CDM

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MITCHEL FIELD TRANSIT FACILITY SITE

BASELINE AIR QUALITY

MONITORING REPORT

26-29 September 1983

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The following data constitutes expert opinions and writings prepared solely in comtemplation of and in anticipation of Litigation and is for the sole use of the County Attorney and the Department of Public Works of the County of Nassau.

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1.0 INTRODUCTION

A baseline ambient air quality monitoring study was conducted at the proposed site for the new Nassau County MSBA Mass Transit Facility at Mitchel Field. The study was conducted to evaluate ambient air quality conditions both onsite and in surrounding areas. The principal interest was to determine if volatile organic contaminants in the groundwater and subsurface soils were being volatized at rates that would cause unacceptable ambient air concentrations in the area.

Three sampling locations were selected for determining ambient concentration. The principal monitoring site was located directly above the groundwater contaminant plume and was instrumented to collect both air quality and meteorological data. The second area for sampling was situated within the current MSBA terminal building. And finally, a site was situated to determine either background and downwind concentrations depending on onsite concentrations.

The sampling protocols required the monitoring of selected volatile organic compounds, meteorological variables and carbon monoxide. The two methods applied in the sampling of volatile organic compounds were grab samples taken over several hours using charcoal as a collection media and a photoionization detector for short-term measurements. Meteorological data on wind speed, wind direction and ambient air temperature were collected continuously during the sampling periods. Carbon monoxide data was also collected during selected short-term periods to determine if transportation sources of hydrocarbons were contributing to onsite volatile organic concentrations.

The study was designed to provide baseline ambient air quality conditions in the area. Baselines are commonly established whenever an

action is proposed that may cause an increase in the ambient concentration of air pollutants. In this case, there is a potential for increasing the ambient concentrations of volatile organic compounds during the remediation program designed to remove the subsurface soil and groundwater contamination. Also, there was some concern that existing ambient air concentrations of the volatile organic compounds in the subsurface soil and groundwater might be significant, even-though, the initial walkovers performed by CDM indicated no detectable quantities of concern.

The baseline study would also provide an assessment of ambient air concentrations over an extended period. At present, there are no univerally accepted procedures for determining compliance with existing guidelines. A sampling period of 4 days was chosen over which 18 grab samples were to be collected. The duration of the individual samples and the days on which sampling was to occur were source and meteorological dependent. The study also was designed to quantify offsite concentrations as well as other potential sources in the immediate area that might affect ambient levels.

The primary rationale for monitoring real-time selected hydrocarbons by the HNU analyzer and carbon monoxide levels was to determine if there would be a substantial effect from transportation sources of volatile organics/hydrocarbons in the area. Since the portable hydrocarbon analyzer does not discriminate between ambient hydrocarbons and the subsurface volatile organic contaminants, it was necessary to monitor carbon monoxide levels as an additional indicator of offsite transportation sources. The MSBA facility was a likely source of substantial portion of the background hydrocarbon levels in the area. Elevated carbon monoxide along with elevated hydrocarbon levels would indicate the influence of sources of hydrocarbons other than the subsurface contaminants.

This report provides a summary of the baseline monitoring study. It includes a presentation of the program design which details what was proposed, the equipment used, the schedules followed and the sampling and analysis protocols. The data collected during the survey is presented in a subsequent section. This data is then analyzed to provide an overview of ambient conditions during the survey.

2.0 MONITORING PROGRAM DESIGN

The baseline monitoring program was designed to define ambient air quality levels in the vicinity of the proposed Nassau County MSBA Mass Transit Facility at Mitchel Field. The primary purpose was to quantify the ambient air concentrations of volatile organic compounds known to contaminate subsurface soils and groudwater. Of secondary importance were the ambient background air concentrations of selected organic compounds and carbon monoxide and the relationships between sources and various receptor locations.

Upon receipt of approval from the County of Nassau to perform an air quality baseline survey, several activities were initiated. The design of the monitoring program was finalized and equipment and supplies necessary for the survey were obtained and calibrated. Project staff were assigned to perform the survey during the week of September 26 1983. Arrangements were made with Transit Facility personnel for access to various sites to conduct sampling.

