ARCADIS

Infrastructure, environment, buildings

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ENVIRONMENT

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

Subject:
Soil Vapor Recovery System Pilot Test
United Stellar Industries Property

Date:
November 18, 2005

Contact:
Doug Smolensky

Phone:
(631) 391-5290

Email:
dsmolensky@arcadis-us.com

Our ref:
NY001422.0002.00001

Dear Mr. Putnam:

Enclosed is the revised Soil Vapor Recovery System Pilot Test letter report that has been prepared by ARCADIS G&M, Inc. (ARCADIS) on behalf of 131 Sunnyside, LLC and Gertrude Discount for the United Stellar Industries Property. This is essentially the same report as the September 7, 2005 submittal, however, additional information and clarifications have been included to address comments offered by the New York State Department of Environmental Conservation (NYSDEC).

As with the earlier submitted report, I have forwarded two copies to Melissa Menetti of the New York State Department of Health. Please call me if you have any questions.

Sincerely,

ARCADIS G&M, Inc.

Douglas A. Smolensky
Associate Vice President

Copies:
Melissa Menetti, NYSDOH
Michael Tone, Esq. Nixon Peabody, LLP
Fred Werfel, Spiegel Associates
File

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ENVIRONMENT

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

Subject:
Soil Vapor Recovery System Plan,
United Stellar Industries Property,
131 Sunnyside Boulevard Site, Plainview, New York.

Date:
2 March 2006

Contact:
Doug Smolensky

Phone:
(631) 391-5290

Mr. Putnam:

ARCADIS G&M, Inc. has prepared this letter regarding NYSDEC comments on the Vapor Recovery System (VRS) Plan (dated November 18, 2005) for the United Stellar Industries Property located at 131 Sunnyside Blvd. in Plainview, New York. This letter simply reiterates and confirms our agreement to NYSDEC comments as communicated to you in our February 14, 2006 email.

Specifically, two activated carbon units will be used in series to filter the effluent from the VRS. When breakthrough of the first unit is detected, it will be replaced. In addition, the effluent from the first and second carbon units will be sampled monthly and analyzed by EPA Method TO-14.

Please call if you have questions or require additional information.

Sincerely,

ARCADIS G&M, Inc.

Douglas A. Smolensky
Associate Vice President

Copies:
Fred Werfel
Mike Tone
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Nathan Putnam
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7015

ENVIRONMENT

Subject:
Soil Vapor Recovery System Pilot Test,
United Stellar Industries Property,
131 Sunnyside Boulevard Site, Plainview, New York.

Date:
18 November 2005

Contact:
Doug Smolensky

Phone:
(631) 391-5290

Email:
dsmolensky@arcadis-us.com

Our ref:
NY001422.0002.00002

Mr. Putnam:

ARCADIS G&M, Inc. in conjunction with ARCADIS Engineers & Architects, P.C. has prepared this letter to report on Vapor Recovery System (VRS) Pilot Testing (pilot test) activities conducted at the United Stellar Industries Property located at 131 Sunnyside Blvd. in Plainview, New York. The pilot test was conducted on behalf of 131 Sunnyside, LLC (Sunnyside) and Gertrude Discount (Discount), the respondents of the Order on Consent (Index #W1-1025-04-10) for the property. Please note that the pilot testing was performed prior to the effective date of the Order on Consent.

The dual objectives of this letter are to provide you with information and preliminary data regarding the pilot test and to request permission to continue pilot testing activities at the property.

Background

On December 30, 2004, ARCADIS collected three sub-slab soil gas samples from beneath the footprint of the building. The sample locations (see Figure 1) were focused in the central part of the building in the vicinity of former excavations (see Anson Environmental Ltd., 2004 for excavation details). Samples were collected using Suma canisters and the "direct inject method". Samples were submitted for Volatile Organic Compound (VOC) analysis using EPA Method TO-15, to Air Toxics, LTD of Folsom California. VOCs, of which Trichloroethylene (TCE) was the primary constituent, were detected in all three samples. Based on these results, ARCADIS conducted a VRS pilot test to determine if a VRS could effectively reduce or eliminate vapor concentrations below the building slab that may be trapped beneath the building slab and foundation footings. Secondary objectives of the VRS pilot test were to collect key operational data such as radius of influence, subsurface

vacuum measurements versus influent flow rate, and influent vapor concentration. A summary of the pilot test and preliminary results are provided in the following sections.

Pilot Test Implementation

Three vacuum extraction locations (SVE-1, SVE-2 and SVE-3) and six induced vacuum/vapor monitoring points (MP-1 through MP-6) were installed to a total depth of six feet below land surface (ft bls) with the use of a Geoprobe™ direct push drilling unit. Each vacuum extraction/vapor monitoring point was constructed of 2-inch diameter PVC pipe with 0.10 slot screen from two to six ft bls. The three vacuum extraction locations were installed to investigate potential impacts within the three building expansion sections (Figure 2). Initially two separate buildings occupied the site, a single story shop and office area near Sunnyside Boulevard, and a second two-story office building near Terminal Drive. Following a series of expansions to the Sunnyside building in the 1960's, the two buildings were joined in the configuration that exists today whose address is 131 Sunnyside Boulevard. SVE-1 was installed in the southern portion of the building to address the subsurface under the most recently constructed building area. SVE-2 was installed in the center of the building to address the footprint under the first building expansion; and, SVE-3 was installed in the northern section of the building to address the original footprint of the building. The SVE locations were not selected to target a specific area corresponding to a potential source. In fact, based on the data available and work performed to date, it is not expected that a significant source exists. Rather, it is expected that residual vapors are trapped beneath the building and that some vapors may be coming from very low level impacted soils that are below NYSDEC soil clean-up levels.

