OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX
AMBIENT AIR QUALITY SURVEY
AND
SOIL GAS QUALITY SURVEY

Second Year of Monitoring
First Quarter Report

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OLD BETHPAGE LANDFILL
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AMBIENT AIR QUALITY SURVEY AND SOIL GAS QUALITY SURVEY

SECOND YEAR OF MONITORING

FIRST QUARTER REPORT

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1.0 INTRODUCTION

RTP Environmental Associates, Inc. (RTP) was contracted by the Town of Oyster Bay through their Consultant, Lockwood Kessler & Bartlett, Inc. (LKB), to perform the sampling and analysis of ambient air and soil gases in the areas at and surrounding the Old Bethpage Landfill at the Oyster Bay Solid Waste Disposal Complex. The general scope of the program was defined in the Order on Consent which is presented in Appendix A. Since the Consent Decree was not explicit as to the specific methodology and testing protocols to be followed, RTP, in conjunction with the Town, LKB and analytical laboratories, developed a complete protocol and analysis strategy for meeting the general requirements stipulated by the Decree.

As stipulated in the Consent Decree, the ambient air quality and soil gas quality were to be monitored at several positions around the landfill. The samples were to be analyzed using approved protocols and the results were to be tabulated. Four sampling events were conducted during the initial year of the program and four events are scheduled for the second year of monitoring.

This report contains the results of the first quarter sampling effort of the second year of monitoring (second year, first quarter sampling event). This event was conducted on October 26 and 27, 1992. Sections 2.0 and 3.0 of the report contain the sampling protocol and investigation methodology for air and soil gas including sample collection, sample handling and analytical procedures applied for this program. Section 4.0 provides a discussion of results. Section 5 of this report contains the soil gas pressure sampling protocols and test results for this quarter.

2.0 METHODOLOGY AND PROTOCOLS

2.1 PROGRAM DEFINITION

In conformance with the RAP Attachment 2 of the Consent Decree (83 CIV 5357), as shown in Appendix A, the Town of Oyster Bay initiated an investigation of the ambient air quality and soil gas quality in the vicinity of the Old Bethpage Landfill. This report addresses four of the components listed in the RAP: (1) ambient air sampling; (2) 30" deep subsurface gas sampling; (3) subsurface gas sampling at various depths; and (4) soil gas pressure readings.

The objective of the air and soil gas portions of the program is to examine the ambient air concentration of trace volatile organic compounds (VOCs) in the vicinity of the Old Bethpage Landfill. During the second year first quarter sampling event, four ambient air samples were collected over a 24-hour period at three locations. Short-term (ten minute) subsurface soil gas grab samples were collected at the fifteen locations specified in the Consent Decree. Soil gas pressure readings were taken at three locations to assist in monitoring the effectiveness of the landfill gas collection system.

The air and soil gas sampling procedures follow those developed during the first year of sampling. The program also involved the collection of meteorological parameters from atop the landfill and at the upwind ambient air sampling location. This data was used to specifically define the micrometeorological conditions existing during the ambient air and subsurface soil gas sampling events as well as during the soil gas pressure measurement period.

2.2 GAS SAMPLING

2.2.1 General Scope

As required by the RAP Attachment 2, ambient air samples are to be collected over a 24-hour period at three locations around the landfill: (1) along Winding Road to the east and southeast of the landfill; (2) to the west of the landfill along Round Swamp Road; and (3) to the north of the landfill. The RAP also states that samples at the above three locations should be collected quarterly during the initial year of the program. As mentioned earlier, sampling will continue on a quarterly basis for the second year monitoring program. Samples are to be analyzed for volatile organic compounds.

The sample collection program was modified as discussed in the first year reports. Changes were made to the ambient air sampling scope stated in the RAP to account for site geometry. The selected ambient air sampling locations for this quarter are shown in Figure 2.1. The 24-hour ambient air samples were taken at locations A1 and A4, and two 24-hour samples were taken at location A2/A3 for a total of four 24-hour ambient air samples. The reason for collecting two samples at a single site (A2/A3) was to provide two flow ranges. The first round of sampling identified a considerable range in ambient concentrations of various VOCs. Therefore, the two ranges of sample volumes

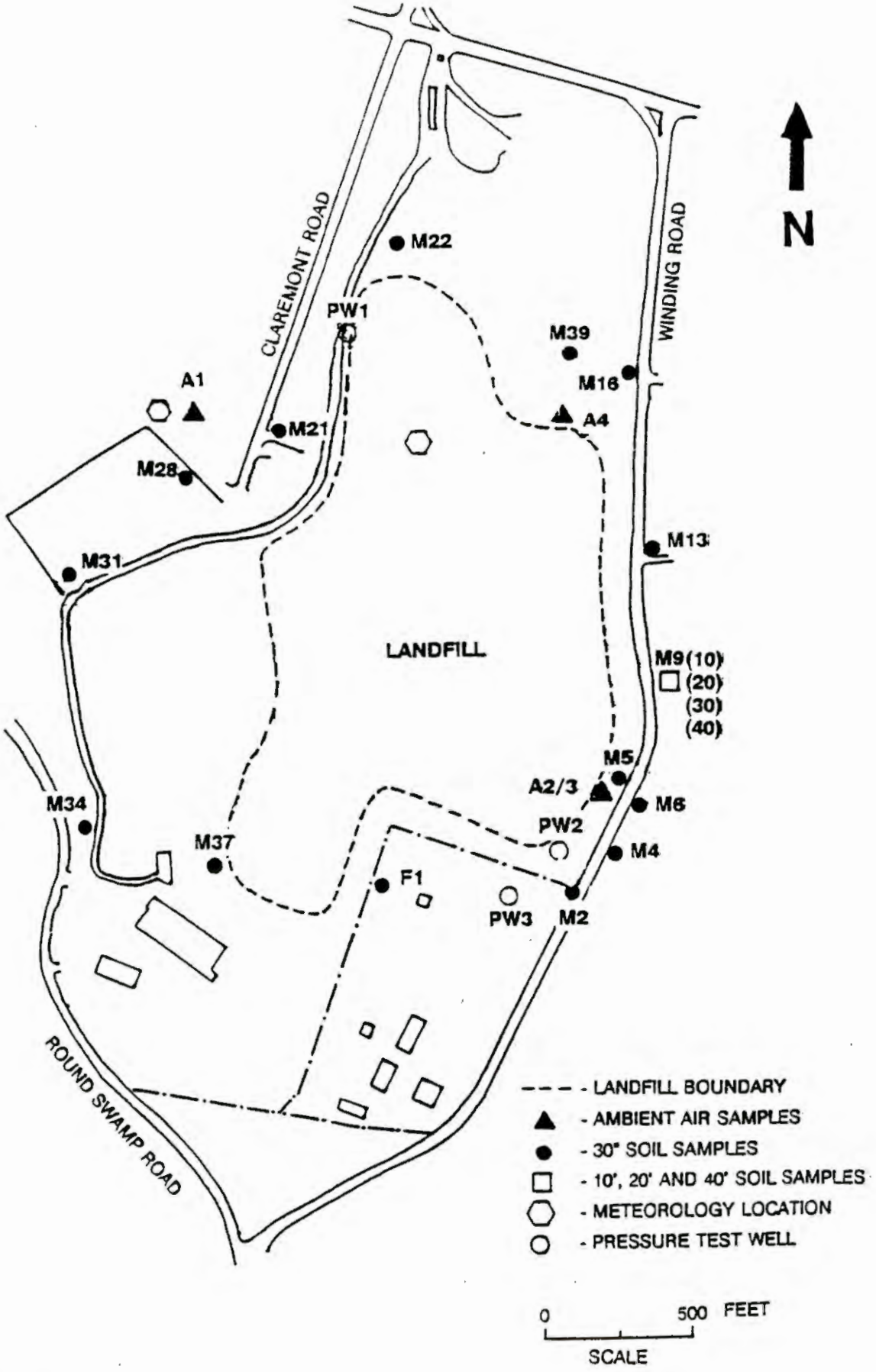


FIGURE 2.1: AMBIENT AIR AND SOIL MONITORING SITES AT OBSWDC

were necessary to avoid mass loading limits on the samples and to achieve acceptable analytical sensitivity for the target compound list.

The RAP requires the collection and analysis of samples from fourteen (14) 30" deep wells at different locations surrounding the landfill on a quarterly basis during the initial year of the program. Again, the second year monitoring program will consist of quarterly soil gas sample collection. In this second year first quarterly sampling event, all 30" wells listed in the Consent Decree were sampled. These included well locations M2, M4, M5, M6, M13, M16, M21, M22, M28, M31, M34, M37, M39 and F1 as identified in Figure 2.1. The sampling methodology used in the initial sampling event was also utilized in this case.

The third component of the RAP requires subsurface soil gas samples to be collected from ten (10), twenty (20), thirty (30), and forty (40) foot depths at location M9 as shown in Figure 2.1. Again, sampling was required on a quarterly basis during the initial year of the program. The second year monitoring program will include quarterly sampling at well M9 at all four depths.
As in the initial year of sampling, the sampling procedure being applied was the modified VOST method. A modified VOST approach was decided upon for several reasons:

- Standard absorbent traps for ambient air sampling may miss several compounds because of the volatility of many organics at ambient temperatures. By cooling the absorbent traps to less than 68°F, the modified method would likely allow the traps to capture compounds that might normally go undetected.

- Using a VOST trap series would provide data directly compatible with the thermal oxidizer tests being performed as part of the Consent Decree.

- Since ambient air concentrations of VOCs are likely to be very low in the area surrounding the landfill, a method that would allow for the collection of large volumes of gas had to be developed.

- Large volumes of ambient air were necessary because of the analytical limitations posed by standard gas chromatograph - mass spectrographic (GC/MS) methods.

- o Evacuated canister methods were reviewed and deemed unacceptable because of low total volume capacity and potential leaks and contamination.

- o The VOST series traps are applicable for both ambient air and soil gas monitoring.

- o The interference problems associated with sample bags and glass bulb methods were deemed unacceptable and had to be avoided.

A summary of the volatile organic compounds that could be evaluated by using the above methodology is presented in Table 2.1 along with corresponding New York State Department of Environmental Conservation (NYSDEC) ambient air guidelines. This is the target compound list for the second year of monitoring and is consistent with the VOC constituents being evaluated in the thermal oxidizer testing portion of the Consent Decree.

2.2.2 Modified VOST Sampler

The Volatile Organic Sampling Train (VOST) is one of three EPA methods identified to collect VOCs from stacks. A schematic diagram of the principal components of the standard VOST is shown in Figure 2.2. The VOST consists of a quartz or glass lined probe with a glass wool particulate plug, an isolation valve, a water cooled gas condenser with a thermocouple placed at the outlet to monitor gas stream temperature, a sorbent cartridge containing Tenax, an empty impinger for condensate removal, a second water cooled glass condenser, a second sorbent cartridge containing Tenax and petroleum based charcoal (3:1 by volume; approximately 1 gram of each), a silica gel drying tube, a calibrated rotameter, a sampling pump and a dry gas meter.

The standard VOST is not designed for portable ambient air monitoring work. It is designed to extract and concentrate volatile organic compounds with boiling points less than or equal to 100° centigrade from stack gas effluents. The major difficulties with using a standard VOST in the field for ambient air quality work are the power requirements, setup and assembly problems and the breakage of glassware.

TABLE 2.1

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

PROGRAM TARGET COMPOUND LIST WITH NYSDEC AMBIENT AIR GUIDELINES

VOC COMPOUND NAME	TOXICITY	CURRENT SGC (ug/m3)		CURRENT AGC (ug/m3)		FORMER AGC (ug/m3)
Acetone	L	140,000	(r)	14,000	(R)	35,600
Benzene	H	30	(p)	0.12	(E,U)	100
Bromodichloromethane	H			0.02	(D)	0.03*
Bromoform	M	1,200	(t)	12	(T)	11.9*
Bromomethane						
2-Butanone	M	140,000	(t)	300	(E)	1,967
Carbon Disulfide	M	710	(r)	7	(D)	100
Carbon Tetrachloride	H	1,300	(r)	0.07	(E,U)	100
Chlorobenzene	M	11,000	(p)	20	(E)	1,170
Chloroethane	L	630,000	(t)	63,000	(T)	52,000
Chloroform	M	980	(r)	23	(R)	167
Chloromethane	M	22,000	(d)	770	(D)	2,100
Dibromochloromethane	M			0.1	(D)	0.03*
1,2-Dichlorobenzene (o)	M	30,000	(t)	200	(E)	1,000
1,3-Dichlorobenzene (m)	M	30,000	(a)	200	(A)	714*
1,4-Dichlorobenzene (p)	M*	110,000*		700*		
1,1-Dichloroethane	L	190,000	(t)	500	(E)	9,524*
1,2-Dichloroethane	M	950	(r)	0.039	(E,U)	0.2
1,1-Dichloroethene	H	2,000	(t)	0.02	(E,U)	66.7
trans-1,2-Dichloroethene	M			360	(D)	360*
1,2-Dichloropropane	M	83,000	(t)	0.15	(D)	833*
cis-1,3-Dichloropropene						
trans-1,3-Dichloropropene						
Ethylbenzene	M	100,000	(t)	1,000	(T)	1,450
2-Hexanone						
4-Methyl-2-Pentanone	M	48,000	(r)	480	(R)	683
Methylene Chloride	M	41,000	(t)	27	(D,U)	1,170
Styrene	M	51,000	(t)	510	(T)	716
1,1,2,2-Tetrachloroethane	M	1,600	(t)	0.02	(E,U)	23.2
Tetrachloroethene	M	81,000	(t)	0.075	(D,U)	1,120
Toluene	L	89,000	(r)	2,000	(I)	7,500
1,1,1-Trichloroethane	L	450,000	(t)	1,000	(E)	38,000
1,1,2-Trichloroethane	M	13,000	(t)	0.06	(E,U)	150
Trichloroethene	M	33,000	(r)	0.45	(D,U)	900
Trichlorofluoromethane	L	560,000	(t)	700	(E)	
Vinyl Chloride	H	1,300	(t)	0.02	(E,U)	0.4
Xylenes (Total)	M	100,000	(t)	300	(I)	1,450**

TABLE 2.1
Continued

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

PROGRAM TARGET COMPOUND LIST WITH
NYSDEC AMBIENT AIR GUIDELINES

TENTATIVELY IDENTIFIED COMPOUNDS***	TOXICITY	CURRENT SGC (ug/m3)		CURRENT AGC (ug/m3)		FORMER AGC (ug/m3)
Benzaldehyde						
2-Chloroethyl Vinyl Ether						
cis-1,2-Dichloroethene	M	190,000	(a)	1,900	(A)	1,880*
Freon 13	L	43,000	(a)	530	(A)	133,333*
Vinyl Acetate						

FOOTNOTES:

SGC - Short-term guideline concentration (current as of June 1991).

AGC - Annual guideline concentration (current as of June 1991, former as of 1986, 9/89 Edition).

*Proposed Value.

**1450 total for ortho and para xylenes and 1450 total for meta xylene.

***Tentatively Identified Compound (TIC) using EPA SW846 Method 8240. Six additional non-target compound GC/MS peaks with the largest analytical response were also targeted.

Toxicity - H for High; M for moderate; and L for low by NYSDEC.

(a) - SGC based on NYSDEC structure-activity analogy.

(d) - SGC derived by NYSDEC, Division of Air Resources, Bureau of Air Toxics, Toxics Assessment Section.

(p) - SGC derived from propsed ACGIH TLV-TWA (1990-1991).

(r) - SGC derived from NIOSH REL-TWA (1988).

(t) - SGC derived from ACGIH TLV-TWA (1990-1991).

(A) - AGC based on NYSDEC structure-activity analogy.

(D) - AGC derived from NYSDEC, Division of Air Resources, Bureau of Air Toxics, Toxics Assessment Section.

(E) - AGC based on derivation by USEPA.

(I) - AGC based on RFC developed by USEPA - Integrated Risk Information System (RIS), input pending.

(R) - AGC derived from NIOSH REL-TWA (1988).

(T) - AGC derived from ACGIH TLV-TWA (1990-1991).

(U) - AGC is the ambient air concentration which corresponds to an excess cancer risk of one in one million after lifetime exposure.

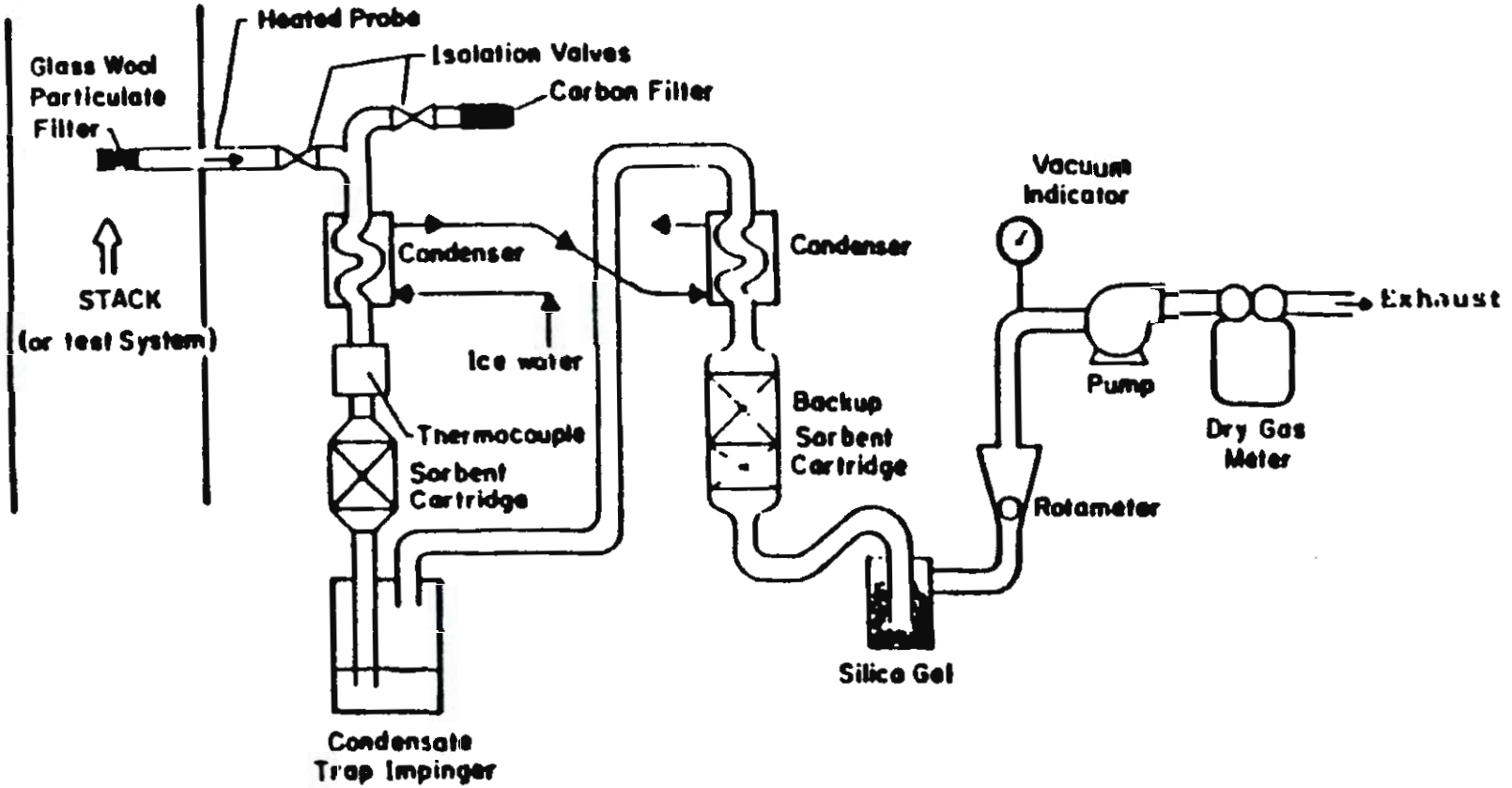


FIGURE 2.2: SCHEMATIC OF EPA REFERENCED VOLATILE ORGANIC SAMPLING TRAIN (VOST)

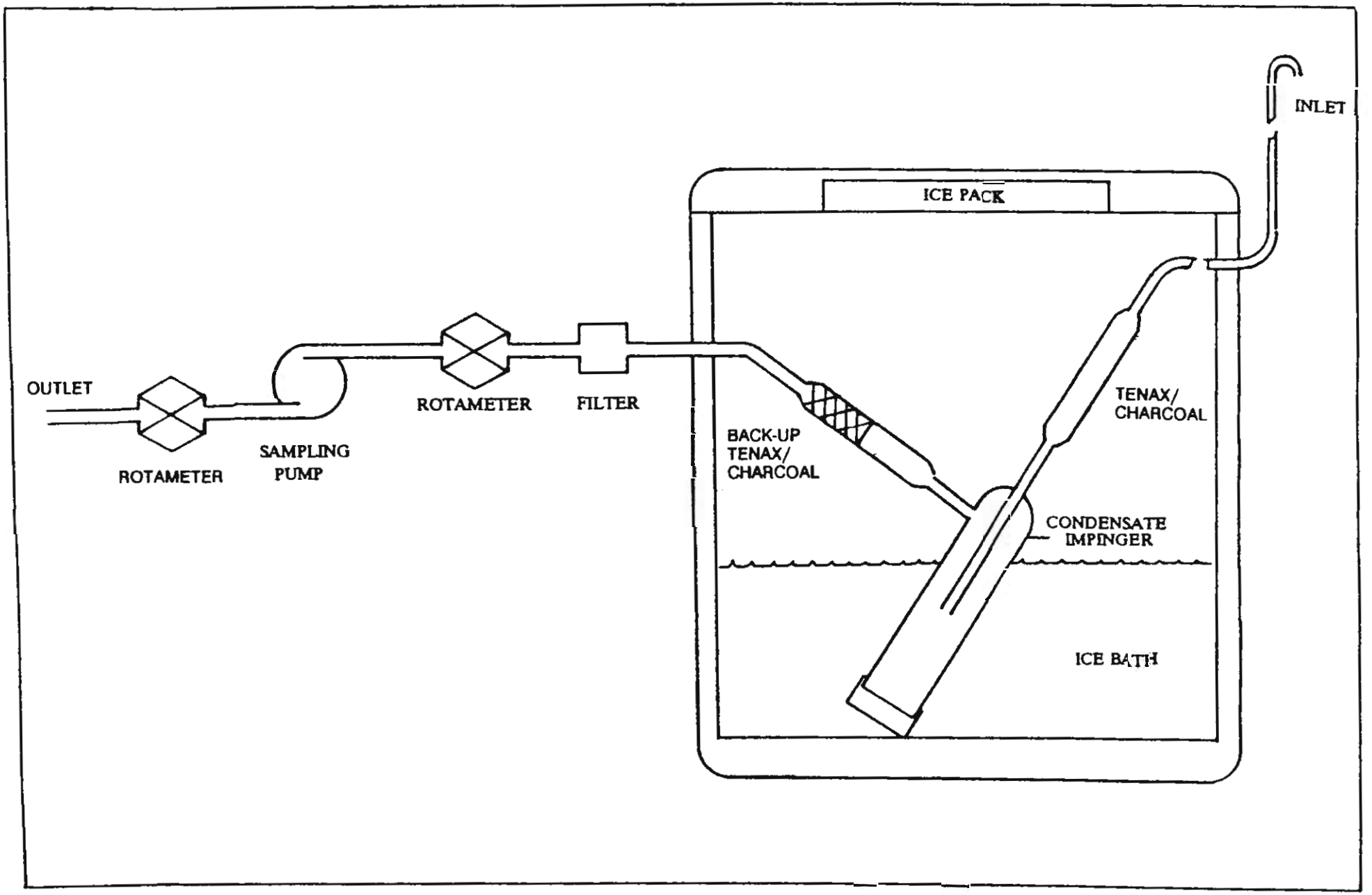


FIGURE 2.3: MODIFIED VOST SAMPLER

RTP modified the EPA standard VOST unit to make it portable and to account for air flow volumes necessary to achieve the analytical sensitivity required in both ambient air and subsurface soil gas sampling programs that are required by the Consent Decree. Figure 2.3 shows the RTP modified VOST. The key components of the modified VOST are: precalibrated portable sampling pump, rotameter, a rechargeable GEL CEL battery pack, particulate filter, two pre-conditioned VOST Tenax/Charcoal sorbent traps, condensate impinger, aluminum tube holder, ice bath and ice pack, sampling cane, and cooler enclosure. The VOST Tenax/Charcoal sorbent traps used in the modified sampling train are the same as those used in the VOST EPA referenced method. However, the SKC sampling pump and rotameter were used instead of the standard VOST flow controlled sampling pump and dry gas meter and, the ice bath, ice pack and condensate impinger were used instead of two condensers. Two Tenax/Charcoal traps were used in order to account for possible breakthrough in the high volume samples and were used throughout the program for method uniformity among all sources.

2.2.3 Sample Volume Selection

The selection of sample volume for both air and soil gas samples for this study was investigated. In general, the sample volume or sample size is limited by the analytical instrumentation being applied at the host laboratory and the period of sampling required in the Consent Decree. Since sample quantitation is based on nanogram concentrations of constituents, appropriate sample volumes were necessary to provide the desired analytical sensitivity.

In general, analytical instruments can detect between a few nanograms to thousands of nanograms of individual constituents in a sample. The analytical instrument's lower quantitation limit for this case was set between 20 and 240 nanograms. The upper quantitation limit (calibration limit) was nominally set at approximately 50 times the lower quantitation limit. Therefore, in order to provide the correct mass loading of constituents on the sample substrate, sample volumes were approximated based on Photovac Micro-Tip values as presented in Table 2.2. Since the Micro-Tip has a lower limit of detection at 0.1 ppm, it was not always possible to specify the exact sample volume required to consistently achieve the proper mass loading on each sampling tube. Therefore, to avoid missing compounds because of insufficient sample volume for ambient air samples, high volume (approximately 1000 liters) and low volume (approximately 100 liters) sample sizes were selected.

TABLE 2.2

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

GENERAL RELATIONSHIP BETWEEN MICRO-TIP READINGS AND SAMPLE VOLUME

MICRO-TIP READINGS (ppm)*	SAMPLE VOLUME (liters)
<0.1 to 0.5	1,000 to 10
2 to 5	1
5 to 10	0.5
10 to 15	0.1
15 to 20	0.05
>20	0.01

*Micro-Tip photoionization detector with 11.7 ev lamp.

It was previously determined that a 10 liter sample volume would be appropriate for sampling shallow soil gas wells. Removing more than a 10 liter sample would have meant that ambient air from the surface would have been introduced into the well being sampled.

2.2.4 Other Sampling Equipment

The SKC sampling pump used in this study is a model MOD 224-PCXR7 universal exhaust pump. It automatically shuts down for low battery voltage and excess back pressure. The accuracy of the sampling pump is about +/- 5% of the set nominal flow rate.

The SKC sampling pump can be programmed to operate continuously and intermittently. Also, it can be used to collect different total sample volumes at different flow rates. The pump can be programmed to continuously draw samples at a desired flow rate over a preassigned time period. This capability is particularly important in the ambient air sampling event. It makes it possible to collect ambient air samples intermittently over a 24-hour total elapsed time period to give a 24-hour average VOC concentration as specified in the Consent Decree. The only factor that limits the overall sampling time would be the pump battery capacity which was expanded by using a larger capacity battery.

SKC electronic calibrator Model 712 is used before and after each sampling event to calibrate two (2) Supelco rotameters (one high flow (1.0 Lpm), one low flow (0.070 Lpm) to a desired nominal flow rate. It is also used prior to testing to set up a relationship between actual pump volume flow rates and their corresponding rotameter readings. Inconsistencies between both rotameters could reveal a pump leak. These calibration data together with the Supelco rotameter readings recorded during sampling, are then used after all monitoring events to establish the sample volumes collected during each test. SKC calibrator is a digital film flow meter consisting of a microprocessor and a sensitive bubble meter with two photo-sensor lines. The flow rate shown on the digital film flow meter is calculated by the microprocessor. The flow is based upon the bubble meter inner diameter and the elapsed time taken by a bubble passing between the two photo-sensor lines. The accuracy of this calibrator and the Supelco rotameters is around +/-2%.

A Photovac Micro-Tip meter was also used during the monitoring program. It is a hand held instantaneously reading analyzer that measures the total concentration of all ionizable compounds (in ppm). It is to be used before and after each sampling event to measure total VOC concentration. Micro-Tip is used to verify and adjust, if necessary, the appropriate nominal pump flow rate for each ambient air and subsurface soil gas sample.

2.3 METEOROLOGICAL DATA

Ambient onsite meteorological data was collected during the ambient air quality and soil gas tests. Meteorological data provide information on ambient conditions occurring during the tests. The specific equipment used to measure and record onsite meteorological data is identified and presented in Appendix B.

The meteorological parameters of interest in this program are: wind speed, wind direction, temperature, relative humidity, turbulence, barometric pressure and precipitation. The meteorological equipment used included an 8 and 12 foot meteorological tower, each including a solid-state barometric pressure sensor, precipitation gauge, three-cup anemometer, counterbalanced wind vane coupled to a precision, low-torque potentiometer, temperature sensor and a fully programmable CR10 measurement data logger and control module. The pressure sensor and the CR10 data logger/controller was enclosed inside a portable instrument case. The remainder of the equipment was mounted on each meteorological tower. Appendix B provides a detailed description of the meteorological sampling and data processing protocols.

3.0 SAMPLING AND ANALYSIS

3.1 BACKGROUND

The program's scope of work for sampling and analysis of ambient air quality levels in the vicinity of the Old Bethpage Landfill was principally guided by the NYSDOL Consent Decree. As mentioned in Section 2.0, the EPA reference sampling mechanism was modified to account for site conditions and monitoring requirements. All locations specified in the Consent Order were sampled.

Analytical laboratory equipment provided concentration measurements based on mass loading of specific substrates within the sampling tubes. It was, therefore, important to determine how much pollutant mass was contained in each gaseous sample from each soil gas well and ambient air location. Historical data did not define what specific ambient levels were to be expected, therefore, a portable ambient air and soil gas monitor (Photovac Micro-Tip Total Hydrocarbon Analyzer) having detection ranges down to 0.1 ppm was used in this case to preliminarily define sample loadings.

3.2 AMBIENT AIR SAMPLING

The second year first quarterly 24-hour ambient air sampling event was conducted on October 26 and 27, 1992. Three locations at the Old Bethpage Landfill were selected as illustrated on Figure 2.1. At locations A1 and A4, high volume, 24-hour ambient air samples were collected using the modified VOST sampler. At locations A2 and A3, low volume and high volume 24-hour modified VOST samples were collected. The critical sampling parameters are summarized in Table 3.1.

The sampling trains were partially assembled according to the air sampling protocol presented in Appendix B prior to taking the four ambient air samplers to their respective field locations. The SKC sampling pumps were calibrated, battery packs were charged, both the pumps and battery packs were positioned and connected, aluminum tube holders were positioned, sampling canes were mounted onto the coolers and the inlets to the sampling ports were sealed. The VOST tubes were removed from their protective cases at the sampling sites and then the end caps and fittings were removed. The tubes were installed and the samplers were placed in their respective positions as shown in Figure 2.3. The sampler design for the tests has been described in Section 2.2.

The sampler for location A1 was positioned to the west of the landfill at the Battle Row Campground as shown in Figure 2.1. Sampler A4 was positioned on the north side of the landfill to the south of soil gas well M39. Samplers at both A1 and A4 were set to continuously collect at a 0.7 Lpm nominal flow rate over a 24-hour period. These settings would allow for the collection of two 1,000 liter samples at A1 and A4, respectively. The reason the pump was set at 0.7 Lpm was to place the pump at a sampling rate that was removed from the extreme ends of the pump's operating range which is 0.1 Lpm to 5.0 Lpm while at the same time, collecting a total air volume of approximately

TABLE 3.1

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

Second Year, First Quarter

SUMMARY OF AMBIENT AIR SAMPLING

SITE ID*	SAMPLE ID	TESTING DATE	DURATION (minutes)	SAMPLING HEIGHT (inches)	NOMINAL FLOWRATE (l/min)	DESIRED QUANTITY (liter)	ACTUAL QUANTITY** (liter)
A-1	2-1A1	10/26-27/92	1,408	40	0.7	1,000	1,050
A-2	2-1A2	10/26-27/92	1,421	40	0.7	1,000	1,020
A-3	2-1A3	10/26-27/92	1,422	40	0.07	100	105
A-4	2-1A4	10/26-27/92	1,440	40	0.7	1,000	1,060

SUMMARY OF SUBSURFACE SOIL GAS SAMPLING

SITE ID*	SAMPLE ID	TESTING DATE	DURATION (minutes)	SAMPLING DEPTH (inches)	NOMINAL FLOWRATE (l/min)	DESIRED QUANTITY (liter)	ACTUAL QUANTITY** (liter)
F1	2-1F1	10/26/92	10	30	1.0	10	8.56
M2	2-1M2	10/26/92	10	30	1.0	10	8.65
M4	2-1M4	10/26/92	10	30	1.0	10	8.65
M5	2-1M5	10/26/92	10	30	1.0	10	8.65
M6	2-1M6	10/26/92	10	30	1.0	10	8.70
M9 (10')	2-1M9(10)	10/26/92	10	10 feet	1.0	10	8.71
M9 (20')	2-1M9(20)	10/26/92	10	20 feet	1.0	10	8.71
M9 (30')	2-1M9(30)	10/26/92	10	30 feet	1.0	10	8.71
M9 (40')	2-1M9(40)	10/26/92	10	40 feet	1.0	10	8.71
M13	2-1M13	10/26/92	10	30	1.0	10	8.70
M16	2-1M16	10/26/92	10	30	1.0	10	8.70
M21	2-1M21	10/26/92	10	30	1.0	10	8.70
M22	2-1M22	10/26/92	10	30	1.0	10	8.69
M28	2-1M28	10/26/92	10	30	1.0	10	8.69
M31	2-1M31	10/26/92	10	30	1.0	10	8.66
M34	2-1M34	10/26/92	10	30	1.0	10	8.69
M37	2-1M37	10/26/92	10	30	1.0	10	8.69
M39	2-1M39	10/26/92	10	30	1.0	10	8.69

*See Figure 2.1 for ambient air and soil gas sampling locations.

A1: High volume ambient upwind sample collected at the Battle Row Campground.

A2: High volume ambient downwind sample collected 50 feet southwest of well M5.

A3: Low volume ambient downwind (A2 duplicate) sample collected 50 feet southwest of well M5.

A4: High volume ambient downwind sample collected 100 feet south of well M39.

**Corrected to ambient conditions

1,000 liters over the 24-hour period. Samplers A-1 and A-4 began sampling at 1031 EDT and 0858 EDT on October 26, 1992 respectively.

Samplers A-2 and A-3 were set up southeast of the landfill. Sampler A-3 was set to continuously collect a 1,000 liter integrated sample at 0.7 lpm over the 24-hour period, the same setup as for Samplers A-1 and A-4. Sampler A-2 was set to collect a low volume sample. To achieve this, a sampling manifold was constructed with two (2) SKC single stage universal constant-flow controllers in parallel. A Supelco low flow rotameter was positioned in line with one of the constant-flow controllers downstream of the sorbent traps prior to the SKC pump inlet. The remaining constant-flow controller was opened to atmosphere and connected in parallel with the other flow controller immediately upstream of the SKC pump inlet. The adjustment pod to the constant-flow controller connected to the sorbent traps was turned to register the desired 0.07 Lpm flow rate on the in-line rotameter. The remaining constant-flow controller was adjusted to maintain the total flow to the SKC sampling pump within the operating range mentioned earlier. This would allow for the continuous collection of an integrated 100 liter sample over the 24-hour sampling period. Samplers A-2 and A-3 both began sampling at 0945 EDT on October 26, 1992.

