completed on December 13, 2007.
5. Samples collected during the January 2008 operational period were delivered to the laboratory outside of the recommended holding time. Re-sampling was completed on February 5, 2008.

VOC Volatile organic compound

ug/m^3 Micrograms per cubic meter

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

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] 7/28/06	EFF-1 [1] 8/11/06	EFF-1 [1] 8/25/06	EFF-1 [1] 9/8/06	EFF-1 [1] 10/5/06	EFF-1 [1] 11/3/06	EFF-1 [1] 12/5/06	EFF-1 [1] 4/26/07	EFF-1 [1] 5/29/07	EFF-1 [1] 6/27/07
Freon 12		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113		ND	ND	ND	49	72	61	64	74	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	28	ND	ND	ND	ND
Trichloroethene		54	ND	ND	ND	120	82	160	200	390	130
Tetrachloroethene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		21	79	110	140	140	98	93	68	84	26
Toluene		ND	ND	ND	ND	ND	ND	ND	ND	77	60
2-Propanol		58	27	ND	70	46	12	20	61	39	81
Benzene		ND	ND	ND	ND	ND	ND	ND	54	ND	ND
MTBE		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 DCE		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	ND	ND	ND	18	85
Ethanol		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]		**133**	**106**	**110**	**259**	**378**	**281**	**337**	**457**	**608**	**382**

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] 7/26/07	EFF-1 [1,3] 9/6/07	EFF-1 [1] 9/28/07	EFF-1 [1] 10/25/07	EFF-1 [1,4] 12/13/07	EFF-1 [1] 12/27/07	EFF-1 [1,5] 2/5/08	EFF-1 [1] 2/26/08
Freon 12		ND	ND	ND	ND	ND	ND	ND	ND
Freon 113		340	220	160	97	53	ND	49	60
1,1,1-Trichloroethane		120	74	ND	ND	ND	ND	ND	ND
Trichloroethene		2,800	2,100	2,600	1,100	700	680	590	820
Tetrachloroethene		ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		440	220	210	160	130	96	92	120
Toluene		ND	ND	ND	ND	ND	63	84	22
2-Propanol		ND	ND	ND	ND	ND	ND	64	ND
Benzene		ND	ND	ND	ND	ND	ND	ND	ND
MTBE		ND	ND	ND	ND	ND	ND	ND	ND
1,1 DCE		ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	32	ND	ND
Ethanol		ND	ND	ND	ND	ND	38	42	ND
2-Butanone		ND	ND	ND	ND	ND	17	ND	ND
Total VOCs [2]		**3,700**	**2,614**	**2,970**	**1,357**	**883**	**926**	**921**	**1,022**

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] 7/28/06	EFF-2 [1] 8/11/06	EFF-2 [1] 8/25/06	EFF-2 [1] 9/8/06	EFF-2 [1] 10/5/06	EFF-2 [1] 11/3/06	EFF-2 [1] 12/5/06	EFF-2 [1] 4/26/07	EFF-2 [1] 5/29/07	EFF-2 [1] 6/27/07
Freon 12		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113		ND	ND	ND	ND	ND	ND	ND	ND	ND	110
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene		51	ND	ND	ND	29	ND	94	ND	ND	ND
Tetrachloroethene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND	22	ND	310	360
Toluene		ND	ND	ND	ND	ND	ND	19	ND	ND	ND
2-Propanol		32	29	13	140	65	34	21	52	ND	38
Benzene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE		53	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 DCE		29	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride		24	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]		**189**	**29**	**13**	**140**	**94**	**34**	**156**	**52**	**310**	**508**

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] 7/26/07	EFF-2 [1,3] 9/6/07	EFF-2 [1] 9/28/07	EFF-2 [1] 10/25/07	EFF-2 [1,4] 12/13/07	EFF-2 [1] 12/27/07	EFF-2 [1,5] 2/5/08	EFF-2 [1] 2/26/08
Freon 12		ND	ND	ND	ND	ND	33	ND	ND
Freon 113		280	280	240	210	110	76	110	99
1,1,1-Trichloroethane		ND	55	63	ND	60	55	59	45
Trichloroethene		ND	ND	34	110	150	190	270	260
Tetrachloroethene		ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene		540	320	270	190	140	130	150	140
Toluene		ND	ND	ND	ND	ND	ND	ND	32
2-Propanol		ND	ND	75	ND	ND	ND	ND	59
Benzene		ND	ND	ND	ND	ND	ND	ND	ND
MTBE		ND	ND	ND	ND	ND	ND	ND	ND
1,1 DCE		ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	ND	130	ND	ND
Ethanol		ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone		ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs [2]		**820**	**655**	**682**	**510**	**460**	**614**	**589**	**635**

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 on the dates shown and submitted to Air Toxics Laboratories in Folsom, CA. for VOC analyses using Direct Inject Method TO-14. Only VOCs detected at or above their respective laboratory quantification limits at any sample location during the project are presented in this table.
2. "Total VOCs" represents the sum of individual concentrations of compounds listed in this table
3. Due to Department of Transportation shipping training requirements, the August monthly compliance sampling event was delayed until September 6, 2007.
4. Samples collected during the November 2007 operational period arrived at the laboratory flat. Re-sampling was completed on December 13, 2007.
5. Samples collected during the January 2008 operational period were delivered to the laboratory outside of the recommended holding time. Re-sampling was completed on February 5, 2008.