The VRS was constructed on April 27, 2005. The system consists of a 5-horsepower regenerative blower, and a 400-pound vapor phase granular activated carbon unit (VPGAC) to treat VRS emissions. 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. A moisture separator was added to the system on Friday, April, 29, 2005 to collect unanticipated condensate generated by the system. Figure 3 is a process diagram of the system.

The initial VRS pilot test was conducted between April 28, 2005 and May 2, 2005. It was then decided to continue the test through the end of May. During the course of the pilot program various field measurements were collected to provide sufficient data for evaluating the pilot program objectives. Specifically, during the initial pilot test period, the following measurements were collected on the following schedule:

Thursday, April 28, 2005

- Influent photoionization detector (PID) readings at 30-minutes, 1-hour, and every hour thereafter at each vapor extraction wellhead;
- Full round of system parameters at 30-minutes, 1-hour, 4 hours, and 8 hours;
- Influent vapor samples from each vapor extraction wellhead at 30-minutes, 4 hours, and 8 hours;

Friday, April 29, 2005

- Full round of system parameters three times: once early AM, 4 hours later, and 8 hours into the day;
- Influent vapor samples from each vapor extraction wellhead two times: at arrival and 8 hours later;

Monday, May 2, 2005

- One effluent vapor sample (after the carbon) in the early AM.
- Full round of system parameters once in the early AM.
- Influent vapor samples from each vapor extraction wellhead in the early AM.

All vapor samples were submitted to Air Toxics Laboratory in Folsom, CA for laboratory analysis via Method TO-14 (Direct Inject).

Based on the initial pilot test results, it was decided to continue the operation of the test. The pilot test was extended until the total duration was approximately one month. The same system parameters measured and vapor samples collected during the initial five day test continued to be measured and collected during the extended test. As per NYSDEC guidance, the test was ended prior to the need for obtaining an air discharge permit.

Pilot Test Results

Measurements including applied vacuum levels at each extraction point (SVE-1, SVE-2, and SVE-3), extracted air flow rates at each extraction point, and Photo-

ionization detector (PID) readings for each extraction point are summarized in Table 1. Vapor sample analytical results are summarized in Tables 2 through 5. As shown in Table 1, air flow rates measured during the pilot test at the vacuum extraction points ranged from 11 to 81 actual cubic feet per minute (acfm). VRS wellhead vacuum measurements during the pilot test ranged from -10 inches water column (i.w.c.) to -57 i.w.c. PID measurements during the pilot test ranged from non-detect to 10.4 parts per million by volume (ppmv). During the pilot test, negative vacuum levels were measured in all of the monitoring points (MP-1 through MP-6) during each monitoring event.

During the pilot program, the following VOCs were detected: trichloroethene (TCE) tetrachloroethene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,2-dichloroethene (1,2-DCE), and Freon 113. Similar to the PID readings, VOC concentrations increased most significantly during the second sampling event on the first day of the pilot test. VOC concentrations remained stable (i.e., did not decrease) during the initial 5-day pilot period. Continued operation of the pilot test, however, resulted in marked decreases in VOC concentrations (Figure 4). A summary of VOC organic analytical results is as follows:

- During the initial five day test, extraction point SVE-1 had TCE concentrations ranging from 3,700 ug/m^3 to 15,000 ug/m^3; Total volatile organic compound (TVOC) concentrations for SVE-1 ranged from 4,374 ug/m^3 to 17,210 ug/m^3. Under continued operation of the pilot test, TCE and TVOC concentrations dropped from 15,000 ug/m^3 and 17,210 ug/m^3, to 7,900 ug/m^3 and 8,792 ug/m^3, respectively.

- During the initial five day test, extraction point SVE-2 had TCE concentrations ranging from 20,000 ug/m^3 to 46,000 ug/m^3; TVOC concentrations for SVE-2 ranged from 22,587 ug/m^3 to 53,490 ug/m^3. Under continued operation of the pilot test, TCE and TVOC concentrations dropped from 46,000 ug/m^3 and 53,490 ug/m^3, to 12,000 ug/m^3 and 13,862 ug/m^3, respectively.

- During the initial five day test, extraction point SVE-3 had TCE concentrations ranging from 1,100 ug/m^3 to 3,200 ug/m^3; TVOC concentrations for SVE-3 ranged from 1,835 ug/m^3 to 4,779 ug/m^3. Under continued operation of the pilot test, TCE and TVOC concentrations dropped from 3,200 ug/m^3 and 4,779 ug/m^3, to 1,900 ug/m^3 and 2,830 ug/m^3, respectively.

- The stack had a total effluent TVOC concentration of 998 ug/m^3. This sample could be considered a worst case scenario sample as a result of condensate,

which had collected in the VPGAC vessel prior to installation of the knock out tank. Under continued operation of the pilot test, TCE was not detected in the stack.