The ambient total VOC concentration was monitored at each site by a Photovac Micro-Tip. Ambient total VOC concentrations were measured to be 0.0 ppm at the initiation at all sampling sites except A4. The initial ambient total VOC concentration at A4 was 1.5 ppm. Based on the above ambient concentrations, flow rates were set at 0.7 Lpm for A1, A3 and A4 and 0.07 Lpm for A2. These rates would achieve the desired range in sample volumes necessary for analytical sensitivity requirements.

Periodic checks were made at the ambient air sampling locations. Pump operations were monitored and VOST train integrity, station flow rates and ice levels in the samplers were checked. In all, each sampler was checked eight to nine times during the 24-hour sampling period. Rotameter readings during these site checks were within established ranges. Sampling proceeded according to plan over the 24-hour sampling periods at all sites.

The final VOC ambient concentrations at all sites were 0.0 ppm except A1 (0.4 ppm) based on the Micro-Tip reading. Pump elapsed run time readings were recorded, VOST traps were removed, and

the condensate (if available) was collected in a Tenax/Charcoal trap. All sorbent trap shipping tubes were labeled and shipped to the analytical laboratory as per the established protocol.

The analytical laboratory for this test was Research Triangle Laboratories (RTL). The laboratory received all sorbent traps in good condition. The laboratory analytical results along with the data observed during the sampling event will be discussed in Section 4.0. A more detailed chronology of the ambient air sampling event is presented in Appendix C. The RTL analytical report is provided in Appendix D. Field data forms and equipment calibrations are provided in Appendix E and F, respectively. Meteorological data is provided in Appendix G.

3.3 SOIL GAS SAMPLING

The soil gas sampling elements of the Consent Decree require soil gas samples to be extracted from several 30" deep subsurface gas wells and from 10', 20' 30' and 40' deep subsurface gas wells at M9. The decree does not specify the sample volume, constituents to be analyzed, time period for collection, conditions for collection, analytical instrumentation, minimum level of detection and other parameters necessary to specifically define the nature of the tests and the applicability of the test results. Based on the elements of the work scope in the Consent Decree, RAP Attachment 2, RTP developed the protocols and procedures as outlined in Section 2.3 of this report and these are presented in Appendix B for all soil gas samples.

The first step in the soil gas test was to assemble the sampling trains. The sampler design is equivalent to that used for the ambient air samples except for the following modifications. The sample probe was modified to include a 36" long, 1/4" diameter, stainless steel probe that was attached to the sampler inlet line in place of the sampling cane. Prior to use, the stainless steel sample probe was heated to purge any oils/VOCs attached to the stainless steel probe. After purging, the probes were capped to prevent inadvertent exposure to trace VOCs. The sampling pump was calibrated and programmed for specific flow rates at each soil gas sampling point based on the total VOC concentrations observed in the well prior to removal of a soil gas sample. Total VOC well concentrations were monitored by the Photovac Micro-Tip.

Soil gas samples were collected at M2, M4, M5, M6, M13, M16, M21, M22, M28, M31, M34, M37, M39, F1 and M9 (10', 20', 30' and 40' depths) as shown on Figure 2.1 and as summarized in Table 3.1. All 30" soil gas wells were temporarily sealed with teflon tape, tygon tubing and a 1/4" open bore bulk head union with a brass screw-on cap prior to the collection of the soil gas samples. M9 wells have individual shut-off valves which were all closed prior to the sampling event. The general procedure of collecting a sample was as follows. The brass screw-on cap was removed from the well. The stainless steel sampling probe attached to the Micro-Tip was inserted into the well to a depth of 26" and sealed from the atmosphere using a teflon screw-on nut and ferrul. The Micro-Tip was turned on and operated for approximately 30 seconds to extract the stagnant well gases. Total VOC well concentrations were monitored continuously. SKC pumps were used to extract stagnant gases from the deep wells. The duration of pump operation at the M9 cluster wells depended on the well depth of each soil gas probe. Since well gas concentrations were not exceptionally high, the sampling pumps during soil gas sample collection were set at a rate of 1.0 Lpm and run for a total of 10 minutes at each well site. This procedure resulted in approximately 10.0 liters of soil gas being drawn through the VOST traps at each well. At the end of the sample, the Micro-Tip was again used to record well concentrations. The VOST tubes were then removed from the train, labelled and packed for shipment to the laboratory. The lines and probe were purged by using sweep air cleaned by a Tenax/Charcoal tube for several minutes prior to sampling the next soil gas well.

A detailed chronology of the soil gas sampling is presented in Appendix C. The RTL analytical report is provided in Appendix D. Field data forms and equipment calibrations are provided in Appendix E and F, respectively. Meteorological data is provided in Appendix G.

3.4 ANALYTICAL LABORATORY PROCEDURES

Prepackaged clean VOST tubes were supplied by Research Triangle Laboratories (RTL) for use in this study. Upon arrival at RTP, the sampling tubes were refrigerated until their use in the field program.

RTL was forwarded a list of the VOCs that were initially identified as the target compound list for this monitoring program. RTL evaluated both Tenax/Charcoal traps from each sample set as a single laboratory run. There did not appear to be a need for separating front half from back half for this

test sequence because of limited concentrations measured by the Micro-Tip. The RTL report is presented in Appendix D. RTL did experience fairly high concentrations of various compounds; predominantly benzene, toluene, tetrachloroethene and xylenes in the high volume VOST ambient air sample A1, A2 and A4. High levels of 1,1,1-trichloroethane were also observed in A1 and A4 and ethybenzene in A2. The three soil gas samples with the highest observed total VOC concentration (Micro-Tip reading), M6, M9(20') and M28, were split prior to analysis in order to minimize GC/MS detector saturation of targeted VOCs. Levels were found low enough to discontinue sample splitting thus maximizing analytical method sensitivity.

High levels of carbon dioxide had, in a few cases, obscured early eluting target compound peaks. To avoid this in future sampling events, RTP will recommend to RTL a MS mass 44 scan delay. The mass 44 scan delay will allow for the analysis of all targeted compounds but may not allow for (semi-)quantitation of tentatively identified compounds with molecular weights less than or equal to 44. The laboratory report (Appendix D) provides a complete description of the analysis of samples. As a result of the scan delay, major data capture and confidence improvements for chloromethane, vinyl chloride, bromomethane, chloroethane and trichlorofluoromethane will be made. Target ketones (acetone, 2-butanone, 2-hexanone and 4-methyl-2-pentanone) will be tentatively identified when detected by using secondary ion matches at the expected retention time. Caution will be given with this ID procedure due to the lack of confirmation ion ratios available. Quantitation of the ketone levels detected would also be considered estimates due to calibrations using the primary ion versus the sample using, in some cases, its secondary ion for identification. Explanations will be provided in the second year, second quarter report as to the individual quantitation technique. It should be noted that any ion ratio quantitation made with a single ion integration is much more accurate than a total ion quantitation as specified by the procedure used to calculate tentatively identified compounds (TICs). Non targeted TICs below mass 45 may be missed. This procedure is deemed acceptable by RTP given the significance of the early eluting compounds versus targeted ketones relative to AGC values and observed first year concentrations.

4.0 DISCUSSION OF RESULTS

4.1 AMBIENT AIR CONCENTRATIONS

For the second year first quarter sampling event at the Old Bethpage Landfill, the ambient air concentrations at selected sites were monitored over a 24-hour period on October 26 and 27, 1992. The sites have been identified and the monitoring and analysis methods are discussed in preceding sections of this report. Laboratory analytical results are translated into ambient air concentrations in this section.

Table 4.1 contains a summary of the analytical results from the air samples collected at the Old Bethpage Landfill. These values are in micrograms per cubic meter (ug/m^3) and have been adjusted for flow volumes as calibrated from the digital flow meter, temperature and barometric pressure. That is, Samples A1, A2 and A4 are adjusted to total sample volumes of 1,050, 1,020 and 1,060 liters, respectively. Sample A3 was a low sample volume trap with flow volume equalling 105 liters. The table includes the lower quantitation limit for each sample. It should be noted that the lower quantification limit for sample A3 is 1.90 ug/m^3 which is 97 times higher than the lower quantification limit for the high volume sample. This, in part, is responsible for the larger number of compounds reported for A2 than A3. VOC concentration differences between A2 and A3 may be due to one or more of the following: variable and/or localized VOC releases, sampler separation of several feet, and analytical inaccuracies inherent with sample splitting (A3 only). All ambient air sample concentrations have been adjusted for trip and field blank concentrations.

As noted in Table 4.1, three VOCs were measured to exceed the level of their assigned current (as of June 1991) annual guideline concentration (AGC) value at both upwind and downwind ambient air sampling locations. These were benzene, carbon tetrachloride and tetrachloroethene. Trichloroethene was also measured in excess of the level of the established AGC at downwind sample A3. The A3 trichloroethene value (4.10) is considered suspect in comparison to sample A1, A2 and A3 and will require additional laboratory data review. Results of this review will be presented in the second year monitoring summary report.

TABLE 4.1

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

Second Year, First Quarter

AMBIENT AIR VOST SAMPLE RESULTS

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE				BLANK		CURRENT	FORMER
SAMPLE IDENTIFICATION*	A1	A2	A3	A4	FB	TB	AGC	AGC
VOC COMPOUND NAME	CONC.	CONC.	CONC.	CONC.	(ng)		(ug/m3)	(ug/m3)
Acetone							14,000	35,600
Benzene	1.52	1.68	2.29	1.51			0.12	100
Bromodichloromethane							0.02	0.03**
Bromoform							12	11.9**
Bromomethane								
2-Butanone	0.0952	0.0735		0.179			300	1,967
Carbon Disulfide							7	100
Carbon Tetrachloride	0.41	0.422		0.396			0.07	100
Chlorobenzene							20	1,170
Chloroethane							63,000	52,000
Chloroform							23	167
Chloromethane	0.0686	>0.0745		>0.132			770	2,100
Dibromochloromethane							0.1	0.03**
1,2-Dichlorobenzene (o)							200	1,000
1,3-Dichlorobenzene (m)	0.238	0.147		0.189			200	714**
1,4-Dichlorobenzene (p)							700**	
1,1-Dichloroethane							500	9,524**
1,2-Dichloroethane							0.039	0.2
1,1-Dichloroethene							0.02	66.7
trans-1,2-Dichloroethene							360	360**
1,2-Dichloropropane	0.0476	0.0500		0.0462			0.15	833**
cis-1,3-Dichloropropene								
trans-1,3-Dichloropropene								
Ethylbenzene	0.790	1.18		0.830			1,000	1,450
2-Hexanone								
4-Methyl-2-Pentanone							480	683
Methylene Chloride	0.305	0.461		0.368			27	1,170
Styrene							510	716
1,1,2,2-Tetrachloroethane							0.02	23.2
Tetrachloroethene	1.71	1.37	2.10	1.51			0.075	1,120
Toluene	>0.781	0.843	6.67	>0.698			2,000	7,500
1,1,1-Trichloroethane	1.24	1.26	3.05	1.23			1,000	38,000
1,1,2-Trichloroethane							0.06	150
Trichloroethene	0.229	0.206	4.10	0.217			0.45	900
Trichlorofluoromethane	0.819	1.04		0.840			700	
Vinyl Chloride							0.02	0.4
Xylenes (Total)	>2.57	>1.27	4.29	1.42			300	1,450

TABLE 4.1
Continued

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

Second Year, First Quarter

AMBIENT AIR VOST SAMPLE RESULTS

TENTATIVELY IDENTIFIED TARGET COMPOUNDS

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE				BLANK		CURRENT	FORMER
SAMPLE IDENTIFICATION*	A1	A2	A3	A4	FB	TB	AGC	AGC
VOC COMPOUND NAME	CONC.	CONC.	CONC.	CONC.	(ng)		(ug/m3)	(ug/m3)
Benzaldehyde								
2-Chloroethyl Vinyl Ether								
cis-1,2-Dichloroethene							1,900	1,880**
Freon 13							530	133,333**
Vinyl Acetate								

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE				BLANK		CURRENT	FORMER
SAMPLE IDENTIFICATION*	A1	A2	A3	A4	FB	TB	AGC	AGC
VOC COMPOUND NAME	CONC.	CONC.	CONC.	CONC.	(ng)		(ug/m3)	(ug/m3)
2,3-Dihydro-1H-Indene	0.514							
2,5-Dimethylhexane	0.495							
4,6-Dimethylundecane		0.863						
Hexane		0.48		1.51			420	
Methylcyclopentane		0.186					8,300	8333**
(1-Methylethyl)Benzene			0.924					
2-Methylheptane				0.434				
2-Methylpentane		0.333					830	
2-Methylhexane	0.886			0.934				
3-Methylpentane		1.37	4.38					
1,1,2-Trichloro-1,2,2-Trifluoroethane		0.784					90,000	90,476**

*Sample Identification: (see Figure 2.1)

A1: High volume ambient upwind sample collected at the Battle Row Campground

A2: High volume ambient downwind sample collected 50 feet southwest of well M5

A3: Low volume ambient downwind (A2 duplicate) sample collected 50 feet southwest of well M5

A4: High volume ambient downwind sample collected 100 feet south of well M39.

FB: Field Blank

TB: Trip Blank

**Proposed Value.

All values are reported as ug/m3 except for field blank (FB) and trip blank (TB) mass loading results reported as nanograms (ng).

Shaded in values exceed current (as of 6/91) and/or previous AGC value.

All blank values are less than the lower quantitation limit. The lower quantitation limit for each sample is:

A1 = 0.0190 ug/m3

A2 = 0.0196 ug/m3

A3 = 1.90 ug/m3

A4 = 0.0189 ug/m3

TABLE 4.2

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX
Second Year, First Quarter
SOIL GAS VOST SAMPLE RESULTS

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Former
LOWER QUANTITATION LIMIT	2.34	2.31	2.31	2.31	27.6	2.30	23.0	2.30	2.30	2.30	2.30	2.30	2.30	20.7	2.31	2.30	2.30	2.30	AGC	AGC
VOC COMPOUND NAME																				
Acetone																			14,000	35,600
Benzene													**2.99**						0.12	100
Bromodichloromethane																			0.02	0.03*
Bromoform																			12	11.9
Bromomethane																				
2-Butanone		2.89																	300	1,967
Carbon Disulfide																			7	100
Carbon Tetrachloride																			0.07	100
Chlorobenzene																			20	1,170
Chloroethane																			63,000	52,000
Chloroform														2.42					23	167
Chloromethane																			770	2,100
Dibromochloromethane																			0.1	0.03*
1,2-Dichlorobenzene (o)																			200	1,000
1,3-Dichlorobenzene (m)																			200	714*
1,4-Dichlorobenzene (p)																			700*	
1,1-Dichloroethane																			500	9,524*
1,2-Dichloroethane																			0.039	0.2
1,1-Dichloroethene																			0.02	66.7
trans-1,2-Dichloroethene																			360	360*
1,2-Dichloropropane																			0.15	833*
cis-1,3-Dichloropropene																				
trans-1,3-Dichloropropene																				
Ethylbenzene																			1,000	1,450
2-Hexanone																				
4-Methyl-2-Pentanone																			480	683
Methylene Chloride																			27	1,170
Styrene																			510	716
1,1,2,2-Tetrachloroethane																			0.02	23.3
Tetrachloroethene	**4.21**			**3.35**				**2.30**	**3.10**	**11.1**	**2.99**		**2.65**					**7.13**	0.075	1,120
Toluene									5.05				7.83						2,000	7,500
1,1,1-Trichloroethane	3.39		4.51	3.47				2.41	4.48	3.79	4.14	3.10	3.80	3.34	2.89	2.42	2.76	3.22	1,000	38,000
1,1,2-Trichloroethane																			0.06	150
Trichloroethene																			0.45	900
Trichlorofluoromethane	85.3	12.7	9.48	5.09	90.8	93.0			8.27		7.93	63.2	2.30	2.42	9.24	2.88	3.22	2.30	700	
Vinyl Chloride																			0.02	0.40
Xylenes (Total)																			300	1,450*

TABLE 4.2
(Continued)

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

Second Year, First Quarter

SOIL GAS VOST SAMPLE RESULTS

TENTATIVELY IDENTIFIED TARGET COMPOUND

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Former
LOWER QUANTITATION LIMIT	2.34	2.31	2.31	2.31	27.6	2.30	23.0	2.30	2.30	2.30	2.30	2.30	2.30	20.7	2.31	2.30	2.30	2.30	AGC	AGC
VOC COMPOUND NAME																				
Benzaldehyde																				
2-Chloroethyl Vinyl Ether																				
cis-1,2-Dichloroethene																			1,900	1,880*
Freon 13																			530	133,333*
Vinyl Acetate																				

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Former
LOWER QUANTITATION LIMIT	2.34	2.31	2.31	2.31	27.6	2.30	23.0	2.30	2.30	2.30	2.30	2.30	2.30	20.7	2.31	2.30	2.30	2.30	AGC	AGC
VOC COMPOUND NAME																				
**																		32.2		
Limonene												2.76								
2-Methylbutane		85.5							60.8							66.7			8,300	8,333
3-Methyl-5-Propylnonane																	3.80			
alpha-Pinene												8.74	53.2					25.3		
2,2,5,5-Tetramethylhexane				2.54																

All values are report in micrograms per cubic meter (ug/m3).
All blank values are less than the lower quantitation limit reported for each sample.
Values in shaded areas exceed current (as of 6/91) and/or previous AGC values.
*Proposed Value
**2,2-Dimethyl-3-Methylenebicyclo[2.2.1] heptane

4.2 SOIL GAS CONCENTRATIONS

Soil gas concentrations were monitored on October 26, 1992 at all selected soil gas well sites identified in the Consent Decree. Table 4.2 provides a summary of the soil gas concentrations at the wells identified above. These concentration values are reported in micrograms per cubic meter (ug/m^3) of soil gas. The table also includes the lower quantitation limit for each sample. All soil gas sample concentrations were adjusted for field blank mass loadings. The shaded values indicate soil gas concentrations that exceed the level of the current (as of June 1991) NYSDEC AGC for ambient air. This single occurrence should not be interpreted as an exceedance of the ambient air guideline.

As noted in Table 4.2, two VOCs (benzene and tetrachloroethene) were measured in excess of the level at the current (as of June 1991) AGC limit at several soil gas well locations. Benzene was found in excess of the level of the current (as of June 1991) AGC at soil gas well M22. Tetrachloroethene levels exceeded AGC limits at soil gas wells F1, M5, M9(30'), M9(40'), M13, M16, M22 and M37. Note that since the lower quantitation limit exceeds several AGCs, other wells may be in violation of benzene and tetrachloroethene and other compounds with low (<2.3 ug/m^3) AGCs. Unfortunately, larger soil gas volumes can not be extracted to improve the lower quantitation limits because of the volume limits within the wells.

5.0 SOIL GAS PRESSURE READINGS

Soil gas pressure levels are to be monitored at three different locations around the perimeter of the gas collection system as specified by the Department of Law. This task is identified in the fifth component of the Consent Decree as shown in RAP Attachment 2 in Appendix A. The objective of monitoring soil gas pressure is to determine the effectiveness of the landfill gas collection system and whether the system needs adjustment or enhancement.

As required by the RAP, pressure readings are to be taken at the following three locations around the perimeter of the gas collection system: (1) northwest of landfill between LGV16 and LGV17 (a new probe), (2) southeast of the landfill between TGV-1 and LGV-9 (a new probe) and (3) south of the landfill at either F-6 or F-9 (existing probes). Figure 2.1 indicates the locations of these three

soil gas pressure wells, PW1, PW2 and PW3, respectively. The RAP also states that pressure readings should be taken on a quarterly basis during the initial year of the program. Soil gas pressure readings will be continued for the second year of monitoring on a quarterly basis.

A quarterly soil gas pressure measurement was conducted on October 28, 1992. A 10 inch inclined manometer, manufactured by Dwyer Instruments, Inc. was used to monitor soil gas pressures at each well. The 0-1 inch inclined portion is divided into 0.01 inch increments with the remaining portion (9-10 inches) marked in 0.1 inch increments. There are two probes at different depths (10' and 20') at each location. Pressure readings were taken from each of the six (6) probes.

The readings were conducted between 1130 EDT and 1228 EDT on October 28, 1992. Table 5.1 provides a summary of the soil gas pressure tests. The readings indicate that most pressure probes were under zero or negative pressure at the time of the test. The lack of negative pressure at PW1 was believed due to non-operational gas collection probes on top of the landfill and a disconnected section (for repair) of the collection system near PW1. The upper well at PW2 had a zero reading, however, it is believed that it may have been flooded with water since a drainage area within 5 feet of the well contained standing water. The lower probe at PW2 had a substantial negative pressure.

TABLE 5.1

OLD BETHPAGE LANDFILL
OYSTER BAY SOLID WASTE DISPOSAL COMPLEX

Second Year, First Quarter

SUMMARY OF SOIL GAS PRESSURE TESTS

SAMPLE ID	DATE (m/d/yr)	TIME (EDT)	WELL ID	WELL LOCATION	WELL DEPTH (feet)	READINGS (INCHES H2O)	SPECIAL NOTES
P1	10/28/92	1130	PW1	NW of landfill by haul road	10	0.00	1
P2	10/28/92	1135	PW1	NW of landfill by haul road	20	+0.04	1
P3	10/28/92	1146	PW2	SE of landfill	10	0.00	2
P4	10/28/92	1148	PW2	SE of landfill	20	-0.035	
P5	10/28/92	1156	PW3	S of landfill inside FTC	10	-0.11	
P6	10/28/92	1157	PW3	S of landfill inside FTC	20	-0.11	
P7	10/28/92	1158	PW3	S of landfill inside FTC	20	-0.11	
P8	10/28/92	1159	PW3	S of landfill inside FTC	10	-0.11	
P9	10/28/92	1208	PW2	SE of landfill	10	0.00	2
P10	10/28/92	1209	PW2	SE of landfill	20	-0.04	
P11	10/28/92	1227	PW1	NW of landfill by haul road	10	0.00	1
P12	10/28/92	1228	PW1	NW of landfill by haul road	20	+0.04	1

FTC - Firemen's Training Center

1- Lack of soil vacuum thought due to non-operational Energy Tactics gas collection wells on top of the landfill and disconnected perimeter collection system in the area of PW1 for repairs (as per Mike Rogers of the Town of Oyster Bay).

2- The upper well (10 feet) at PW2 may have been flooded with water resulting in the zero reading.

APPENDIX A

RAP, ATTACHMENT 2

RAP Attachment 2

OLD BETHPAGE LANDFILL
SUPPLEMENTAL GAS MONITORING PROGRAM

The supplemental landfill gas monitoring program for the Old Bethpage Landfill Remediation Program contains five components. These are 1) the collection of ambient air samples; 2) the collection of subsurface gas samples at a depth of 30"; 3) the collection of subsurface gas samples at depths of 10', 20', 30' and 40'; 4) the collection of thermal oxidizer emission samples (stack testing); and 5) the measurement of gas pressure to ascertain negative pressure created by the gas collection system. These data requirements supplement the existing methane gas monitoring program and will be reported in the annual reports produced under that program.

The location of the proposed sampling points are shown on Drawing No. 1, entitled "Old Bethpage Landfill Zero Percent Methane Gas Migration Contours, 1986 Annual Site Survey". A description of the various components of this program follows.

Ambient Air Samples

Ambient air samples (24 hr. samples) will be collected at three locations around the landfill as shown on Drawing No. 1. One location will be along Winding Road to the east and southeast of the landfill (near M-3 shown on Drawing No. 1). One location will be to the west of the landfill along Round Swamp Road (near M-33). A third location will be north of the landfill (between M-17 and M-22). Samples at these locations will be collected quarterly during the initial year of the program and, if approved by the State, on an annual basis thereafter. Samples will be analyzed for volatile organic compounds.

30" Deep Subsurface Gas Samples

Fourteen subsurface gas samples will be collected at a depth of 30" at the following locations surrounding the landfill as shown on Drawing No. 1: F-1, M-2, M-4, M-5, M-6, M-13, M-16. M-21, M-22, M-28, M-31, M-34, M-37 and M-39. Samples will be collected on a quarterly basis during the initial year of the program and, if approved by the State, on an annual basis thereafter. Samples will be analyzed for volatile organic compounds.

Subsurface Gas Samples at Various Depths

Subsurface gas samples will be collected at depths of 10', 20', 30', and 40' at location M-9 (to be repaired or replaced) shown on Drawing No. 1. Samples will be collected on a quarterly basis during the initial year of the program and, if approved by the State, on an annual basis thereafter. Samples will analyzed for volatile organic compounds.

Thermal Oxidizer Emissions

Thermal oxidizer emissions will be sampled (in the incinerator stack) on a quarterly basis during the initial year of the program. The emissions will be related to oxidizer incinerator temperatures during this initial year of sampling. Thereafter, the oxidizer temperatures will be monitored on a monthly basis to insure that temperatures needed to volatilize the organics are being maintained in the oxidizer. The emissions will continue to be sampled on an annual basis. Samples will be analyzed for volatile organic compounds.

Pressure Readings

Pressure readings will be taken at three locations around the perimeter of the gas collection system to ascertain whether a vacuum is created around the system. This data will assist in monitoring the effectiveness of the system and in determining whether the system needs adjustment or enhancement. One reading will be taken to the south of the landfill at either P-6 or P-9 (existing probes) shown on Drawing No. 1. A new probe will be installed and a reading taken to the northwest of landfill between LGV 16 and LGV 17. The third probe will be installed and a reading taken to the southeast of the landfill between LGV-1 and LGV-9. Pressure readings will be taken on a quarterly basis during the initial year of the program and, if approved by the State, on an annual basis thereafter.

APPENDIX B

MONITORING PROTOCOLS AND SAMPLING EQUIPMENT DESCRIPTIONS

AMBIENT AIR SAMPLING PROTOCOL

1. Obtain pre-conditioned VOST tubes from analytical laboratory and refrigerate with blue ice in the shipping cooler. Prior to testing, inspect the condition of the outer sample holding tube and inner sampling traps and note abnormalities (loose caps, fittings, cracks, Tenax discoloration, etc.).

2. Assemble sampling trains including:
   - o Clean and double rinse coolers with distilled water.
   - o Attach sampling cane.
   - o Calibrate both a high flow (0.70 Lpm) and low flow (0.07 Lpm) Supelco rotameter and set the desired SKC sampling pump flowrate according to manufacturer's specifications.
   - o Attach precalibrated SKC sampling pump and additional battery pack to the exterior of the sampling cooler. For the low flow ambient air sampling train only, attach the two (2) SKC single stage universal flow controllers, in parallel, connecting the pre-set (0.07 Lpm) controller in line with the pump, low flow rotameter and sample line down stream of the sorbent traps.
   - o Install aluminum trap holder and partially fill the cooler (1/4 full) with ice.
   - o Close the cooler lid, cap the sample line inlet and transport the sampling assembly and VOST traps to the selected sampling site.

3. Remove a pair of VOST traps from the shipping container and follow USEPA VOST procedures augmented as follows. Label each trap shipping container with sample number/location. Using precleaned wrenches, install the traps in the modified VOST sampling train.

4. Monitor total VOC concentrations with the portable Photovac Micro-Tip (Micro-Tip) and determine the acceptability of the precalibrated flow rates. Adjust the flow rate according to the Micro-Tip reading. Reading of zero for total VOCs indicates that 1000 liter volume on high flow samples is appropriate. For readings greater than zero, adjust high flow rate sampling interval to accumulate no more than 100 ug of total VOC on a pair of sorbent traps.

5. Perform a system leak check by drawing a vacuum across the entire sampling train by capping the sample inlet. Turn on the pump. Pump failure should occur within 40 seconds. If not, identify and repair the air leak and repeat.

6. Remove cap from sample inlet, start the sampling event by turning on the SKC pump and record the starting time.

7. Examine the pump operation for proper cycling and record rotameter reading, elapsed time, sample location, sample ID and other observations such as Micro-Tip reading, general site conditions, etc.

8. Repeat QA check approximately every four (4) hours. Examine sample lines, ice level, pump operation, note all changes and significant events. Note elapsed and clock times for each observation.

9. At the conclusion of 24-hour sampling period, record sample elapsed and clock times and check sample lines, ice levels, Micro-Tip reading and record observations in the field log. Perform a system leak check as per Item 5 above and note results.

10. Open the sampler lid and remove VOST shipping tubes from the storage/shipping container. Remove the VOST traps, from the sampling train, wrench tighten VOST caps and place in the pre-labeled (Item 3) shipping tubes. Remove the impinger trap, pour contents into a clean septum vial and top off with HPLC water. Label and place in storage/shipping container. Place the VOST shipping tubes in an air freight container with manifest.

11. Disassemble the sampling trains, clean and return to storage.

12. Send the sampling traps and vials to laboratory for analysis.

SOIL GAS SAMPLING PROTOCOL

Follow procedures defined in the ambient air sampling protocol with the following exceptions.

1. Inspect all soil gas wells for damage and/or leaks and cap. Assemble a soil gas sampling probe consisting of a precleaned stainless steel tube and teflon sampling line and substitute for ambient air probe calibrate a high flow (1.0 Lpm) supelco rotameter.

2. Transport the sampling tubes and sampling train to the field sampling locations.

3. Record the well site ambient VOC reading.

4. Remove the cap from sampling well, insert sampling probe connected to the Micro-Tip and draw sufficient volume of sample to clear lines and sampling probe and well. Record the average and highest VOC reading during line clearing procedure by using the Micro-Tip.

5. Using the last recorded VOC value, determine the sample volume that would effectively place 10 to 100 ug of total VOC's into the VOST traps.

6. Remove the VOST trap pair from the shipping container, label trap and shipping container with sample number and location. Reconnect the soil gas sample probe to the modified VOST unit.

7. Turn on the sampling pump with a 0.5 Lpm to 1.0 Lpm sample rate for 10 minutes if the Micro-Tip reading is zero or for calculated sampling rate and interval if the Micro-Tip provides a non-zero result. Record the starting time and any abnormalities onsite.

8. Record the sampling ending time/rotameter reading. Turn off pump. Record the ambient total VOC reading at the end of the test.

9. Remove the sample VOST traps as per the ambient air sampling procedure.

10. Monitor the soil gas concentration in the well and record the result at end of the test. If greater than the initial total VOC value, submit supplemental data to laboratory regarding special handling instructions. be explicit on volumes and likely concentrations.

METEOROLOGICAL MONITORING PROTOCOL

1. Establish the weather conditions appropriate for conducting the ambient air and soil gas survey. (Falling atmospheric pressure, steady wind direction over 24-hour period, rainfall less than 30 percent chance).

2. Assemble the precalibrated field meteorological equipment including counterbalanced wind vane, three-cup anemometer, temperature sensor, solid state barometric pressure sensor, precipitation gauge, and a fully programmable CR10 data logger and control module onsite. Select the sites representative of general area circulation patterns.

3. Perform proper alignment checks and begin operation.

4. Record data in 15 minute block averages and translate to hourly values for a period preceding test and during entire ambient air and soil gas survey.

5. Recheck alignments and reasonableness of values at the end of test period and remove equipment. Note all problems/conditions that could influence data accuracy, quality or test results.

6. Prepare a data base in a format suitable for inclusion in the ambient air/soil gas survey.

VOST SAMPLE TRAIN

A volatile organic sampling train (VOST) similar to USEPA SW-846 Method 0030 was constructed for ambient and ground well measurements of volatile organic compounds (VOCs). The Tenax/Charcoal traps were supplied and analyzed by Research Triangle Laboratories.

The sample train was enclosed in a thermally insulated container with the inlet line and exhaust (vacuum) pump mounted externally.

A 1/4" O.D. teflon tube served as the inlet line. It was connected to the glass open end of the first Tenax/Charcoal trap through a segment of Tygon tubing (1.0"). The other end of the trap was attached to a condensate impinger, whose dry outlet was connected to another Tenax/Charcoal trap (the "Breakthrough" trap) via Tygon tubing (1.0"). The exhaust of this trap exited through Tygon tubing to the sample pump.

The condensate impinger was immersed in an ice water bath during sampling.

MICRO-TIP HL200
CALIBRATION AND USE

The Micro-Tip is a hand held analyzer that measures the total concentration of all ionizable chemicals present in the sample. It does not differentiate between individual pollutants.

Prior to use for measuring ambient air and well VOC concentrations, the unit was calibrated. Procedures used are detailed in Chapter 6.3 of the Micro-Tip Users Manual, published by PhotoVac International, Incorporated, 741 Park Avenue, Huntington, New York 11743-9969.

Charcoal filtered ambient air was used as the zero gas. 102 PPM of Isobutylene was employed as the span gas. The HL200 has internal computing capacity to identify zero and span points and make necessary slope adjustments to correct observed values automatically.

SKC Model 224-PCXR7
UNIVERSAL SAMPLE PUMP

The pumps used for sampling were electronically flow-controlled to +/- 5% of the set point constant flow. They have automatic shutdown for low battery voltage, pinched hose, or excess back pressure. (See Operating Instructions Universal Sample Pump MOD 224-PCXR7 published by SKC, Inc. National Service Center, 334 Valley View Road, Eighty Four, PA. 15330).

For air samples, the high flow units were programmed to sample continuously for 1,440 minutes at 0.70 Lpm (nominal). A GEL CEL battery was connected in parallel to the pump battery to provide sufficient power for the 24-hour period. The planned sample was 1,000 liters. Low flow samplers were scheduled to run continuously for the 1440 minute test period. The desired total sample volume was 100 liters.

Pre-calibrated Supelco rotameters were used for visual flow checks during sampling. The Supelco rotameters were calibrated using an electronic flow calibrator.

For soil gas samples, the pumps were programmed to sample at approximately 1.0 Lpm for 10 minutes.

The pump setting for both ambient air and soil samples are well within the dynamic range of the sampling units when using the VOST traps.

PUMP CALIBRATOR

An SKC Model 712 Electronic Calibrator (Digital Film Flowmeter) was used to pre-calibrate the nominal flow rate for all Supelco rotameters for field use in determining the pump flow rates during sample collection.