VOC Volatile organic compound

ug/m^3 Micrograms per cubic meter

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

Table A1. NYSDEC DAR-1 September 6, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	357.4	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	119.8	0.34
SVE-2 Measured Flowrate (ACFM) =	118.8	0.33
SVE-3 Measured Flowrate (ACFM) =	118.7	0.33
Sum of Individual Flows (ACFM) =	357.3	

	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	170	110	93	280
1,1,1-Trichloroethane	28	29	0	19	55
Trichloroethene	900	2,600	310	1,269	0
Tetrachloroethene	0	58	0	19	0
cis-1,2-Dichloroethene	52	63	230	115	320
2-Propanol	0	0	0	0	0
Toluene	30	0	0	10	0
Carbon Disulfide	28	0	0	9	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 A1. NYSDEC DAR-1 September 6, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 9/6/2007 Sampling Event

Discharge Temperature [1]	T	563	°R
Ambient Temperature [2]	Ta	528	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	68.3	fps
Exit Flow	Q	357	acfm
Exit Flow	Q	335	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 A1. NYSDEC DAR-1 September 6, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC Based on Actual Effluent Results From 9/6/2007 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	Actual Mass Flow per Year	**Percent of Annual**
	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	3.51E-04	3.28317	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	55.00	6.90E-05	0.64491	**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	320.00	4.02E-04	3.75219	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	0.00	0.00E+00	0.00000	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC Based on Influent Results From 9/6/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC^2)	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour	Actual Mass Flow per Year	**Percent of Annual**
	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	93.07	1.17E-04	1.09127	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	19.03	2.39E-05	0.22314	**0.00**
Trichloroethene	0.5	22.33	1,269.23	1.59E-03	14.88252	**66.63**
Tetrachloroethene	1.0	44.67	19.28	2.42E-05	0.22612	**0.51**
cis-1,2-Dichloroethene	1,900.0	84,871.16	114.79	1.44E-04	1.34600	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Tolene	400	17,867.61	10.06	1.26E-05	0.11795	**0.00**
Carbon Disulfide	700	31,268.32	9.39	1.18E-05	0.11008	**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

Table A2. NYSDEC DAR-1 September 28, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	277.9	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	119.4	0.34
SVE-2 Measured Flowrate (ACFM) =	120.1	0.34
SVE-3 Measured Flowrate (ACFM) =	115.2	0.32
Sum of Individual Flows (ACFM) =	354.7	

	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	100	32	240
1,1,1-Trichloroethane	0	0	0	0	63
Trichloroethene	1,300	3,400	340	1,699	34
Tetrachloroethene	0	0	55	18	0
cis-1,2-Dichloroethene	51	0	250	98	270
2-Propanol	0	0	0	0	75
Toluene	0	0	0	0	0
Carbon Disulfide	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 A2. NYSDEC DAR-1 September 28, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 9/28/2007 Sampling Event

Discharge Temperature [1]	T	565	°R
Ambient Temperature [2]	Ta	521	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	53.1	fps
Exit Flow	Q	278	acfm
Exit Flow	Q	259	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 A2. NYSDEC DAR-1 September 28, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC Based on Actual Effluent Results From 9/28/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC^2) ug/m^3	Maximum Mass Flow Q_a lb/yr	Actual Effluent Emissions C_a ug/m^3	Mass Flow per Hour lb/hr	Actual Mass Flow per Year lb/yr	Percent of Annual %
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	240.00	2.33E-04	2.18809	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	63.00	6.12E-05	0.57437	**0.00**
Trichloroethene	0.5	22.33	34.00	3.30E-05	0.30998	**1.39**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	270.00	2.62E-04	2.46160	**0.00**
2-Propanol	7000	312,683.23	75.00	7.28E-05	0.68378	**0.00**
Toluene	400	17,867.61	0.00	0.00E+00	0.00000	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC Based on Influent Results From 9/28/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC^2) ug/m^3	Maximum Mass Flow Q_a lb/yr	Influent Concentrations C_a ug/m^3	Mass Flow per Hour lb/hr	Actual Mass Flow per Year lb/yr	Percent of Annual %
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	32.48	3.15E-05	0.29610	**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	1,699.26	1.65E-03	15.49225	**69.36**
Tetrachloroethene	1.0	44.67	17.86	1.73E-05	0.16286	**0.36**
cis-1,2-Dichloroethene	1,900.0	84,871.16	98.36	9.55E-05	0.89678	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	0.00	0.00E+00	0.00000	**0.00**
Carbon Disulfide	700	31,268.32	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