Conclusions & Recommendations

ARCADIS G&M 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 entire building footprint and contaminant mass was removed).
- Operation of the VRS reduced TCE concentrations by 50% to 75% of peak concentrations.
- A clear declining trend in TCE and TVOC concentrations was observed in each of the three VRS extraction points.
- It does not appear that there is a significant source of contaminant mass from 2 to 6 ft bls.
- The highest VOC concentrations were observed in SVE-2 with lower concentrations present at SVE-1 and SVE-3.
- The emissions from the stack during the pilot test were below New York State Department of Conservation Annual Guideline Concentrations (AGCs).
- The NYSDEC has requested that a sub-slab soil vapor sample be collected from beneath the two-story portion of the building. This is the southern portion of the structure closest to Terminal Drive. Development plans for the building, however, call for the demolition of this portion of the structure. It will not be rebuilt, and only the rebuilt single-story portion of existing building will remain. In light of these plans, a sub-slab soil vapor sample at this location is not appropriate and will therefore not be collected.

Based on the conclusions above, ARCADIS requests that the NYSDEC approve this request to continue operation of the VRS pilot test. The continued beneficial operation of the VRS would continue to remove contaminant mass and provide additional information to evaluate if the observed contaminant mass is residual

adsorbed phase or trapped vapors only. Details regarding the continued operation of the system are provided below.

Influent samples will be collected from the individual vapor extraction wellheads for laboratory analysis one week after the system has been restarted. Vapor samples will be submitted to Air Toxics Laboratory in Folsom, CA for laboratory analysis via Method TO-14 (Direct Inject). Influent samples will be collected from the individual vapor extraction wellheads for laboratory analysis every other week for a period of three months. Following this period, sample collection will occur monthly. In addition, a treated effluent sample will be collected and submitted for laboratory analysis one week prior to the projected VPGAC change out date.

VPGAC will be changed out based on a combination of the vapor phase isotherm and the system effluent sampling results. The water collected in the system moisture separator will be removed on a regular basis based on the required maintenance from the initial operation of the system. Other maintenance to the system will be minor and may include checking the blower for signs of needed maintenance.

After several months of operation, influent concentrations (individual vapor recovery wells or total influent) may appear to reach asymptotic levels (consistent low concentrations in successive sampling events). ARCADIS, as a result, may recommend pulsing the system in the monthly report. ARCADIS will provide proposed vapor recovery well or wells pulsing plans and also detail any results in the monthly reports.

A brief monthly report on the status of the system will be submitted to NYSDEC by the 10th of each month. The report will include any data collected from the previous period, any problems encountered with the system, and any proposed changes to system operations.

Your prompt attention to this request is appreciated. Please call if you have questions or require additional information.

Sincerely,

ARCADIS G&M, Inc.

Doug Smolensky

Douglas A. Smolensky
Associate Vice President

ARCADIS Engineers & Architects of New York, P.C.

Christina Berardi Tuohy

Christina Berardi Tuohy, P.E.
Vice President
New York Professional Engineer
License Number NY-078743-1

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Table 1. Summary of Data Collected During Soil Vapor Extraction Pilot Testing, United Stellar Industris, 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.)	Wellhead Temperature (Degrees F)	Air Flow Rate (1) (cfm)	PID Measured Concentration (ppmv)	Wellhead Vacuum (in.W.C.)	Wellhead Temperature (Degrees F)	Air Flow Rate (1) (cfm)	PID Measured Concentration (ppmv)	Wellhead Vacuum (in.W.C.)	Wellhead Temperature (Degrees F)	Air Flow Rate (1) (cfm)	PID Measured Concentration (ppmv)
4/28/05 [2, 3]	9:55 AM	-29.0	--	28.6	0.0	-24.0	--	24.0	0.0	-26.0	--	72.2	0.0
	10:25 AM	-34.0	49.6	44.1	0.0	-28.0	51.8	23.0	0.0	-18.0	51.4	46.4	0.0
	11:25 AM	--	--	--	0.0	--	--	--	6.8	--	--	--	0.0
	12:25 PM	--	--	--	0.0	--	--	--	8.0	--	--	--	0.0
	1:25 PM	-29.5	50.0	50.8	0.0	-25.0	51.2	23.4	8.4	-18.0	50.9	49.7	0.0
	2:25 PM	--	--	--	0.0	--	--	--	8.6	--	--	--	0.0
	3:25 PM	--	--	--	0.0	--	--	--	7.0	--	--	--	0.0
	4:25 PM	--	--	--	0.0	--	--	--	8.2	--	--	--	0.0
	5:25 PM	-30.0	49.8	49.8	--	-29.0	51.1	23.4	--	-16.0	51.0	49.4	--
	6:00 PM	--	--	--	0.0	--	--	--	6.2	--	--	--	0.0
4/29/05 [3]	8:30 AM	-34.0	48.3	38.9	0.0	-32.0	48.9	13.2	4.3	-12.0	50.0	43.3	0.0
	1:30 PM	-30.0	48.9	46.3	0.0	-30.0	51.2	17.1	8.2	-13.0	51.0	45.8	0.0
	4:30 PM	-30.0	48.7	39.0	0.0	-30.5	50.7	13.6	6.4	-13.0	50.5	42.6	0.0
5/2/05	9:45 AM	-28.0	48.9	40.2	3.5	-30.0	51.6	11.0	6.7	-16.0	50.9	45.4	0.5
	10:15 AM [4]		SVE System OFF-LINE				SVE System OFF-LINE				SVE System OFF-LINE		
	10:30 AM [5]	0.00	--	--	--	-63.0	62.7	68.2	7.6	-0.02	--	--	--
	1:10 PM [5]	-57.0	57.1	81.4	1.4	0.00	--	--	--	0.03	--	--	--
	2:30 PM [5]	-0.06	--	--	--	-0.13	--	--	--	-28.0	55.4	81.5	0.0
	3:10 PM [6]	-24.0	54.8	40.7	2.2	-42.0	54.1	32.2	7.9	-10.0	55.0	33.4	0.0
5/3/05	8:00 AM	-29.0	48.7	31.6	3.2	-43.0	48.5	25.7	9.6	-11.0	49.6	32.3	0.0
5/4/05	7:45 AM	--	--	--	3.5	--	--	--	8.5	--	--	--	0.0
5/5/05	7:45 AM	--	--	--	3.1	--	--	--	6.9	--	--	--	0.0
	5:00 PM	-27.0	48.9	36.7	2.2	-44.0	49.6	29.0	8.3	-10.0	51.4	34.7	0.0
5/6/05	2:30 PM	-27.0	48.7	37.1	5.5	-44.0	49.4	33.2	10.4	-11.0	50.5	36.2	0.0
5/9/05	7:45 AM	-29.5	48.9	41.9	4.0	-45.0	49.4	41.0	5.3	-13.0	50.1	46.0	0.0
5/12/05	1:30 PM	-27.0	51.8	56.6	0.9	-45.0	51.4	44.1	2.3	-11.0	53.2	56.3	0.0
5/16/05	10:00 AM	-23.0	51.9	39.8	3.2	-43.0	51.9	34.1	4.0	-11.0	54.1	38.2	0.0
5/19/05	1:00 PM	-22.5	54.1	36.8	3.3	-42.0	54.6	34.1	5.6	-11.0	55.5	39.6	1.1
6/1/05	10:00 AM	-24.0	54.6	47.6	2.0	-44.0	53.9	61.3	2.0	-16.0	55.9	60.9	0.0