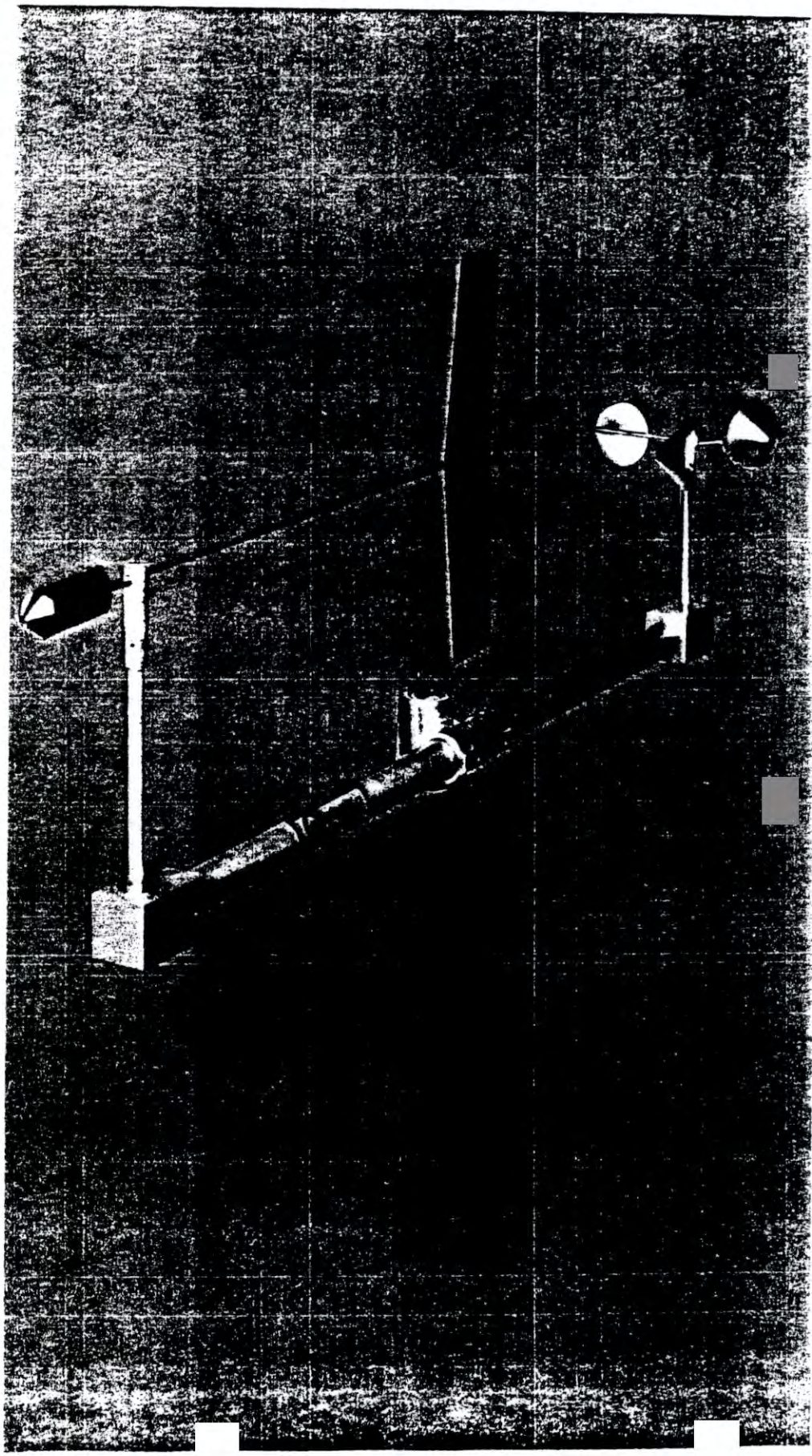
The digital film flow meter is provided with a micro-processor that calculates the flow rate based on bubble meter diameter and elapsed time of passage between two photo-sensor lines. Accuracy for both the pump calibrator and Supelco rotameter is stated at +/- 2%.

The operator calibrated the Supelco rotameters prior to the test. A pre and post calibration and a comparison check on the rotameters was completed.

CLIMATRONICS CORPORATION

Wind Mark III Wind Sensors

- **Low Threshold**
- **Low Cost**
- **Low Power CMOS Design**
- **Lightweight**
- **Optional External Heaters**



Climatronics' Wind Mark III (WM-III) Wind Sensors combine accuracy and reliability with low cost.

The WM-III sensors meet Environmental Protection Agency's (EPA) Prevention of Significant Deterioration (PSD) requirements. They are also well suited for general wind monitoring applications.

Wind speed is sensed by a three-cup anemometer and is converted to an electrical signal by a 20-hole photochopper, which uses a solid state light source for maximum reliability. Wind direction is sensed by a counterbalanced wind vane coupled to a precision, low-torque potentiometer. Both the wind speed and wind direction sensors use stainless steel precision ball bearings for maximum life and low threshold. Traceability to NBS is available as an option for each anemometer cup assembly by comparison testing against an NBS transfer standard in our wind tunnel test facility.

The sensors and their crossarm are an integral unit. The prewired crossarm mounts on a 3/4-inch IPS vertical pipe stub (1.05 inch O.D.). Orientation of the crossarm is along an East-West plane.

Optional external heaters for both sensors are available. These heaters consume approximately 40 watts of power and are thermostatically controlled.

The WM-III sensor is also available as a wind speed only (P/N 100108-1) or wind direction only (P/N 100108-2) instrument.

Recently, an improved, ruggedized aluminum cup (P/N 101286) and magnesium vane (P/N 101292) combination has been made part of the WM-III sensor package. The original stainless steel cups (P/N 100160) and vinylclad vane (P/N 100107) can still be provided as options. To safely transport the WM-III sensors with cups and vane, a transit case (P/N 100255) is available.

Signal conditioners for the WM-III sensors are available in modular form with a variety of full scale ranges, engineering units, outputs, and several other options. Please consult the Modular Meteorological System (MMS) and the Remote Meteorological System (RMS) bulletins for more details.

The WM-III sensors are standard equipment in the Utility Wind System and the Electronic Weather Station (EWS). Please consult these bulletins for additional information.

SENSOR SPECIFICATIONS

PERFORMANCE	WM-III WIND SPEED	WM-III WIND DIRECTION
Accuracy	±0.11 m/s (0.25 mph) or +1.5%	±3°
Threshold	< 0.45 m/s (< 1.00 mph)	< 0.45 m/s (< 1.00 mph)
Distance Constant	4.6m (15.0 ft.) of air max. 2.4m (8.0 ft.) of air max.-optional	4.6m (15.0 ft.) of air max. 2.4m (8.0 ft.) of air max. - optional
Damping Ratio		0.4 to 0.6 at 10° initial angle of attack
Operating Range	0-55 m/s (0-125 mph)	0° to 360° — mechanical 0° to 355° — electrical

ELECTRICAL SPECIFICATIONS

Signal Output	Nominal 2.0 Vpp into 4.7 K ohm, frequency proportional to wind speed, amplitude dependent on supply voltage	Variable DC voltage, magnitude proportional to wind direction.
Power Requirements*	6-12 Vdc at 1 mA nominal	Max. 5 mA through 2 K ohms

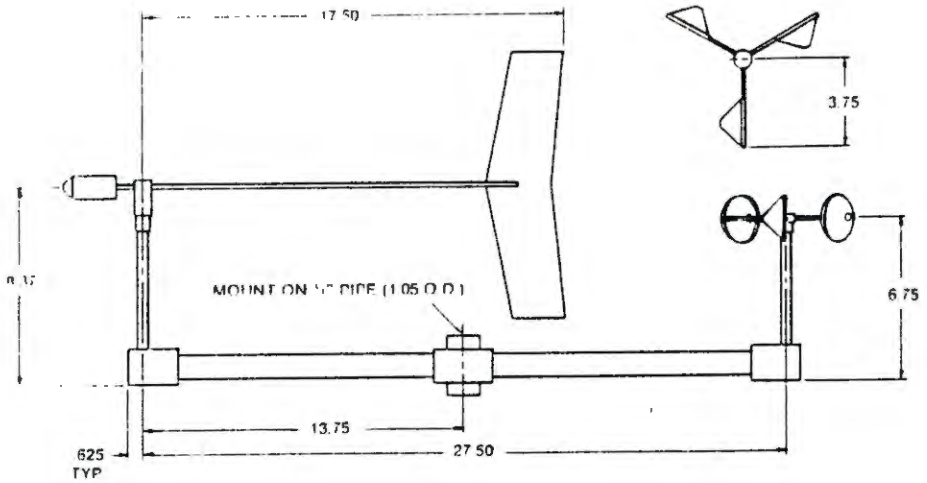
*Proper power provided by Climatronics' signal conditioner.

PHYSICAL SPECIFICATIONS

Weight	Less than 0.9 kg. (2 lbs.)	Less than 0.9 kg. (2 lbs.)
Turning Radius	9.5 cm (3.75 inch)	41.9 cm (17.5 inch)
Operating Temperature	-40° to 60° C (-40° to 140° F)	-40° to 60° C (-40° to 140° F)
Use with Signal Conditioner	P/N 100161 (MMS) P/N 100778 (RMS)	P/N 100161 (MMS) P/N 100779 (RMS)

SENSOR HEATER SPECIFICATIONS

Power Requirements	115 Vac; 60 Hz. 20 Watts per sensor	(P/N 101234)



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CLIMATRONICS CORPORATION

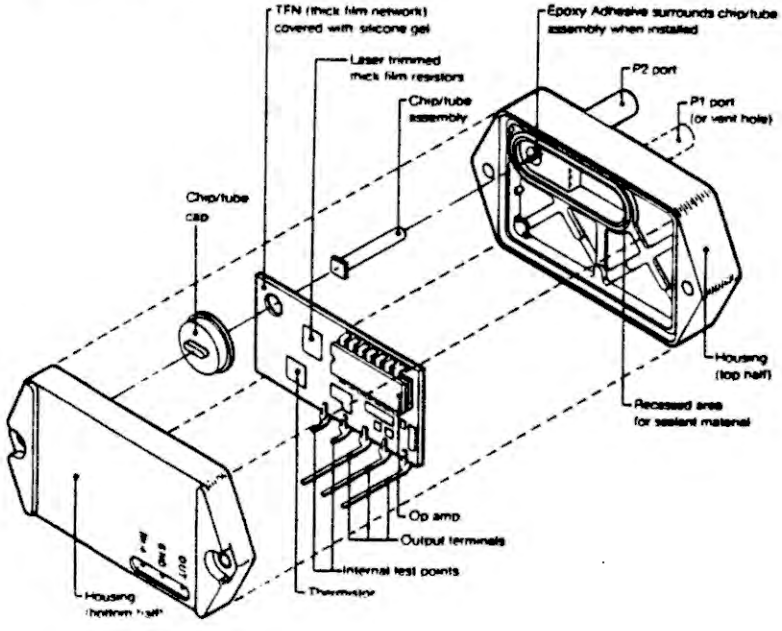
SOLID-STATE BAROMETRIC PRESSURE SENSOR

Climatronics' Solid-State Barometric Pressure Sensor (P/N 101448) uses a piezoresistive device to measure atmospheric pressure and is ideally suited to applications requiring exact measurement of pressure where the benefits of repeatability, low hysteresis and long-term stability are important. It offers state-of-the-art benefits of hybrid IC devices, including compactness, ruggedness, and reliability. Internal circuitry provides temperature compensation as an integral part of each device and is optimized on each unit as part of the calibration procedure.

The heart of the Solid-State Barometric Pressure Sensor is a small, square silicon chip with an integral sensing diaphragm and implanted piezoresistors. Pressure applied on the diaphragm causes it to flex, inducing a stress or strain in the buried resistors. The resistor values will change depending on the amount of pressure applied to the diaphragm. By providing a precisely-controlled reference voltage to the sensor's resistive network, an output voltage signal is produced which is proportional to the ambient pressure. Because of the unique construction, this output is very predictable, providing an ideal sensing element for barometric pressure sensors.

The range of this Solid-State Barometric Pressure Sensor is 600-1100mb. It can be used with Climatronics' modular signal conditioners or interfaced directly to a Remote Terminal Unit (RTU) for direct digital data acquisition.

EXPLODED VIEW



SPECIFICATIONS

Range	600mb to 1100mb (17.72" Hg. to 32.48" Hg.)
Accuracy (includes temperature, coefficient, hysteresis, and linearity)	±1.5mb
Resolution	Infinite
Temperature Range	
Compensated	-18°C to 63°C (0°F to 145°F)
Operating	-40°C to 85°C (-40°F to 185°F)
Elevation Range	Sea Level to 14,000 ft. Sea Level to 4265m
Input Voltage	+12 Vdc (nominal)
Output Voltage	1 to 5 Vdc
Power Required	0.18 Va
Size - Sensor	3"L x 2"W x 1½"H
Enclosure (Optional)	7 1/8"L x 4⅛" W x 5 1/8" H

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SENSOR SPECIFICATIONS — P/N 100108

	WM-III Wind Speed	WM-III Wind Direction
Performance	(P/N 100108-1)	(P/N 100108-2)
Accuracy	±0.11 m/s (0.25 mph) or +1.5%	±2°
Threshold	0.34 m/s (0.75 mph)	0.34 m/s (0.75 mph)
Distance Constant	4.6m (15.0 ft.) of air max. 2.4m (8.0 ft.) of air max. - optional	4.6m (15.0 ft.) of air max. 2.4m (8.0 ft.) of air max. - optional
Damping Ratio		0.4 to 0.6 at 10° initial angle of attack
Operating Range	0-55 m/s (0-125 mph)	0° to 360° — mechanical 0° to 540° — electrical

ELECTRICAL SPECIFICATIONS

Signal Output	Nominal 2.0 Vpp into 4.7 K ohm, frequency proportional to wind speed, amplitude dependent on supply voltage	Variable DC voltage, magnitude proportional to wind direction
Power Requirements	6-12 Vdc at 1 mA* nominal	Max. 5 mA through 2 K ohms*

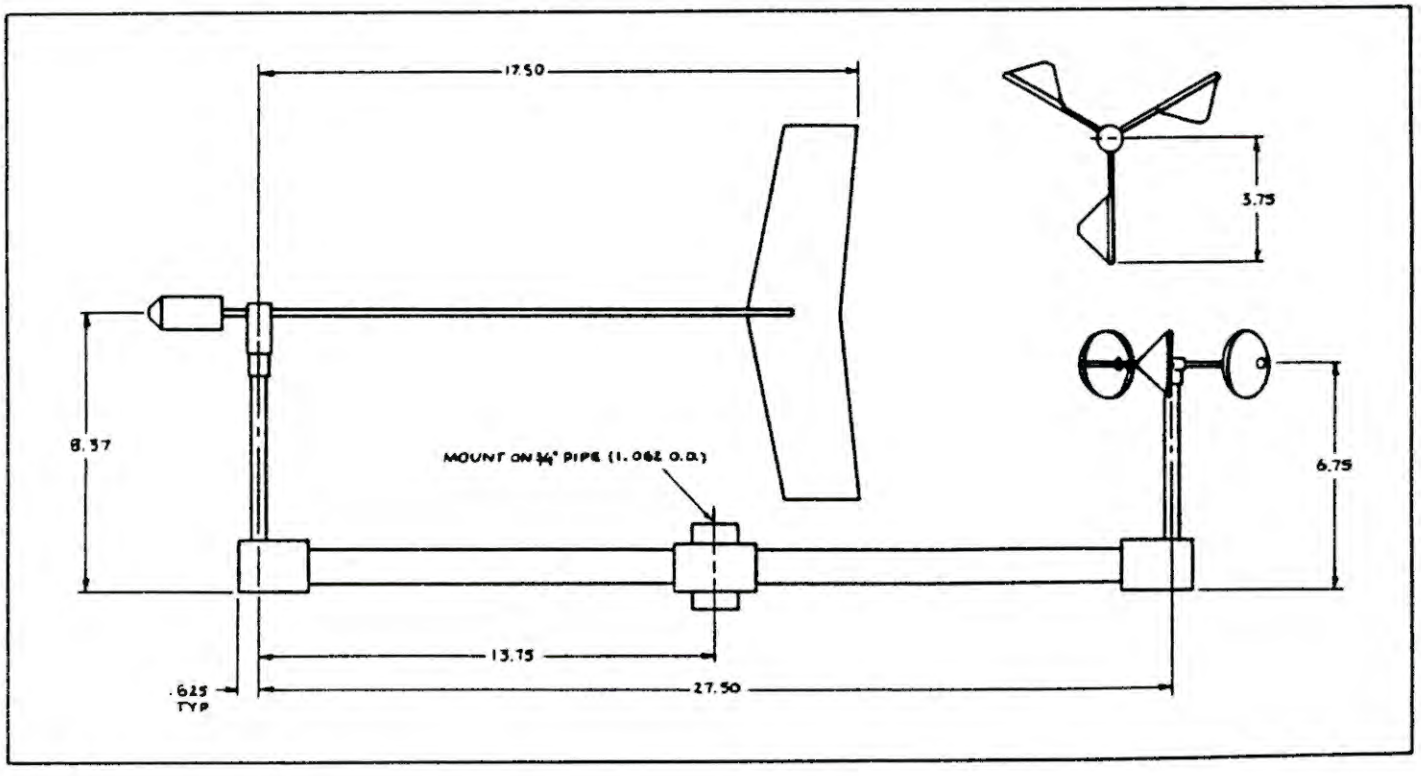
*Proper power provided by translator module.

PHYSICAL SPECIFICATIONS

Weight	Less than 0.9 kg. (2 lbs.)	Less than 0.9 kg. (2 lbs.)
Turning Radius	9.5 cm (3.75 inch)	41.9 cm (16.5 inch)
Operating Temperature	-40° to 60° C (-40° to 140° F)	-40° to 60° C (-40° to 140° F)
Use with Translator	P/N 100163 (MMS) P/N 100778 (RMS)	P/N 100163 (MMS) P/N 100779 (RMS)

SENSOR HEATER SPECIFICATIONS

Power Requirements	P/N 101235 115 Vac; 60 Hz, 40 Watts per sensor



CLIMATRONICS CORPORATION

IMP-860 DATALOGGER

- o Direct sensor inputs
- o Control outputs
- o User programmable
- o Built-in data instruction set
- o Large internal data storage
- o Solid-state data cartridges
- o Phone line, dedicated line or radio telemetry
- o PC compatible
- o Low power
- o Choice of enclosures
- o Built-in surge protection

The IMP-860 Datalogger is an extremely versatile, state-of-the-art, digital data acquisition system designed for environmental monitoring applications. It can function as a remote, stand-alone station or can be operated with a central computer either by itself or in a network with other units.

Sensor inputs are accepted directly by the IMP-860, thereby eliminating the need for additional signal conditioning equipment. The signals will be processed as necessary, computations will be performed as required, and the data will be stored in internal memory for later retrieval by a remote computer or on a removable storage medium for manual retrieval.

User programming of the IMP-860 is easily accomplished using either an IBM PC-compatible computer or an operational, portable keyboard/display unit. A comprehensive set of programming instructions is included which allows a multitude of calculations to be performed on any desired channel, including interactions between channels. A standard program is available and can be modified by the user at any time.

The following electrical specifications are valid for an ambient temperature range of -25 °C to +50 °C unless otherwise specified.

ANALOG INPUTS

NUMBER OF CHANNELS: 12 single ended or 6 differential with any combination, software selectable.

CHANNEL EXPANSION: Increments of 32 channels multiplexed through a single **IMP-860** channel with the Model **CAM32 Relay Scanner**. **Maximum of 6 CAM32s possible.**

ACCURACY OF VOLTAGE MEASUREMENTS AND ANALOG OUTPUT VOLTAGES: 0.2% of FSR, 0.1% of FSR (0 to 40 °C).

RANGE AND RESOLUTION: Ranges are software selectable for any channel. Resolution for single ended measurements is twice the value shown.

Full Scale Range	Resolution
±2.50 volts	333. microvolts
±0.25 volts	33.3 microvolts
±25.0 millivolts	3.33 microvolts
± 7.5 millivolts	1.00 microvolts
± 2.5 millivolts	0.33 microvolts

INPUT SAMPLE RATES: The fast or slow A/D conversion uses a 250 us or 16.666 ms signal integration time (16.666 ms is one AC power line cycle). Differential measurements include a second sampling with reversed input polarity to reduce thermal offset and common mode errors. Input sample rates are the time required to measure and convert the result to engineering units. Times do not include the self-calibration measurement which occurs once per instruction.

Fast single ended voltage: 2.4 ms
Fast differential voltage: 3.7 ms
Slow single ended voltage: 18.8 ms
Slow differential voltage: 37.0 ms
Fast dif. thermocouple: 8.3 ms

INPUT NOISE VOLTAGE:
Fast differential — 0.83 microvolts RMS
Slow differential — 0.10 microvolts RMS

COMMON MODE RANGE: ±2.5 volts.

DC COMMON MODE REJECTION: >140 dB.

NORMAL MODE REJECTION: 70 dB (60 Hz with slow differential measurement).

INPUT CURRENT: 3 nanoamps max.

INPUT RESISTANCE: 200 gigohms.

EXCITATION OUTPUTS

DESCRIPTION: The **IMP-860** has 3 switched excitations, active only during measurement, with only one output active at any time. The off state is high impedance.

RANGE: ±2.5 volts.

RESOLUTION: 0.67 millivolts.

ACCURACY: Same as voltage input.

OUTPUT CURRENT: 20 mA @ ± 2.5 V, 35 mA @ ± 2.0 V, 50 mA @ ± 1.5 V.

FREQUENCY SWEEP FUNCTION: A swept frequency square wave output between 0 and 2.5 volts is provided for vibrating wire transducers. Timing and frequency range are specified by the instruction.

PERIOD AVERAGING MEASUREMENTS

DEFINITION: The time period for a specified number of cycles of an input frequency is measured, then divided by the number of cycles to obtain the average period of a single cycle.

INPUTS: Any single ended analog channel with configuration defined in the user program. Signal dividing may be required to eliminate interference with measurements on adjacent channels.

INPUT FREQUENCY RANGE:

Range Code	Preamp Gain	Input Hysteresis	Maximum Frequency
4	1	10 mV	200 kHz
3	10	1 mV	50 kHz
2	33	300 uV	20 kHz
1	100	100 uV	8 kHz

REFERENCE ACCURACY: ±20 ppm.

RESOLUTION: ±60 nanoseconds divided by the number of cycles measured. Resolution is reduced by signal noise and for signals with a slow transition through the zero voltage threshold.

TIME REQUIRED FOR MEASUREMENT: Signal period times the number of cycles measured plus 1.5 cycles; minimum measurement time is 2 ms.

RESISTANCE AND CONDUCTIVITY MEASUREMENTS

ACCURACY: 0.015% of full scale bridge output, limited by the matching bridge resistors. The excitation voltage should be programmed so the bridge output matches the full scale input voltage range.

MEASUREMENT TYPES: 6 wire and 4 wire full bridge; 4 wire, 3 wire, and 2 wire half bridge. Bridge measurements are ratiometric and dual polarity to eliminate thermal emf's. AC resistance measurements use a dual polarity 750 us excitation pulse for ionic depolarization, with the signal integration occurring over the last 250 us.

PULSE COUNTERS

NUMBER OF PULSE COUNTER CHANNELS: 2 eight bit or 1 sixteen bit selectable.

MAXIMUM COUNT RATE: 2000 Hz, eight bit counters; 250 kHz, sixteen bit counters. Pulse counter channels scanned at 8 Hz.

MODES: Switch closure, high frequency pulse, and low level AC.

SWITCH CLOSURE MODE
Minimum Switch Closed Time: 5 ms.
Minimum Switch Open Time: 6 ms.
Maximum Bounce Time: 1 ms open without count.

HIGH FREQUENCY PULSE MODE
Minimum Pulse Width: 2 us.
Maximum Input Frequency: 250 kHz.
Voltage Thresholds: Count upon transition from below 1.5 V to above 3.5 V.
Maximum Input Voltage: ±20 V.

LOW LEVEL AC MODE
(Typical of magnetic pulse flow sensors, selected anemometers, etc.)

Min. AC Input Voltage: 6 mV RMS.
Input Hysteresis: 11 mV.
Max. AC Input Voltage: 20 V RMS.

Frequency Range:

AC Input (RMS)	Range
20 millivolts	1 Hz to 100 Hz
50 millivolts	0.5 Hz to 400 Hz
150 millivolts to 20 V	0.3 Hz to 1000 Hz

(Consult factory if higher frequencies are desired.)

DIGITAL I/O PORTS

8 ports, software selectable as binary inputs or control outputs.

OUTPUT VOLTAGES (no load):
high — 5 V ± 0.1 V; low — < 0.1 V.

OUTPUT RESISTANCE: 500 ohms.

INPUT STATE: high — > 3 V; low — < 0.8 V.

INPUT RESISTANCE: 100 kohms.

TRANSIENT PROTECTION

All input and output connections to the **IMP-860** module are protected using RC filters or transzorbs connected to a heavy copper bar between the circuit card and the case. The **IMP-860** Wiring Panel includes additional spark gap and transzorb protection.

CPU AND INTERFACE

PROCESSOR: Hitachi 6303.

MEMORY: 32k ROM, 16k RAM expandable to 64k.

DISPLAY: 8 digit LCD (0.5" digits).

PERIPHERAL INTERFACE: 9 pin D-type connector for keyboard/display, storage module, cassette, modem, printer, and RS232 adapter. Baud rates selectable at 300, 1200, 9600, and 76,800.

CLOCK ACCURACY: ±1 minute per month.

MAXIMUM PROGRAM EXECUTION RATE: System tasks initiated in sync with real-time up to 64 Hz. One measurement with tape transfer is possible at this rate without interruption.

SYSTEM POWER REQUIREMENTS

VOLTAGE: 9.6 to 16 volts.

TYPICAL CURRENT DRAIN: 0.5 mA quiescent, 13 mA during processing, and 35 mA during analog measurement.

BATTERIES: 7.5 Ahr alkaline D-cells or 5 Ahr rechargeable lead acid batteries, standard.

PHYSICAL SPECIFICATIONS

SIZE: 7.8" x 3.5" x 1.5"; 9" x 3.5" x 2.9" with **IMP-860** Wiring Panel. Input connectors extend length 0.15".

WEIGHT: 2 lbs.

WARRANTY

Two years against defects in materials and workmanship.

CLIMATRONICS CORPORATION

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CLIMATRONICS CORPORATION

PRECIPITATION GAUGES

- RELIABLE AND ACCURATE
- TIPPING AND WEIGHING BUCKETS
- ENGLISH OR METRIC MEASURE
- OPTIONAL ELECTRIC/PROPANE HEAT

Climatronics offers a variety of precipitation gauges, which are all accurate and durable. Models are available for both AC and DC powered systems, with or without heaters.

Tipping Bucket Gauges are available with screened funnels of 6 or 8-inch diameter. Precipitation is channeled to a triangular bucket which tips for every 0.01 inch of water collected. When the bucket empties it activates a sealed reed switch; which sends an event message to the signal conditioner. Upon tipping, the accumulated water is drained.

Both tipping bucket sensors can be provided with optional electric heaters for AC powered systems. In addition, the 8 inch version can accommodate a propane heater for DC powered systems. The heaters prevent data loss during freezing conditions and melt snow so the water content may be measured by the tipping bucket. Either type of gauge is easy to install; requiring a level piece of ground that is free from obstruction. Signal conditioners are available in modular form with an input range of 0-1 inch (0-2.5 cm) or 0-10 inch (0-25 cm), corresponding standard output ranges of 0-1 or 0-5 Vdc.

A wind shield is available to prevent undue turbulence near the sensor funnel, insuring a representative data capture.

SENSOR SPECIFICATIONS

	*6" Tipping Bucket P/N 100508	**8" Tipping Bucket P/N 100097
ACCURACY	±1% up to 7.5 cm/hr (3 inch/hr.) ±5% up to 25 cm/hr (10 inch/hr)	±3% for rain rates of 2.54 to 15.24 cm/hr (1 to 6 inch/hr.)
RESOLUTION (Sensitivity)	0.025 cm (0.01 in.)	0.025 cm (0.01 in.)

ELECTRICAL SPECIFICATIONS

	*6" Tipping Bucket P/N 100508	**8" Tipping Bucket P/N 100097
POWER REQUIREMENTS (Without Heat)	[1] None	[1] None
OUTPUT	Switch Closure	Switch Closure
CONTACT RATING	2 amps @ 12 Vdc	3 amps @ 50 Vdc

PHYSICAL SPECIFICATIONS

	*6" Tipping Bucket P/N 100508	**8" Tipping Bucket P/N 100097
SIZE	26.0 H x 15.9 cm Dia. (10.25 H x 6.25 in Dia.)	46.3 H x 20.3 cm Dia. (18.25 H x 8 in Dia.)
WEIGHT	1.1 Kg (2.5 lbs)	11.4 Kg (25 lbs)
OPERATING TEMPERATURE (Heated)	-40°C to +60°C (-40°F to +140°F)	-40°C to +60°C (-40°F to +140°F)
USE WITH SIGNAL CONDITIONER	P/N 100747 (MMS) P/N 100840 (RMS)	P/N 100747 (MMS) P/N 100840 (RMS)

[1] Power supplied by Signal Conditioner
* Electric Heat Available, 40 watts
** Electric and Propane Heat Available (Electric Heat, 200 watts)

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APPENDIX C

CHRONOLOGY
AMBIENT AIR AND SOIL GAS SAMPLING EVENTS

CHRONOLOGY - AMBIENT AIR SAMPLING

SAMPLE 2-1A1

- OCTOBER 26, 1992

Started sampler A-1 using pump B and sampling unit #1 at 1031 EDT. The nominal flow rate was 0.7 liters per minute (Lpm). The sampler was programmed to run 1440 minutes continuously for 24 hours. The sampling location was A1 as shown in Figure 2.1. This location is outside the landfill property at an open area on the east end of the Battle Row Campground. The Campground is located west of the landfill. This was an upwind high volume (1,000 liter) sample. The initial ambient VOC concentration was 0.0 ppm, and the initial rotameter reading was 85 units. A leak check was performed before sampling, and no leak was found. A maximum and minimum thermometer was set inside the sampler to record the temperature change.

Checked rotameter readings at 1318 EDT, 1720 EDT and 2142 EDT, the readings were 90 units, 88 units and 89 units, respectively. The recorded total elapse times were 167 minutes, 408 minutes and 670 minutes, respectively. The operator observed medium to high wind speed gusts and noted them in the data sheet.

- OCTOBER 27, 1992

The operator checked the sampler three times (0138 EDT, 0642 EDT, and 0959 EDT) and the rotameter readings were at 89, 87 and 92 units with the total elapse times of 906, 1210 and 1408 minutes, respectively. The pump operation was normal during the whole sampling period. No unusual events were noted. The sampler was removed from service at 1031 EDT with the total elapse time of 1440 minutes. The ambient VOC reading was 0.4 ppm. The recorded maximum temperature inside the sampling cooler was 52°F.

SAMPLE 2-1A2

- OCTOBER 26, 1992

Sampler A-2 began sampling at 0945 EDT. Pump C was used along with sampling unit #2. the sampling location was A2 which is southeast of the landfill and west of the soil gas well M5. The nominal flow rate was 0.7 Lpm. The initial rotameter reading was 85 units. The pump was programmed to run 24 hours continuously to collect a 1000 liter sample. The ambient VOC concentration was 0.0 ppm prior to sampling. A maximum and minimum thermometer was set inside the sampler to measure the maximum and minimum temperatures during the sampling period. The leak check was approved before the sampler was started. Operators sensed an odor during the set-up. The on-site wind flag showed a generally northwesterly wind. This was a high volume, downwind ambient sample.

Rotameter readings were checked again at 1145 EDT, 1311 EDT, 1521 EDT and 1736 EDT. The rotameter readings were all 88 units.

Checked the sampler again at 2133 EDT, rotameter reading was 87 units. No unusual events were noted.

- OCTOBER 27, 1992

Inspected A-2 at 0127 EDT, 0633 EDT and 0929 EDT. No problems were noted. Rotameter readings were at 85, 85 and 90 units, respectively. The sampler was removed from service according to the established protocol at 0948 EDT with a total elapse time of 1443 minutes. The ambient VOC concentration was 0.0 ppm. The recorded maximum temperature within the A-2 sampler was 50°F. Operator observed a landfill employee cutting the grass around the sampling site when taking the sampling unit down.

SAMPLE 2-1A3

- OCTOBER 26, 1992

The A-3 sampler was started at 0945 EDT with pump #4 and sampling unit #3. This was a low volume, downwind sample. The nominal flow rate was 0.070 Lpm and the nominal sample volume was 100 liters. The sample location was also southeast of the landfill, approximately two feet from sampler A-2. The initial ambient VOC concentration was 0.0 ppm. The initial rotameter reading was 50 units. A leak check was performed before the sampler was started and all connections were leak free.

Sampler A-3 was inspected again at 1144 EDT, 1310 EDT, 1519 EDT and 1737 EDT. No problems were found. The rotameter reading was 52 units during each observation. The operator checked the sampler again at 2132 EDT, the rotameter reading was 51 units.

- OCTOBER 27, 1992

Checked A-3 sampler at 0125 EDT, 0631 EDT, and 0926 EDT. The rotameter indicated readings of 51 units. Checked the sampler again at the end of sampling; all connections were in order. The sampler was removed from service at 0944 EDT according to the established protocol with a total elapse time of 1399 minutes. The final ambient VOC reading was 0.0 ppm. The recorded maximum temperature inside the sampler was 52°F.

SAMPLE 2-1A4

- OCTOBER 26, 1992

Sampler A-4 was positioned northeast of the landfill, southwest of the landfill water treatment facility, as shown on Figure 2.1. This was a second upwind high volume sample. Sampling was started at 0858 EDT. Pump D was programmed to run at a nominal flow rate of 0.7 Lpm for 1440 minutes over 24 hours to collect 1000 liters of sample. Sampling unit #4 was utilized. A leak check was performed before the sampler was started and no leakage was observed. Maximum and minimum thermometer was placed inside the sampler. The rotameter reading was 85 units at the beginning of the test. Micro-Tip meter indicated an

initial ambient VOC concentration of 1.5 ppm.

Sampler A-4 was inspected again at 1305 EDT, 1514 EDT, 1725 EDT, 1726 EDT and 2128 EDT, the rotameter readings at the above times varied from 84 to 94, operator noted all readings on the data sheet.

- OCTOBER 27, 1992

The operator checked sampler A-4 at 0121 EDT, 0626 EDT and 0847 EDT. The rotameter readings were at 86, 86 and 84 units, respectively.

The unit was taken out of service at 0858 EDT according to established protocols. The recorded pump total elapse time was 1440 minutes. The final ambient VOC concentration was 0.0 ppm. The recorded maximum temperature was 52°F. No unusual events were observed during the sampling period.

CHRONOLOGY - SOIL GAS SAMPLING

OCTOBER 26, 1992

- SAMPLE 2-1F1

Sample 2-1F1 was collected from well F1 (30"deep) located inside the Firemans' Training Center about eight feet away from a fenced subsurface vault. Pump #1 was used with sampler unit #5. The nominal flowrate was 1.0 Lpm and the nominal sample volume was 10 liters. The initial ambient VOC concentration was 0.0 ppm. The initial well VOC reading was 0.9 ppm. The well was evacuated for 30 seconds to pull a full well volume of stagnant air prior to sampling. Sampling started at 1136 EDT with an initial rotameter reading of 105 units at the bottom of the ball. A leak check was performed prior to sampling on all connection lines.

Sampling stopped at 1146 EDT as scheduled. The final rotameter reading was still 105 units. The final ambient air and well VOC readings were 0.0 ppm and 2.5 ppm, respectively.

- **SAMPLE 2-1M2**

Sample 2-1M2 was collected between 1203 EDT and 1213 EDT from well M2 (30"deep). This well was located next to the landfill property along the west side of Winding Road. Pump #1 and sampler unit #5 were used. The nominal flowrate was 1.0 Lpm. A leak check was performed prior to sampling and all connection lines. One full well volume of stagnant air was evacuated. Initial ambient air, sample inlet line and well VOC readings were taken and the readings were 0.0 ppm, 0.0 ppm and 0.8 ppm, respectively. The test ended at 1213 EDT. The rotameter reading was 105 units during the 10 minute sampling period. Both final ambient air and well VOC concentrations were 0.0 ppm.

- **SAMPLE 2-1M4**

Sample 2-1M4 was collected from the 30" deep soil gas well M4 located along the east side of Winding Road. Pump #1 and sampler unit #5 were used with a nominal flowrate of 1.0 Lpm to collect 10 liters of sample. A leak check was performed as part of the procedure.

Initial VOC concentrations were measured for ambient air, inlet line and well; all readings were 0.0 ppm. The well was conditioned by evacuating a full well volume of stagnant air.

Sampling started at 1224 EDT and lasted for 10 minutes as scheduled. The final ambient air and well VOC concentrations were measured again and the results were 0.0 ppm.

- SAMPLE 2-1M5

Sample 2-1M5 was collected from well M5, a 30" deep well located west of Winding Road east of the landfill. The nominal flowrate was 1.0 Lpm. Initial ambient air, inlet line and well VOC concentrations were taken and all readings were 0.0 ppm. After the leak check, the sampler was started at 1247 EDT.