Sampling Sites and Monitoring Equipment. The air quality at three pre-selected sites was to be sampled during the baseline survey. Three sites were chosen to represent one of each of the following conditions: (1) onsite concentrations, (2) concentrations within the nearest inhabited structure (which is also a potential source of organic compounds) and (3) a background site (and if required, this site, would serve to determine downwind concentrations as well.)

The primary site (P1) as shown in Figure 2.1, was located directly above the contaminated soil area. This site was also the location for the meteorological instrumentation. During all sampling periods air quality and meteorological data were taken at this location. The

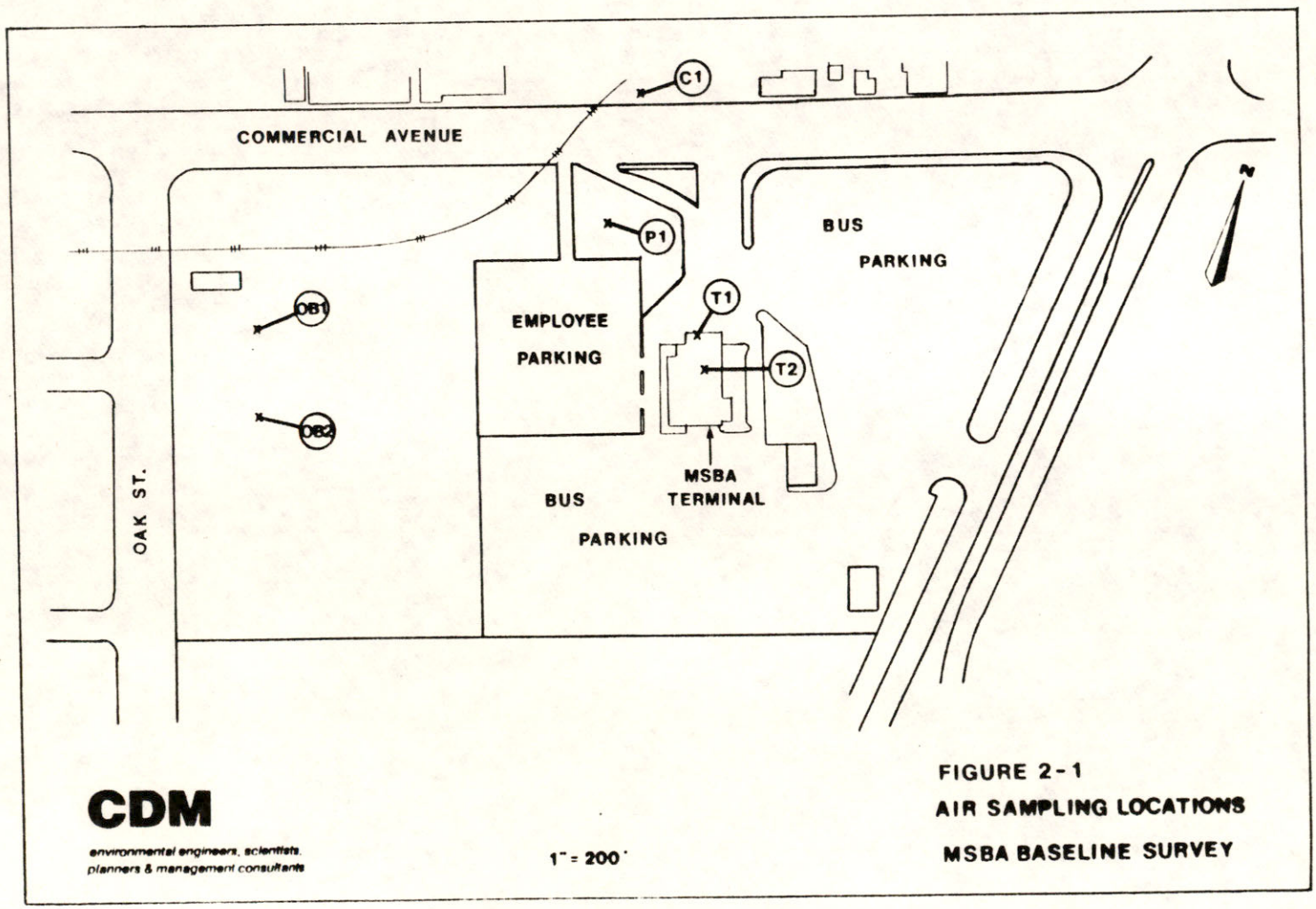

FIGURE 2-1
AIR SAMPLING LOCATIONS
MSBA BASELINE SURVEY

second site selected was the MSBA facility. Samples were taken within the main service bay area (T1) and (T2). Two locations at the MSBA terminal were used to define indoor concentrations within the terminal. The third sampling location was split between two sites, one to the north of Commercial Avenue (C1) and a site to the east of Oak and Brook Streets (OB1 and OB2). The third sampling location was selected based on ambient air concentrations of pollutants at the primary site (P1) and meteorology.

The instrumentation used during the baseline sampling program included both air sampling equipment and meteorological equipment. The specifications for the instrumentation along with other information on calibration and operation limits are presented in Table 2.1.

Two sampling techniques were selected to determine the ambient levels of organic compounds. The primary sampling method was to collect grab samples of ambient air contaminants on charcoal tubes using personnel sampling pumps. The grab samples were taken continuously over a period of approximately four hours at each monitoring site. Each grab sample was divided between two collection tubes at each site, one a standard glass tube and the second a metal tube. The nominal flow rate for the sample pump within the transit facility was set at 0.4 liters per minute and the flow rate for the other sites was set at 0.6 liters per minute. A lower flow rate was used within the MSBA facility (T1 and T2) because of the likelihood of higher overall concentration of volatile organic compounds.