Table 1. Summary of Data Collected During Soil Vapor Extraction Pilot Testing, United Stellar Industries, Plainview, New York.

		Blower Parameters		Stack Parameters				Induced Vacuum Measurements					
Date	Time	Influent Vacuum (in.W.C.)	Effluent Pressure (in.W.C.)	Discharge Pressure (in.W.C.)	Discharge Temperature (Degrees F)	Air Flow Rate (1) (cfm)	PID Measured Concentration (ppmv)	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.)
4/28/05 [2, 3]	9:55 AM	-66.0	0.9	0.5	74.0	128.1	0.0	-0.06	-0.08	-0.14	-0.16	-0.10	-0.05
	10:25 AM	-59.0	5.0	0.4	73.7	132.9	0.0	-0.12	-0.09	-0.13	-0.12	-0.05	-0.05
	11:25 AM	--	--	--	--	--	0.0	--	--	--	--	--	--
	12:25 PM	--	--	--	--	--	--	--	--	--	--	--	--
	1:25 PM	-60.0	5.0	0.3	78.0	134.0	0.0	-0.04	-0.07	-0.10	-0.14	-0.07	-0.03
	2:25 PM	--	--	--	--	--	--	--	--	--	--	--	--
	3:25 PM	--	--	--	--	--	--	--	--	--	--	--	--
	4:25 PM	--	--	--	--	--	--	--	--	--	--	--	--
	5:25 PM	-60.0	1.2	0.0	75.5	132.9	--	-0.34	-0.17	-0.20	-0.17	-0.09	-0.10
	6:00 PM	--	--	--	--	--	0.0	--	--	--	--	--	--
4/29/05 [3]	8:30 AM	-66.0	5.0	0.1	69.2	122.4	0.0	-0.16	-0.10	-0.13	-0.13	-0.06	-0.06
	1:30 PM	-64.0	1.0	0.1	69.1	214.6	0.0	-0.06	-0.08	-0.09	-0.07	-0.04	-0.02
	4:30 PM	-58.0	1.0	0.1	69.4	145.3	0.0	-0.12	-0.07	-0.10	-0.10	-0.06	-0.03
5/2/05	9:45 AM	-66.0	4.5	0.1	73.0	120.1	5.8	-0.10	-0.07	-0.09	-0.10	-0.05	-0.04
	10:15 AM	SVE System OFF-LINE			SVE System OFF-LINE			0.06	0.03	0.04	0.00	0.01	0.02
	10:30 AM	-74.0	2.0	0.1	73.0	87.0	0.0	0.00	-0.09	-0.12	0.00	0.00	-0.10
	1:10 PM [	-72.0	1.0	0.1	73.5	103.3	0.0	-0.15	-0.08	-0.01	0.01	0.00	0.01
	2:30 PM [	-74.0	0.9	0.1	71.2	96.0	0.0	-0.04	-0.02	-0.11	-0.21	-0.11	-0.03
	3:10 PM [	-70.5	1.0	0.1	72.3	107.1	0.0	-0.13	-0.09	-0.11	-0.06	-0.04	-0.06
5/3/05	8:00 AM	-72.0	0.8	0.1	62.9	148.9	0.0	-0.11	-0.10	-0.13	-0.07	-0.04	-0.06
5/4/05	7:45 AM	--	--	--	--	--	0.0	--	--	--	--	--	--
5/5/05	7:45 AM	--	--	--	--	--	0.0	--	--	--	--	--	--
	5:00 PM	-74.0	0.9	0.1	86.3	127.3	0.0	-0.03	-0.06	-0.08	-0.05	-0.02	-0.03
5/6/05	2:30 PM	-71.0	0.7	0.1	82.9	170.2	0.0	0.02	-0.02	-0.04	-0.02	-0.01	-0.02
5/9/05	7:45 AM	-72.0	0.7	0.1	81.8	168.9	0.0	-0.08	-0.08	-0.09	-0.06	-0.02	-0.05
5/12/05	1:30 PM	-72.0	0.8	0.1	91.0	172.3	0.0	-0.12	-0.10	-0.12	-0.07	-0.04	-0.06
5/16/05	10:00 AM	-71.0	0.8	0.1	90.5	127.3	0.0	-0.13	-0.09	-0.12	-0.06	-0.03	-0.06
5/19/05	1:00 PM	-71.0	0.8	0.1	94.6	171.5	0.0	-0.09	-0.07	-0.09	-0.08	-0.02	-0.04
6/1/05	10:00 AM	-73.0	1.0	0.1	91.5	189.5	0.0	-0.11	-0.11	-0.14	-0.09	-0.05	-0.08