The sampler was stopped at 1257 EDT. During the sampling period the rotameter reading remained at 105 units. The final ambient air and well VOC readings were 0.0 ppm and 5.6 ppm, respectively.

- SAMPLE 2-1M6

This sample was taken from soil gas well M6 (30"deep) located on the east side of Winding Road east of the landfill about 60 feet north of M4. Pump #1 and sampler unit #5 were used. The nominal flowrate was 1.0 Lpm. The initial ambient air VOC concentration was 0.0 ppm. The initial well VOC concentration was measured at 35.0 ppm. Moisture was observed inside the inlet line and was believed responsible for the high Micro Tip VOC reading (positive VOC concentration bias). The sampling line was replaced with an new line before sampling started. The system leak check passed and sampling started at 1356 EDT and lasted for 10 minutes.

The final ambient VOC concentration was 0.8 ppm. The final rotameter reading was 105 units which was the same as the initial reading. The final well VOC reading was 18.0 ppm. Again, condensed moisture in the Micro Tip sensor may have caused a positive VOC concentration bias. This was observed throughout the remaining tests.

- SAMPLE 2-1M13

This sample was collected from well M13 (30"deep). This well was located east of Winding Road. Pump #1 and sampler unit #5 were used. The initial ambient air, inlet line and well VOC readings were 0.5 ppm, 0.8 ppm and 2.9 ppm, respectively. The nominal flowrate and volume were 1.0 Lpm and 10 liters, respectively. A leak check was conducted on all connections. Sampling started at 1440 EDT and the initial rotameter reading was 105 units.

Sampling ended at 1450 EDT. The rotameter reading remained at 105 units from the beginning to the end of sampling. The final ambient air and well VOC concentrations were taken and the results were 1.2 ppm and 3.4 ppm, respectively.

- SAMPLE 2-1M16

Sample 2-1M16 was collected between 1503 EDT and 1513 EDT from the 30" deep well M16 located on the west side of Winding Road east of the landfill. Pump #1 and sampler unit #5 were used with 1.0 Lpm nominal flowrate to collect 10 liters of sample. A leak check was performed. Initial ambient and inlet line VOC concentrations were both 0.9 ppm. The initial well VOC concentration was 4 ppm. The rotameter reading remained at 105 units during the entire sampling period.

Final ambient air and well VOC readings were 1.2 ppm and 13.1 ppm, respectively. A new sampling line was used for this test.

- SAMPLE 2-1M21

This sample was collected from well M21 (30" deep) located on the west side of the landfill east of Claremont Road. Pump #1 and sampler unit #5 were used. A leak check was performed before sampling. The nominal flowrate was 1.0 Lpm and the nominal sample volume was 10 liters. The initial ambient air and well VOC readings were 1.0 ppm and 9.4 ppm, respectively. The stainless steel sampling rod was inserted only about 19" down into the well due to dirt and water build up inside.

The collection started at 1528 EDT and ended at 1538 EDT. During the 10 minute

sampling period, the rotameter reading remained at 105 units. Final ambient air and well VOC conditions were measured at 1.5 ppm and 12.4 ppm, respectively. The operator observed the air temperature inside the sampler. The maximum temperature was 58°F. This thermometer was set inside sampler unit #5 before the first well sample was taken.

- **SAMPLE 2-1M9 (10')**

This sample was taken from one of the four deep wells located at M9. Sample 2-1M9 was collected from the 10 foot deep well marked with blue color. Pump #1 and sampler unit #5 were used. The nominal flowrate and volume were 1.0 Lpm and 10 liters, respectively. The well was evacuated for 1.5 minutes before sampling to remove one full volume of stagnant air inside the well. The evacuation was done using a spare pump and sampling line. A sampling train leak check was performed. The initial ambient air and well VOC concentrations were measured at 2.1 ppm and 8.5 ppm, respectively. Sampling started at 1602 EDT. Initial rotameter reading was 105 units and remained at that level for the 10 minute sampling period.

The sampler was stopped at 1612 EDT. Final ambient air and well VOC readings were recorded and the results were 1.8 ppm and 19.0 ppm, respectively.

- **SAMPLE 2-1M9 (20')**

This sample was collected from the 20 foot deep well at M9. This well was marked with green color. Pump #1 and sampler unit #5 were used. The well was evacuated for three minutes before sampling and a sampling train leak check was performed. Initial ambient air and well VOC concentrations were recorded; the results were 2.2 ppm and 54.0 ppm, respectively. The sampling started at 1618 EDT and finished at 1628 EDT. The rotameter reading remained at 105 units throughout the sampling. Final ambient VOC concentration was 2.0 ppm and the final well VOC concentration dropped to 9.4 ppm.

- **SAMPLE 2-1M9 (30')**

This sample was collected from the 30 foot deep well located at M9. The well was marked with red color. Pump #1 and sampler unit #5 were used. The well was evacuated for 4.5

minutes before sampling started and a sampling train leak check was performed. The nominal flowrate was 1 Lpm, and nominal sample volume was 10 liters. Initial ambient air and well VOC concentrations were 1.9 ppm and 4.4 ppm, respectively. Testing started at 1635 EDT with initial rotameter reading of 105 units.

Sampling ceased at 1645 EDT. The final rotameter reading was 105 units and final ambient air and well VOC readings were 2.0 ppm and 9.0 ppm, respectively.

- SAMPLE 2-1M9 (40')

This sample was collected from the 40 foot well at M9. This well was marked with yellow color. Pump #1 and sample unit #5 were used. The well was evacuated at 1.0 Lpm for 6 minutes prior to sampling to remove one full well volume of stagnant soil gas. Operators observed some condensed water formed inside the tygon tube that was used to condition the well. The pump and lines used for evacuating the well were not used for sampling. The leak check was approved prior to the testing. The nominal sampling volume was 10 liters, the nominal sampling rate was 1.0 Lpm. The initial ambient air, inlet line and well VOC concentrations were recorded and the readings were 2.1 ppm, 6.0 ppm and 9.1 ppm, respectively.

Sampling started at 1650 EDT. The initial rotameter reading was 105 units. The test lasted for 10 minutes and the final ambient air and well concentrations were recorded and the readings were 2.3 ppm and 16.0 ppm, respectively. The final rotameter reading was 105 units.

- SAMPLE 2-1M31

Sample 2-1M31 was collected from well M31 which was a 30" deep well located west of the landfill. Pump #1 and sample unit #5 were used for this sampling with a nominal flowrate and volume of 1.0 Lpm and 10 liters. The well was evacuated for 30 seconds prior to sampling. The initial ambient air and well VOC concentrations were recorded and the readings were 2.6 ppm and 5.0 ppm, respectively. A leak check was performed on all connections.

Sampling started at 1746 EDT with an initial rotameter reading of 105 units. The sampling ended at 1756 EDT, as scheduled. The final rotameter reading was 105 units. Final ambient air concentration was 2.4 ppm, and the final well concentration was 4.5 ppm.

- **SAMPLE 2-1M28**

Sample 2-1M28 was collected from the 30" deep well M28 located north of the recharge basin, just within the western landfill property line. Pump #1 and sampler unit #5 were used for sampling. The nominal flowrate and sample volume were 1.0 Lpm and 10 liters. The initial ambient VOC concentration was measured and the reading was 2.3 ppm. The initial well VOC concentration was taken next and the reading was 100.0 ppm. A leak check was performed.

Sampling started at 1810 EDT with an initial rotameter reading of 105 units. The sampling stopped at 1820 EDT, as scheduled. The final rotameter reading was 105 units. The final ambient air VOC concentration was measured at 2.3 ppm and the final well VOC concentration was measured at 85.0 ppm.

- **SAMPLE 2-1M22**

Sample 2-1M22 was collected from a 30" deep well M22 located north of the landfill. Pump #1 and sampler unit #5 were used. The well was evacuated for 30 seconds prior to sampling. A leak check was performed to check the line connection. Initial ambient air and well VOC concentrations were measured at 2.3 ppm and 45.0 ppm, respectively.

The sampling started at 1837 EDT and lasted for ten minutes, as scheduled. During sampling the rotameter reading was 105 units. The ambient air and well VOC concentrations were recorded again at the end of sampling and readings were 3.9 ppm and 9.4 ppm, respectively.

- **SAMPLE 2-1M39**

Sample 2-1M39 was collected from M39, a 30" deep well located north of the air stripper, next to a telephone pole. Pump #1 and sampler unit #5 were used. The nominal flowrate

and sample volume were 1.0 Lpm and 10 liters, respectively. The well was evacuated for 30 seconds prior to the sampling and a leak check was performed. The initial ambient air and well concentrations were 2.9 ppm and 4.9 ppm, respectively.

The sampling started at 1902 EDT and finished at 1912 EDT. The rotameter remained at 105 units during the entire sampling period. The final ambient air and well VOC concentrations were 3.1 ppm and 22.8 ppm, respectively.

- **SAMPLE 2-1M34**

Sample 2-1M34 was collected from M34, a 30" deep well located southwest of the landfill on the west side of the haul road. Pump #1 and sampler unit #5 were used. The nominal flowrate was 1.0 Lpm, the nominal sample volume was 10 liters. The ambient air VOC concentration was measured before sampling and the reading was 4.6 ppm. The well was evacuated for 30 seconds prior to sampling. The initial well VOC concentration was 47.0 ppm.

Sampling started at 1925 EDT. The initial rotameter reading was 105 units. Sampling ended at 1935 EDT. The final rotameter reading was 105 units. Final ambient air and well VOC concentrations were 3.7 ppm and 28.0 ppm, respectively.

- **SAMPLE 2-1M37**

Sample 2-1M37 was collected from M37, a 30" deep well located at the southwest corner of the landfill. The nominal flowrate and sample volume were 1.0 Lpm and 10 liters, respectively. The ambient air VOC concentration was measured before sampling and the reading was 3.1 ppm. The well was evacuated for 30 seconds prior to sampling. The initial well VOC concentration was 23.0 ppm.

Sampling started at 1949 EDT. The initial rotameter reading was 105 units. Sampling ended at 1959 EDT. The final rotameter was 105 units. Final ambient air and well VOC concentrations were 4.2 ppm and 5.5 ppm, respectively.

OCTOBER 27, 1992

- SAMPLE 2-1FB(A)

Sample 2-1FB(A) was one of two field blank samples. It was collected at the ambient sampling site A2/A3. The sampling traps were removed from the shipping tubes, trap ends were opened and remained open for about 20 seconds. At the end of sample collection the trap ends were closed, placed back into the shipping tubes and labeled.

- **SAMPLE 2-1FB(B)**

Sample 2-1FB(B) was the second field blank sample collected as a backup field sample. It was collected at the same site as 2-1FB(A). Same field sample collection procedure was applied. The traps were opened to the site atmosphere for about 20 seconds.

- **SAMPLE 2-1TB(A)**

Sample 2-1TB(A) was prepared at the site A4. The sampling traps were taken out of the shipping box with the traps remaining inside the shipping tubes. They were then labeled and put back into the box.

- **SAMPLE 2-1TB(B)**

Sample 2-1TB(B) was prepared as the second trip blank sample. It was prepared at site A2/A3. Again, the sampling traps were taken out of the shipping box with the traps remaining inside the shipping tubes. They were then labeled and put back into the box.

CHRONOLOGY - WELL PRESSURE READINGS

OCTOBER 28, 1992

- PW1

PW1 was located northwest of the landfill along the haul road. A Dwyer inclined manometer was used for well pressure measurements.

The manometer was leveled, leak checked and zeroed before it was used to measure the well pressure. There were two wells inside PW1. One well was marked with blue color, the other one was marked with green color. Pressure readings from both wells were taken two times to assure the readings were reproduceable. All readings were noted on the datasheet.

- PW2

PW2 was located at the southeast corner of the landfill. A Dwyer inclined manometer was used for the pressure measurements.

The manometer was leveled, leak checked and zeroed before pressure reading started. There were two wells inside PW2. One well was marked with blue color, the other one was marked with green color. Pressure readings were taken two times and all readings were recorded on the datasheet.

- PW3

PW3 was located south of the landfill inside the Firemans' Training Center. It was also east of the soil gas well F1. Again, a Dwyer inclined manometer was used for the well pressure readings.

The manometer was leveled, leak checked and zeroed as part of the quality assurance procedure. Two wells were located at PW3 and they were marked with blue and green color, respectively. Pressure readings were taken two times for both wells and all readings were recorded on the datasheet.

APPENDIX D

ANALYTICAL RESULTS

GRASEBY
NUTECH-RTL

February 5, 1993

Scott Mills
RTP Environmental Associates
400 Post Avenue
Westbury, NY 11590

RE: 92102850 -corrections

Dear Mr. Mills:

Enclosed please find the corrections we discussed of the results of the samples submitted to our laboratory on 10/28/92.

If you have any questions concerning these reports, please contact me at the number listed below.

Sincerely,

GRASEBY NUTECH-RTL

J. Wayne Jones
Chemist

JWJ

Enclosures

GRASEBY NUTECH-RTL
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TEL: 919 544 5775 FAX: 919 544 3770

GRASEBY
NUTECH-RTL

VOST GC/MS REPORT

prepared for

RTP ENVIRONMENTAL SERVICES

by

GRASEBY NUTECH-RTL

2/5/93
J. Wayne Jones
Chemist

Thomas G. Conally
Laboratory Manager

RTL ID # 92102850

November 30, 1992

GRASEBY NUTECH-RTL
4022 STIRRUP CREEK DRIVE, SUITE 325, DURHAM, NC 27703-9000, USA
TEL: 919 544 5775 FAX: 919 544 3770

INTRODUCTION

Scope:

To analyze (VOST) Tenax/Charcoal cartridges for the custom target compound list (TCL) and tentatively identify five custom compounds and the next six non-target compounds (TIC) by Desorb-Purge-Trap-Desorb Gas Chromatography/Mass Spectrometry (DPTD GC/MS).

Method Summary:

Sample cartridges are analyzed by desorb-purge-trap-desorb gas chromatography/mass spectrometry (DPTD GC/MS). Daily analytical checks are performed on cartridge blanks and reagent water. The daily GC/MS performance test required for this method is described in SW 846, Method 8240. Th35X and samples

are spiked with a known amount of BFB to maintain a constant check of system performance.

Sample Desorption:

The DPTD GC/MS procedures are those described in SW 846 Method 5040. The spiked sample cartridge is placed in the thermal desorption apparatus (Nutech 8533) and desorbed in the VOST system by heat to 200 °C for 10 minutes. Consideration is given for individual analysis of cartridges. The desorbed components then pass into the bottom of the water column, are purged from the water and collected on the internal analytical sorbent trap. After the 10-minute desorption period, the compounds are desorbed from the analytical trap into the GC/MS system.

Calculations:

All compounds detected that coincide with those of the Target Compound List (TCL) are calculated using equation #1 and response factors derived from in-house standards. All tentatively identified compounds are calculated, using equation #2 and a standard TIC response factor of one (1.0). Compounds quantified by equation #2 are qualified as being estimates.

Eqn #1: $$[X] = \frac{A_X \cdot [IS]}{A_{IS} \cdot RF}$$

Eqn #2: $$[X] = \frac{A_X \cdot [IS]}{A_{IS} \cdot 1.0}$$

Where:
- $[X]$ = amount of compound, ng
- $[IS]$ = amount of internal standard, ng
- A_X = response of compound
- A_{IS} = response of internal standard
- RF = response factor

ANALYTICAL CONDITIONS

Equipment:

HP 5970 GC/MSD tuned to BFB criteria

GC Conditions:

Temp 1	:	0 °C
Time 1	:	4.0 minutes
Ramp Rate	:	6.0 °C/minute
Temp 2	:	160 °C
Time 2	:	5.0 minutes

Column:

VOCOL (Supelco),
Length 60 m,
Film thickness 1.5 μm,
Internal diameter 0.75 mm,
Construction of Borosilicate glass
with fused silica ends

Mass Spectrometer Conditions:

Run Time	:	25 minutes
Scan Range	:	35 - 260 AMU
Scan Delay	:	1.90 minutes
Ion Source Temp	:	200 °C
Electron Multiplier	:	2700 ± 200 EV
Separator Temp	:	225 °C

Sample Chronicle:

Client	RTP Environmental Services
RTL Project ID	92102850
Analysis Type	VOST Tenax/charcoal
Date of Collection	not supplied
Date Received	10/28/92
Date Authorized	10/28/92
Date Analyzed	11/17/92 - 11/23/92
Date Reported	11/30/92

Narrative:

The details of the letter dated 11/4/92 were followed with consideration given for split ratios and individual analysis of specified sample pairs.

Several notable occurrences were observed and noted below and on each sample report.

- The preliminary samples resulted with high levels of primarily carbon dioxide. A "shallow" scan delay of approximately 1.96 minutes was recommended to prevent MS saturation and run abortion. The delay was an attempt to maintain significant data if available for vinyl chloride. The effect on chloromethane and vinyl chloride was reported to RTP.

- Splitting was determined not necessary because all target compounds detected were within the quantitation range.

- Sample 2-1M28 (92102850-12/T1073) was inadvertently analyzed with a split. All significant compounds detected will be reported and noted if BQL. All QC measures were within expected ranges.

The laboratory remains available to assist with questions concerning these reports or sampling procedures.

REFERENCES

Federal Register, 44, 69464, December 3, 1979

Protocol for the Collection and Analysis of Volatile POHCs Using VOST, EPA-600/8-84-007 available from ORD Publications, Center for Environmental Research Information, Cincinnati, Ohio 45268

NIOSH Manual of Analytical Methods, HEW Publication No. (NIOSH) 75-121, available from Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402

Supelco Bulletin 769, "Determination of Organic Vapors in the Industrial Atmosphere", 1977: Supelco, Inc., Bellefonte, PA 16823

Test Methods for Evaluation of Solid Waste, SW 846 Methods 0030, 8240, 5040, 5030

Compendium of Methods for the Determination of Toxic Organic Compounds in Air, PB87-168688, Battelle Columbus Laboratories, Columbus, Ohio

SAMPLE RESULTS

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-23	File ID:	T1055
Sample ID:	2-1FB (A)	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	90
Toluene-d_8	99
4-Bromofluorobenzene	86

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1,000

BQL: Below Quantitation Limit

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-23	File ID:	T1055
Sample ID:	2-1FB (A)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY NUTECH–RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-23	File ID:	T1055
Sample ID:	2-1FB (A)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon dioxide	1.81	4,500	44

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-25	File ID:	T1056
Sample ID:	2-1TB (A)	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	98
Toluene-d_8	100
4-Bromofluorobenzene	86

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1,000

BQL: Below Quantitation Limit

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-25	File ID:	T1056
Sample ID:	2-1TB (A)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-25	File ID:	T1056
Sample ID:	2-1TB (A)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon dioxide	1.81	3,500	44

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-5	File ID:	T1057
Sample ID:	2-1M6	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	109
Toluene-d_8	97
4-Bromofluorobenzene	66

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	790
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 240 – 12,000

BQL: Below Quantitation Limit

Split ratio: 1:12

GRASEBY NUTECH–RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-5	File ID:	T1057
Sample ID:	2-1M6	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-5	File ID:	T1057
Sample ID:	2-1M6	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon dioxide	1.68	>25,000 [d]	44
Unknown compound	22.46	20	—
Unknown compound	23.01	23	—
Unknown compound	23.97	20	—
Unknown compound	24.59	25	—

Split ratio: 1:12
d: See Endnote

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-10	File ID:	T1058
Sample ID:	2-1M9 (20)	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	112
Toluene-d_8	92
4-Bromofluorobenzene	58

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 200 – 10,000

BQL: Below Quantitation Limit

Split ratio: 1:10

GRASEBY NUTECH–RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-10	File ID:	T1058
Sample ID:	2-1M9 (20)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY NUTECH-RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-10	File ID:	T1058
Sample ID:	2-1M9 (20)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon dioxide	1.92	>24,000 [d]	44

Split ratio: 1:10
d: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-21	File ID:	T1059/60
Sample ID:	2-1A3 [a]	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	98
Toluene-d_8	99
4-Bromofluorobenzene	65

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	a
75-01-4	Vinyl chloride	a
74-83-9	Bromomethane	a
75-00-3	Chloroethane	a
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	320
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	240
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	430
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	700
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	220
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	450
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 200 – 10,000

BQL: Below Quantitation Limit

Split ratio: 1:10

a: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-21	File ID:	T1059/60
Sample ID:	2-1A3 [a]	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

a: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-21	File ID:	T1059/60
Sample ID:	2-1A3 [a]	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
3-Methylpentane	2.53	460	86
Unknown compound	12.51	70	---
Unknown compound	19.32	92	---
(1-Methylethyl)benzene	20.49	97	120
Unknown compound	21.93	67	---
Unknown compound	23.04	90	---

Split Ratio: 1:10
a: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-14	File ID:	T1073
Sample ID:	2-1M28	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	92
Toluene-d_8	86
4-Bromofluorobenzene	57

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	g
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	21 *
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	21 *
71-55-6	1,1,1-Trichloroethane	29 *
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 180 – 9,000

BQL: Below Quantitation Limit

Split ratio: 1:9
*: See Narrative

Scan delay: 1.96 min.
g: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-14	File ID:	T1073
Sample ID:	2-1M28	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-14	File ID:	T1073
Sample ID:	2-1M28	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon dioxide	2.30	>15,000 [d]	44
Unknown compound	24.25	30	—

Scan delay: 1.96 min.

Split Ratio: 1:9

d: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-18	File ID:	T1074
Sample ID:	2-1M37	Description:	Tenax

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	84
Toluene-d_8	90
4-Bromofluorobenzene	71

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	28
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	24
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96 min.

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-18	File ID:	T1074
Sample ID:	2-1M37	Description:	Tenax

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-18	File ID:	T1074
Sample ID:	2-1M37	Description:	Tenax

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon Dioxide	1.82	920	44
Unknown hydrocarbon	18.88	22	—
3-Methyl-5-propylnonane	21.08	33	184
Unknown hydrocarbon	21.70	33	—

Scan delay: 1.96 min.

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-18	File ID:	T1075
Sample ID:	2-1M37	Description:	Tenax/charcoal

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	84
Toluene-d_8	95
4-Bromofluorobenzene	83

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96 min.

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-18	File ID:	T1075
Sample ID:	2-1M37	Description:	Tenax/charcoal

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-18	File ID:	T1075
Sample ID:	2-1M37	Description:	Tenax/charcoal

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Carbon dioxide & xenon	2.49	270	44/131

Scan delay: 1.96 min.

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-1	File ID:	T1076
Sample ID:	2-1F1	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	83
Toluene-d_8	95
4-Bromofluorobenzene	83

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	g
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	730
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	29
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	36
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

g: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-1	File ID:	T1076
Sample ID:	2-1F1	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-1	File ID:	T1076
Sample ID:	2-1F1	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Unknown hydrocarbon	21.15	20	—
Unknown hydrocarbon	21.76	24	—

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-2	File ID:	T1077
Sample ID:	2-1M2	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	82
Toluene-d_8	96
4-Bromofluorobenzene	82

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	g
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	110
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	25
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

g: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-2	File ID:	T1077
Sample ID:	2-1M2	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2,Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-2	File ID:	T1077
Sample ID:	2-1M2	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Methylbutane	2.81	740	72

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-3	File ID:	T1078
Sample ID:	2-1M4	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	83
Toluene-d_8	87
4-Bromofluorobenzene	76

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	g
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	82
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	39
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

g: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-3	File ID:	T1078
Sample ID:	2-1M4	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2,Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-3	File ID:	T1078
Sample ID:	2-1M4	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Unknown compound	2.69	56	---

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-4	File ID:	T1079
Sample ID:	2-1M5 [b]	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	86
Toluene-d_8	97
4-Bromofluorobenzene	86

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	b
75-01-4	Vinyl chloride	b
74-83-9	Bromomethane	b
75-00-3	Chloroethane	b
75-69-4	Trichlorofluoromethane	44
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	30
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	29
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

b: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-4	File ID:	T1079
Sample ID:	2-1M5 [b]	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2,Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

b: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-4	File ID:	T1079
Sample ID:	2-1M5 [b]	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2,2,5,5-Tetramethylhexane	21.68	22	142

Scan delay: 1.96

b: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-6	File ID:	T1080
Sample ID:	2-1M13 [b]	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	84
Toluene-d_8	95
4-Bromofluorobenzene	84

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	b
75-01-4	Vinyl chloride	b
74-83-9	Bromomethane	b
75-00-3	Chloroethane	b
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	33
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	97
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

b: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-6	File ID:	T1080
Sample ID:	2-1M13 [b]	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2,Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

b: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-6	File ID:	T1080
Sample ID:	2-1M13 [b]	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular 1eight (AMU)

Comments: No peaks found

Scan delay: 1.96
b: See Endnotes

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-7	File ID:	T1081
Sample ID:	2-1M16	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	80
Toluene-d_8	90
4-Bromofluorobenzene	80

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	69
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	36
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	26
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-7	File ID:	T1081
Sample ID:	2-1M16	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2,Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-7	File ID:	T1081
Sample ID:	2-1M16	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)

Comments: No peaks found

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-8	File ID:	T1090
Sample ID:	2-1M21	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	85
Toluene-d_8	97
4-Bromofluorobenzene	81

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	550
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	27
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-8	File ID:	T1090
Sample ID:	2-1M21	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2,Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-8	File ID:	T1090
Sample ID:	2-1M21	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Unknown	12.47	20	—
α-Pinene	18.86	76	136
Unknown hydrocarbon	19.55	63	—
Limonene	21.96	24	136

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-9	File ID:	T1091
Sample ID:	2-1M9 (10)	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	84
Toluene-d_8	92
4-Bromofluorobenzene	77

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	810
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	BQL
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-9	File ID:	T1091
Sample ID:	2-1M9 (10)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)

Comments: No peaks found

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-9	File ID:	T1091
Sample ID:	2-1M9 (10)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-11	File ID:	T1092
Sample ID:	2-1M9 (30)	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	84
Toluene-d_8	92
4-Bromofluorobenzene	77

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	BQL
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	21
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	20
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-11	File ID:	T1092
Sample ID:	2-1M9 (30)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-11	File ID:	T1092
Sample ID:	2-1M9 (30)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)

Comments: No peaks found

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-12	File ID:	T1093
Sample ID:	2-1M9 (40)	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	71
Toluene-d_8	85
4-Bromofluorobenzene	68

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	72
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	39
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	44
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	27
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-12	File ID:	T1093
Sample ID:	2-1M9 (40)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-12	File ID:	T1093
Sample ID:	2-1M9 (40)	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Methylbutane	2.83	530	72

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-13	File ID:	T1094
Sample ID:	2-1M31	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	83
Toluene-d_8	96
4-Bromofluorobenzene	84

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	80
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	25
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-13	File ID:	T1094
Sample ID:	2-1M31	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-13	File ID:	T1094
Sample ID:	2-1M31	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)

Comments: No peaks found

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-15	File ID:	T1095
Sample ID:	2-1M22	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	c
Toluene-d_8	c
4-Bromofluorobenzene	c

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	20
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	33
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	26
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	68
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	23
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 - 1000

BQL: Below Quantitation Limit

c: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-15	File ID:	T1095
Sample ID:	2-1M22	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-15	File ID:	T1095
Sample ID:	2-1M22	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Unknown hydrocarbon	6.20	60	—
α pinene	18.87	462	136

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-16	File ID:	T1096
Sample ID:	2-1M39	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	83
Toluene-d_8	95
4-Bromofluorobenzene	79

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	20
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	28
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	62
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 - 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-16	File ID:	T1096
Sample ID:	2-1M39	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-16	File ID:	T1096
Sample ID:	2-1M39	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
α pinene	18.87	220	136
2,2-Dimethyl-3-methylenebicyclo[2.2.1]heptane	19.49	280	136

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-17	File ID:	T1097
Sample ID:	2-1M34	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	89
Toluene-d_8	95
4-Bromofluorobenzene	82

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	25
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	21
56-23-5	Carbon tetrachloride	BQL
71-43-2	Benzene	BQL
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 - 1000

BQL: Below Quantitation Limit

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-17	File ID:	T1097
Sample ID:	2-1M34	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-17	File ID:	T1097
Sample ID:	2-1M34	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Methylbutane	2.83	580	72
Unknown hydrocarbon	24.71	34	—

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-19	File ID:	T1098
Sample ID:	2-1A1	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	75
Toluene-d_8	80
4-Bromofluorobenzene	91

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	>72 [g]
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	860
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	320
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	100
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	1,300 [e]
56-23-5	Carbon tetrachloride	430
71-43-2	Benzene	1,600 [e]
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	240
78-87-5	1,2-Dichloropropane	50
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	>820 [d]
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	1,800 [e]
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	830
1330-20-7	Xylene (total)	>2,700 [d,e]
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	250
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 - 1000

BQL: Below Quantitation Limit

d,e,g: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-19	File ID:	T1098
Sample ID:	2-1A1	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-19	File ID:	T1098
Sample ID:	2-1A1	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Unknown hydrocarbon	6.20	1,300	---
2-Methylhexane	8.82	930	100
2,5-dimethylhexane	12.54	520	114
Unknown ethylmethylbenzene	20.45	2,700	120
Unknown substituted benzene	21.42	1,300	120
2,3-Dihydro-1H-indene	23.07	540	118

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-20	File ID:	T1099
Sample ID:	2-1A2	Description:	Tenax/charcoal

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	79
Toluene-d_8	81
4-Bromofluorobenzene	78

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	>76 [g]
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	990
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	470
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	BQL
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	540
56-23-5	Carbon tetrachloride	150
71-43-2	Benzene	220
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	BQL
78-87-5	1,2-Dichloropropane	BQL
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	BQL
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	BQL
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	BQL
1330-20-7	Xylene (total)	BQL
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	BQL
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

g: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-20	File ID:	T1099
Sample ID:	2-1A2	Description:	Tenax/charcoal

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-20	File ID:	T1099
Sample ID:	2-1A2	Description:	Tenax/charcoal

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Unknown	2.69	260	---
1,1,2-Trichloro-1,2,2-trifluoroethane	4.07	800	186
2-Methylpentane	5.03	340	86
Hexane	6.20	490	86
Methylcyclopentane	7.72	190	84
Unknown hydrocarbon	11.98	98	100

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-20	File ID:	T1100
Sample ID:	2-1A2	Description:	Tenax

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	84
Toluene-d_8	89
4-Bromofluorobenzene	90

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	BQL
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	69
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	BQL
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	75
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	750
56-23-5	Carbon tetrachloride	280
71-43-2	Benzene	1,500 [e]
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	210
78-87-5	1,2-Dichloropropane	51
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	>860 [d]
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	1,400 [e]
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	1,200 [e]
1330-20-7	Xylene (total)	>1,300 [d]
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	150
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

d,e: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-20	File ID:	T1100
Sample ID:	2-1A2	Description:	Tenax

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-20	File ID:	T1100
Sample ID:	2-1A2	Description:	Tenax

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
3-Methylpentane	6.20	1,400	86
Unknown hydrocarbon	12.60	540	—
4,6-Dimethylundecane	20.24	880	184
Ethylmethylbenzene isomer	20.45	2,600	120
Ethylmethylbenzene isomer	21.14	730	120
Unknown substituted benzene	21.42	990	120

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-22	File ID:	T1101
Sample ID:	2-1A4	Description:	VOST pair

Surrogate Percent Recovery	
1,2-Dichloroethane-d_4	74
Toluene-d_8	72
4-Bromofluorobenzene	99

CAS Number	Target Compound	Results (ng)
74-87-3	Chloromethane	>64 [g]
75-01-4	Vinyl chloride	BQL
74-83-9	Bromomethane	BQL
75-00-3	Chloroethane	BQL
75-69-4	Trichlorofluoromethane	890
75-35-4	1,1-Dichloroethene	BQL
67-64-1	Acetone	BQL
75-15-0	Carbon disulfide	BQL
75-09-2	Methylene chloride	390
156-60-5	*trans*-1,2-Dichloroethene	BQL
75-34-3	1,1-Dichloroethane	BQL
78-93-3	2-Butanone	190
67-66-3	Chloroform	BQL
71-55-6	1,1,1-Trichloroethane	1,300 [e]
56-23-5	Carbon tetrachloride	420
71-43-2	Benzene	1,600 [e]
107-06-2	1,2-Dichloroethane	BQL
79-01-6	Trichloroethene	230
78-87-5	1,2-Dichloropropane	49
75-27-4	Bromodichloromethane	BQL
108-10-1	4-Methyl-2-pentanone	BQL
10061-01-5	*cis*-1,3-Dichloropropene	BQL
108-88-3	Toluene	>740 [d]
10061-02-6	*trans*-1,3-Dichloropropene	BQL
79-00-5	1,1,2-Trichloroethane	BQL
591-78-6	2-Hexanone	BQL
127-18-4	Tetrachloroethene	1,600 [e]
124-48-1	Dibromochloromethane	BQL
108-90-7	Chlorobenzene	BQL
100-41-4	Ethylbenzene	880
1330-20-7	Xylene (total)	1,500 [d,e]
100-42-5	Styrene	BQL
75-25-2	Bromoform	BQL
79-34-5	1,1,2,2-Tetrachloroethane	BQL
95-50-11	1,2-Dichlorobenzene	BQL
541-73-1	1,3-Dichlorobenzene	200
106-46-7	1,4-Dichlorobenzene	BQL

Quantitation Range (ng): 20 – 1000

BQL: Below Quantitation Limit

d,e,f: See Endnotes

Scan delay: 1.96

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-22	File ID:	T1101
Sample ID:	2-1A4	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
2-Chloroethyl vinyl ether		ND	
Chlorotrifluoromethane (Freon 13)		ND	
cis-1,2-Dichloroethene		ND	
Benzaldehyde		ND	
Vinyl acetate		ND	

ND: not detected

GRASEBY RTL

Client:	RTP Environmental Services	Received:	10/28/92
RTL ID:	92102850-22	File ID:	T1101
Sample ID:	2-1A4	Description:	VOST pair

Tentatively Identified Compounds

Compound	Retention Time (minutes)	Results (ng)	Molecular Weight (AMU)
Hexane	6.20	1,600	86
2-Methylhexane	8.82	990	100
2-Methylheptane	12.54	460	114
Ethylmethylbenzene isomer	20.45	3,300	120
Ethylmethylbenzene isomer	21.14	700	120
Trimethylbenzene isomer	21.42	1,500	120

Scan delay: 1.96

Endnotes:

a: The run was aborted by the system because of high levels of primarily carbon dioxide. We immediately restarted the instrument and obtained a complete chromatogram for the remainder of the run. Early eluting targets were not detectable because of the problem. The internal standards, however, did recover within expected QA ranges and a scan delay of 1.96 minutes was instituted on all remaining samples.

b: GC oven temperature had not reached equilibrium at the time of injection. Early eluting compounds were not detected because of the problem.

c: Due to operator error no surrogates were injected. Internal standards recovered well within QC limits and there were no unusual occurrences during the run. All data is considered reliable and accurate.

d: Due to high levels of this compound, detector saturation occurred during its elution. The actual amount of the compound in this sample is higher. Data dropout is a precursor to MS shutdown and run abortion.

e: This amount is beyond the established calibration range. Linearity should not be assumed for results which greatly exceed our calibration range.

g: Compound data could have been obscured due to coelution with a high level saturating peak. Reference "a" above.