The secondary sampling method used principally for verification employed a HNU organic vapor analyzer. The HNU meter is sensitive to the selected list of organics to varying degrees. The organic compounds present in the subsurface soil and groundwater are presented in Table 2.2 along with the sensitivity of the HNU instrument to those compounds. The analyzer was used to monitor the

TABLE 2.1: INSTRUMENT SPECIFICATIONS

Grab Samplers For Hydrocarbons: (Three Locations/One Spare)

Charcoal Tubes:	100/50 mg, 2" length Ref: NIOSH P&CAM127
Sampling Pumps:	Bendix Personnel Sampling Pumps
Model: BDX-44	Flow Rate: 0-1 lpm.
Flow Calibration:	Kurz Flow Calibrator, Model: H-101 (Daily Calibration)

Portable Hydrocarbon Analyzer:

Manufacturer:	HNU Systems, Model: PI-101 (with 10.2 eV lamp.) calibrated to isobutylene.
Detection Limits:	0.2 ppm;
Calibration:	CDM Boston Laboratory, September, 1983.

Carbon Monoxide Analyzer:

Manufacturer:	Ecolyzer, Model 2000
Detection Range:	0-50 ppm $\pm$ 0.5 ppm
Calibration:	ETA Associate, September, 1983

Meteorological Equipment:

Manufacturer:	Climatronics
Model:	Wind Mark III; wind speed $\pm$ 0.1 mph; direction $\pm$ 1°; temperature $\pm$ 0.5 °F; analog strip chart recorders
Calibration:	CDM Wheat Ridge Laboratory, September, 1983

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MAJOR ORGANIC COMPOUNDS AND ASSOCIATED STANDARDS AND PHYSICAL CONSTANTS IDENTIFIED AT PUREX/MITCHELL FIELD SITE - HEMPSTEAD, NY

RANK	CONTAMINANT	MAX. WELL CONC., PPB	TLV-TWA PPM	TLV-STEL PPM	H @ 20°C[1] ATM M^3/MOL	IP[2]	PS[3]@ 10.2 EV
1	1,1,1 TRICHLOROETHANE	437,000	350	450	3.6×10^{-3}	11.5	NR
2	TOLUENE	294,000	100	150	5.7×10^{-3}	8.82	10.0
3	TRICHLOROETHYLENE	141,000	50	150	1.0×10^{-2}	9.45	8.9
4	TETRACHLOROETHYLENE	136,500	50	NONE	2.3×10^{-2}	9.32	H
5	ETHYLBENZENE	44,500	100	125	5.7×10^{-3}	8.76	H
6	METHYLENE CHLORIDE	6,300	100	500	2.4×10^{-3}	11.4	NR
7	DICHLOROETHYLENE (TRANS 1,2)	5,150	200	250	5.7×10^{-3}	9.66	L
8	CHLOROBENZENE	4,950	75	NONE	4.0×10^{-3}	9.07	H
9	DICHLOROETHANE (1,1)	2,600	200	250	5.1×10^{-3}	11.1	NR
10	CHLOROFORM	950	10	50	3.4×10^{-3}	11.4	NR
11	BENZENE	680	10	25	4.6×10^{-3}	9.25	10.0
12	CARBONTETRACHLORIDE	600	5	20	2.5×10^{-2}	11.5	NR