Table 1. Summary of Data Collected During Soil Vapor Extraction Pilot Testing, United Stellar Industries, Plainview, New York.

cfm	Cubic feet per minute.
PID	Photoionization detector.
ppmv	Parts per million by volume.
F	Fahrenheit.
SVE	Soil vapor extraction.
–	Measurement not taken.
in. W.C.	Inches of water column.

Notes:

1. Air flow rate was calculated by multiplying measured air velocity by cross sectional area of the pipe.
2. The Soil Vapor Extraction System was initialized on April 28, 2005 at 9:25 am.
3. The rate of air flow extraction from individual Soil vapor extraction wells was continuously adjusted during April 28 and April 29, 2005.
4. The soil vapor extraction system was shut-down on May 2, 2005 at 10:00 am prior to individual extraction well performance testing. Parameter readings shown were collected after the syst was taken off-line.
5. Parameter readings shown were collected during individual soil vapor extraction well performance testing.
6. Following soil vapor extraction well performance testing, all extraction wells were brought on-line and air flow rates from each individual well were balanced.

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Table 2. Draft Summary of SVE-1 Extraction Well Vapor Sample Analytical Results, Vapor Recovery System Pilot Test, United Stellar Industries, Plainview, New York.

Compound	SVE-1 EXTRACTION WELL CONCENTRATIONS [1]									
	4/28/2005 9:55 AM (ug/m^3)	4/28/2005 1:25 PM (ug/m^3)	4/28/2005 6:00 PM (ug/m^3)	4/29/2005 8:30 AM (ug/m^3)	4/29/2005 4:30 PM (ug/m^3)	5/2/2005 9:46 AM (ug/m^3)	5/5/2005 5:00 PM (ug/m^3)	5/12/2005 1:30 PM (ug/m^3)	5/19/2005 1:45 PM (ug/m^3)	6/1/2005 10:00 AM (ug/m^3)
Freon 113	330	940	860	790	760	710	420	300	280	ND
Chloroform	ND	ND	ND	24	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	77	280	280	270	260	300	210	180	170	180
Trichloroethene	3,700	12,000	13,000	13,000	13,000	15,000	11,000	10,000	8800	7900
Tetrachloroethene	190	600	600	620	580	680	440	390	360	310
trans-1,2-Dichloroethene	ND	22	27	29	28	29	24	23	22	22
cis-1,2-Dichloroethene	41	190	220	280	280	440	370	420	420	380
1,1-Dichloroethane	ND	ND	ND	ND	ND	22	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol	36	30	58	26	22	29	45	85	38	ND
Total VOCs [2]	**4,374**	**14,062**	**15,045**	**15,039**	**14,930**	**17,210**	**12,509**	**11,398**	**10,090**	**8,792**

ug/m^3 micrograms per cubic meter
ND analyte not detected at, or above its laboratory quantification limit

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 the pilot test at any location are presented on this table.
2. Total VOCs calculated by summing individual analytes.

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Table 3. Draft Summary of SVE-2 Extraction Well Vapor Sample Analytical Results, Vapor Recovery System Pilot Test, United Stellar Industries, Plainview, New York.

Compound	SVE-2 EXTRACTION WELL CONCENTRATIONS [1]									
	4/28/2005 9:55 AM (ug/m^3)	4/28/2005 1:25 PM (ug/m^3)	4/28/2005 6:00 PM (ug/m^3)	4/29/2005 8:30 AM (ug/m^3)	4/29/2005 4:30 PM (ug/m^3)	5/2/2005 9:46 AM (ug/m^3)	5/5/2005 5:00 PM (ug/m^3)	5/12/2005 1:30 PM (ug/m^3)	5/19/2005 1:45 PM (ug/m^3)	6/1/2005 10:00 AM (ug/m^3)
Freon 113	1,100	3,000	2,800	2,600	2,600	1,500	1200	970	920	760
Chloroform	33	69	63	67	62	47	31	ND	ND	ND
1,1,1-Trichloroethane	220	520	490	460	480	360	210	150	140	100
Trichloroethene	20,000	47,000	46,000	44,000	45,000	41,000	25,000	17,000	15000	12000
Tetrachloroethene	330	760	750	690	710	690	470	390	330	260
trans-1,2-Dichloroethene	ND	36	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	850	2,000	1,800	1,800	1,800	1,600	1,400	1,100	970	690
1,1-Dichloroethane	28	76	63	60	51	44	25	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol	26	29	28	30	28	23	37	63	35	52
Total VOCs [2]	**22,587**	**53,490**	**51,994**	**49,707**	**50,731**	**45,264**	**28,373**	**19,673**	**17,395**	**13,862**

ug/m^3 micrograms per cubic meter
ND analyte not detected at, or above its laboratory quantification limit

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 the pilot test at any location are presented on this table.
2. Total VOCs calculated by summing individual analytes.