APPENDIX E

FIELD DATA FORMS

AMBIENT AIR SAMPLING DATA SHEET

PROJECT ID LH30BL2 LOCATION Battle Row Compound/OBSWide

DATE 10/26/97 JULIAN DAY 299

INVESTIGATORS [redacted]/JW

GENERAL WEATHER CONDITIONS Sunny, NW @ 8 mph

TIME SEQUENCE Continuous

SAMPLE ID 2-1A1 (High) 8218-T/C Tenax SAMPLER ID 1 (2 as marked on cooler)

PUMP ID B SAMPLE LOCATION upwind (Battle Row Comp)

NOMINAL FLOW RATE 0.7 lpm NOMINAL SAMPLE VOLUME 1000 l

INITIAL AMBIENT OVA READING 0.000 ppm LEAK CHECK RESULTS ~~[redacted]~~ ok

INITIAL ROTAMETER READING 85 SAMPLE START TIME ~~1030~~ 1031 EDT

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
weekly 10-15 MPH 90	167	1318
~~88~~ T	~~247~~ T	~~1305~~ T
C	C	C
B	B	B
T	T	T
C	C	C
88 B	408 B	1720 B
T	T	T
C	C	C
~~94~~ B	~~0507~~ B	~~1725~~ B
T	T	T
C	C	C
~~80~~ B	~~0508~~ B	~~1726~~ B
T	T	T
C	C	C
89 B	0670 B	2142 B

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
89 T	0906 T	0138 T
C	C	C
B	B	B
T	T	T
C	C	C
~~86~~ B	~~~~ B	~~~~ B
T	T	T
C	C	C
87 B	1210 B	0642 B
T	T	T
C	C	C
92 B	1408 B	0959 B

SAMPLE STOP TIME 1031E TOTAL ELAPSE TIME 1440 FINAL AMBIENT OVA READING .4 PPM

COMMENTS: AMBIENT WIND CONDITIONS MED-HIGH GUSTS MAY AFFECT ROTAMETER READINGS OFF 1031E

MIN 52°F MAX 52°F

AMBIENT AIR SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Bethpage Landfill

DATE Oct. 26, 92 JULIAN DAY 299

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Sunny. NW @ 15 mph

TIME SEQUENCE Continuous

SAMPLE ID 2-1A2 (high) 8820 (T). front 8713 (T/C). back SAMPLER ID 2 (marked 4 on color)

PUMP ID C (high flow pump) SAMPLE LOCATION W of Landfill SE of MS on wooden bridge

NOMINAL FLOW RATE 0.7 lpm NOMINAL SAMPLE VOLUME 1000l

INITIAL AMBIENT OVA READING 0.0 ppm LEAK CHECK RESULTS OK

INITIAL ROTAMETER READING ~~87~~ 85 (bottom of ball) SAMPLE START TIME 9:45 EDT (0948?)

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
~~1145~~ T	117 T	1145 T
88 C (B) T	204 C	811 C
88 C	0332 C	1521 C
88 C B	0468 C B	1736 C B

(light wind)

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
~~87~~ T	0705 T	2133 T
85 C	0939 C	0127 C
85 C	1245 ~~1246~~ C	0633 C
90 C B	1421 C B	0929 C B

SAMPLE STOP TIME 0948 TOTAL ELAPSE TIME 1440 FINAL AMBIENT OVA READING 0.0 ppm

COMMENTS: smell odor when setting up A2 & A3. Windflag shows NW @ start time.

OFF 0948

Check max/min Thermometer at the end of testing ⇒ max = 50°F min = 50°F

Someone was cutting grass around the site area while taking A2 and A3 down

AMBIENT AIR SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Mt Betbeck landfill

DATE Oct. 26, 92 (tomorrow) JULIAN DAY 299

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Sunny NW @ 15 mph

TIME SEQUENCE Continuous

SAMPLE ID 2-1A3 (582D(T), front; 871B(T/C), back) SAMPLER ID 3

PUMP ID 4 (low flow pump) SAMPLE LOCATION next to A2.

NOMINAL FLOW RATE 0.75 lpm NOMINAL SAMPLE VOLUME 100 l

INITIAL AMBIENT OVA READING 0.0 ppm LEAK CHECK RESULTS OK

INITIAL ROTAMETER READING 50 (bottom of black ball) SAMPLE START TIME 9:45 EDT (0944)

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
52 (44) T C B	120 T C B	1149 T C B
52 T C B (instrument SW)	207 T C B	1310 T C B
52 T C B	334 T C B	1519 T C B
52 T C B	473 T C B	1737 T C B

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
51 T C B	0707 T C B	2132 T C B
51 T C B	0941 T C B	0125 T C B
51 T C B	1247 T C B	0631 T C B
51 T C B	1422 T C B	0926 T C B

SAMPLE STOP TIME 0944 TOTAL ELAPSE TIME 1440 FINAL AMBIENT OVA READING 0.0 ppm

COMMENTS: windflag shows NW wind @ start time. smell odor

OFF 0944 E

Check max & min thermometer at the end of testing and max = 52°F, min = 34°F

AMBIENT AIR SAMPLING DATA SHEET

PROJECT ID LKBOBL 2 LOCATION SW of A.S. Bldg, W of Landfill (Ft Bragg Landfill)

DATE Oct. 26, 92 JULIAN DAY 299

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Sunny NW wind @ 15 mph

TIME SEQUENCE Continuous

SAMPLE ID 2-1A4 (871B (T/C), Back; 883D (T), front) SAMPLER ID 4

PUMP ID D, high flow SAMPLE LOCATION 50' from BLDG corner. SW of A.S. BLDG, W of Landfill

NOMINAL FLOW RATE 0.7 l/m NOMINAL SAMPLE VOLUME 1000 l

INITIAL AMBIENT OVA READING 1.4 1.5 ppm LEAK CHECK RESULTS OK

INITIAL ROTAMETER READING 85 (bottom of rotameter) SAMPLE START TIME 0858 EDT MB (0900 EST)

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
T 94 C (B) T	247 C B T	1305 C B T
94 C (B) T	376 C B T	1514 C B T
94 C 86 B T	0507 C 0508 B T	1725 C 1726 B T
88 C B	0749 C B	2128 C B

ROTAMETER READING	TOTAL ELAPSE TIME	EASTERN TIME
86 C B T	982 C B T	D121 C B T
86 C B T	1288 C B T	0626 C B T
84 C B T	1429 C B T	0847 C B T
C B	1440 C B	0858 C B

SAMPLE STOP TIME 0858E TOTAL ELAPSE TIME 1440 FINAL AMBIENT OVA READING 0.0 ppm

COMMENTS: wind flag indicate WNW @ sampling location at 9:03 EDT.

OFF 0858E 27 OCT

ck Max & Min Thermometer at the end of Test Max = Min = 52°F

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID 1C130B12 LOCATION old Bethpage Landfill DATE 10/26/92

INVESTIGATORS Sin JW

GENERAL WEATHER CONDITIONS Sunny NW, 10mph

SAMPLE ID 2-1F1 871C (T/C) 882C (T) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION F1 Firemen's Training center

WELL ID F1 WELL DEPTH 30"

NOMINAL FLOW RATE ~1.0 lpm (RR=115) NOMINAL SAMPLE VOLUME 10l

INITIAL AMBIENT VOC READING 0.0 ppm

INITIAL WELL VOC READING 0.9 ppm w/ inlet line connected.

INITIAL INLET LINE VOC READING 0.0 ppm

SAMPLE START TIME 1135 EDT, restart @ 1136 EDT

INITIAL ROTAMETER READING ~~115~~ ~~110~~ 105 (READ FROM T C (B))

Leak check OK.

FINAL AMBIENT VOC READING 0.0 ppm

FINAL WELL VOC READING 2.5 ppm

SAMPLE STOP TIME 1146 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: pump stopped 20' after the start time, restarted again with lower flowrate (from 110 to 105).

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOTSL2 LOCATION old Butterpat Landfill DATE Oct. 26, 92 (inventory)

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Sunny NW @ 10

SAMPLE ID 2-1M2 871C (T/C) 882C (T) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION near Landfill Property fence, on S. of the door, west side of winding road.

WELL ID M2 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 0.0 ppm INITIAL WELL VOC READING {stabilized @ 0.8 ppm, once up to 2.5 ppm

INITIAL INLET LINE VOC READING 0.0 ppm SAMPLE START TIME 1203 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 0.0 ppm FINAL WELL VOC READING 0.0 ppm

SAMPLE STOP TIME 1213 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: leak ck OK.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION old Bethpage Landfill DATE Oct. 26, 92 (Monday)

INVESTIGATORS SM TW MB

GENERAL WEATHER CONDITIONS Sunny NW @ 8 mph

SAMPLE ID 2-M4 875A (T/C) 982C (T) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION In front of the fence @ the 3rd fence post E side of winding road from Nor.

WELL ID M4 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10L

INITIAL AMBIENT VOC READING 0.0 ppm INITIAL WELL VOC READING 0.0 ppm

INITIAL INLET LINE VOC READING 0.0 ppm SAMPLE START TIME 1224 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 0.0 ppm FINAL WELL VOC READING 0.0 ppm

SAMPLE STOP TIME 1234 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: leak ck. OK

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Bethania Landfill DATE Oct. 26, 92 (Mon)

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Sunny NW @ 10 mph

SAMPLE ID 2-1M5 871C (T/C) 882D (T) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION N. of winding road, next to a sewer vent. Cross the street and bit N of MW6.

WELL ID M5 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 0.0 ppm INITIAL WELL VOC READING 0.0 ppm

INITIAL INLET LINE VOC READING 0.0 ppm SAMPLE START TIME 1247 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 0.0 FINAL WELL VOC READING 5.6 ppm

SAMPLE STOP TIME 1257 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL LOCATION Old Gastonia Landfill DATE Oct. 26, 92 (Monday)

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Sunny, NW @ 8 mph

SAMPLE ID 2-1M6 871C (LT/C) 882D (T) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION ~60' N of the fence around MW4 on E side of winding road

WELL ID M6 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 0.0 ☆INITIAL WELL VOC READING up to 56 ppm, go back to 35 ppm

INITIAL INLET LINE VOC READING new line SAMPLE START TIME 1356 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 0.8 ppm FINAL WELL VOC READING 18.0 ppm

SAMPLE STOP TIME 1406 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Bethpage Landfill DATE Oct. 26, 92

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS Partly Sunny, WW to 15 mph

SAMPLE ID 2-1M13 382C(T) 371C(T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION E side of winding road Corner of cross road on winding road

WELL ID M13 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 0.5 ppm I INITIAL WELL VOC READING 2.9 ppm I

INITIAL INLET LINE VOC READING 0.8 ppm ± SAMPLE START TIME 1440 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 1.2 ppm FINAL WELL VOC READING 3.9 ppm

SAMPLE STOP TIME 1450 EDT DURATION 10 min

FINAL ROTAMETER READING _____ (READ FROM T C (B))

COMMENTS: Photovac reading dumps up & down.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LRBCBL2 LOCATION Old Bethpage Landfill DATE Oct. ~~27~~ 26 '92

INVESTIGATORS SM JM

GENERAL WEATHER CONDITIONS partly sunny. Var @ 15 mph

SAMPLE ID 2-1M16 882D (T) 875A (T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION N side of winding road

WELL ID M16 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 0.9 ppm INITIAL WELL VOC READING 4.0 ppm

INITIAL INLET LINE VOC READING 0.9 ppm (connect to amb) SAMPLE START TIME 1503 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 1.2 ppm FINAL WELL VOC READING 13.1 ppm

SAMPLE STOP TIME 1513 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck. OK change to use clean connecting lines before testing M16. stainless steel is 20" down the well

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Bethpage Landfill DATE Oct. 26, 12

INVESTIGATORS SM JW MB

GENERAL WEATHER CONDITIONS Cloudy NW 10 10mph

SAMPLE ID 2-1 M21 871 C 883 D

SAMPLER ID 5

PUMP ID 1

SAMPLE LOCATION W. side of Winding Road Cross section of winding of roadway

WELL ID M21

WELL DEPTH 30"

NOMINAL FLOW RATE 1 Lpm

NOMINAL SAMPLE VOLUME 10 L

INITIAL AMBIENT VOC READING 1.0 ppm

INITIAL WELL VOC READING 9.4 ppm

INITIAL INLET LINE VOC READING /

SAMPLE START TIME 1528 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 1.5 ppm

FINAL WELL VOC READING 12.4 ppm

SAMPLE STOP TIME 1538 EDT

DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck. OK 19" down the well, if more get wet.

55-58°F = range of Oct. 26 cooler temp. from (11:30 – 3:10 pm)

pump with photovac for 30" but testing and taking initial well samples for all 30" wells.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Bethpage Landfill DATE Oct. 26, 9-

INVESTIGATORS SM JW MB

GENERAL WEATHER CONDITIONS Sunny NW @ 10mph ~ 15 mph

SAMPLE ID 2-1M9(10') blue 882D(T) 875A(T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION deep well, east of main road.

WELL ID M9 (10') WELL DEPTH 10'

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 2.1 ppm INITIAL WELL VOC READING 8.5 ppm

INITIAL INLET LINE VOC READING / SAMPLE START TIME 1602 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 1.8 ppm FINAL WELL VOC READING 19 ppm

SAMPLE STOP TIME 1612 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck. OK, conditioning (pump) well before reading initial well reading for 1 min 30".

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LICBOBLE LOCATION Old Bethpage Landfill DATE Oct. 26, 92

INVESTIGATORS SM JW MB

GENERAL WEATHER CONDITIONS Sunny, NW @ 15 mph

SAMPLE ID 2-1 MW (20') Grab 8820(T) 8788(B) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION E. of W. Road.

WELL ID MW (20') WELL DEPTH 20'

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 L

INITIAL AMBIENT VOC READING 2.2 ppm INITIAL WELL VOC READING 54 ppm

INITIAL INLET LINE VOC READING / SAMPLE START TIME 1618 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 2.0 ppm FINAL WELL VOC READING ~~54~~ 9.4 ppm

SAMPLE STOP TIME 1628 EDT DURATION 10 min.

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK

pump 3' bef sampling.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LICBOBL2 LOCATION Old Bethpage Landfill DATE Oct. 26, 92

INVESTIGATORS mfb TH mfb

GENERAL WEATHER CONDITIONS partly sunny, SW 5 mph

SAMPLE ID 2-1MW (30) 882C (T) 371B (T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION MW

WELL ID MW (30') 2cd WELL DEPTH 30'

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 1.9 ppm INITIAL WELL VOC READING 4.4 ppm

INITIAL INLET LINE VOC READING ✓ SAMPLE START TIME 1635 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 2.0 ppm FINAL WELL VOC READING 9.0 ppm

SAMPLE STOP TIME 1645 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck.

pump well for 4'30" ~~bef~~ start.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Bethpage Landfill DATE Oct. 26, 92

INVESTIGATORS GM JW

GENERAL WEATHER CONDITIONS Sunny (partly), SW @ 5 mph

SAMPLE ID 2-1M9(40) 882C(T) 871B(T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION M9

WELL ID M9 (40) WELL DEPTH 40'

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10l

INITIAL AMBIENT VOC READING 2.1 ppm INITIAL WELL VOC READING 9.1 PPm

INITIAL INLET LINE VOC READING 6.0 ppm SAMPLE START TIME 1650 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 2.3 ppm FINAL WELL VOC READING 16.0 ppm

SAMPLE STOP TIME 1700 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck. OK

pump 6' bel. Start.

When conditioning the deep wells with SKC pump noted the damp inside tygon tubing connected to pump.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBCBL2 LOCATION Old Bethpage land fill DATE Oct. 26, 92

INVESTIGATORS SM/ JM

GENERAL WEATHER CONDITIONS Cloudy SW @ 5 mph

SAMPLE ID 2-1 M3 882 D (T) 871 C (T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION SW of the landfill in bushes

WELL ID M31 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 2.6 ppm INITIAL WELL VOC READING 5.0 ppm

INITIAL INLET LINE VOC READING / SAMPLE START TIME 1746 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 2.4PPm. FINAL WELL VOC READING 4.5 ppm

SAMPLE STOP TIME 1756 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LK13:522 LOCATION Old Bethpage Landfill DATE Oct. 26, 92

INVESTIGATORS SW TW

GENERAL WEATHER CONDITIONS Partly Sunny 50's @ E

SAMPLE ID 2-1 M28 8821 (T) 875 A (T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION W of recharge basin

WELL ID M28 WELL DEPTH 30"

NOMINAL FLOW RATE 1 Lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 2.3 ppm INITIAL WELL VOC READING up to 100 ppm, stopped @ 100 ppm.

INITIAL INLET LINE VOC READING / SAMPLE START TIME 1810 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 2.3 ppm FINAL WELL VOC READING 85 ppm

SAMPLE STOP TIME 1820 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LANDFILL LOCATION Mt Bethel Landfill DATE Oct. 26, 92

INVESTIGATORS

GENERAL WEATHER CONDITIONS (Sun mx) Sunny

SAMPLE ID 2-1M22 (T) 8820 (T/C) 8713

SAMPLER ID 5

PUMP ID 1

SAMPLE LOCATION Cross the road of trailer parking on NW of landfill

WELL ID M22

WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm

NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 2.3 ppm

INITIAL WELL VOC READING 45.0 ± PPm

INITIAL INLET LINE VOC READING /

SAMPLE START TIME 1837 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING ~~2.3 ppm~~ 3.9 ppm

FINAL WELL VOC READING ~~85 PPm~~ 9.4 ppm

SAMPLE STOP TIME 1847 EDT

DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LCBETH2 LOCATION Old Bethpage Landfill DATE Oct 26, 92

INVESTIGATORS [illegible]

GENERAL WEATHER CONDITIONS (Sun / Fair) Sunny

SAMPLE ID 2-1M39 (T) 882C (T/C) 875A SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION N. A.S. BLDG.

WELL ID M39 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 2.9 ppm INITIAL WELL VOC READING 4.9 ppm

INITIAL INLET LINE VOC READING / SAMPLE START TIME 1902 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING ~~3~~ 3.1 ppm FINAL WELL VOC READING ~~9.4~~ 22.8 ppm

SAMPLE STOP TIME 1912 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak Ck. OK

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID [illegible] LOCATION [illegible] DATE Oct. 26, 92

INVESTIGATORS Sm TW

GENERAL WEATHER CONDITIONS

SAMPLE ID 2-1M34 882C (T) 875A (T/C)

SAMPLER ID 5

PUMP ID 1

SAMPLE LOCATION By the road near trailers ~~between the ponds~~

WELL ID M34

WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm

NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 4.6 ppm

INITIAL WELL VOC READING 47 ppm

INITIAL INLET LINE VOC READING /

SAMPLE START TIME 1925 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 3.7 ppm

FINAL WELL VOC READING 28± ppm

SAMPLE STOP TIME 1935 EDT

DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck. ok

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKB3032.2 LOCATION Old Bethpage Landfill DATE Oct. 26, 92

INVESTIGATORS SM JW

GENERAL WEATHER CONDITIONS

SAMPLE ID 2-1 M37 882C (T) 871C (T/C) SAMPLER ID 5

PUMP ID 1 SAMPLE LOCATION behind the pond

WELL ID M37 WELL DEPTH 30"

NOMINAL FLOW RATE 1 lpm NOMINAL SAMPLE VOLUME 10 l

INITIAL AMBIENT VOC READING 3.1 ppm INITIAL WELL VOC READING 23± PPm

INITIAL INLET LINE VOC READING / SAMPLE START TIME 1949 EDT

INITIAL ROTAMETER READING 105 (READ FROM T C (B))

FINAL AMBIENT VOC READING 4.2 FINAL WELL VOC READING 5.5

SAMPLE STOP TIME 1959 EDT DURATION 10 min

FINAL ROTAMETER READING 105 (READ FROM T C (B))

COMMENTS: Leak ck OK.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Battleboro Landfill DATE Oct. 27, 92

INVESTIGATORS Jim Jeff

GENERAL WEATHER CONDITIONS Sunny NW @ 5-20 mph

SAMPLE ID 2-1 FB (A) 8820 (T) 8710 (T/C) SAMPLER ID /

PUMP ID / SAMPLE LOCATION Ambient A2 & A3 site

WELL ID / WELL DEPTH /

NOMINAL FLOW RATE / NOMINAL SAMPLE VOLUME /

INITIAL AMBIENT VOC READING / INITIAL WELL VOC READING /

INITIAL INLET LINE VOC READING / SAMPLE START TIME /

INITIAL ROTAMETER READING / (READ FROM T C B)

FINAL AMBIENT VOC READING / FINAL WELL VOC READING /

SAMPLE STOP TIME / DURATION /

FINAL ROTAMETER READING / (READ FROM T C B)

COMMENTS: open the traps to atmosphere for 20", Label and purge

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL2 LOCATION Old Betzpage Landfill DATE Oct. 27, 92

INVESTIGATORS BM JM

GENERAL WEATHER CONDITIONS Sunny NW to 8- 20 mph

SAMPLE ID 2-1 FB (B) 8820 (T) 8710 (T/C) SAMPLER ID /

PUMP ID / SAMPLE LOCATION ambient A2 & A3 site

WELL ID / WELL DEPTH /

NOMINAL FLOW RATE / NOMINAL SAMPLE VOLUME /

INITIAL AMBIENT VOC READING / INITIAL WELL VOC READING /

INITIAL INLET LINE VOC READING / SAMPLE START TIME /

INITIAL ROTAMETER READING / (READ FROM T C B)

FINAL AMBIENT VOC READING / FINAL WELL VOC READING /

SAMPLE STOP TIME / DURATION /

FINAL ROTAMETER READING / (READ FROM T C B)

COMMENTS: Smell horses while taking this field blank sample.

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID LKBOBL LOCATION Old Bethpage Landfill DATE Oct. 27, 92

INVESTIGATORS [illegible]

GENERAL WEATHER CONDITIONS Sunny NW @ 8-15 mph

SAMPLE ID 2-1TB(A) 882D(T) 871B(T/C) SAMPLER ID /

PUMP ID / SAMPLE LOCATION ambient sample A4

WELL ID / WELL DEPTH /

NOMINAL FLOW RATE / NOMINAL SAMPLE VOLUME /

INITIAL AMBIENT VOC READING 0.0 ppm INITIAL WELL VOC READING /

INITIAL INLET LINE VOC READING / SAMPLE START TIME /

INITIAL ROTAMETER READING / (READ FROM T C B)

FINAL AMBIENT VOC READING / FINAL WELL VOC READING /

SAMPLE STOP TIME / DURATION /

FINAL ROTAMETER READING / (READ FROM T C B)

COMMENTS:

SOIL GAS WELL SAMPLING DATA SHEET

PROJECT ID 2KBOBL2 LOCATION Old Bethpage Landfill DATE Oct. 27, 92

INVESTIGATORS BM JW

GENERAL WEATHER CONDITIONS Sunny, Wind @ 8-20 mph

SAMPLE ID 2-1TB(B) 3820 (T) 3716 (T/C) SAMPLER ID ___

PUMP ID ___ SAMPLE LOCATION A2 & A3 Site

WELL ID ___ WELL DEPTH ___

NOMINAL FLOW RATE ___ NOMINAL SAMPLE VOLUME ___

INITIAL AMBIENT VOC READING ___ INITIAL WELL VOC READING ___

INITIAL INLET LINE VOC READING ___ SAMPLE START TIME ___

INITIAL ROTAMETER READING ___ (READ FROM T C B)

FINAL AMBIENT VOC READING ___ FINAL WELL VOC READING ___

SAMPLE STOP TIME ___ DURATION ___

FINAL ROTAMETER READING ___ (READ FROM T C B)

COMMENTS: A car driven by while taking this sample

Oct. 28, 92. Well Pressure Reading

1. PW2 (SE of the landfill)

Sunny day. use pitot flow equip. Leak ck. OK, re zero.

{Green = -0.035" water 2nd readj on Green @ = -0.04" H_2O

Blue = 0.0" H_2O 2nd readj = 0.0" H_2O

2. ~~Ptw1~~ ~~Fireman's Training Center~~, PW3

Sunny, ~~some training activity~~ leak ck Till it's ok. zero. level.

{Blue = 0.00 "H_2O, 2nd Readj = 0.00 "H_2O

Green = +0.04" "H_2O 2nd Readj = +0.04 "H_2O

3. PW3 ~~NW of the landfill. Plot~~ Fireman's T.C. F9, @ 1140 EDT

Sunny, Training activity is going on at one of the structure. Leak ck. ok

{Red = -0.11 "H_2O, 2nd reading = -0.11" H_2O

Green = -0.16 "H_2O, 2nd reading = -0.11" H_2O

processes: setup → leak ck → zero → level → reading number →

ck. zero again → readj again

APPENDIX F

EQUIPMENT CALIBRATIONS

PUMP CALIBRATION SHEET

Project: LK130BL2
Date: 10/21/92 Pre
Time: 1345 - 1358

Barometric Pressure, (Pb): 30.096 (in-Hg)
Temperature, (T): 21.1 (C)
Operator: DSM

~~Pump ID:~~ → 4 w/ Low flow Rotameter Module

Black

Rotameter Reading (Bottom of the Ball)					
56	50	45			
Sampling Medium					
TETC	TETC	TETC			
Actual Liters Per Minute, ALPM					
83.8	70.7	58.4			
83.7	70.4	58.4			
83.8	70.6	58.5			
84.0	70.6	58.5			
83.7	70.6	58.5			
83.6	70.7	58.5			
84.0	70.6	58.5			
83.8	70.6	58.4			
83.9	70.6	58.4			
84.0	70.6	58.5			
Avg(ALPM)					
83.8	70.6	58.5			
Average Standard Liters Per Minute, Avg(SLPM)					

SLPM = ALPM x {[(Pb-Pv)/29.92] x [293/(273+T)]}
C = (5/9) x (F-32)

Vapor Pressure (Pv) Table	
(C)	(In-Hg)
15	0.50
16	0.54
17	0.57
18	0.61
19	0.65
20	0.69
21	0.73
22	0.78
23	0.83
24	0.88
25	0.94
26	0.99
27	1.06
28	1.12
29	1.18
30	1.25
31	1.33
32	1.40

Remarks:

Remarks: Calibrated w/ full Ambient Vent Train

PUMP CALIBRATION SHEET

Project: LA30BL2
Date: 10/21/92 PC
Time: 1500 - 1545
~~Pump ID:~~ High Flow Rotameter

Barometric Pressure, (Pb): 30.09 (in-Hg)
Temperature, (T): 21.1 (C)
Operator: RSM

Rotameter Reading (Bottom of the Ball)					
80	85	90	105	110	115
Sampling Medium					
TE/C →					
Actual Liters Per Minute, ALPM					
.657	.705	.743	.891	.937	.982
.659	.704	.749	.893	.937	.979
.661	.705	.750	.889	.936	.982
.662	.704	.750	.894	.937	.982
.662	.704	.750	.887	.940	.982
.660	.704	.749	.889	.941	.9825
.659	.705	.749	.889	.937	.984
.660	.705	.749	.891	.937	.982
.663	.703	.747	.892	.937	.980
.660	.704	.749	.890	.937	.982
Avg(ALPM)					
.660	.704	.749	.891	.937	.982
Average Standard Liters Per Minute, Avg(SLPM)					

SLPM = ALPM x {[(Pb-Pv)/29.92] x [293/(273+T)]}
C = (5/9) x (F-32)

Vapor Pressure (Pv) Table	
(C)	(In-Hg)
15	0.50
16	0.54
17	0.57
18	0.61
19	0.65
20	0.69
21	0.73
22	0.78
23	0.83
24	0.88
25	0.94
26	0.99
27	1.06
28	1.12
29	1.18
30	1.25
31	1.33
32	1.40

Remarks:

Remarks: Cal. w/ Full Assy. UUST Train

PUMP CALIBRATION SHEET

Project: LH803L2-1 [redacted]
Date: [redacted] 1992 Post
Time: 1240 – 1310 EDT
Pump ID: Low Flow RR

Barometric Pressure, (Pb): 30.08 (in-Hg)
Temperature, (T): 21 (F)
Operator: RSM

Low Flow Ambient ↓

Black ↑

Rotameter Reading (Bottom of the Ball)					
50	56				
Sampling Medium					
T/TBC	TETC				
Actual Liters Per Minutes, ALPM					
70.5	83.7				
70.6	83.7				
70.6	83.7				
70.6	83.5				
70.6	83.7				
70.7	83.7				
70.7	83.6				
70.6	83.7				
70.6	83.9				
70.6	83.7				
Avg(ALPM)					
70.6	83.7				
Average Standard Liters Per Minute, Avg(SLPM)					

SLPM = ALPM x {[(Pb–Pv)/29.92] x [293/(273+T)]}
C = (5/9) x (F–32)

Vapor Pressure (Pv) Table	
(C)	(In-Hg)
15	0.50
16	0.54
17	0.57
18	0.61
19	0.65
20	0.69
21	0.73
22	0.78
23	0.83
24	0.88
25	0.94
26	0.99
27	1.06
28	1.12
29	1.18
30	1.25
31	1.33
32	1.40

Remarks:

Remarks:

PUMP CALIBRATION SHEET

Project: LHSOBL2-1
Date: Post ,1992
Time: 1315 - 1400 EDT
Pump ID: high flow RR

Barometric Pressure, (Pb): 30.08 (in-Hg)
Temperature, (T): 21 (F)
Operator: RSM

Rotameter Reading (Bottom of the Ball)					
85	90	105			
Sampling Medium					
TET/C	TET/C	TET/C			
Actual Liters Per Minutes, ALPM					
.703	.75	.894			
.704	.75	.894			
.704	.751	.894			
.704	.751	.894			
.705	.751	.896			
.705	.752	.896			
.704	.752	.895			
.704	.752	.895			
.704	.752	.895			
.703	.752	.895			
Avg(ALPM)					
0.704	0.751	0.895			
Average Standard Liters Per Minute, Avg(SLPM)					

SLPM = ALPM x {[(Pb-Pv)/29.92] x [293/(273+T)]}
C = (5/9) x (F-32)

Vapor Pressure (Pv) Table	
(C)	(in-Hg)
15	0.50
16	0.54
17	0.57
18	0.61
19	0.65
20	0.69
21	0.73
22	0.78
23	0.83
24	0.88
25	0.94
26	0.99
27	1.06
28	1.12
29	1.18
30	1.25
31	1.33
32	1.40

Remarks:

Remarks:

APPENDIX G

METEOROLOGICAL MONITORING DATA

10/29/92

Download met data into computer.

① set up subdir. under c:\campbell\campnew\LKBT822

② Download all met data collected in old met sm192. Save useful data under {2-1up.dat}. It means 2nd year, 1st quarterly test, upwind sampling location met data. All useful data is saved, before next sampling effort, it's OK to delete all data stored in old sm192 if it's necessary.

③ Download all met data collected in new met sm192. Save useful data under {2-1top.dat} meaning 2nd year, 1st quarterly testing met data collected atop of the landfill. Now it's ok to delete data in this sm192 since all useful data has be collected and saved.

④ Add data for 1100 EDT on 10/26/92 in 2-1up.Tbl Since data starts @ 1030 EDT on 10/26/92. To get data for 1100 EDT, use 1030 & 1045 avg. @1100.

~~299+1 10.30 5.822~~
~~300 10.45 6~~

299	1030	5.872	280.1	31.19	48.13	44.26	29.68
299	1045	6.202	298.7	38.94	46.32	46.36	29.66
299	1100	7.130	285.0	32.28	48.06	45.32	29.67
299	1100	6.401	281.3	34.14	47.50	45.31	29.67
(J.day)	(Time)	(mph)	(WD)	(σ_θ)	(F°)	(%)	(in-Hg)
+1			+17°				
"		2.861	"				
300		(m/s)	298.3°				

⑤ Compare avg. data from both atop ~~of~~ the landfill and upwind location

	Ws p (m/s)	WD	σ_θ (Horizontal)	Temp (F°)	RH (%)	P (in-Hg)
upwind	2.05	271	29.62	50	61	29.68
top of landfill	5.12	270	12.64	50	51	29.46

$\Delta = 0.22$ (in-Hg)

⑥ Procedure of Data Processing:

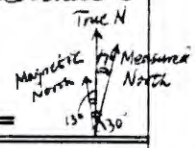
Download (*.dat) → Split (*.met) → Lotus (*.TBL)

METEOROLOGICAL EQUIPMENT SITING DATA SHEET

Project: LRBOBL2

Project Site: OBSWDC

Operators: JW SM MB

Instrument No.1 (old)	Instrument No.2 (new)
Location: camping park at upwind high flow ambient air sampling location. This ambient sample is A1, west of Asphalt plant.	**Location:** Atop the landfill on northern end area of highest elevation.
Initial Battery Voltage: 12.5	**Initial Battery Voltage:** 12.5
Wind Dir. Reference: Degree bet. magnetic N and equip N is 30°. Local magnetic angle of declination is about 13°.  **True WD = Measured WD (+) (17°) =**	**Wind Dir. Reference:** Compass is used. The angle between magnetic North and measured north is zero. So the measured North is 13° west of true North. **True WD = Measured WD – (13°) =**
Date & Julian Day to Set Up: Oct. 26, 1992 (Julian day 299+1=300) **Start Time (Local):** ~10:38	**Date & Julian Day to Set Up:** Oct. 23, 1992 (Julian day = 296+1=297 **Start Time (Local):** ~10:20 Am
Date & Julian Day to Take Down: 10:55 Am on Oct. 27, 1992 **Stop Time (Local):**	**Date & Julian Day to Take Down:** Oct. 27, 1992. **Stop Time (Local):** ~11:40 Am.
Remarks: final voltage = 12.48 @ 10:56 Am on Oct. 27, 1992. Read 5° wind vane and tele-tower is in line.	**Remarks:** Final Voltage = 11.43 on 1140 on Oct. 27, 1992. C/R. system on Oct. 26 92 @ 8:01 EDT. The voltage was 12.08.

[illegible]
[illegible]
[illegible]
[illegible]

Meteorological Condition During Testing
(Upwind Sampling Location) Camping Trailer Park

Julian Day	Hr&Min	W.Sp (m/s)	WD (deg)	Sigma Theta	Temp (F)	RH (%)	Pres (in-Hg)	
300	1100	2.86	248	34.14	48	45	29.67	* (see notes on 10/27/92)
300	1200	3.31	289	29.69	50	44	29.67	
300	1300	3.26	287	31.26	52	41	29.65	
300	1400	3.01	268	28.92	55	37	29.64	
300	1500	3.01	267	29.21	54	35	29.63	
300	1600	2.05	247	22.39	54	38	29.63	
300	1700	1.89	245	24.93	54	40	29.62	
300	1800	2.11	243	17.90	52	42	29.63	
300	1900	2.11	239	18.79	53	48	29.66	
300	2000	2.28	232	14.98	53	52	29.67	
300	2100	1.90	228	14.00	52	59	29.67	
300	2200	1.37	227	12.82	50	72	29.66	
300	2300	1.09	233	24.43	48	82	29.65	
300	2400	0.65	272	66.63	46	89	29.65	
301	100	0.72	240	50.78	45	93	29.66	
301	200	0.98	251	39.44	47	88	29.66	
301	300	1.42	279	34.36	49	83	29.66	
301	400	2.12	307	31.06	50	74	29.67	
301	500	1.79	294	35.46	50	70	29.70	
301	600	1.64	298	28.74	48	73	29.72	
301	700	2.05	307	29.87	47	69	29.74	
301	800	1.60	305	34.78	47	68	29.79	
301	900	2.51	311	32.28	49	65	29.83	
301	1000	3.40	348	24.00	50	63	29.85	
avg.		2.05	271	29.62	50	61	29.68	

*: Data for 1100 EDT is based on average of 1030, 1045 and 1100 EDT.

This program downloaded to storage media 5/21/92 under instruction of Adams. (Compare to SM192). This program will collect both 15m & 1hr data.