[1] $>1.0 \times 10^{-3}$ EFFICIENTLY REMOVED (HENRY'S LAW CONSTANT)

[2] IP - IONIZATION EV

[3] PHOTOSENSITIVITY VS. BENZENE = 10

L - LOW RESPONSE UNQUANTIFIED H - HIGH RESPONSE UNQUANTIFIED NR - NO RESPONSE

TLV - THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES IN THE WORK ENVIRONMENT, ADOPTED BY AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS FOR 1983-84

instantaneous organic vapor concentration during the course of collecting the grab samples. If concentrations reported by the HNU became elevated, the grab sampling procedures would be modified to avoid breakthrough in the collection tubes.

The measurement of carbon monoxide was by means of an Ecolyzer carbon monoxide analyzer. This instrument was calibrated prior to field use. Carbon monoxide as well as volatile organic (HNU) samples were taken three times during each grab sample collection period: One at the beginning of sampling, one in the middle and one at the end of the sampling interval. The instruments were transported to each of the grab sample site and readings were made for 10 minutes at each location.

Meteorological equipment was positioned at the primary sampling site (P1) directly above the groundwater contimination area. The equipment included wind vector and temperature sensors. If required estimates of turbulence could be obtained from the analog strip chart record made during the sampling program.

Meteorological equipment was calibrated prior to field installation. The base site (P1) was surveyed to allow dismantling of the meteorological equipment at the end of each sampling day. Directional orientation was made by both a compass fix on magnetic north with correction for declination to true north and by siting on a local tower.

Sampling Protocol. A generic sampling protocol was determined prior to the first test. The sampling protocol is outlined below:

- Forecast meteorology for the proposed sampling period and determine sampling locations.

- Determine length of sampling period. (where possible this was set to be approximately four hours)

- Calibrate Bendix sampling pumps for flow rates at 0.6 or 0.4 liter per minute.

- Set meteorological tower, (instruments were positioned at 10 feet above ground level) position on north, zero instruments, check recorder operation, note start time, position scales used on recorders, initial.

- Install grab samplers at predetermined locations for test, turn on samplers, note times in logs for start and stop. Periodically check operation.

- Make observations of onsite and offsite activities that might influence sample data.

- Make spot check of monitoring equipment to assure proper operation during test.

- Make three 10 minute observations of real-time volatile organic and carbon monoxide levels during the four hour grab sample, note readings, adjust sampling if necessary.

- Discontinue sampling when four hour period has elapsed or earlier if warranted.

- Store grab samples in dry ice for later shipment to analytical laboratory.

- Rezero equipment, determine new flow rates. Make final field log entries on each activity.

Data Reduction and Analytical Procedures. The reduction and analysis of the data collected during the four day sampling program began after the last grab sample was collected. The grab samples as indentified in Appendix 1.0 were shipped in dry ice for analytical laboratory analysis. The analytical procedure consisted of desorption of captive hydrocarbons in 0.5 milliliters of carbon disulfide. After one hour of development, the solution were analyzed using a glass capillary column gas chromatograph with a flame ionization detector. The remainder of the procedures along with analytical results are presented in Appendix 2.0.

The meteorological data collected during the sampling period was reduced to hourly averages for wind speed, wind direction and air temperature. These hourly averages over the sampling periods are contained in Table 2.3. In general, the meteorological conditions over all sampling periods were typical of conditions character of this area during the fall season. Temperatures were sufficiently high to not overly attenuate volitalization of subsurface organic compounds. The wind direction was fairly persistent over each sampling period, facilitating the distinction between upwind and downwind source regions. Wind speeds ranged from light to moderate levels.