Table A3. NYSDEC DAR-1 October 25, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	202.5	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	77.9	0.33
SVE-2 Measured Flowrate (ACFM) =	76.5	0.33
SVE-3 Measured Flowrate (ACFM) =	78.2	0.34
Sum of Individual Flows (ACFM) =	232.6	

	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	92	31	210
1,1,1-Trichloroethane	0	0	0	0	0
Trichloroethene	1,200	2,100	260	1,180	110
Tetrachloroethene	0	0	0	0	0
cis-1,2-Dichloroethene	59	0	270	111	190
2-Propanol	0	0	0	0	0
Toluene	0	0	0	0	0
Carbon Disulfide	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 A3. NYSDEC DAR-1 October 25, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 10/25/2007 Sampling Event

Discharge Temperature [1]	T	552	°R
Ambient Temperature [2]	Ta	512	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	38.7	fps
Exit Flow	Q	203	acfm
Exit Flow	Q	193	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 A3. NYSDEC DAR-1 October 25, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC Based on Actual Effluent Results From 10/25/2007 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	Actual Mass Flow per Year	**Percent of Annual**
	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	210.00	1.52E-04	1.39565	**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	110.00	7.97E-05	0.73105	**3.27**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	190.00	1.38E-04	1.26273	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	0.00	0.00E+00	0.00000	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC Based on Influent Results From 10/25/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC^2)	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour	Actual Mass Flow per Year	**Percent of Annual**
	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	30.93	2.24E-05	0.20556	**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	1,179.97	8.55E-04	7.84204	**35.11**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	110.53	8.01E-05	0.73460	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	0.00	0.00E+00	0.00000	**0.00**
Carbon Disulfide	700	31,268.32	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

Table A4. NYSDEC DAR-1 December 13, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Mass Balance

Measured Effluent Flowrate =	176.5	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	72.6	0.38
SVE-2 Measured Flowrate (ACFM) =	59.3	0.31
SVE-3 Measured Flowrate (ACFM) =	61.6	0.32
Sum of Individual Flows (ACFM) =	193.5	

	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	33	0	0	12	0
Freon 113	0	76	44	37	110
1,1,1-Trichloroethane	42	0	0	16	60
Trichloroethene	1,200	1,600	130	982	150
Tetrachloroethene	36	73	0	36	0
cis-1,2-Dichloroethene	76	39	140	85	140
2-Propanol	0	0	0	0	0
Toluene	30	0	0	11	0
Carbon Disulfide	0	0	0	0	0
Methylene Chloride	0	0	19	6	0
Hexane	0	0	23	7	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 December 13, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 12/13/2007 Sampling Event

Discharge Temperature [1]	T	535	°R
Ambient Temperature [2]	Ta	512	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	33.7	fps
Exit Flow	Q	177	acfm
Exit Flow	Q	174	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 December 13, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC Based on Actual Effluent Results From 12/13/2007 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	Actual Mass Flow per Year	Percent of Annual
	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	7.17E-05	0.63719	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	60.00	3.91E-05	0.34756	**0.00**
Trichloroethene	0.5	22.33	150.00	9.78E-05	0.86890	**3.89**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	140.00	9.13E-05	0.81097	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	0.00	0.00E+00	0.00000	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**
Methylene Chloride	2.1	93.80	0.00	0.00E+00	0.00000	**0.00**
Hexane	200	8,933.81	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC Based on Influent Results From 12/13/2007 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC[2])	Maximum Mass Flow Q_a	Influent Concentrations C_a	Mass Flow per Hour	Actual Mass Flow per Year	Percent of Annual
	ug/m^3	lb/yr	ug/m^3	lb/hr	lb/yr	%
Freon 12	12,000.00	536,028.40	12.38	8.08E-06	0.07172	**0.00**
Freon 113	180,000.00	8,040,425.98	37.30	2.43E-05	0.21606	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	15.76	1.03E-05	0.09128	**0.00**
Trichloroethene	0.5	22.33	981.95	6.40E-04	5.68811	**25.47**
Tetrachloroethene	1.0	44.67	35.88	2.34E-05	0.20783	**0.47**
cis-1,2-Dichloroethene	1,900.0	84,871.16	85.04	5.55E-05	0.49258	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	11.26	7.34E-06	0.06520	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**
Methylene Chloride	2.1	93.80	6.05	3.95E-06	0.03504	**0.04**
Hexane	200	8,933.81	7.32	4.78E-06	0.04241	**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