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Program Name:8779A.DOC
Customer:R.T.P. ENVIRONMENTAL, INC.
Climatronics Job No:8779A
Revision/Date:REV 0/ JULY 12, 1989
              REV 1/ AUGUST 22, 1991 REVISED TO 6330
                     EPROM AND P69 INST. FOR WD
              REV 2/ MAY 20, 1992 ADDED 1 HR. AVERAGE

Flag Usage:0 = OUTPUT
Input Channel Usage:
S.E.01 = WIND DIRECTION
S.E.02 = TEMPERATURE
S.E.03 = HUMIDITY
S.E.04 = PRESSURE

Excitation Channel Usage:
E1 = WIND DIRECTION
E2 = TEMPERATURE/HUMIDITY

Control Port Usage:NONE
Pulse Input Channel Usage:
P1 = WIND SPEED
P2 = PRECIPITATION

Output Array Definitions:
01 = EXECUTION LOCATION
02 = JULIAN DATE
03 = TIME (HH:MM)
04 = AVERAGE WIND SPEED (MPH)
05 = AVERAGE WIND DIRECTION (DEGREES)
06 = STANDARD DEVIATION OF WIND DIRECTION (DEGREES)
07 = AVERAGE TEMPERATURE (DEGREES F)
08 = AVERAGE HUMIDITY (PERCENT)
09 = AVERAGE PRESSURE (INCHES/HG)
10 = TOTAL RAINFALL (INCHES)
11 = AVERAGE BATTERY VOLTAGE (VDC)


*     1         Table 1 Programs
  01: 1.0000    Sec. Execution Interval

01:   P3        Pulse                 ***** MEASURE WIND SPEED SENSOR
  01: 1         Rep
  02: 1         Pulse Input Chan
  03: 0         High frequency
  04: 1         Loc [:WINDSPEED]
  05: .14388    Mult
  06: 0.5000    Offset
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LH3035.

12-1 Tlp. Cut
10/29/92

09+29.76	10+0.000	11+12.57						
01+0109.	02+0299.	03+0715.	04+0.500	05+08.47	06+0.000	07+69.02	08+28.81	
09+29.77	10+0.000	11+12.57						
01+0109.	02+0299.	03+0730.	04+0.500	05+08.47	06+0.099	07+68.90	08+27.64	
09+29.77	10+0.000	11+12.57						
01+0109.	02+0299.	03+0745.	04+0.500	05+08.46	06+0.199	07+64.77	08+24.63	
09+29.77	10+0.000	11+12.57						
01+0109.	02+0299.	03+0800.	04+0.500	05+08.32	06+0.260	07+58.43	08+32.62	
09+29.75	10+0.000	11+12.56						
01+0115.	02+0299.	03+0800.	04+0.500	05+08.43	06+0.530	07+65.28	08+28.42	
09+29.76	10+0.000	11+12.56						
01+0109.	02+0299.	03+0815.	04+0.500	05+08.09	06+0.280	07+55.08	08+38.14	
09+29.72	10+0.000	11+12.56						
01+0109.	02+0299.	03+0830.	04+0.500	05+08.03	06+0.212	07+53.68	08+42.62	
09+29.75	10+0.000	11+12.56						
01+0109.	02+0299.	03+0845.	04+0.500	05+07.99	06+0.204	07+53.21	08+45.39	
09+29.70	10+0.000	11+12.55						
01+0109.	02+0299.	03+0900.	04+0.500	05+07.95	06+0.328	07+53.02	08+43.92	
09+29.72	10+0.000	11+12.56						
01+0115.	02+0299.	03+0900.	04+0.500	05+08.01	06+0.315	07+53.75	08+42.52	
09+29.72	10+0.000	11+12.56						
01+0109.	02+0299.	03+0915.	04+0.500	05+07.62	06+0.344	07+52.97	08+44.64	
09+29.72	10+0.000	11+12.54						
01+0109.	02+0299.	03+0930.	04+0.500	05+07.57	06+0.321	07+53.11	08+43.56	
09+29.73	10+0.000	11+12.54						
01+0109.	02+0299.	03+0945.	04+0.500	05+07.55	06+0.282	07+53.68	08+43.04	
09+29.73	10+0.000	11+12.54						
01+0109.	02+0299.	03+1000.	04+0.500	05+07.53	06+0.314	07+54.84	08+42.55	
09+29.72	10+0.000	11+12.54						
01+0115.	02+0299.	03+1000.	04+0.500	05+07.57	06+0.000	07+53.65	08+43.45	
09+29.72	10+0.000	11+12.54						
01+0109.	02+0299.	03+1015.	04+1.366	05+359.1	06+33.97	07+55.83	08+41.54	
09+29.68	10+0.010	11+12.54						
01+0109.	02+0299.	03+1030.	04+5.872	05+280.1	06+31.19	07+48.13	08+44.26	
09+29.68	10+0.000	11+12.53						
01+0109.	02+0299.	03+1045.	04+6.202	05+278.7	06+38.94	07+46.32	08+46.36	
09+29.66	10+0.000	11+12.53						
01+0109.	02+0299.	03+1100.	04+07.13	05+285.0	06+32.28	07+48.06	08+45.32	
09+29.67	10+0.000	11+12.53						
01+0115.	02+0299.	03+1100.	04+5.142	05+298.3	06+48.08	07+49.59	08+44.37	
09+29.67	10+0.010	11+12.53						
01+0109.	02+0299.	03+1115.	04+07.39	05+282.1	06+30.85	07+48.50	08+44.79	
09+29.67	10+0.000	11+12.54						
01+0109.	02+0299.	03+1130.	04+07.54	05+274.3	06+27.76	07+49.05	08+44.06	
09+29.67	10+0.000	11+12.54						
01+0109.	02+0299.	03+1145.	04+07.11	05+272.9	06+27.82	07+49.82	08+43.72	
09+29.66	10+0.000	11+12.54						
01+0109.	02+0299.	03+1200.	04+07.57	05+257.8	06+26.92	07+50.90	08+42.90	
09+29.66	10+0.000	11+12.54						
01+0115.	02+0299.	03+1200.	04+07.40	05+271.7	06+29.69	07+49.57	08+43.87	
09+29.67	10+0.000	11+12.54						
01+0109.	02+0299.	03+1215.	04+07.77	05+259.5	06+30.99	07+51.26	08+41.69	
09+29.66	10+0.000	11+12.54						
01+0109.	02+0299.	03+1230.	04+07.30	05+275.7	06+30.48	07+51.63	08+41.67	
09+29.65	10+0.000	11+12.53						
01+0109.	02+0299.	03+1245.	04+6.869	05+268.3	06+32.77	07+52.49	08+40.68	
09+29.64	10+0.000	11+12.54						
01+0109.	02+0299.	03+1300.	04+07.21	05+276.0	06+27.71	07+53.15	08+39.04	
09+29.64	10+0.000	11+12.54						
01+0115.	02+0299.	03+1300.	04+07.29	05+269.9	06+31.26	07+52.13	08+40.74	
09+29.65	10+0.000	11+12.54						
01+0109.	02+0299.	03+1315.	04+6.172	05+259.2	06+27.66	07+54.50	08+39.04	
09+29.65	10+0.000	11+12.54						
01+0109.	02+0299.	03+1330.	04+07.22	05+244.9	06+31.16	07+54.91	08+37.78	
09+29.64	10+0.000	11+12.54						
01+0109.	02+0299.	03+1345.	04+07.18	05+246.8	06+26.04	07+55.12	08+35.72	
09+29.64	10+0.000	11+12.53						
01+0109.	02+0299.	03+1400.	04+6.333	05+253.1	06+28.44	07+55.33	08+35.19	
09+29.64	10+0.000	11+12.54						
01+0115.	02+0299.	03+1400.	04+6.726	05+251.0	06+28.92	07+54.97	08+36.93	
09+29.64	10+0.000	11+12.54						
01+0109.	02+0299.	03+1415.	04+07.27	05+247.0	06+26.85	07+55.33	08+34.75	
09+29.64	10+0.000	11+12.54						
01+0109.	02+0299.	03+1430.	04+07.83	05+229.7	06+23.25	07+54.32	08+33.87	
09+29.64	10+0.000	11+12.53						
01+0109.	02+0299.	03+1445.	04+5.877	05+255.1	06+28.84	07+54.52	08+34.41	
09+29.63	10+0.000	11+12.53						
01+0109.	02+0299.	03+1500.	04+5.963	05+267.0	06+24.09	07+53.75	08+35.68	
09+29.63	10+0.000	11+12.53						
01+0115.	02+0299.	03+1500.	04+6.735	05+249.7	06+29.21	07+54.48	08+34.68	
09+29.63	10+0.000	11+12.53						
01+0109.	02+0299.	03+1515.	04+5.156	05+234.1	06+23.56	07+53.46	08+37.00	
09+29.63	10+0.000	11+12.52						
01+0109.	02+0299.	03+1530.	04+4.534	05+230.3	06+24.38	07+53.55	08+37.90	
09+29.63	10+0.000	11+12.52						
01+0109.	02+0299.	03+1545.	04+4.700	05+230.6	06+22.13	07+53.89	08+38.74	
09+29.63	10+0.000	11+12.51						
01+0109.	02+0299.	03+1600.	04+3.967	05+226.1	06+18.35	07+53.87	08+39.63	
09+29.62	10+0.000	11+12.51						

T17

Here 299 = 10/26/92 although 10/26 should be 300 since 1992 is leap year

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01+0115.  02+0299.  03+1600.  04+4.589  05+230.3  06+22.39  07+53.69  08+38.32
09+29.63  10+0.000  11+12.51
01+0109.  02+0299.  03+1615.  04+4.053  05+240.3  06+26.05  07+53.84  08+39.69
09+29.62  10+0.000  11+12.50
01+0109.  02+0299.  03+1630.  04+3.765  05+237.2  06+24.14  07+53.60  08+39.45
09+29.61  10+0.000  11+12.50
01+0109.  02+0299.  03+1645.  04+4.042  05+225.5  06+19.98  07+53.46  08+40.13
09+29.62  10+0.000  11+12.50
01+0109.  02+0299.  03+1700.  04+5.036  05+210.9  06+17.36  07+53.36  08+40.97
09+29.62  10+0.000  11+12.50
01+0115.  02+0299.  03+1700.  04+4.224  05+228.2  06+24.93  07+53.57  08+40.06
09+29.62  10+0.000  11+12.50
01+0109.  02+0299.  03+1715.  04+4.157  05+228.2  06+17.21  07+52.96  08+41.40
09+29.63  10+0.000  11+12.50
01+0109.  02+0299.  03+1730.  04+3.809  05+222.4  06+16.64  07+52.20  08+41.68
09+29.63  10+0.000  11+12.50
01+0109.  02+0299.  03+1745.  04+4.664  05+225.5  06+18.48  07+51.99  08+42.83
09+29.63  10+0.000  11+12.50
01+0109.  02+0299.  03+1800.  04+6.214  05+226.5  06+18.68  07+52.48  08+43.99
09+29.64  10+0.000  11+12.49
01+0115.  02+0299.  03+1800.  04+4.711  05+225.6  06+17.90  07+52.41  08+42.48
09+29.63  10+0.000  11+12.49
01+0109.  02+0299.  03+1815.  04+4.857  05+228.4  06+20.38  07+52.52  08+45.82
09+29.65  10+0.000  11+12.49
01+0109.  02+0299.  03+1830.  04+4.969  05+226.3  06+18.27  07+52.64  08+47.43
09+29.65  10+0.000  11+12.48
01+0109.  02+0299.  03+1845.  04+4.573  05+218.0  06+16.31  07+52.68  08+48.92
09+29.66  10+0.000  11+12.48
01+0109.  02+0299.  03+1900.  04+4.463  05+217.2  06+17.40  07+52.58  08+50.16
09+29.66  10+0.000  11+12.48
01+0115.  02+0299.  03+1900.  04+4.715  05+222.4  06+18.79  07+52.60  08+48.08
09+29.66  10+0.000  11+12.48
01+0109.  02+0299.  03+1915.  04+5.029  05+218.1  06+14.43  07+52.71  08+50.88
09+29.66  10+0.000  11+12.48
01+0109.  02+0299.  03+1930.  04+4.712  05+214.9  06+15.24  07+52.69  08+51.38
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+1945.  04+5.796  05+212.0  06+14.60  07+52.69  08+51.89
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+2000.  04+4.831  05+213.8  06+15.00  07+52.64  08+52.67
09+29.67  10+0.000  11+12.48
01+0115.  02+0299.  03+2000.  04+5.092  05+214.7  06+14.98  07+52.68  08+51.70
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+2015.  04+4.636  05+212.9  06+12.99  07+52.31  08+54.29
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+2030.  04+4.370  05+207.9  06+13.04  07+51.95  08+57.18
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+2045.  04+4.189  05+207.9  06+14.22  07+51.57  08+60.81
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+2100.  04+3.824  05+213.4  06+14.68  07+51.19  08+64.12
09+29.66  10+0.000  11+12.48
01+0115.  02+0299.  03+2100.  04+4.255  05+210.5  06+14.00  07+51.75  08+59.10
09+29.67  10+0.000  11+12.48
01+0109.  02+0299.  03+2115.  04+3.572  05+215.4  06+12.99  07+50.72  08+66.33
09+29.66  10+0.000  11+12.47
01+0109.  02+0299.  03+2130.  04+2.889  05+210.8  06+10.99  07+49.97  08+69.51
09+29.66  10+0.000  11+12.47
01+0109.  02+0299.  03+2145.  04+2.956  05+205.8  06+12.85  07+49.20  08+074.0
09+29.66  10+0.000  11+12.47
01+0109.  02+0299.  03+2200.  04+2.819  05+205.9  06+11.85  07+48.82  08+077.0
09+29.66  10+0.000  11+12.46
01+0115.  02+0299.  03+2200.  04+3.059  05+209.5  06+12.82  07+49.66  08+071.7
09+29.66  10+0.000  11+12.46
01+0109.  02+0299.  03+2215.  04+2.659  05+211.1  06+13.65  07+48.41  08+078.3
09+29.66  10+0.000  11+12.46
01+0109.  02+0299.  03+2230.  04+2.450  05+220.4  06+32.39  07+48.12  08+080.7
09+29.65  10+0.000  11+12.46
01+0109.  02+0299.  03+2245.  04+2.645  05+208.6  06+23.66  07+47.61  08+083.7
09+29.65  10+0.000  11+12.45
01+0109.  02+0299.  03+2300.  04+1.961  05+224.3  06+21.35  07+47.34  08+085.7
09+29.65  10+0.000  11+12.46
01+0115.  02+0299.  03+2300.  04+2.429  05+216.0  06+24.43  07+47.87  08+082.1
09+29.65  10+0.000  11+12.46
01+0109.  02+0299.  03+2315.  04+1.481  05+239.8  06+35.57  07+46.35  08+087.9
09+29.65  10+0.000  11+12.45
01+0109.  02+0299.  03+2330.  04+1.663  05+259.0  06+35.78  07+46.06  08+089.9
09+29.65  10+0.000  11+12.45
01+0109.  02+0299.  03+2345.  04+1.838  05+216.8  06+31.08  07+46.63  08+088.4
09+29.66  10+0.000  11+12.45
01+0109.  02+0299.  03+2400.  04+0.864  05+09.50  06+41.14  07+45.76  08+088.6
09+29.66  10+0.000  11+12.44
01+0115.  02+0299.  03+2400.  04+1.462  05+255.3  06+66.63  07+46.20  08+088.7
09+29.65  10+0.000  11+12.44
01+0109.  02+0300.  03+0015.  04+1.557  05+266.6  06+076.5  07+44.44  08+091.1
09+29.66  10+0.000  11+12.44
01+0109.  02+0300.  03+0030.  04+1.276  05+246.5  06+42.93  07+43.86  08+094.9
09+29.66  10+0.000  11+12.44
01+0109.  02+0300.  03+0045.  04+1.796  05+194.0  06+19.34  07+44.61  08+094.3
09+29.66  10+0.000  11+12.44
01+0109.  02+0300.  03+0100.  04+1.836  05+215.9  06+25.05  07+45.30  08+093.2
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09+29.66 10+0.000 11+12.44
01+0115. 02+0300. 03+0100. 04+1.616 05+222.7 06+50.78 07+44.55 08+093.4
09+29.66 10+0.000 11+12.44
01+0109. 02+0300. 03+0115. 04+1.554 05+205.3 06+24.97 07+46.36 08+089.6
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0130. 04+1.884 05+217.3 06+32.53 07+46.23 08+089.2
09+29.67 10+0.000 11+12.43
01+0109. 02+0300. 03+0145. 04+2.797 05+250.0 06+35.32 07+46.77 08+088.0
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0200. 04+2.495 05+265.8 06+29.27 07+47.64 08+086.0
09+29.66 10+0.000 11+12.43
01+0115. 02+0300. 03+0200. 04+2.182 05+234.2 06+39.44 07+46.75 08+088.2
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0215. 04+2.565 05+232.6 06+33.89 07+47.96 08+085.4
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0230. 04+2.906 05+268.2 06+31.59 07+48.35 08+084.1
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0245. 04+3.240 05+282.3 06+27.30 07+48.90 08+081.5
09+29.66 10+0.000 11+12.42
01+0109. 02+0300. 03+0300. 04+3.974 05+261.2 06+23.73 07+49.05 08+079.6
09+29.66 10+0.000 11+12.43
01+0115. 02+0300. 03+0300. 04+3.171 05+261.6 06+34.36 07+48.57 08+082.6
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0315. 04+4.178 05+271.1 06+25.63 07+49.26 08+077.6
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0330. 04+4.279 05+279.7 06+28.72 07+49.46 08+075.6
09+29.66 10+0.000 11+12.43
01+0109. 02+0300. 03+0345. 04+5.550 05+306.3 06+27.57 07+50.09 08+072.4
09+29.67 10+0.000 11+12.43
01+0109. 02+0300. 03+0400. 04+4.924 05+302.0 06+27.22 07+50.23 08+70.00
09+29.68 10+0.000 11+12.43
01+0115. 02+0300. 03+0400. 04+4.733 05+289.7 06+31.06 07+49.76 08+073.9
09+29.67 10+0.000 11+12.43
01+0109. 02+0300. 03+0415. 04+5.894 05+292.8 06+27.85 07+50.40 08+68.75
09+29.69 10+0.000 11+12.42
01+0109. 02+0300. 03+0430. 04+4.280 05+289.9 06+33.59 07+50.15 08+68.92
09+29.69 10+0.000 11+12.43
01+0109. 02+0300. 03+0445. 04+2.858 05+276.9 06+27.62 07+49.68 08+69.92
09+29.70 10+0.000 11+12.43
01+0109. 02+0300. 03+0500. 04+3.017 05+245.1 06+30.77 07+48.94 08+071.8
09+29.70 10+0.000 11+12.42
01+0115. 02+0300. 03+0500. 04+4.012 05+276.5 06+35.46 07+49.79 08+69.84
09+29.70 10+0.000 11+12.42
01+0109. 02+0300. 03+0515. 04+3.137 05+273.6 06+33.12 07+48.50 08+072.9
09+29.71 10+0.000 11+12.42
01+0109. 02+0300. 03+0530. 04+2.967 05+291.0 06+23.81 07+48.36 08+073.5
09+29.72 10+0.000 11+12.42
01+0109. 02+0300. 03+0545. 04+3.479 05+277.1 06+28.61 07+47.73 08+074.7
09+29.73 10+0.000 11+12.43
01+0109. 02+0300. 03+0600. 04+5.055 05+283.0 06+25.74 07+47.93 08+071.0
09+29.73 10+0.000 11+12.42
01+0115. 02+0300. 03+0600. 04+3.660 05+281.3 06+28.76 07+48.13 08+073.0
09+29.72 10+0.000 11+12.42
01+0109. 02+0300. 03+0615. 04+5.497 05+272.2 06+27.33 07+47.58 08+69.32
09+29.73 10+0.000 11+12.42
01+0109. 02+0300. 03+0630. 04+5.667 05+293.1 06+20.97 07+47.48 08+67.60
09+29.74 10+0.000 11+12.42
01+0109. 02+0300. 03+0645. 04+3.577 05+299.0 06+30.92 07+46.86 08+68.38
09+29.75 10+0.000 11+12.42
01+0109. 02+0300. 03+0700. 04+3.563 05+296.8 06+31.51 07+46.53 08+68.74
09+29.76 10+0.000 11+12.42
01+0115. 02+0300. 03+0700. 04+4.576 05+290.3 06+29.87 07+47.11 08+68.51
09+29.74 10+0.000 11+12.42
01+0109. 02+0300. 03+0715. 04+3.189 05+301.1 06+33.64 07+46.50 08+68.81
09+29.76 10+0.000 11+12.42
01+0109. 02+0300. 03+0730. 04+2.833 05+281.2 06+35.59 07+46.93 08+68.62
09+29.78 10+0.000 11+12.43
01+0109. 02+0300. 03+0745. 04+3.910 05+279.7 06+28.25 07+47.65 08+67.98
09+29.79 10+0.000 11+12.44
01+0109. 02+0300. 03+0800. 04+4.389 05+288.5 06+37.01 07+48.20 08+67.18
09+29.81 10+0.000 11+12.45
01+0115. 02+0300. 03+0800. 04+3.580 05+287.5 06+34.78 07+47.32 08+68.14
09+29.78 10+0.000 11+12.43
01+0109. 02+0300. 03+0815. 04+5.015 05+276.4 06+31.72 07+48.56 08+66.13
09+29.82 10+0.000 11+12.46
01+0109. 02+0300. 03+0830. 04+5.497 05+302.1 06+33.82 07+48.91 08+65.25
09+29.83 10+0.000 11+12.47
01+0109. 02+0300. 03+0845. 04+5.428 05+294.6 06+31.64 07+48.98 08+64.02
09+29.84 10+0.000 11+12.48
01+0109. 02+0300. 03+0900. 04+6.549 05+300.6 06+24.82 07+49.22 08+63.47
09+29.84 10+0.000 11+12.48
01+0115. 02+0300. 03+0900. 04+5.622 05+293.5 06+32.28 07+48.91 08+64.72
09+29.83 10+0.000 11+12.48
01+0109. 02+0300. 03+0915. 04+6.722 05+319.7 06+28.66 07+49.32 08+63.43
09+29.85 10+0.000 11+12.49
01+0109. 02+0300. 03+0930. 04+07.52 05+324.1 06+22.38 07+49.76 08+63.29
09+29.85 10+0.000 11+12.49
01+0109. 02+0300. 03+0945. 04+08.11 05+342.0 06+18.78 07+49.93 08+62.36
09+29.85 10+0.000 11+12.49

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01+0109.  02+0300.  03+1000.  04+08.03  05+336.7  06+17.87  07+50.10  08+61.68
09+29.85  10+0.000  11+12.49
01+0115.  02+0300.  03+1000.  04+07.60  05+330.9  06+24.00  07+49.78  08+62.69
09+29.85  10+0.000  11+12.49
01+0109.  02+0300.  03+1015.  04+08.78  05+334.7  06+21.14  07+50.01  08+60.73
09+29.85  10+0.000  11+12.49
01+0109.  02+0300.  03+1030.  04+07.44  05+341.5  06+27.01  07+50.45  08+59.32
09+29.85  10+0.000  11+12.50
01+0109.  02+0300.  03+1045.  04+08.08  05+339.6  06+21.59  07+50.50  08+57.81
09+29.85  10+0.000  11+12.50
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3-4 Top. T32
(in Lotus 123)
(10/24/92, LIBOOK32.2)

Meteorological Conditions During Testing
(Atop the Landfill)

Julian Day	Hr&Min	W.Sp (m/s)	WD (Deg)	Sig-H (Deg)	Sig-V (Deg)	Temp (F)	RH (%)	Pres. (in-Hg)
300	1100	7.11	287	13.46	4.47	44	49	29.45
300	1200	7.84	280	14.68	4.13	48	43	29.43
300	1300	7.98	277	13.65	4.01	50	36	29.42
300	1400	7.58	268	12.39	3.90	53	31	29.41
300	1500	7.52	266	13.27	4.07	53	27	29.40
300	1600	4.81	257	10.55	3.78	53	29	29.40
300	1700	4.47	256	13.60	3.73	53	30	29.39
300	1800	4.90	254	9.29	3.84	52	33	29.42
300	1900	4.50	250	11.30	3.96	52	41	29.44
300	2000	4.40	242	10.18	3.96	52	46	29.45
300	2100	3.70	237	9.59	3.90	51	51	29.45
300	2200	3.21	236	8.07	3.04	50	59	29.44
300	2300	2.99	237	9.66	2.69	49	65	29.44
300	2400	2.74	258	13.62	2.29	48	69	29.44
301	100	3.60	266	14.03	2.41	47	70	29.45
301	200	4.47	271	9.55	2.92	48	70	29.45
301	300	4.66	277	9.47	3.67	49	68	29.45
301	400	5.84	289	13.54	4.59	50	64	29.46
301	500	5.05	285	14.07	4.18	50	61	29.49
301	600	4.84	283	11.61	4.36	48	63	29.51
301	700	5.52	292	12.99	4.53	47	60	29.53
301	800	3.83	289	14.75	4.24	47	59	29.57
301	900	5.28	298	16.64	4.64	48	56	29.60
301	1000	6.03	326	23.45	4.59	48	54	29.62
	average	5.12	270	12.64	3.83	50	51	29.46

Program Name: 10424R3.DOC
Customer: IT LEASING CO.
Climatronics Job No: 10424
Revision/Date: REV 0 / AUGUST 8, 1991
REV 1 / MAY 20, 1992 ADDED 1 HR AVERAGE
REV 2 / JULY 14, 1992 ADDED SIGMA PHI
REV 3 / SEPT 15, 1992 SET STORAGE AREA

Flag Usage: 0 - OUTPUT

Input Channel Usage:
S.E.01 - WIND DIRECTION
S.E.02 - VERTICAL WIND SPEED
S.E.03 - RELATIVE HUMIDITY
S.E.04 - AIR TEMPERATURE

Excitation Channel Usage:
E1 - WIND DIRECTION
E2 - TEMPERATURE
E3 - RELATIVE HUMIDITY

Control Port Usage: NONE

Pulse Input Channel Usage:
P1 - WIND SPEED
P2 - PRECIPITATION

Output Array Definitions:
01 - OUTPUT EXECUTION I.D.
02 - JULIAN DATE
03 - TIME (HH:MM)
04 - MEAN WIND SPEED (MPH)
05 - MEAN WIND VECTOR DIRECTION (DEGREES)
06 - STANDARD DEVIATION OF WIND DIRECTION (DEGREES)
07 - STANDARD DEVIATION OF VERTICAL DIRECTION (RADIAN)
08 - AVERAGE AIR TEMPERATURE (DEGREES F)
09 - AVERAGE RELATIVE HUMIDITY (PERCENT)
10 - AVERAGE BAROMETRIC PRESSURE (INCHES OF HG)
11 - TOTAL PRECIPITATION (INCHES)
12 - AVERAGE BATTERY VOLTAGE (VDC)

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NOTE:
THE FOLLOWING PROGRAM IS INTENDED AS A STARTUP PROGRAM FOR USE BY THE CUSTOMER IN LEARNING THE IMP-860/CR10 PROGRAMMING LANGUAGE. IT SHOULD BE CAREFULLY REVIEWED FOR CORRECT AVERAGING TIMES/SCAN INTERVALS AND AVERAGE CALCULATIONS (SPECIFICALLY THE WIND DIRECTION) BEFORE USE IN A MONITORING PROGRAM.
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THIS PROGRAM IS STORED IN THE SM192 STORAGE MODULE PROGRAM AREA #8. UPON POWER-UP OF THE SYSTEM THIS PROGRAM WILL AUTO-LOAD FROM AREA #8 INTO THE DATA-LOGGER AND BEGIN EXECUTION. IF THE PROGRAM IS REVISED, BE SURE TO STORE THE REVISED PROGRAM INTO AREA #8 BY ENTERING THE FOLLOWING INSTRUCTION ON THE KEYBOARD:

01+0109.	02+0296.	03+0745.	04+0.500	05+3.225	06+0.000	07+0.038	08-60.45
09-270.4	10+30.31	11+0.000	12+13.08				
01+0109.	02+0296.	03+0800.	04+0.500	05+3.240	06+0.000	07+0.037	08-60.44
09-270.4	10+30.31	11+0.000	12+13.07				
01+0121.	02+0296.	03+0800.	04+0.500	05+3.233	06+0.315	07+0.041	08-60.44
09-270.4	10+30.31	11+0.000	12+13.08				
01+0109.	02+0296.	03+0815.	04+0.500	05+3.237	06+0.000	07+0.028	08-60.43
09-270.4	10+30.31	11+0.020	12+12.95				
01+0109.	02+0296.	03+0830.	04+0.500	05+3.246	06+0.000	07+0.030	08-60.42
09-269.5	10+30.33	11+0.000	12+12.59				
01+0109.	02+0296.	03+0845.	04+0.500	05+3.245	06+0.000	07+0.031	08-60.41
09-269.3	10+30.34	11+0.000	12+12.60				
01+0109.	02+0296.	03+0900.	04+0.500	05+3.230	06+0.000	07+0.031	08-60.41
09-269.3	10+30.25	11+0.000	12+12.60				
01+0121.	02+0296.	03+0900.	04+0.500	05+3.240	06+0.354	07+0.030	08-60.42
09-269.6	10+30.30	11+0.020	12+12.68				
01+0109.	02+0296.	03+0915.	04+0.500	05+3.216	06+0.000	07+0.033	08-60.42
09-269.3	10+30.28	11+0.000	12+12.59				
01+0109.	02+0296.	03+0930.	04+0.500	05+3.207	06+0.000	07+0.032	08-60.41
09-269.3	10+30.30	11+0.000	12+12.58				
01+0109.	02+0296.	03+0945.	04+0.500	05+3.214	06+0.000	07+0.033	08-60.41
09-269.3	10+30.24	11+0.000	12+12.58				
01+0109.	02+0296.	03+1000.	04+0.556	05+2.586	06+4.995	07+0.033	08-60.41
09-269.3	10+30.16	11+0.000	12+12.57				
01+0121.	02+0296.	03+1000.	04+0.514	05+3.056	06+2.513	07+0.034	08-60.41
09-269.3	10+30.24	11+0.000	12+12.58				
01+0109.	02+0296.	03+1015.	04+3.367	05+286.2	06+45.10	07+0.332	08+47.85
09+29.81	10+30.15	11+0.000	12+12.57				
01+0109.	02+0296.	03+1030.	04+6.252	05+324.6	06+23.01	07+0.098	08+51.17
09+42.54	10+30.13	11+0.030	12+12.56				
01+0109.	02+0296.	03+1045.	04+4.474	05+270.8	06+45.47	07+0.098	08+52.34
09+43.62	10+30.12	11+0.000	12+12.55				
01+0109.	02+0296.	03+1100.	04+5.813	05+251.1	06+28.78	07+0.094	08+52.27
09+43.79	10+30.12	11+0.000	12+12.55				
01+0121.	02+0296.	03+1100.	04+4.977	05+283.7	06+46.26	07+0.306	08+50.91
09+39.94	10+30.13	11+0.030	12+12.56				
01+0109.	02+0296.	03+1115.	04+5.694	05+292.3	06+44.56	07+0.105	08+53.04
09+44.03	10+30.12	11+0.000	12+12.55				
01+0109.	02+0296.	03+1130.	04+6.915	05+263.6	06+20.68	07+0.080	08+53.49
09+43.49	10+30.11	11+0.000	12+12.54				
01+0109.	02+0296.	03+1145.	04+6.304	05+294.3	06+25.45	07+0.095	08+53.74
09+43.22	10+30.10	11+0.000	12+12.55				
01+0109.	02+0296.	03+1200.	04+07.01	05+263.0	06+22.01	07+0.092	08+54.74
09+42.76	10+30.09	11+0.000	12+12.55				
01+0121.	02+0296.	03+1200.	04+6.481	05+277.4	06+32.91	07+0.093	08+53.75
09+43.38	10+30.11	11+0.000	12+12.55				
01+0109.	02+0296.	03+1215.	04+6.050	05+282.0	06+36.83	07+0.094	08+54.84
09+42.21	10+30.09	11+0.000	12+12.56				
01+0109.	02+0296.	03+1230.	04+6.214	05+288.9	06+35.94	07+0.129	08+55.48
09+41.87	10+30.08	11+0.000	12+12.56				
01+0109.	02+0296.	03+1245.	04+5.429	05+265.2	06+24.35	07+0.114	08+56.35
09+41.27	10+30.07	11+0.000	12+12.57				
01+0109.	02+0296.	03+1300.	04+5.014	05+266.3	06+49.77	07+0.116	08+56.87
09+40.38	10+30.06	11+0.000	12+12.57				
01+0121.	02+0296.	03+1300.	04+5.677	05+275.7	06+38.74	07+0.115	08+55.89
09+41.43	10+30.07	11+0.000	12+12.56				
01+0109.	02+0296.	03+1315.	04+6.800	05+212.5	06+25.58	07+0.077	08+56.50
09+40.85	10+30.05	11+0.000	12+12.57				
01+0109.	02+0296.	03+1330.	04+08.35	05+213.8	06+14.32	07+0.070	08+55.84
09+44.21	10+30.04	11+0.000	12+12.57				
01+0109.	02+0296.	03+1345.	04+09.39	05+218.0	06+13.53	07+0.057	08+55.82
09+45.38	10+30.03	11+0.000	12+12.57				
01+0109.	02+0296.	03+1400.	04+08.78	05+224.7	06+17.58	07+0.064	08+55.95
09+45.60	10+30.02	11+0.000	12+12.57				
01+0121.	02+0296.	03+1400.	04+08.33	05+217.3	06+18.91	07+0.066	08+56.03
09+44.01	10+30.03	11+0.000	12+12.57				
01+0109.	02+0296.	03+1415.	04+09.15	05+225.7	06+13.73	07+0.066	08+56.05
09+45.31	10+30.01	11+0.000	12+12.56				
01+0109.	02+0296.	03+1430.	04+09.09	05+219.0	06+12.97	07+0.060	08+56.03
09+44.81	10+30.01	11+0.000	12+12.56				
01+0109.	02+0296.	03+1445.	04+08.49	05+228.2	06+10.57	07+0.061	08+56.38
09+44.51	10+30.00	11+0.000	12+12.56				
01+0109.	02+0296.	03+1500.	04+09.22	05+237.0	06+11.97	07+0.064	08+56.46
09+44.09	10+30.00	11+0.000	12+12.55				
01+0121.	02+0296.	03+1500.	04+08.99	05+227.5	06+13.92	07+0.063	08+56.23
09+44.68	10+30.01	11+0.000	12+12.56				
01+0109.	02+0296.	03+1515.	04+10.48	05+235.9	06+11.10	07+0.061	08+56.24
09+43.71	10+29.99	11+0.000	12+12.55				
01+0109.	02+0296.	03+1530.	04+08.43	05+233.8	06+11.98	07+0.056	08+56.21
09+43.78	10+29.98	11+0.000	12+12.54				
01+0109.	02+0296.	03+1545.	04+08.70	05+224.2	06+12.86	07+0.060	08+55.85
09+45.01	10+29.97	11+0.000	12+12.53				
01+0109.	02+0296.	03+1600.	04+10.92	05+224.3	06+08.70	07+0.052	08+54.82
09+46.26	10+29.96	11+0.000	12+12.53				
01+0121.	02+0296.	03+1600.	04+09.63	05+229.6	06+12.46	07+0.057	08+55.78
09+44.69	10+29.98	11+0.000	12+12.54				
01+0109.	02+0296.	03+1615.	04+09.78	05+221.4	06+09.03	07+0.052	08+54.00
09+47.68	10+29.95	11+0.000	12+12.52				
01+0109.	02+0296.	03+1630.	04+09.37	05+230.6	06+09.77	07+0.053	08+52.96

{ 2-Top. cut (10/29/92)

10/23/92 = 296+1 = 297 although it was set at 296 here. so Here: 296=10/23 and 299=10/28/92.