The hydrocarbon (selected volatile organics) and carbon monoxide data monitored by portable continous readout equipment is presented in Table 2.4 The data presented has been reduced from original observation that included 10 instantenous readings per 10 minute sample period. Three readings were obtained over the course of the standard 4 hour grab sample at each sampling point.

TABLE 2.3

MSBA MITCHEL FIELD BASELINE SURVEY
METEOROLOGICAL OBSERVATIONS DURING SAMPLE COLLECTION PERIODS

DATE: 26 September 1983: Test Conditions: partly cloudy skies, southwesterly wind, relative humidity 50 percent.

Hour Average Conditions

Hourly Period	Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
14:35 - 15:35	215	6	70
15:35 - 16:35	207	7	68
16:35 - 17:36	207	4	67

DATE: 27 September 1983: Test Conditions: Sunny clear skies, light southwesterly wind, relative humidity 40 percent.

Hour Average Conditions

Hourly Period	Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
07:30-08:30	320	2	62
08:30-09:30	320	5	66
09:30-10:30	330	4	68
10:30-11:30	300	3	70
11:30-12:30	360	4	73
12:30-13:30	-	4	76
13:30-14:30	-	5	78
14:30-15:30	-	4	79
15:30-16:30	-	5	80
16:30-17:30	190	5	79

TABLE 2.3 (Continued)

DATE: 28 September 1983: Test Conditions: Sunny clear skies, moderate northwesterly wind, relative humidity 35 percent.

Hour Average Conditions

Hourly Period	Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
09:30-10:30	50	12	65
10:30-11:30	40	10	66
11:30-12:30	30	10	68
12:30-13:30	40	8	69
13:30-14:30	40	8	70
14:30-15:30	45	7	72
15:30-16:30	-	6	72
16:30-17:30	50	6	72
17:30-18:30	-	5	70
18:30-19:30	50	3	66
19:30-20:30	-	4	62
20:30-21:15	50	4	60

DATE: 29 September 1983: Test Conditions: Cloudy, moderate northeasterly wind, relative humidity 60 percent.

Hour Average Conditions

Hourly Period	Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
10:28-11:28	40	11	64
11:28-12:28	45	12	66
12:28-13:28	45	10	66
13:28-14:30	45	9	69

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TABLE 2.4

AIR QUALITY DATA SHEET

No: 1 of 6

GENERAL INFORMATION

Project: Nassau County MSBA Project Number: 5044-2-DN-AIRM

Date: Sept. 26, 1983 Sample By: GAB/RVV

Sampling Protocol: Continuous monitoring data: 10 minute segments at each station, three times per total grab sample.

SAMPLE LOCATION: Oak & Brook Street (OB1) (Upwind Site)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
15:01 - 15:09	0.4	0.7
16:22 - 16:30	0.4	1.6
17:32 - 17:37	0.4	1.2
Average Concentration:	0.4	1.2

SAMPLE LOCATION: Transit Facility (T1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
15:18 - 15:26	1.4	4.5
16:40 - 16:48	0.7	1.8
17:16 - 17:21	1.6	6.0
Average Concentration:	1.3	4.0

SAMPLE LOCATION: Primary Site (P1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
14:44 - 14:53	0.4	1.0
16:08 - 16:16	0.4	2.2
17:25 - 17:29	0.4	2.4
Average Concentration:	0.4	1.9

TABLE 2.4

AIR QUALITY DATA SHEET No: 2 of 6

GENERAL INFORMATION

Project: Nassau County MSBA Project Number: 5044-2-DN-AIRM

Date: Sept. 27, 1983 Sample By: KJS/RVV

Sampling Protocol: Continuous monitoring data: 10 minute segments at each station, three times per total grab sample.