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Table 4. Draft Summary of SVE-3 Extraction Well Vapor Sample Analytical Results, Vapor Recovery System Pilot Test, United Stellar Industries, Plainview, New York.

Compound	SVE-3 EXTRACTION WELL CONCENTRATIONS [1]									
	4/28/2005 9:55 AM (ug/m^3)	4/28/2005 1:25 PM (ug/m^3)	4/28/2005 6:00 PM (ug/m^3)	4/29/2005 8:30 AM (ug/m^3)	4/29/2005 4:30 PM (ug/m^3)	5/2/2005 9:46 AM (ug/m^3)	5/5/2005 5:00 PM (ug/m^3)	5/12/2005 1:30 PM (ug/m^3)	5/19/2005 1:45 PM (ug/m^3)	6/1/2005 10:00 AM (ug/m^3)
Freon 113	540	1,400	1,600	930	1,200	990	580	510	150	420
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	50	52	31	41	41	ND	ND	ND	ND
Trichloroethene	1,100	2,900	3,100	2,500	3,100	3,200	2,300	2,300	570	1900
Tetrachloroethene	110	280	300	190	260	220	140	120	ND	74
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	55	ND
cis-1,2-Dichloroethene	45	120	140	130	170	240	200	270	93	390
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	100	ND
2-Propanol	40	29	32	22	24	30	53	70	51	46
Total VOCs [2]	**1,835**	**4,779**	**5,224**	**3,803**	**4,795**	**4,721**	**3,273**	**3,270**	**1,019**	**2,830**

ug/m^3 micrograms per cubic meter
ND analyte not detected at, or above its laboratory quantification limit

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 the pilot test at any location are presented on this table.
2. Total VOCs calculated by summing individual analytes.

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Table 5. Draft Summary of Effluent Stack Vapor Sample Analytical Results, Vapor Recovery System Pilot Test, United Stellar Industries, Plainview, New York.

Compound	STACK CONCENTRATIONS [1]				
	5/2/2005 9:46 AM (ug/m^3)	5/5/2005 5:00 PM (ug/m^3)	5/12/2005 1:30 PM (ug/m^3)	5/19/2005 1:45 PM (ug/m^3)	6/1/2005 10:00 AM (ug/m^3)
Freon 113	200	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	720	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	44	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
2-Propanol	34	37	60	74	53
Total VOCs [2]	**998**	**37**	**60**	**74**	**53**

ug/m^3 micrograms per cubic meter
ND analyte not detected at, or above its laboratory quantification limit

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 the pilot test at any location are presented on this table.
2. Total VOCs calculated by summing individual analytes.

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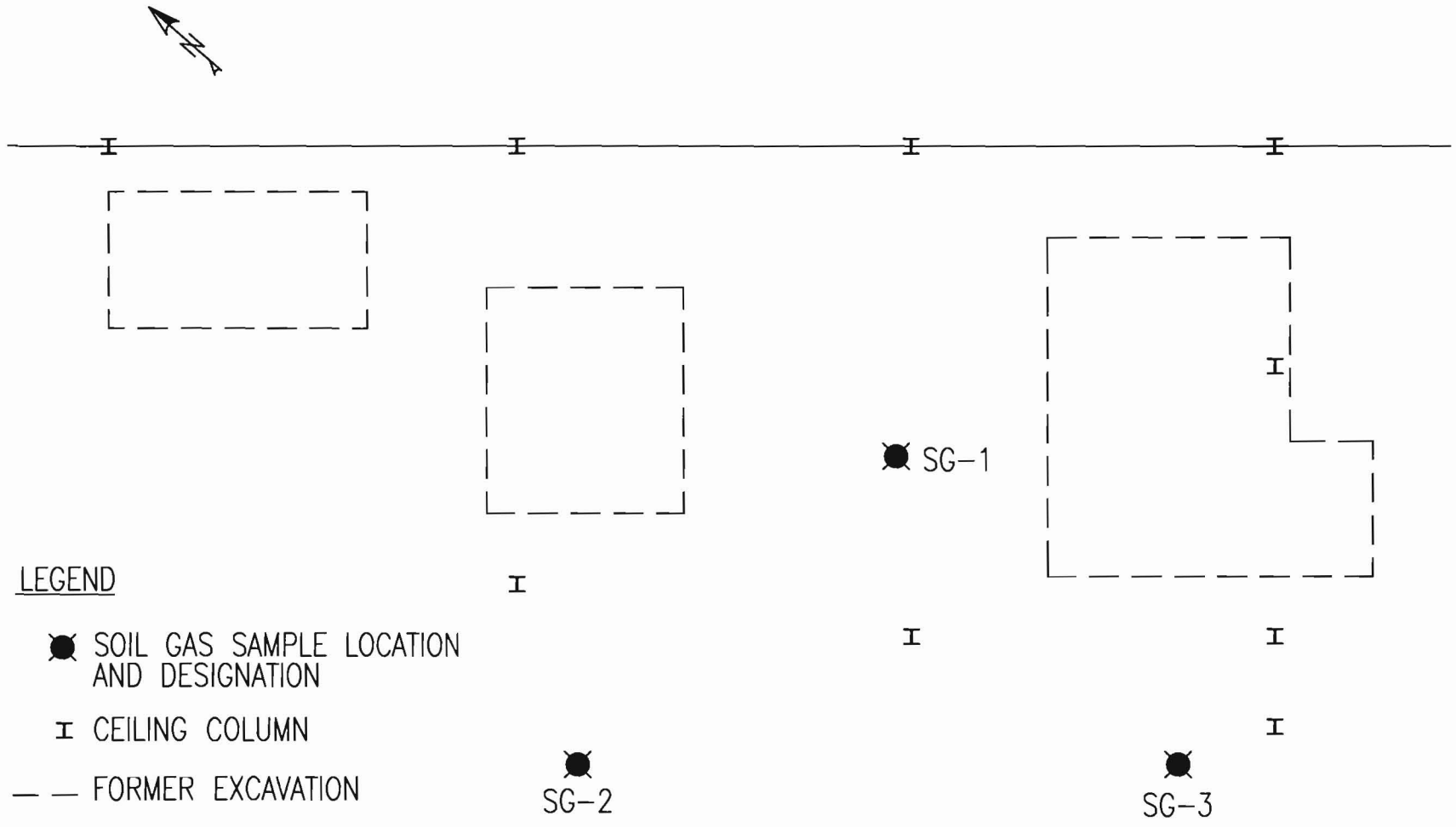