09+49.71	10+29.95	11+0.000	12+12.51				
01+0109.	02+0296.	03+1645.	04+07.54	05+229.8	06+08.14	07+0.049	08+52.12
09+52.05	10+29.94	11+0.000	12+12.50				
01+0109.	02+0296.	03+1700.	04+08.11	05+227.2	06+09.16	07+0.049	08+51.24
09+54.53	10+29.93	11+0.000	12+12.49				
01+0121.	02+0296.	03+1700.	04+08.70	05+227.3	06+09.73	07+0.051	08+52.58
09+50.99	10+29.95	11+0.000	12+12.50				
01+0109.	02+0296.	03+1715.	04+08.14	05+225.1	06+07.45	07+0.046	08+50.54
09+57.31	10+29.93	11+0.000	12+12.48				
01+0109.	02+0296.	03+1730.	04+07.91	05+224.8	06+07.96	07+0.046	08+50.14
09+59.69	10+29.92	11+0.000	12+12.47				
01+0109.	02+0296.	03+1745.	04+07.69	05+225.6	06+6.939	07+0.047	08+49.83
09+61.78	10+29.91	11+0.000	12+12.46				
01+0109.	02+0296.	03+1800.	04+08.60	05+223.7	06+6.882	07+0.047	08+49.76
09+63.74	10+29.90	11+0.000	12+12.45				
01+0121.	02+0296.	03+1800.	04+08.08	05+224.8	06+07.35	07+0.047	08+50.07
09+60.63	10+29.91	11+0.000	12+12.46				
01+0109.	02+0296.	03+1815.	04+09.29	05+223.3	06+07.45	07+0.048	08+50.02
09+65.45	10+29.89	11+0.000	12+12.44				
01+0109.	02+0296.	03+1830.	04+08.66	05+224.9	06+08.48	07+0.050	08+50.15
09+66.96	10+29.88	11+0.000	12+12.44				
01+0109.	02+0296.	03+1845.	04+09.47	05+227.4	06+08.39	07+0.055	08+50.48
09+68.33	10+29.88	11+0.000	12+12.43				
01+0109.	02+0296.	03+1900.	04+09.74	05+225.4	06+08.22	07+0.051	08+50.81
09+69.37	10+29.88	11+0.000	12+12.43				
01+0121.	02+0296.	03+1900.	04+09.29	05+225.3	06+08.27	07+0.051	08+50.37
09+67.53	10+29.88	11+0.000	12+12.44				
01+0109.	02+0296.	03+1915.	04+08.20	05+234.0	06+08.98	07+0.051	08+50.79
09+070.7	10+29.87	11+0.000	12+12.42				
01+0109.	02+0296.	03+1930.	04+08.27	05+238.3	06+08.58	07+0.057	08+50.87
09+072.4	10+29.87	11+0.000	12+12.42				
01+0109.	02+0296.	03+1945.	04+08.12	05+237.7	06+07.95	07+0.052	08+50.98
09+073.9	10+29.87	11+0.000	12+12.42				
01+0109.	02+0296.	03+2000.	04+07.07	05+241.6	06+08.67	07+0.053	08+50.78
09+075.2	10+29.87	11+0.000	12+12.41				
01+0121.	02+0296.	03+2000.	04+07.92	05+237.9	06+08.96	07+0.053	08+50.86
09+073.0	10+29.87	11+0.000	12+12.42				
01+0109.	02+0296.	03+2015.	04+5.771	05+241.7	06+07.35	07+0.038	08+50.32
09+076.7	10+29.87	11+0.000	12+12.41				
01+0109.	02+0296.	03+2030.	04+5.809	05+240.5	06+07.22	07+0.042	08+50.16
09+078.2	10+29.87	11+0.000	12+12.41				
01+0109.	02+0296.	03+2045.	04+5.952	05+242.5	06+5.955	07+0.034	08+49.77
09+079.5	10+29.86	11+0.000	12+12.40				
01+0109.	02+0296.	03+2100.	04+6.264	05+242.7	06+6.936	07+0.040	08+49.64
09+080.7	10+29.86	11+0.000	12+12.40				
01+0121.	02+0296.	03+2100.	04+5.949	05+241.8	06+6.939	07+0.039	08+49.92
09+078.8	10+29.86	11+0.000	12+12.41				
01+0109.	02+0296.	03+2115.	04+6.661	05+240.0	06+5.307	07+0.035	08+49.24
09+081.8	10+29.85	11+0.000	12+12.40				
01+0109.	02+0296.	03+2130.	04+6.945	05+235.0	06+6.256	07+0.036	08+49.16
09+082.8	10+29.84	11+0.000	12+12.40				
01+0109.	02+0296.	03+2145.	04+6.169	05+235.6	06+6.095	07+0.034	08+49.05
09+083.4	10+29.83	11+0.000	12+12.40				
01+0109.	02+0296.	03+2200.	04+6.751	05+237.7	06+5.477	07+0.033	08+48.78
09+084.2	10+29.83	11+0.000	12+12.39				
01+0121.	02+0296.	03+2200.	04+6.631	05+237.1	06+6.110	07+0.035	08+49.06
09+083.1	10+29.84	11+0.000	12+12.40				
01+0109.	02+0296.	03+2215.	04+6.903	05+243.7	06+07.12	07+0.047	08+48.64
09+084.5	10+29.82	11+0.000	12+12.39				
01+0109.	02+0296.	03+2230.	04+07.23	05+247.9	06+08.04	07+0.054	08+48.72
09+084.4	10+29.81	11+0.000	12+12.39				
01+0109.	02+0296.	03+2245.	04+07.23	05+250.1	06+07.02	07+0.048	08+48.47
09+083.7	10+29.81	11+0.000	12+12.39				
01+0109.	02+0296.	03+2300.	04+07.27	05+245.5	06+07.47	07+0.048	08+48.16
09+083.2	10+29.80	11+0.000	12+12.38				
01+0121.	02+0296.	03+2300.	04+07.16	05+246.8	06+07.81	07+0.050	08+48.49
09+084.0	10+29.81	11+0.000	12+12.39				
01+0109.	02+0296.	03+2315.	04+6.675	05+248.1	06+07.83	07+0.052	08+47.92
09+083.2	10+29.79	11+0.000	12+12.38				
01+0109.	02+0296.	03+2330.	04+07.92	05+246.4	06+08.12	07+0.051	08+47.85
09+083.1	10+29.78	11+0.000	12+12.38				
01+0109.	02+0296.	03+2345.	04+07.21	05+246.2	06+08.41	07+0.051	08+47.89
09+082.6	10+29.77	11+0.000	12+12.38				
01+0109.	02+0296.	03+2400.	04+07.86	05+247.6	06+08.96	07+0.057	08+48.06
09+082.5	10+29.77	11+0.000	12+12.38				
01+0121.	02+0296.	03+2400.	04+07.42	05+247.1	06+08.38	07+0.053	08+47.95
09+082.9	10+29.78	11+0.000	12+12.38				
01+0109.	02+0297.	03+0015.	04+08.16	05+251.4	06+09.02	07+0.064	08+48.35
09+082.8	10+29.77	11+0.000	12+12.38				
01+0109.	02+0297.	03+0030.	04+08.74	05+251.1	06+09.97	07+0.065	08+48.52
09+082.9	10+29.76	11+0.000	12+12.38				
01+0109.	02+0297.	03+0045.	04+08.82	05+250.7	06+09.42	07+0.069	08+48.60
09+082.4	10+29.76	11+0.000	12+12.38				
01+0109.	02+0297.	03+0100.	04+08.48	05+244.8	06+10.48	07+0.062	08+48.41
09+082.2	10+29.76	11+0.000	12+12.37				
01+0121.	02+0297.	03+0100.	04+08.55	05+249.5	06+10.11	07+0.066	08+48.47
09+082.6	10+29.76	11+0.000	12+12.38				
01+0109.	02+0297.	03+0115.	04+07.81	05+248.4	06+09.90	07+0.068	08+48.16
09+082.3	10+29.75	11+0.000	12+12.37				

01+0109. 02+0297. 03+0130. 04+08.58 05+242.7 06+09.88 07+0.060 08+47.94
09+082.5 10+29.74 11+0.000 12+12.37
01+0109. 02+0297. 03+0145. 04+09.27 05+238.0 06+08.08 07+0.052 08+47.84
09+082.6 10+29.73 11+0.000 12+12.37
01+0109. 02+0297. 03+0200. 04+09.63 05+237.0 06+07.30 07+0.046 08+47.58
09+083.0 10+29.72 11+0.000 12+12.37
01+0121. 02+0297. 03+0200. 04+08.82 05+241.5 06+09.94 07+0.058 08+47.88
09+082.6 10+29.74 11+0.000 12+12.37
01+0109. 02+0297. 03+0215. 04+08.50 05+246.1 06+08.50 07+0.060 08+47.16
09+083.7 10+29.71 11+0.000 12+12.37
01+0109. 02+0297. 03+0230. 04+08.02 05+248.3 06+08.59 07+0.056 08+46.92
09+084.5 10+29.70 11+0.000 12+12.37
01+0109. 02+0297. 03+0245. 04+08.97 05+248.6 06+08.45 07+0.063 08+46.88
09+085.2 10+29.70 11+0.000 12+12.36
01+0109. 02+0297. 03+0300. 04+08.99 05+246.8 06+09.06 07+0.064 08+47.05
09+086.0 10+29.69 11+0.000 12+12.37
01+0121. 02+0297. 03+0300. 04+08.62 05+247.5 06+08.72 07+0.062 08+47.01
09+084.8 10+29.70 11+0.000 12+12.37
01+0109. 02+0297. 03+0315. 04+10.08 05+246.9 06+08.90 07+0.067 08+47.33
09+086.6 10+29.69 11+0.000 12+12.36
01+0109. 02+0297. 03+0330. 04+10.07 05+249.0 06+08.84 07+0.064 08+47.59
09+086.7 10+29.68 11+0.000 12+12.36
01+0109. 02+0297. 03+0345. 04+10.12 05+252.0 06+08.73 07+0.064 08+47.46
09+086.8 10+29.68 11+0.000 12+12.37
01+0109. 02+0297. 03+0400. 04+08.91 05+246.6 06+08.61 07+0.064 08+47.02
09+087.3 10+29.68 11+0.000 12+12.36
01+0121. 02+0297. 03+0400. 04+09.80 05+248.6 06+09.03 07+0.066 08+47.35
09+086.8 10+29.68 11+0.000 12+12.36
01+0109. 02+0297. 03+0415. 04+09.30 05+250.3 06+08.69 07+0.059 08+46.94
09+087.9 10+29.68 11+0.000 12+12.36
01+0109. 02+0297. 03+0430. 04+08.56 05+244.8 06+07.81 07+0.054 08+46.73
09+088.3 10+29.68 11+0.000 12+12.36
01+0109. 02+0297. 03+0445. 04+08.74 05+243.9 06+08.72 07+0.054 08+46.67
09+088.9 10+29.67 11+0.000 12+12.36
01+0109. 02+0297. 03+0500. 04+07.73 05+246.7 06+08.82 07+0.059 08+46.40
09+089.4 10+29.67 11+0.000 12+12.36
01+0121. 02+0297. 03+0500. 04+08.58 05+246.4 06+08.86 07+0.059 08+46.68
09+088.6 10+29.67 11+0.000 12+12.36
01+0109. 02+0297. 03+0515. 04+07.13 05+249.0 06+08.48 07+0.059 08+46.25
09+090.4 10+29.66 11+0.000 12+12.36
01+0109. 02+0297. 03+0530. 04+07.70 05+245.3 06+08.30 07+0.059 08+46.24
09+091.4 10+29.65 11+0.000 12+12.36
01+0109. 02+0297. 03+0545. 04+07.49 05+248.4 06+08.37 07+0.059 08+46.23
09+092.3 10+29.65 11+0.000 12+12.36
01+0109. 02+0297. 03+0600. 04+10.43 05+240.5 06+08.10 07+0.052 08+46.59
09+092.8 10+29.64 11+0.000 12+12.35
01+0121. 02+0297. 03+0600. 04+08.19 05+245.8 06+08.97 07+0.060 08+46.33
09+091.7 10+29.65 11+0.000 12+12.36
01+0109. 02+0297. 03+0615. 04+10.82 05+240.1 06+08.78 07+0.054 08+47.03
09+092.3 10+29.63 11+0.000 12+12.35
01+0109. 02+0297. 03+0630. 04+12.15 05+239.3 06+08.38 07+0.050 08+47.65
09+091.4 10+29.62 11+0.000 12+12.35
01+0109. 02+0297. 03+0645. 04+11.32 05+241.0 06+09.16 07+0.060 08+48.16
09+090.1 10+29.61 11+0.000 12+12.35
01+0109. 02+0297. 03+0700. 04+09.32 05+246.2 06+10.62 07+0.070 08+48.50
09+089.6 10+29.61 11+0.000 12+12.35
01+0121. 02+0297. 03+0700. 04+10.90 05+241.6 06+09.65 07+0.060 08+47.84
09+090.9 10+29.62 11+0.000 12+12.35
01+0109. 02+0297. 03+0715. 04+11.84 05+241.2 06+10.16 07+0.062 08+49.14
09+089.3 10+29.61 11+0.000 12+12.35
01+0109. 02+0297. 03+0730. 04+12.19 05+239.7 06+09.84 07+0.066 08+49.69
09+088.5 10+29.60 11+0.000 12+12.36
01+0109. 02+0297. 03+0745. 04+12.58 05+238.9 06+09.84 07+0.062 08+50.25
09+087.6 10+29.60 11+0.000 12+12.36
01+0109. 02+0297. 03+0800. 04+13.59 05+237.5 06+09.09 07+0.058 08+50.69
09+086.0 10+29.59 11+0.000 12+12.36
01+0121. 02+0297. 03+0800. 04+12.35 05+239.3 06+09.85 07+0.062 08+49.94
09+087.9 10+29.60 11+0.000 12+12.36
01+0109. 02+0297. 03+0815. 04+14.95 05+241.2 06+10.24 07+0.060 08+51.06
09+084.4 10+29.59 11+0.000 12+12.36
01+0109. 02+0297. 03+0830. 04+14.04 05+237.9 06+10.19 07+0.067 08+51.51
09+083.3 10+29.58 11+0.000 12+12.36
01+0109. 02+0297. 03+0845. 04+12.83 05+242.1 06+11.50 07+0.064 08+51.95
09+082.7 10+29.57 11+0.000 12+12.36
01+0109. 02+0297. 03+0900. 04+13.28 05+247.3 06+11.98 07+0.074 08+52.45
09+082.0 10+29.57 11+0.000 12+12.37
01+0121. 02+0297. 03+0900. 04+13.77 05+242.1 06+11.51 07+0.067 08+51.74
09+083.1 10+29.58 11+0.000 12+12.36
01+0109. 02+0297. 03+0915. 04+14.65 05+245.8 06+11.04 07+0.074 08+53.11
09+080.8 10+29.57 11+0.000 12+12.37
01+0109. 02+0297. 03+0930. 04+14.72 05+255.2 06+12.19 07+0.073 08+53.62
09+079.6 10+29.56 11+0.000 12+12.37
01+0109. 02+0297. 03+0945. 04+15.24 05+249.3 06+11.63 07+0.075 08+54.09
09+077.4 10+29.56 11+0.000 12+12.38
01+0109. 02+0297. 03+1000. 04+14.66 05+251.9 06+10.10 07+0.074 08+53.81
09+076.4 10+29.55 11+0.000 12+12.38
01+0121. 02+0297. 03+1000. 04+14.82 05+250.5 06+11.77 07+0.078 08+53.66
09+078.5 10+29.56 11+0.000 12+12.38
01+0109. 02+0297. 03+1015. 04+13.39 05+245.3 06+11.67 07+0.069 08+54.33

09+076.1	10+29.55	11+0.000	12+12.38					
01+0109.	02+0297.	03+1030.	04+14.72	05+247.5	06+10.69	07+0.072	08+54.80	
09+074.5	10+29.53	11+0.000	12+12.39					
01+0109.	02+0297.	03+1045.	04+10.33	05+227.6	06+18.00	07+0.065	08+55.71	
09+073.6	10+29.53	11+0.000	12+12.39					
01+0109.	02+0297.	03+1100.	04+11.07	05+228.5	06+15.62	07+0.066	08+56.79	
09+073.1	10+29.52	11+0.000	12+12.39					
01+0121.	02+0297.	03+1100.	04+12.38	05+237.3	06+16.98	07+0.070	08+55.41	
09+074.4	10+29.53	11+0.000	12+12.39					
01+0109.	02+0297.	03+1115.	04+12.83	05+233.9	06+11.18	07+0.059	08+57.29	
09+070.7	10+29.52	11+0.000	12+12.40					
01+0109.	02+0297.	03+1130.	04+10.66	05+229.1	06+09.98	07+0.064	08+56.94	
09+070.8	10+29.51	11+0.000	12+12.40					
01+0109.	02+0297.	03+1145.	04+10.72	05+226.9	06+12.08	07+0.062	08+58.12	
09+69.78	10+29.50	11+0.000	12+12.40					
01+0109.	02+0297.	03+1200.	04+11.37	05+227.0	06+11.59	07+0.065	08+58.52	
09+68.58	10+29.49	11+0.000	12+12.41					
01+0121.	02+0297.	03+1200.	04+11.39	05+229.2	06+11.59	07+0.063	08+57.72	
09+69.96	10+29.50	11+0.000	12+12.40					
01+0109.	02+0297.	03+1215.	04+11.69	05+225.0	06+13.17	07+0.057	08+58.84	
09+66.97	10+29.48	11+0.000	12+12.42					
01+0109.	02+0297.	03+1230.	04+12.70	05+216.7	06+09.99	07+0.055	08+58.75	
09+66.66	10+29.47	11+0.000	12+12.42					
01+0109.	02+0297.	03+1245.	04+11.23	05+218.9	06+13.78	07+0.068	08+59.48	
09+66.82	10+29.46	11+0.000	12+12.42					
01+0109.	02+0297.	03+1300.	04+11.73	05+223.3	06+14.37	07+0.061	08+59.23	
09+67.30	10+29.46	11+0.000	12+12.42					
01+0121.	02+0297.	03+1300.	04+11.84	05+221.0	06+13.35	07+0.060	08+59.07	
09+66.93	10+29.47	11+0.000	12+12.42					
01+0109.	02+0297.	03+1315.	04+12.35	05+228.3	06+11.15	07+0.060	08+59.46	
09+67.03	10+29.45	11+0.000	12+12.43					
01+0109.	02+0297.	03+1330.	04+10.26	05+223.4	06+13.10	07+0.062	08+59.76	
09+67.46	10+29.45	11+0.000	12+12.43					
01+0109.	02+0297.	03+1345.	04+09.76	05+225.4	06+09.69	07+0.059	08+59.93	
09+67.45	10+29.44	11+0.000	12+12.43					
01+0109.	02+0297.	03+1400.	04+10.30	05+230.6	06+12.42	07+0.058	08+60.31	
09+66.40	10+29.44	11+0.000	12+12.42					
01+0121.	02+0297.	03+1400.	04+10.67	05+226.9	06+11.97	07+0.060	08+59.84	
09+67.08	10+29.45	11+0.000	12+12.43					
01+0109.	02+0297.	03+1415.	04+08.43	05+224.1	06+11.01	07+0.052	08+59.81	
09+67.26	10+29.43	11+0.000	12+12.42					
01+0109.	02+0297.	03+1430.	04+08.78	05+218.2	06+10.23	07+0.053	08+58.96	
09+071.4	10+29.42	11+0.000	12+12.41					
01+0109.	02+0297.	03+1445.	04+08.46	05+214.1	06+09.74	07+0.057	08+58.82	
09+073.7	10+29.41	11+0.000	12+12.41					
01+0109.	02+0297.	03+1500.	04+07.63	05+224.2	06+09.88	07+0.052	08+58.76	
09+075.3	10+29.41	11+0.000	12+12.40					
01+0121.	02+0297.	03+1500.	04+08.32	05+220.2	06+11.08	07+0.054	08+59.09	
09+077.9	10+29.42	11+0.000	12+12.41					
01+0109.	02+0297.	03+1515.	04+07.37	05+226.1	06+10.43	07+0.044	08+58.33	
09+077.5	10+29.41	11+0.000	12+12.39					
01+0109.	02+0297.	03+1530.	04+07.27	05+241.7	06+14.63	07+0.061	08+57.54	
09+080.5	10+29.40	11+0.000	12+12.39					
01+0109.	02+0297.	03+1545.	04+6.184	05+234.9	06+19.59	07+0.050	08+56.85	
09+084.7	10+29.39	11+0.010	12+12.38					
01+0109.	02+0297.	03+1600.	04+07.89	05+218.9	06+08.88	07+0.045	08+56.47	
09+088.3	10+29.38	11+0.010	12+12.37					
01+0121.	02+0297.	03+1600.	04+07.18	05+230.3	06+16.44	07+0.051	08+57.29	
09+082.7	10+29.39	11+0.020	12+12.38					
01+0109.	02+0297.	03+1615.	04+5.928	05+236.5	06+09.16	07+0.047	08+56.15	
09+090.9	10+29.38	11+0.000	12+12.37					
01+0109.	02+0297.	03+1630.	04+4.963	05+232.5	06+11.40	07+0.041	08+55.99	
09+092.4	10+29.38	11+0.000	12+12.36					
01+0109.	02+0297.	03+1645.	04+5.710	05+208.1	06+08.74	07+0.037	08+56.04	
09+093.9	10+29.37	11+0.000	12+12.36					
01+0109.	02+0297.	03+1700.	04+5.041	05+214.7	06+08.94	07+0.039	08+55.92	
09+095.3	10+29.37	11+0.000	12+12.36					
01+0121.	02+0297.	03+1700.	04+5.410	05+222.9	06+15.24	07+0.044	08+56.02	
09+093.1	10+29.38	11+0.000	12+12.36					
01+0109.	02+0297.	03+1715.	04+5.215	05+231.2	06+11.91	07+0.042	08+55.81	
09+096.3	10+29.37	11+0.000	12+12.36					
01+0109.	02+0297.	03+1730.	04+5.814	05+238.5	06+08.65	07+0.043	08+55.59	
09+097.0	10+29.37	11+0.000	12+12.35					
01+0109.	02+0297.	03+1745.	04+4.016	05+243.9	06+11.22	07+0.041	08+55.46	
09+097.3	10+29.37	11+0.000	12+12.35					
01+0109.	02+0297.	03+1800.	04+3.282	05+232.4	06+15.09	07+0.029	08+55.48	
09+097.5	10+29.36	11+0.000	12+12.35					
01+0121.	02+0297.	03+1800.	04+4.582	05+236.5	06+12.96	07+0.045	08+55.58	
09+097.0	10+29.37	11+0.000	12+12.35					
01+0109.	02+0297.	03+1815.	04+3.361	05+254.9	06+11.98	07+0.028	08+55.38	
09+097.7	10+29.36	11+0.000	12+12.34					
01+0109.	02+0297.	03+1830.	04+2.544	05+240.8	06+12.81	07+0.021	08+55.39	
09+098.0	10+29.36	11+0.000	12+12.34					
01+0109.	02+0297.	03+1845.	04+4.987	05+271.1	06+22.20	07+0.044	08+55.34	
09+098.3	10+29.37	11+0.000	12+12.34					
01+0109.	02+0297.	03+1900.	04+08.19	05+283.6	06+08.78	07+0.055	08+55.37	
09+098.5	10+29.38	11+0.000	12+12.34					
01+0121.	02+0297.	03+1900.	04+4.770	05+262.6	06+21.95	07+0.055	08+55.37	
09+098.1	10+29.37	11+0.000	12+12.34					

01+0109.	02+0297.	03+1915.	04+5.675	05+260.6	06+11.99	07+0.052	08+55.19
09+098.5	10+29.37	11+0.010	12+12.34				
01+0109.	02+0297.	03+1930.	04+4.911	05+252.7	06+10.10	07+0.052	08+55.05
09+098.5	10+29.37	11+0.000	12+12.34				
01+0109.	02+0297.	03+1945.	04+6.489	05+267.9	06+6.800	07+0.043	08+54.81
09+098.7	10+29.37	11+0.000	12+12.33				
01+0109.	02+0297.	03+2000.	04+07.03	05+267.9	06+07.91	07+0.054	08+54.75
09+099.1	10+29.37	11+0.020	12+12.33				
01+0121.	02+0297.	03+2000.	04+6.027	05+262.3	06+11.31	07+0.051	08+54.95
09+098.7	10+29.37	11+0.030	12+12.33				
01+0109.	02+0297.	03+2015.	04+6.059	05+272.0	06+08.39	07+0.045	08+54.73
09+099.5	10+29.36	11+0.010	12+12.33				
01+0109.	02+0297.	03+2030.	04+4.770	05+286.6	06+16.91	07+0.034	08+54.79
09+099.8	10+29.36	11+0.010	12+12.33				
01+0109.	02+0297.	03+2045.	04+4.608	05+306.7	06+22.32	07+0.043	08+54.74
09+100.1	10+29.35	11+0.020	12+12.32				
01+0109.	02+0297.	03+2100.	04+6.468	05+281.8	06+07.00	07+0.045	08+54.71
09+100.3	10+29.35	11+0.010	12+12.32				
01+0121.	02+0297.	03+2100.	04+5.476	05+286.4	06+19.49	07+0.043	08+54.76
09+099.9	10+29.35	11+0.050	12+12.33				
01+0109.	02+0297.	03+2115.	04+5.563	05+292.7	06+10.04	07+0.061	08+54.59
09+100.5	10+29.35	11+0.000	12+12.32				
01+0109.	02+0297.	03+2130.	04+5.231	05+306.2	06+13.08	07+0.048	08+54.52
09+100.7	10+29.35	11+0.000	12+12.32				
01+0109.	02+0297.	03+2145.	04+6.063	05+304.7	06+14.50	07+0.058	08+54.38
09+100.7	10+29.35	11+0.000	12+12.32				
01+0109.	02+0297.	03+2200.	04+5.761	05+306.9	06+11.27	07+0.055	08+54.24
09+100.5	10+29.34	11+0.000	12+12.32				
01+0121.	02+0297.	03+2200.	04+5.654	05+302.6	06+13.62	07+0.056	08+54.43
09+100.6	10+29.35	11+0.000	12+12.32				
01+0109.	02+0297.	03+2215.	04+5.854	05+299.2	06+11.83	07+0.066	08+54.04
09+100.4	10+29.34	11+0.000	12+12.32				
01+0109.	02+0297.	03+2230.	04+5.728	05+293.4	06+11.58	07+0.062	08+53.90
09+100.3	10+29.35	11+0.000	12+12.31				
01+0109.	02+0297.	03+2245.	04+6.193	05+300.2	06+11.31	07+0.065	08+53.84
09+100.3	10+29.35	11+0.000	12+12.31				
01+0109.	02+0297.	03+2300.	04+6.744	05+305.2	06+12.69	07+0.076	08+53.81
09+100.2	10+29.35	11+0.000	12+12.31				
01+0121.	02+0297.	03+2300.	04+6.130	05+299.5	06+12.57	07+0.069	08+53.90
09+100.3	10+29.35	11+0.000	12+12.31				
01+0109.	02+0297.	03+2315.	04+09.25	05+318.0	06+12.06	07+0.072	08+53.69
09+099.7	10+29.34	11+0.000	12+12.31				
01+0109.	02+0297.	03+2330.	04+11.40	05+314.5	06+11.09	07+0.072	08+53.23
09+098.3	10+29.34	11+0.000	12+12.31				
01+0109.	02+0297.	03+2345.	04+12.81	05+327.4	06+13.37	07+0.078	08+52.44
09+096.8	10+29.33	11+0.000	12+12.31				
01+0109.	02+0297.	03+2400.	04+14.10	05+338.7	06+17.54	07+0.076	08+51.03
09+095.0	10+29.31	11+0.000	12+12.31				
01+0121.	02+0297.	03+2400.	04+11.89	05+324.5	06+16.60	07+0.078	08+52.60
09+097.4	10+29.33	11+0.000	12+12.31				
01+0109.	02+0298.	03+0015.	04+15.13	05+326.8	06+14.24	07+0.082	08+49.53
09+095.3	10+29.33	11+0.000	12+12.31				
01+0109.	02+0298.	03+0030.	04+15.35	05+321.8	06+13.17	07+0.078	08+48.75
09+096.7	10+29.33	11+0.000	12+12.30				
01+0109.	02+0298.	03+0045.	04+14.85	05+318.0	06+13.58	07+0.083	08+48.05
09+098.0	10+29.33	11+0.000	12+12.30				
01+0109.	02+0298.	03+0100.	04+13.42	05+319.2	06+10.92	07+0.078	08+47.13
09+098.7	10+29.32	11+0.010	12+12.29				
01+0121.	02+0298.	03+0100.	04+14.69	05+321.4	06+13.47	07+0.081	08+48.36
09+097.3	10+29.33	11+0.010	12+12.30				
01+0109.	02+0298.	03+0115.	04+13.64	05+321.7	06+11.97	07+0.080	08+46.77
09+099.3	10+29.33	11+0.000	12+12.29				
01+0109.	02+0298.	03+0130.	04+11.74	05+321.7	06+12.98	07+0.088	08+46.74
09+099.2	10+29.32	11+0.000	12+12.29				
01+0109.	02+0298.	03+0145.	04+14.73	05+322.5	06+11.71	07+0.075	08+46.62
09+097.5	10+29.31	11+0.000	12+12.29				
01+0109.	02+0298.	03+0200.	04+12.89	05+323.0	06+14.03	07+0.084	08+46.36
09+095.8	10+29.30	11+0.000	12+12.29				
01+0121.	02+0298.	03+0200.	04+13.25	05+322.2	06+12.72	07+0.082	08+46.62
09+097.9	10+29.31	11+0.000	12+12.29				
01+0109.	02+0298.	03+0215.	04+12.86	05+329.1	06+14.76	07+0.082	08+46.24
09+094.7	10+29.30	11+0.000	12+12.28				
01+0109.	02+0298.	03+0230.	04+11.76	05+335.6	06+16.75	07+0.086	08+46.11
09+094.4	10+29.30	11+0.000	12+12.28				
01+0109.	02+0298.	03+0245.	04+11.72	05+347.8	06+14.28	07+0.082	08+46.05
09+094.9	10+29.30	11+0.000	12+12.28				
01+0109.	02+0298.	03+0300.	04+13.30	05+346.4	06+17.99	07+0.075	08+46.03
09+094.3	10+29.31	11+0.000	12+12.27				
01+0121.	02+0298.	03+0300.	04+12.41	05+339.7	06+17.78	07+0.082	08+46.11
09+094.6	10+29.30	11+0.000	12+12.28				
01+0109.	02+0298.	03+0315.	04+15.91	05+348.0	06+15.20	07+0.070	08+45.33
09+092.9	10+29.31	11+0.000	12+12.27				
01+0109.	02+0298.	03+0330.	04+16.59	05+346.8	06+15.73	07+0.076	08+44.93
09+092.6	10+29.33	11+0.000	12+12.27				
01+0109.	02+0298.	03+0345.	04+16.36	05+347.3	06+15.45	07+0.079	08+44.81
09+092.1	10+29.33	11+0.000	12+12.27				
01+0109.	02+0298.	03+0400.	04+15.06	05+342.6	06+16.61	07+0.083	08+44.80
09+090.3	10+29.34	11+0.000	12+12.27				
01+0121.	02+0298.	03+0400.	04+15.98	05+346.2	06+15.89	07+0.077	08+44.97

09+092.0	10+29.33	11+0.000	12+12.27					
01+0109.	02+0298.	03+0415.	04+16.14	05+333.9	06+16.34	07+0.074	08+44.60	
09+089.2	10+29.34	11+0.000	12+12.27					
01+0109.	02+0298.	03+0430.	04+13.67	05+326.8	06+12.41	07+0.083	08+44.35	
09+088.9	10+29.33	11+0.000	12+12.27					
01+0109.	02+0298.	03+0445.	04+11.71	05+327.7	06+14.20	07+0.081	08+44.30	
09+089.0	10+29.33	11+0.000	12+12.26					
01+0109.	02+0298.	03+0500.	04+13.44	05+331.6	06+12.33	07+0.075	08+44.53	
09+088.1	10+29.34	11+0.000	12+12.26					
01+0121.	02+0298.	03+0500.	04+13.74	05+330.0	06+14.20	07+0.080	08+44.45	
09+088.8	10+29.34	11+0.000	12+12.26					
01+0109.	02+0298.	03+0515.	04+14.00	05+347.8	06+17.67	07+0.082	08+44.54	
09+086.2	10+29.35	11+0.000	12+12.26					
01+0109.	02+0298.	03+0530.	04+14.67	05+349.4	06+16.71	07+0.079	08+44.25	
09+085.3	10+29.35	11+0.000	12+12.26					
01+0109.	02+0298.	03+0545.	04+16.06	05+349.4	06+13.93	07+0.078	08+44.30	
09+084.1	10+29.35	11+0.000	12+12.25					
01+0109.	02+0298.	03+0600.	04+16.39	05+349.4	06+14.37	07+0.073	08+44.27	
09+083.0	10+29.35	11+0.000	12+12.25					
01+0121.	02+0298.	03+0600.	04+15.28	05+349.0	06+15.76	07+0.078	08+44.34	
09+084.6	10+29.35	11+0.000	12+12.25					
01+0109.	02+0298.	03+0615.	04+12.28	05+347.1	06+17.60	07+0.085	08+44.11	
09+083.3	10+29.36	11+0.000	12+12.25					
01+0109.	02+0298.	03+0630.	04+12.13	05+346.2	06+13.86	07+0.074	08+44.02	
09+083.1	10+29.36	11+0.000	12+12.25					
01+0109.	02+0298.	03+0645.	04+12.97	05+349.3	06+16.94	07+0.081	08+43.58	
09+084.1	10+29.36	11+0.000	12+12.25					
01+0109.	02+0298.	03+0700.	04+10.99	05+355.4	06+14.80	07+0.085	08+43.70	
09+084.7	10+29.36	11+0.000	12+12.25					
01+0121.	02+0298.	03+0700.	04+12.09	05+349.5	06+16.27	07+0.082	08+43.85	
09+083.8	10+29.36	11+0.000	12+12.25					
01+0109.	02+0298.	03+0715.	04+14.24	05+352.6	06+15.98	07+0.075	08+44.17	
09+083.3	10+29.35	11+0.000	12+12.24					
01+0109.	02+0298.	03+0730.	04+13.17	05+349.9	06+16.04	07+0.082	08+44.52	
09+081.0	10+29.35	11+0.000	12+12.24					
01+0109.	02+0298.	03+0745.	04+15.59	05+354.1	06+15.25	07+0.086	08+44.80	
09+079.1	10+29.36	11+0.000	12+12.24					
01+0109.	02+0298.	03+0800.	04+12.29	05+345.6	06+17.33	07+0.079	08+44.83	
09+078.2	10+29.36	11+0.000	12+12.24					
01+0121.	02+0298.	03+0800.	04+13.82	05+350.6	06+16.48	07+0.081	08+44.58	
09+080.4	10+29.36	11+0.000	12+12.24					
01+0109.	02+0298.	03+0815.	04+13.52	05+349.1	06+16.49	07+0.080	08+44.89	
09+077.5	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+0830.	04+14.48	05+346.5	06+15.05	07+0.074	08+44.91	
09+076.7	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+0845.	04+14.60	05+344.0	06+15.18	07+0.073	08+44.97	
09+075.7	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+0900.	04+14.15	05+336.9	06+20.47	07+0.082	08+45.19	
09+074.9	10+29.37	11+0.000	12+12.24					
01+0121.	02+0298.	03+0900.	04+14.19	05+344.2	06+17.51	07+0.078	08+44.99	
09+076.2	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+0915.	04+13.45	05+334.5	06+17.14	07+0.083	08+45.30	
09+073.9	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+0930.	04+15.14	05+339.3	06+17.89	07+0.087	08+45.42	
09+073.1	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+0945.	04+15.77	05+341.0	06+16.02	07+0.073	08+45.46	
09+072.4	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1000.	04+14.55	05+336.4	06+17.73	07+0.098	08+45.49	
09+071.8	10+29.37	11+0.000	12+12.24					
01+0121.	02+0298.	03+1000.	04+14.73	05+337.8	06+17.39	07+0.086	08+45.42	
09+072.8	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1015.	04+17.00	05+340.1	06+16.51	07+0.079	08+45.39	
09+071.1	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1030.	04+15.50	05+343.1	06+16.20	07+0.079	08+45.41	
09+070.3	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1045.	04+16.32	05+342.7	06+15.11	07+0.077	08+45.19	
09+070.2	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1100.	04+13.66	05+345.7	06+15.36	07+0.075	08+45.08	
09+070.8	10+29.37	11+0.000	12+12.24					
01+0121.	02+0298.	03+1100.	04+15.62	05+342.9	06+15.93	07+0.078	08+45.27	
09+070.6	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1115.	04+17.09	05+346.7	06+16.44	07+0.073	08+45.00	
09+69.70	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1130.	04+16.97	05+351.2	06+16.03	07+0.073	08+45.19	
09+67.82	10+29.37	11+0.000	12+12.24					
01+0109.	02+0298.	03+1145.	04+14.86	05+345.2	06+15.83	07+0.074	08+45.45	
09+66.74	10+29.36	11+0.000	12+12.24					
01+0109.	02+0298.	03+1200.	04+15.29	05+343.9	06+18.07	07+0.087	08+45.78	
09+64.96	10+29.36	11+0.000	12+12.23					
01+0121.	02+0298.	03+1200.	04+16.05	05+346.8	06+16.84	07+0.077	08+45.36	
09+67.30	10+29.36	11+0.000	12+12.24					
01+0109.	02+0298.	03+1215.	04+16.21	05+343.9	06+16.96	07+0.087	08+46.03	
09+63.02	10+29.35	11+0.000	12+12.23					
01+0109.	02+0298.	03+1230.	04+14.70	05+349.4	06+17.96	07+0.076	08+46.18	
09+61.57	10+29.35	11+0.000	12+12.23					
01+0109.	02+0298.	03+1245.	04+16.20	05+344.0	06+16.99	07+0.082	08+46.39	
09+60.54	10+29.35	11+0.000	12+12.23					
01+0109.	02+0298.	03+1300.	04+15.76	05+349.6	06+17.03	07+0.080	08+46.36	
09+59.51	10+29.35	11+0.000	12+12.23					