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

Mass Balance

Measured Effluent Flowrate =	181.3	ACFM
		% of Total Flow
SVE-1 Measured Flowrate (ACFM) =	79.1	0.36
SVE-2 Measured Flowrate (ACFM) =	69.2	0.32
SVE-3 Measured Flowrate (ACFM) =	70.1	0.32
Sum of Individual Flows (ACFM) =	218.4	

	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	53	0	0	19	33
Freon 113	0	92	48	45	76
1,1,1-Trichloroethane	59	29	0	31	55
Trichloroethene	2,500	3,400	170	2,037	190
Tetrachloroethene	100	210	39	115	0
cis-1,2-Dichloroethene	120	54	170	115	130
2-Propanol	0	0	0	0	0
Toluene	71	0	0	26	0
Carbon Disulfide	0	0	0	0	0
Methylene Chloride	34	0	0	12	130
Hexane	0	0	0	0	0
2 Butanone	30	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 A5. NYSDEC DAR-1 December 27, 2007, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 12/27/2007 Sampling Event

Discharge Temperature [1]	T	543	°R
Ambient Temperature [2]	Ta	493	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	34.6	fps
Exit Flow	Q	181	acfm
Exit Flow	Q	176	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 February 5, 2008, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 2/5/2008 Sampling Event

Discharge Temperature [1]	T	542	°R
Ambient Temperature [2]	Ta	491	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	32.6	fps
Exit Flow	Q	171	acfm
Exit Flow	Q	166	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 A7. NYSDEC DAR-1 February 26, 2008, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Parameters for 2/26/2008 Sampling Event

Discharge Temperature [1]	T	546	°R
Ambient Temperature [2]	Ta	494	°R
Stack Diameter	D	4	in
Stack Radius	R	0.167	ft
Stack Area	A	0.09	ft^2
Exit Velocity	V	32.6	fps
Exit Flow	Q	171	acfm
Exit Flow	Q	165	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 A7. NYSDEC DAR-1 February 26, 2008, Air Modeling Estimate for Vapor Recovery System, Spiegel, Plainview, NY.

Calculation of AGC Based on Actual Effluent Results From 2/26/2008 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC[2]) ug/m^3	Maximum Mass Flow Q_a lb/yr	Actual Effluent Emissions C_a ug/m^3	Mass Flow per Hour lb/hr	Actual Mass Flow per Year lb/yr	**Percent of Annual** %
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	99.00	6.11E-05	0.55420	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	45.00	2.78E-05	0.25191	**0.00**
Trichloroethene	0.5	22.33	260.00	1.61E-04	1.45546	**6.52**
Tetrachloroethene	1.0	44.67	0.00	0.00E+00	0.00000	**0.00**
cis-1,2-Dichloroethene	1,900.0	84,871.16	140.00	8.65E-05	0.78371	**0.00**
2-Propanol	7000	312,683.23	59.00	3.64E-05	0.33028	**0.00**
Toluene	400	17,867.61	32.00	1.98E-05	0.17913	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**
Methylene Chloride	2.1	93.80	0.00	0.00E+00	0.00000	**0.00**
Hexane	200	8,933.81	0.00	0.00E+00	0.00000	**0.00**
2-Butanone	5,000	223,345.17	0.00	0.00E+00	0.00000	**0.00**

Calculation of AGC Based on Influent Results From 2/26/2008 Sampling Event [1]

Compounds	Maximum Limit on C_a (AGC[2]) ug/m^3	Maximum Mass Flow Q_a lb/yr	Influent Concentrations C_a ug/m^3	Mass Flow per Hour lb/hr	Actual Mass Flow per Year lb/yr	**Percent of Annual** %
Freon 12	12,000.00	536,028.40	10.03	6.19E-06	0.05613	**0.00**
Freon 113	180,000.00	8,040,425.98	30.60	1.89E-05	0.17129	**0.00**
1,1,1-Trichloroethane	1,000	44,669.03	10.38	6.41E-06	0.05813	**0.00**
Trichloroethene	0.5	22.33	1,155.38	7.14E-04	6.46772	**28.96**
Tetrachloroethene	1.0	44.67	55.83	3.45E-05	0.31251	**0.70**
cis-1,2-Dichloroethene	1,900.0	84,871.16	72.10	4.45E-05	0.40362	**0.00**
2-Propanol	7000	312,683.23	0.00	0.00E+00	0.00000	**0.00**
Toluene	400	17,867.61	23.14	1.43E-05	0.12952	**0.00**
Carbon Disulfide	700	31,268.32	0.00	0.00E+00	0.00000	**0.00**
Methylene Chloride	2.1	93.80	0.00	0.00E+00	0.00000	**0.00**
Hexane	200	8,933.81	0.00	0.00E+00	0.00000	**0.00**
2-Butanone	5,000	223,345.17	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