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PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
D. SMOLENSKY	D. SMOLENSKY	R. PORSCHE	K. SCHMITT
SHEET TITLE		TASK/PHASE NUMBER	DRAWN BY
SOIL GAS SAMPLING LOCATIONS AND FLOOR LAYOUT		00002	E. HUGHES
		PROJECT NUMBER	DRAWING NUMBER
		NY001422.0002	1

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SUBJECT: FIGURE 2
SVE LOCATIONS

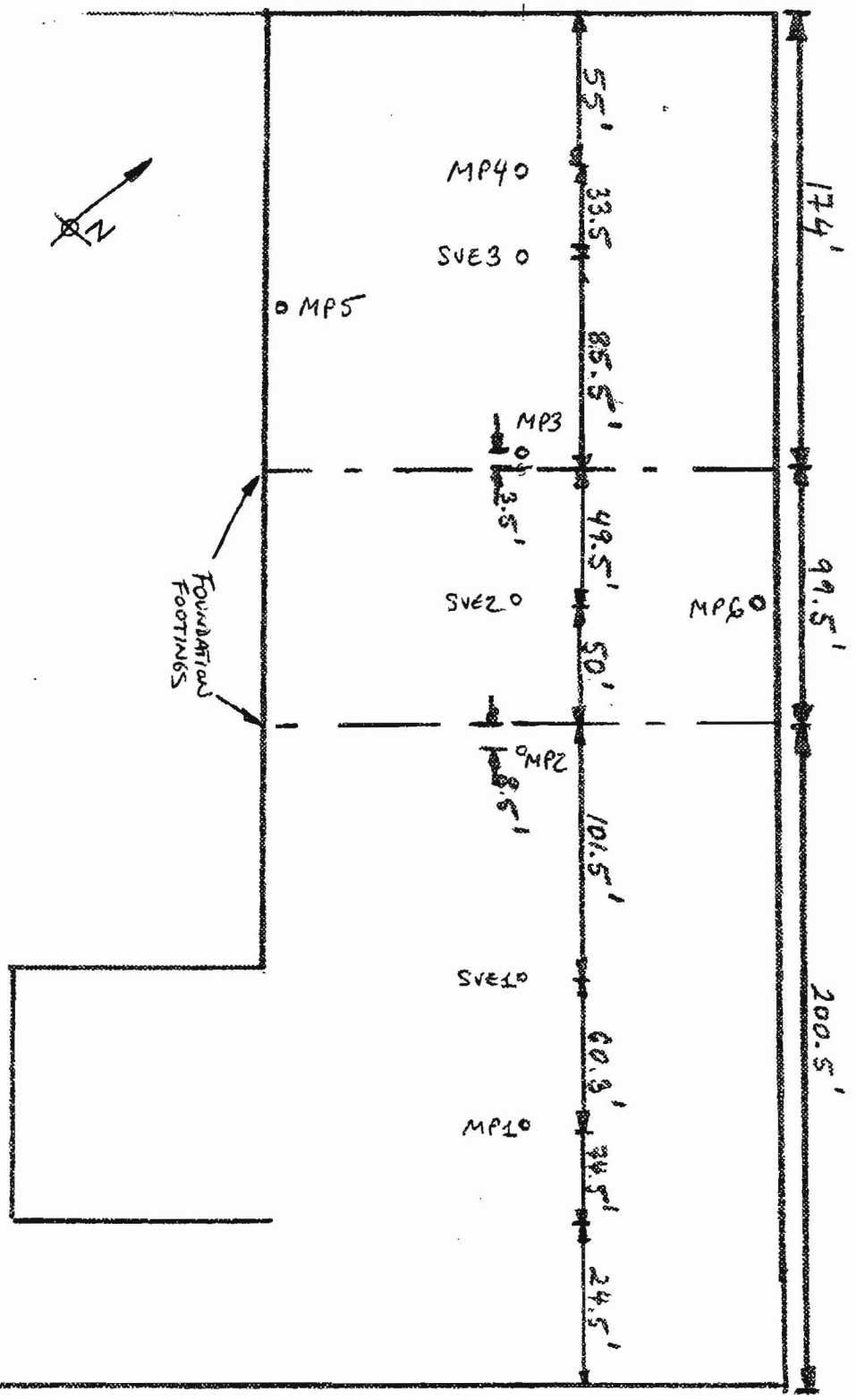
JOB NO:

BY: DATE:

CHKD: DATE:

PAGE

SHEET 1



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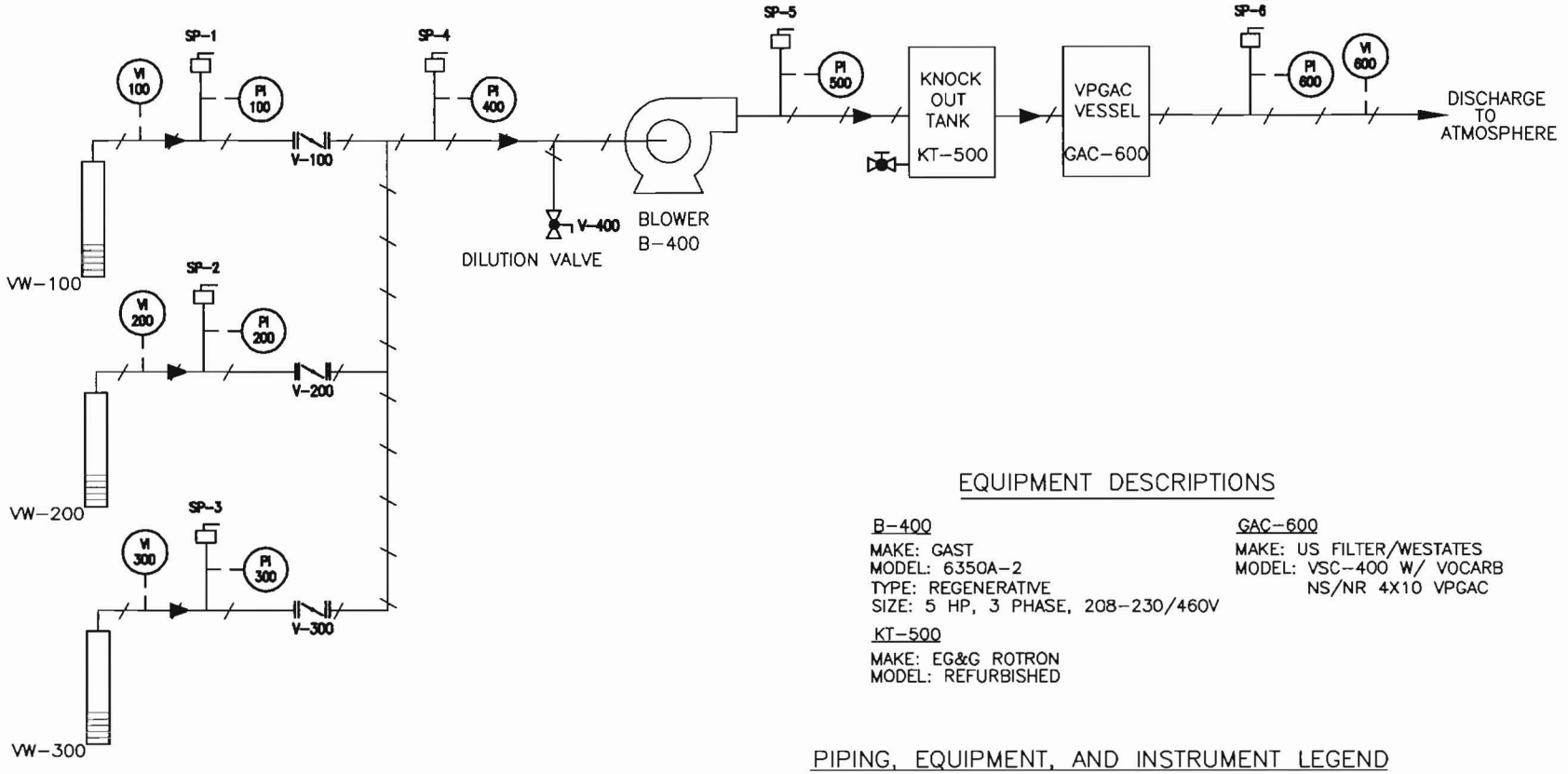

EQUIPMENT DESCRIPTIONS

B-400
MAKE: GAST
MODEL: 6350A-2
TYPE: REGENERATIVE
SIZE: 5 HP, 3 PHASE, 208-230/460V

KT-500
MAKE: EG&G ROTRON
MODEL: REFURBISHED

GAC-600
MAKE: US FILTER/WESTATES
MODEL: VSC-400 W/ VOCARB NS/NR 4X10 VPGAC

EQUIPMENT AND INSTRUMENT DESIGNATIONS

- VW – VAPOR WELL
- VPGAC – VAPOR PHASE GRANULAR ACTIVATED CARBON
- SP– SAMPLE PORT
- V – SHUTOFF VALVE
- VI – VELOCITY INDICATOR
- PI – PRESSURE/VACUUM INDICATOR

PIPING, EQUIPMENT, AND INSTRUMENT LEGEND

- VAPOR
- INSTRUMENT CONNECTED TO PROCESS LINE
- PORTABLE INSTRUMENT NOT CONNECTED TO PROCESS LINE
- BALL VALVE (NORMALLY CLOSED)
- BUTTERFLY VALVE (NORMALLY OPEN)
- SAMPLE PORT
- EXTRACTION BLOWER
- VAPOR WELL

NOT TO SCALE

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DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. K.	11/9/05	C. TUOHY	N. VALKENBERG
		LEAD DESIGN PROF. K. ZEGEL	CHECKED K. KUC

SOIL VAPOR EXTRACTION SYSTEM SCHEMATIC

PROJECT NUMBER	DRAWING NUMBER
NY001422.0002	3

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Figure 4. TVOC Concentration versus Time, Vapor Recovery System Pilot Test, United Stellar Industries, Plainview, New York.