01+0121. 02+0298. 03+1300. 04+15.72 05+346.7 06+17.46 07+0.082 08+46.24
09+61.16 10+29.35 11+0.000 12+12.23
01+0109. 02+0298. 03+1315. 04+15.04 05+349.1 06+24.64 07+0.088 08+46.55
09+58.98 10+29.35 11+0.000 12+12.23
01+0109. 02+0298. 03+1330. 04+15.22 05+354.4 06+16.67 07+0.081 08+46.86
09+56.57 10+29.35 11+0.000 12+12.23
01+0109. 02+0298. 03+1345. 04+15.75 05+338.6 06+21.63 07+0.087 08+46.97
09+55.97 10+29.35 11+0.000 12+12.23
01+0109. 02+0298. 03+1400. 04+17.28 05+328.9 06+17.39 07+0.084 08+46.46
09+56.71 10+29.35 11+0.000 12+12.23
01+0121. 02+0298. 03+1400. 04+15.82 05+342.7 06+22.56 07+0.085 08+46.71
09+57.06 10+29.35 11+0.000 12+12.23
01+0109. 02+0298. 03+1415. 04+16.74 05+318.6 06+13.56 07+0.082 08+46.06
09+57.57 10+29.36 11+0.000 12+12.23
01+0109. 02+0298. 03+1430. 04+16.11 05+329.6 06+19.26 07+0.087 08+45.94
09+57.52 10+29.37 11+0.000 12+12.23
01+0109. 02+0298. 03+1445. 04+15.59 05+325.9 06+14.94 07+0.084 08+45.79
09+56.81 10+29.37 11+0.000 12+12.23
01+0109. 02+0298. 03+1500. 04+16.65 05+324.0 06+13.47 07+0.082 08+45.71
09+55.82 10+29.37 11+0.000 12+12.23
01+0121. 02+0298. 03+1500. 04+16.27 05+324.5 06+15.96 07+0.084 08+45.87
09+56.93 10+29.37 11+0.000 12+12.23
01+0109. 02+0298. 03+1515. 04+14.18 05+334.5 06+16.68 07+0.092 08+45.94
09+54.55 10+29.37 11+0.000 12+12.23
01+0109. 02+0298. 03+1530. 04+14.87 05+339.7 06+21.02 07+0.084 08+45.79
09+53.67 10+29.38 11+0.000 12+12.23
01+0109. 02+0298. 03+1545. 04+14.15 05+352.2 06+17.03 07+0.080 08+45.45
09+53.30 10+29.38 11+0.000 12+12.22
01+0109. 02+0298. 03+1600. 04+13.45 05+349.7 06+18.30 07+0.087 08+45.34
09+53.67 10+29.38 11+0.000 12+12.22
01+0121. 02+0298. 03+1600. 04+14.10 05+344.0 06+19.70 07+0.086 08+45.63
09+53.80 10+29.38 11+0.000 12+12.22
01+0109. 02+0298. 03+1615. 04+12.75 05+342.9 06+17.22 07+0.086 08+45.17
09+53.61 10+29.39 11+0.000 12+12.22
01+0109. 02+0298. 03+1630. 04+14.74 05+344.0 06+16.05 07+0.085 08+45.09
09+52.78 10+29.39 11+0.000 12+12.21
01+0109. 02+0298. 03+1645. 04+13.86 05+347.9 06+18.04 07+0.082 08+44.81
09+52.28 10+29.39 11+0.000 12+12.21
01+0109. 02+0298. 03+1700. 04+14.75 05+340.4 06+14.43 07+0.083 08+44.54
09+52.28 10+29.40 11+0.000 12+12.21
01+0121. 02+0298. 03+1700. 04+14.03 05+343.8 06+16.70 07+0.084 08+44.90
09+52.74 10+29.39 11+0.000 12+12.21
01+0109. 02+0298. 03+1715. 04+13.89 05+343.3 06+16.73 07+0.088 08+44.12
09+52.64 10+29.40 11+0.000 12+12.21
01+0109. 02+0298. 03+1730. 04+14.82 05+344.6 06+14.60 07+0.080 08+43.90
09+51.89 10+29.41 11+0.000 12+12.21
01+0109. 02+0298. 03+1745. 04+15.04 05+339.2 06+15.54 07+0.085 08+43.46
09+51.35 10+29.41 11+0.000 12+12.20
01+0109. 02+0298. 03+1800. 04+14.52 05+333.8 06+13.88 07+0.079 08+43.02
09+51.19 10+29.42 11+0.000 12+12.20
01+0121. 02+0298. 03+1800. 04+14.57 05+340.2 06+15.79 07+0.083 08+43.63
09+51.76 10+29.41 11+0.000 12+12.20
01+0109. 02+0298. 03+1815. 04+14.60 05+327.9 06+14.90 07+0.087 08+42.99
09+50.68 10+29.42 11+0.000 12+12.19
01+0109. 02+0298. 03+1830. 04+13.22 05+320.2 06+14.02 07+0.086 08+42.86
09+49.71 10+29.42 11+0.000 12+12.19
01+0109. 02+0298. 03+1845. 04+14.06 05+315.1 06+11.82 07+0.080 08+42.55
09+50.39 10+29.43 11+0.000 12+12.19
01+0109. 02+0298. 03+1900. 04+12.60 05+313.0 06+13.48 07+0.083 08+42.22
09+51.07 10+29.43 11+0.000 12+12.18
01+0121. 02+0298. 03+1900. 04+13.62 05+319.0 06+14.75 07+0.085 08+42.65
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01+0109. 02+0298. 03+2045. 04+10.16 05+324.7 06+11.84 07+0.080 08+40.13
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01+0109. 02+0298. 03+2100. 04+10.47 05+330.3 06+11.51 07+0.084 08+39.97
09+54.69 10+29.44 11+0.000 12+12.16
01+0121. 02+0298. 03+2100. 04+10.57 05+326.7 06+12.72 07+0.081 08+40.35
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09+55.00 10+29.44 11+0.000 12+12.16
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09+55.11 10+29.43 11+0.000 12+12.16
01+0109. 02+0298. 03+2200. 04+12.09 05+319.7 06+14.48 07+0.080 08+39.56

09+54.78 10+29.43 11+0.000 12+12.15
01+0121. 02+0298. 03+2200. 04+11.31 05+322.1 06+14.14 07+0.081 08+39.69
09+55.03 10+29.44 11+0.000 12+12.16
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01+0109. 02+0298. 03+2315. 04+11.51 05+317.1 06+13.39 07+0.088 08+38.86
09+54.22 10+29.43 11+0.000 12+12.14
01+0109. 02+0298. 03+2330. 04+11.51 05+316.8 06+12.17 07+0.079 08+38.66
09+54.52 10+29.43 11+0.000 12+12.14
01+0109. 02+0298. 03+2345. 04+11.57 05+314.9 06+12.14 07+0.089 08+38.39
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09+56.89 10+29.42 11+0.000 12+12.14
01+0109. 02+0299. 03+0015. 04+10.32 05+318.7 06+12.37 07+0.074 08+37.95
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01+0109. 02+0299. 03+0115. 04+08.29 05+307.5 06+07.94 07+0.061 08+35.96
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01+0109. 02+0299. 03+0130. 04+07.36 05+306.2 06+07.86 07+0.062 08+35.92
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01+0109. 02+0299. 03+0200. 04+08.29 05+310.1 06+09.21 07+0.072 08+35.87
09+63.21 10+29.42 11+0.000 12+12.12
01+0121. 02+0299. 03+0200. 04+07.47 05+307.8 06+08.48 07+0.066 08+35.88
09+62.33 10+29.43 11+0.000 12+12.12
01+0109. 02+0299. 03+0215. 04+07.39 05+306.5 06+11.60 07+0.076 08+36.25
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01+0109. 02+0299. 03+0230. 04+07.43 05+294.3 06+09.84 07+0.058 08+36.06
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01+0109. 02+0299. 03+0245. 04+10.63 05+305.4 06+10.29 07+0.075 08+36.41
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01+0109. 02+0299. 03+0345. 04+10.84 05+297.9 06+12.31 07+0.074 08+36.16
09+61.22 10+29.42 11+0.000 12+12.11
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09+61.42 10+29.42 11+0.000 12+12.11
01+0109. 02+0299. 03+0415. 04+10.11 05+292.0 06+10.75 07+0.068 08+35.70
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01+0109. 02+0299. 03+0430. 04+11.28 05+286.1 06+07.81 07+0.066 08+35.38
09+62.24 10+29.44 11+0.000 12+12.10
01+0109. 02+0299. 03+0445. 04+11.31 05+281.8 06+08.61 07+0.058 08+35.43
09+62.21 10+29.44 11+0.000 12+12.10
01+0109. 02+0299. 03+0500. 04+12.98 05+287.9 06+10.19 07+0.067 08+35.41
09+62.09 10+29.44 11+0.000 12+12.10
01+0121. 02+0299. 03+0500. 04+11.42 05+286.9 06+10.10 07+0.066 08+35.48
09+61.99 10+29.44 11+0.000 12+12.10
01+0109. 02+0299. 03+0515. 04+14.37 05+291.3 06+09.79 07+0.077 08+35.39
09+62.03 10+29.44 11+0.000 12+12.10
01+0109. 02+0299. 03+0530. 04+13.43 05+291.1 06+09.76 07+0.072 08+35.47
09+61.61 10+29.44 11+0.000 12+12.09
01+0109. 02+0299. 03+0545. 04+13.33 05+289.1 06+09.96 07+0.067 08+35.33
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01+0109. 02+0299. 03+0600. 04+13.61 05+289.5 06+09.11 07+0.064 08+35.27
09+61.21 10+29.44 11+0.000 12+12.09
01+0121. 02+0299. 03+0600. 04+13.68 05+290.2 06+09.71 07+0.071 08+35.36
09+61.58 10+29.44 11+0.000 12+12.09
01+0109. 02+0299. 03+0615. 04+11.15 05+290.1 06+09.03 07+0.068 08+35.15
09+61.00 10+29.45 11+0.000 12+12.09
01+0109. 02+0299. 03+0630. 04+12.06 05+291.3 06+08.78 07+0.069 08+35.12
09+61.05 10+29.45 11+0.000 12+12.09
01+0109. 02+0299. 03+0645. 04+11.69 05+287.9 06+09.02 07+0.065 08+35.24
09+60.87 10+29.45 11+0.000 12+12.09

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01+0109.  02+0299.  03+0700.  04+11.17  05+292.2  06+10.59  07+0.072  08+35.49
09+60.77  10+29.45  11+0.000  12+12.09
01+0121.  02+0299.  03+0700.  04+11.52  05+290.4  06+09.52  07+0.069  08+35.25
09+60.92  10+29.45  11+0.000  12+12.09
01+0109.  02+0299.  03+0715.  04+13.75  05+293.3  06+10.95  07+0.074  08+36.17
09+60.28  10+29.46  11+0.000  12+12.09
01+0109.  02+0299.  03+0730.  04+11.73  05+297.5  06+11.55  07+0.078  08+36.80
09+59.60  10+29.46  11+0.000  12+12.08
01+0109.  02+0299.  03+0745.  04+11.79  05+299.0  06+16.54  07+0.078  08+37.32
09+59.15  10+29.46  11+0.000  12+12.09
01+0109.  02+0299.  03+0800.  04+12.34  05+299.6  06+12.65  07+0.076  08+38.07
09+58.46  10+29.46  11+0.000  12+12.09
01+0121.  02+0299.  03+0800.  04+12.40  05+297.3  06+13.32  07+0.077  08+37.09
09+59.37  10+29.46  11+0.000  12+12.09
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01+0109.  02+0299.  03+0830.  04+14.01  05+292.2  06+12.43  07+0.068  08+39.09
09+56.97  10+29.46  11+0.000  12+12.09
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09+53.80  10+29.45  11+0.000  12+12.10
01+0109.  02+0299.  03+0930.  04+15.43  05+292.5  06+11.45  07+0.073  08+41.32
09+52.90  10+29.45  11+0.000  12+12.11
01+0109.  02+0299.  03+0945.  04+16.09  05+293.3  06+14.56  07+0.067  08+41.77
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01+0109.  02+0299.  03+1000.  04+16.24  05+290.2  06+12.57  07+0.066  08+42.43
09+51.02  10+29.45  11+0.000  12+12.11
01+0121.  02+0299.  03+1000.  04+15.62  05+291.6  06+13.11  07+0.070  08+41.64
09+52.43  10+29.45  11+0.000  12+12.11
01+0109.  02+0299.  03+1015.  04+15.18  05+295.6  06+13.45  07+0.085  08+43.44
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09+49.12  10+29.46  11+0.000  12+12.12
01+0109.  02+0299.  03+1045.  04+17.06  05+294.1  06+12.64  07+0.071  08+44.47
09+48.60  10+29.45  11+0.000  12+12.12
01+0109.  02+0299.  03+1100.  04+16.61  05+304.9  06+11.52  07+0.073  08+45.92
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01+0121.  02+0299.  03+1100.  04+15.90  05+300.0  06+13.46  07+0.078  08+44.47
09+48.69  10+29.45  11+0.000  12+12.12
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09+43.44  10+29.44  11+0.000  12+12.13
01+0109.  02+0299.  03+1145.  04+17.50  05+291.5  06+13.30  07+0.071  08+47.98
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09+36.31  10+29.42  11+0.000  12+12.16
01+0109.  02+0299.  03+1315.  04+16.46  05+287.6  06+10.49  07+0.064  08+52.10
09+32.63  10+29.42  11+0.000  12+12.16
01+0109.  02+0299.  03+1330.  04+15.40  05+279.5  06+14.65  07+0.076  08+52.86
09+31.55  10+29.41  11+0.000  12+12.17
01+0109.  02+0299.  03+1345.  04+18.68  05+277.8  06+09.87  07+0.066  08+53.04
09+29.55  10+29.41  11+0.000  12+12.17
01+0109.  02+0299.  03+1400.  04+17.30  05+280.7  06+11.73  07+0.064  08+53.25
09+28.28  10+29.41  11+0.000  12+12.17
01+0121.  02+0299.  03+1400.  04+16.96  05+281.6  06+12.39  07+0.068  08+52.81
09+30.58  10+29.41  11+0.000  12+12.17
01+0109.  02+0299.  03+1415.  04+18.02  05+280.5  06+12.57  07+0.070  08+53.49
09+27.58  10+29.41  11+0.000  12+12.17
01+0109.  02+0299.  03+1430.  04+17.06  05+267.5  06+11.55  07+0.078  08+52.88
09+26.63  10+29.40  11+0.000  12+12.16
01+0109.  02+0299.  03+1445.  04+16.41  05+280.8  06+11.41  07+0.068  08+52.88
09+26.10  10+29.40  11+0.000  12+12.15
01+0109.  02+0299.  03+1500.  04+15.83  05+287.3  06+08.81  07+0.066  08+52.47
09+26.51  10+29.40  11+0.000  12+12.15
01+0121.  02+0299.  03+1500.  04+16.83  05+279.1  06+13.27  07+0.071  08+52.93
09+28.70  10+29.40  11+0.000  12+12.16
01+0109.  02+0299.  03+1515.  04+12.07  05+272.4  06+10.16  07+0.064  08+52.45
09+27.36  10+29.40  11+0.000  12+12.14
01+0109.  02+0299.  03+1530.  04+11.22  05+271.9  06+11.31  07+0.068  08+52.65
09+28.14  10+29.41  11+0.000  12+12.13
01+0109.  02+0299.  03+1545.  04+10.33  05+268.7  06+10.27  07+0.068  08+52.95
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09+28.83	10+29.40	11+0.000	12+12.12				
01+0109.	02+0299.	03+1600.	04+09.45	05+268.4	06+09.76	07+0.062	08+52.95
09+29.74	10+29.40	11+0.000	12+12.11				
01+0121.	02+0299.	03+1600.	04+10.77	05+270.4	06+10.55	07+0.066	08+52.75
09+28.51	10+29.40	11+0.000	12+12.12				
01+0109.	02+0299.	03+1615.	04+10.58	05+276.7	06+09.70	07+0.055	08+53.02
09+30.11	10+29.40	11+0.000	12+12.11				
01+0109.	02+0299.	03+1630.	04+10.11	05+275.7	06+11.69	07+0.063	08+52.93
09+29.90	10+29.39	11+0.000	12+12.10				
01+0109.	02+0299.	03+1645.	04+10.15	05+268.6	06+09.69	07+0.068	08+52.86
09+30.25	10+29.40	11+0.000	12+12.09				
01+0109.	02+0299.	03+1700.	04+09.16	05+255.0	06+10.83	07+0.071	08+52.71
09+30.88	10+29.40	11+0.000	12+12.09				
01+0121.	02+0299.	03+1700.	04+10.00	05+269.0	06+13.60	07+0.065	08+52.88
09+30.28	10+29.39	11+0.000	12+12.10				
01+0109.	02+0299.	03+1715.	04+09.69	05+265.5	06+10.57	07+0.069	08+52.39
09+31.73	10+29.41	11+0.000	12+12.08				
01+0109.	02+0299.	03+1730.	04+09.39	05+268.3	06+08.11	07+0.056	08+51.83
09+31.95	10+29.41	11+0.000	12+12.08				
01+0109.	02+0299.	03+1745.	04+10.68	05+267.1	06+09.08	07+0.067	08+51.76
09+33.04	10+29.42	11+0.000	12+12.07				
01+0109.	02+0299.	03+1800.	04+14.14	05+265.9	06+08.99	07+0.066	08+51.93
09+34.91	10+29.42	11+0.000	12+12.06				
01+0121.	02+0299.	03+1800.	04+10.97	05+266.7	06+09.29	07+0.067	08+51.98
09+32.91	10+29.42	11+0.000	12+12.07				
01+0109.	02+0299.	03+1815.	04+12.18	05+270.0	06+09.72	07+0.061	08+51.93
09+37.48	10+29.43	11+0.000	12+12.06				
01+0109.	02+0299.	03+1830.	04+11.22	05+264.1	06+11.11	07+0.071	08+52.08
09+39.83	10+29.44	11+0.000	12+12.06				
01+0109.	02+0299.	03+1845.	04+08.68	05+259.1	06+10.22	07+0.068	08+51.97
09+41.86	10+29.44	11+0.000	12+12.05				
01+0109.	02+0299.	03+1900.	04+08.20	05+259.3	06+10.45	07+0.074	08+51.89
09+43.63	10+29.44	11+0.000	12+12.05				
01+0121.	02+0299.	03+1900.	04+10.07	05+263.1	06+11.30	07+0.069	08+51.97
09+40.70	10+29.44	11+0.000	12+12.05				
01+0109.	02+0299.	03+1915.	04+10.09	05+260.5	06+09.38	07+0.065	08+52.15
09+44.80	10+29.44	11+0.000	12+12.04				
01+0109.	02+0299.	03+1930.	04+08.88	05+256.4	06+09.33	07+0.068	08+52.03
09+45.52	10+29.45	11+0.000	12+12.04				
01+0109.	02+0299.	03+1945.	04+11.75	05+252.5	06+09.84	07+0.069	08+52.11
09+46.16	10+29.45	11+0.000	12+12.03				
01+0109.	02+0299.	03+2000.	04+08.67	05+251.3	06+09.50	07+0.072	08+51.92
09+46.91	10+29.45	11+0.000	12+12.03				
01+0121.	02+0299.	03+2000.	04+09.84	05+255.2	06+10.18	07+0.069	08+52.06
09+45.85	10+29.45	11+0.000	12+12.04				
01+0109.	02+0299.	03+2015.	04+08.81	05+252.5	06+09.39	07+0.074	08+51.61
09+48.11	10+29.45	11+0.000	12+12.03				
01+0109.	02+0299.	03+2030.	04+08.15	05+248.4	06+09.48	07+0.066	08+51.23
09+49.80	10+29.45	11+0.000	12+12.02				
01+0109.	02+0299.	03+2045.	04+08.19	05+248.7	06+09.67	07+0.067	08+50.94
09+51.97	10+29.45	11+0.000	12+12.02				
01+0109.	02+0299.	03+2100.	04+07.93	05+250.6	06+09.25	07+0.058	08+50.75
09+54.15	10+29.44	11+0.000	12+12.01				
01+0121.	02+0299.	03+2100.	04+08.27	05+250.1	06+09.59	07+0.068	08+51.13
09+54.01	10+29.45	11+0.000	12+12.02				
01+0109.	02+0299.	03+2115.	04+07.78	05+252.4	06+07.92	07+0.059	08+50.55
09+55.93	10+29.44	11+0.000	12+12.00				
01+0109.	02+0299.	03+2130.	04+6.750	05+251.2	06+07.70	07+0.046	08+49.99
09+57.91	10+29.44	11+0.000	12+12.00				
01+0109.	02+0299.	03+2145.	04+07.06	05+246.7	06+07.55	07+0.050	08+49.46
09+60.15	10+29.45	11+0.000	12+12.00				
01+0109.	02+0299.	03+2200.	04+07.10	05+247.0	06+07.51	07+0.049	08+49.41
09+61.76	10+29.44	11+0.000	12+12.00				
01+0121.	02+0299.	03+2200.	04+07.17	05+249.3	06+08.07	07+0.053	08+49.85
09+58.94	10+29.44	11+0.000	12+12.00				
01+0109.	02+0299.	03+2215.	04+6.969	05+246.4	06+07.38	07+0.047	08+49.16
09+62.95	10+29.44	11+0.000	12+12.00				
01+0109.	02+0299.	03+2230.	04+6.337	05+254.0	06+11.86	07+0.044	08+48.83
09+64.36	10+29.44	11+0.000	12+11.99				
01+0109.	02+0299.	03+2245.	04+07.41	05+247.5	06+08.49	07+0.046	08+48.69
09+65.91	10+29.44	11+0.000	12+11.98				
01+0109.	02+0299.	03+2300.	04+6.005	05+253.4	06+07.74	07+0.040	08+48.41
09+67.06	10+29.44	11+0.000	12+11.98				
01+0121.	02+0299.	03+2300.	04+6.879	05+248.3	06+09.66	07+0.047	08+48.77
09+65.87	10+29.44	11+0.000	12+11.99				
01+0109.	02+0299.	03+2315.	04+5.213	05+256.8	06+6.899	07+0.035	08+48.02
09+68.08	10+29.44	11+0.000	12+11.98				
01+0109.	02+0299.	03+2330.	04+6.322	05+270.8	06+08.24	07+0.039	08+47.94
09+69.10	10+29.44	11+0.000	12+11.97				
01+0109.	02+0299.	03+2345.	04+6.769	05+268.1	06+07.65	07+0.042	08+48.01
09+68.87	10+29.44	11+0.000	12+11.97				
01+0109.	02+0299.	03+2400.	04+6.237	05+289.1	06+5.733	07+0.028	08+48.11
09+68.75	10+29.44	11+0.000	12+11.96				
01+0121.	02+0299.	03+2400.	04+6.135	05+271.2	06+13.62	07+0.040	08+48.02
09+68.78	10+29.44	11+0.000	12+11.97				
01+0109.	02+0300.	03+0015.	04+6.068	05+290.5	06+12.80	07+0.027	08+47.39
09+69.01	10+29.44	11+0.000	12+11.96				
01+0109.	02+0300.	03+0030.	04+08.49	05+285.4	06+09.20	07+0.031	08+47.35
09+070.2	10+29.45	11+0.000	12+11.95				

01+0109. 02+0300. 03+0045. 04+08.07 05+262.0 06+5.860 07+0.043 08+47.15
09+071.3 10+29.45 11+0.000 12+11.95
01+0109. 02+0300. 03+0100. 04+09.61 05+276.3 06+6.008 07+0.039 08+47.99
09+070.9 10+29.45 11+0.000 12+11.94
01+0121. 02+0300. 03+0100. 04+08.06 05+278.5 06+14.03 07+0.042 08+47.47
09+070.3 10+29.45 11+0.000 12+11.95
01+0109. 02+0300. 03+0115. 04+08.67 05+275.8 06+5.098 07+0.036 08+47.70
09+070.2 10+29.45 11+0.000 12+11.94
01+0109. 02+0300. 03+0130. 04+10.15 05+279.8 06+5.789 07+0.041 08+47.58
09+070.6 10+29.45 11+0.000 12+11.93
01+0109. 02+0300. 03+0145. 04+10.61 05+288.1 06+08.62 07+0.063 08+48.03
09+070.1 10+29.45 11+0.000 12+11.93
01+0109. 02+0300. 03+0200. 04+10.53 05+292.3 06+07.82 07+0.055 08+48.54
09+69.53 10+29.45 11+0.000 12+11.92
01+0121. 02+0300. 03+0200. 04+09.99 05+284.0 06+09.55 07+0.051 08+47.96
09+070.1 10+29.45 11+0.000 12+11.93
01+0109. 02+0300. 03+0215. 04+09.93 05+285.9 06+08.16 07+0.060 08+48.65
09+69.40 10+29.45 11+0.000 12+11.92
01+0109. 02+0300. 03+0230. 04+09.97 05+291.8 06+09.49 07+0.066 08+49.01
09+68.81 10+29.45 11+0.000 12+11.91
01+0109. 02+0300. 03+0245. 04+09.76 05+294.4 06+09.51 07+0.064 08+49.24
09+67.73 10+29.46 11+0.000 12+11.91
01+0109. 02+0300. 03+0300. 04+12.03 05+288.4 06+08.33 07+0.065 08+49.24
09+66.87 10+29.45 11+0.000 12+11.90
01+0121. 02+0300. 03+0300. 04+10.42 05+290.1 06+09.47 07+0.064 08+49.03
09+68.20 10+29.45 11+0.000 12+11.91
01+0109. 02+0300. 03+0315. 04+12.85 05+293.6 06+10.20 07+0.074 08+49.47
09+65.72 10+29.45 11+0.000 12+11.90
01+0109. 02+0300. 03+0330. 04+11.70 05+295.9 06+10.61 07+0.080 08+49.56
09+64.66 10+29.46 11+0.000 12+11.89
01+0109. 02+0300. 03+0345. 04+13.37 05+309.3 06+13.19 07+0.081 08+50.03
09+63.06 10+29.46 11+0.000 12+11.88
01+0109. 02+0300. 03+0400. 04+14.31 05+309.4 06+11.31 07+0.081 08+50.12
09+61.35 10+29.47 11+0.000 12+11.88
01+0121. 02+0300. 03+0400. 04+13.06 05+302.0 06+13.54 07+0.080 08+49.80
09+63.70 10+29.46 11+0.000 12+11.89
01+0109. 02+0300. 03+0415. 04+14.61 05+309.0 06+09.81 07+0.071 08+50.15
09+60.28 10+29.48 11+0.000 12+11.87
01+0109. 02+0300. 03+0430. 04+11.86 05+303.7 06+12.01 07+0.074 08+49.93
09+59.95 10+29.49 11+0.000 12+11.86
01+0109. 02+0300. 03+0445. 04+08.92 05+295.9 06+10.44 07+0.078 08+49.38
09+60.65 10+29.49 11+0.000 12+11.86
01+0109. 02+0300. 03+0500. 04+09.78 05+284.2 06+09.75 07+0.058 08+48.77
09+61.84 10+29.50 11+0.000 12+11.85
01+0121. 02+0300. 03+0500. 04+11.29 05+298.2 06+14.07 07+0.073 08+49.56
09+60.67 10+29.49 11+0.000 12+11.86
01+0109. 02+0300. 03+0515. 04+09.43 05+292.0 06+11.06 07+0.075 08+48.53
09+62.70 10+29.50 11+0.000 12+11.84
01+0109. 02+0300. 03+0530. 04+07.98 05+297.3 06+10.58 07+0.069 08+48.20
09+63.39 10+29.51 11+0.000 12+11.83
01+0109. 02+0300. 03+0545. 04+10.21 05+293.8 06+12.48 07+0.079 08+47.92
09+64.08 10+29.52 11+0.000 12+11.81
01+0109. 02+0300. 03+0600. 04+15.66 05+299.6 06+10.67 07+0.071 08+48.02
09+61.93 10+29.52 11+0.000 12+11.80
01+0121. 02+0300. 03+0600. 04+10.82 05+295.7 06+11.61 07+0.076 08+48.17
09+63.02 10+29.51 11+0.000 12+11.82
01+0109. 02+0300. 03+0615. 04+14.30 05+294.0 06+12.70 07+0.083 08+47.39
09+60.31 10+29.52 11+0.000 12+11.79
01+0109. 02+0300. 03+0630. 04+14.15 05+303.8 06+10.35 07+0.072 08+47.05
09+59.21 10+29.53 11+0.000 12+11.77
01+0109. 02+0300. 03+0645. 04+11.02 05+311.0 06+10.38 07+0.080 08+46.62
09+59.20 10+29.54 11+0.000 12+11.76
01+0109. 02+0300. 03+0700. 04+09.88 05+309.6 06+11.02 07+0.078 08+46.35
09+59.39 10+29.55 11+0.000 12+11.74
01+0121. 02+0300. 03+0700. 04+12.34 05+304.6 06+12.99 07+0.079 08+46.86
09+59.53 10+29.53 11+0.000 12+11.76
01+0109. 02+0300. 03+0715. 04+08.26 05+302.6 06+10.84 07+0.070 08+46.31
09+59.49 10+29.56 11+0.000 12+11.72
01+0109. 02+0300. 03+0730. 04+6.747 05+303.1 06+17.38 07+0.082 08+46.45
09+59.53 10+29.57 11+0.000 12+11.70
01+0109. 02+0300. 03+0745. 04+08.55 05+299.5 06+15.95 07+0.077 08+46.80
09+59.19 10+29.58 11+0.000 12+11.68
01+0109. 02+0300. 03+0800. 04+10.70 05+301.2 06+13.79 07+0.068 08+47.06
09+58.31 10+29.58 11+0.000 12+11.65
01+0121. 02+0300. 03+0800. 04+08.56 05+301.6 06+14.75 07+0.074 08+46.65
09+59.13 10+29.57 11+0.000 12+11.69
01+0109. 02+0300. 03+0815. 04+09.44 05+313.0 06+17.63 07+0.095 08+47.44
09+57.49 10+29.59 11+0.000 12+11.63
01+0109. 02+0300. 03+0830. 04+12.66 05+308.3 06+14.29 07+0.075 08+47.31
09+56.46 10+29.60 11+0.000 12+11.60
01+0109. 02+0300. 03+0845. 04+12.35 05+313.2 06+15.86 07+0.078 08+47.51
09+55.68 10+29.61 11+0.000 12+11.58
01+0109. 02+0300. 03+0900. 04+12.80 05+311.1 06+18.06 07+0.078 08+47.94
09+55.15 10+29.61 11+0.000 12+11.56
01+0121. 02+0300. 03+0900. 04+11.81 05+311.4 06+16.64 07+0.081 08+47.55
09+56.19 10+29.60 11+0.000 12+11.59
01+0109. 02+0300. 03+0915. 04+13.46 05+320.2 06+24.69 07+0.084 08+47.79
09+54.88 10+29.62 11+0.000 12+11.54
01+0109. 02+0300. 03+0930. 04+12.78 05+340.5 06+18.97 07+0.073 08+48.08

09+54.64	10+29.62	11+0.000	12+11.52				
01+0109.	02+0300.	03+0945.	04+13.05	05+350.3	06+18.16	07+0.086	08+48.31
09+53.99	10+29.62	11+0.000	12+11.50				
01+0109.	02+0300.	03+1000.	04+14.69	05+345.1	06+19.92	07+0.074	08+48.24
09+53.14	10+29.62	11+0.000	12+11.49				
01+0121.	02+0300.	03+1000.	04+13.49	05+339.3	06+23.45	07+0.080	08+48.10
09+54.16	10+29.62	11+0.000	12+11.51				
01+0109.	02+0300.	03+1015.	04+13.77	05+337.6	06+16.76	07+0.085	08+48.38
09+52.65	10+29.62	11+0.000	12+11.48				
01+0109.	02+0300.	03+1030.	04+12.26	05+353.2	06+20.62	07+0.098	08+48.63
09+51.54	10+29.63	11+0.000	12+11.47				
01+0109.	02+0300.	03+1045.	04+12.57	05+344.6	06+19.18	07+0.080	08+48.76
09+50.34	10+29.63	11+0.000	12+11.46				
01+0109.	02+0300.	03+1100.	04+12.60	05+2.331	06+21.03	07+0.075	08+49.00
09+49.02	10+29.63	11+0.000	12+11.45				
01+0121.	02+0300.	03+1100.	04+12.80	05+349.4	06+21.54	07+0.085	08+48.69
09+50.89	10+29.63	11+0.000	12+11.47				
01+0109.	02+0300.	03+1115.	04+12.76	05+3.655	06+18.47	07+0.080	08+49.20
09+48.00	10+29.63	11+0.000	12+11.45				
01+0109.	02+0300.	03+1130.	04+13.68	05+334.6	06+21.79	07+0.092	08+49.69
09+46.49	10+29.63	11+0.000	12+11.45				