SAMPLE LOCATION: Primary Site (P1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
7:50 - 8:04	0.5	6.7
9:45 - 9:54	0.6	4.1
11:00 - 11:09	0.5	3.2
Average Concentration:	0.5	4.7

SAMPLE LOCATION: Transit Facility (T1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
8:15 - 8:24	1.1	11.5
10:00 - 10:09	0.9	6.1
11:12 - 11:21	1.6	10.2
Average Concentration:	1.2	9.2

SAMPLE LOCATION: Oak & Brook (OB1) (Upwind Site)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
8:31 - 8:40	0.5	4.0
10:15 - 10:24	0.5	2.3
11:30 - 11:39	0.6	3.8
Average Concentration:	0.5	3.4

TABLE 2.4

AIR QUALITY DATA SHEET

No: 3 of 6

GENERAL INFORMATION

Project: Nassau County MSBA Project Number: 5044-2-DN-AIRM

Date: Sept. 27, 1983 Sample By: RVV/WV

Sampling Protocol: Continuous monitoring data: 10 minute segments at each station, three times per total grab sample.

SAMPLE LOCATION: Primary Site (P1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
13:10 - 13:19	0.8	4.6
15:00 - 15:09	0.4	5.3
16:17 - 16:26	0.4	5.0
Average Concentration:	0.5	5.0

SAMPLE LOCATION: Transit Facility (T1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
13:23 - 13:32	1.2	10.8
15:30 - 15:39	1.0	7.5
	- M I S S I N G D A T A -	
Average Concentration:	1.1	9.2

SAMPLE LOCATION: Oak & Brook (OB1) (Upwind Site)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
13:37 - 13:46	0.4	4.0
15:15 - 15:24	0.4	5.6
15:58 - 16:07	0.4	3.4
Average Concentration:	0.4	4.3

TABLE 2.4

AIR QUALITY DATA SHEET

No: 4 of 6

GENERAL INFORMATION

Project: Nassau County MSBA Project Number: 5044-2-DN-AIRM

Date: Sept. 28, 1983 Sample By: RVV/WV

Sampling Protocol: Continuous monitoring data: 10 minute segments at each station, three times per total grab sample.

SAMPLE LOCATION: Primary Site (P1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
10:07 - 10:16	0.4	9.3
12:10 - 12:19	0.5	2.2
13:48 - 13:57	0.7	2.5
Average Concentration:	0.6	4.7

SAMPLE LOCATION: Commercial Avenue (C1) (Upwind Site)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
10:21 - 10:28	0.4	2.1
12:22 - 12:31	0.6	2.5
14:05 - 14:14	0.8	3.8
Average Concentration:	0.6	2.7

SAMPLE LOCATION: Transit Facility (T2)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
10:33 - 10:42	1.0	2.8
12:35 - 12:44	0.7	3.7
14:18 - 14:27	0.9	4.5
Average Concentration:	0.8	3.6

TABLE 2.4

AIR QUALITY DATA SHEET No: 5 of 6

GENERAL INFORMATION

Project: Nassau County MSBA Project Number: 5044-2-DN-AIRM

Date: Sept. 28, 1983 Sample By: KJS/CJF

Sampling Protocol: Continuous monitoring data: 10 minute segments at each station, three times per total grab sample.

SAMPLE LOCATION: Primary Site (P1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
16:55 - 17:04	0.4	3.9
18:50 - 18:59	0.3	4.9
20:34 - 20:43	0.3	5.9
Average Concentration:	0.3	4.9

SAMPLE LOCATION: Transit Facility (T2)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
17:08 - 17:17	0.6	7.0
19:15 - 19:24	1.6	18.8*
21:00 - 21:09	1.8	4.9
Average Concentration:	1.4	10.2

*High value due to bus accelerating nearby.

SAMPLE LOCATION: Commercial Avenue (C1) (Upwind Site)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
17:24 - 17:33	0.4	5.6
19:02 - 19:11	0.3	4.4
20:46 - 20:55	0.6	4.4
Average Concentration:	0.4	4.8

TABLE 2.4

AIR QUALITY DATA SHEET No: 6 of 6

GENERAL INFORMATION

Project: Nassau County MSBA Project Number: 5044-2-DN-AIRM

Date: Sept. 29, 1983 Sample By: RVV/CJF

Sampling Protocol: Continuous monitoring data: 10 minute segments at each station, three times per total grab sample.

SAMPLE LOCATION: Primary Site (P1)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
10:42 - 10:51	0.5	3.2
12:25 - 12:34	0.4	2.6
13:51 - 14:00	0.4	3.8
Average Concentration:	0.4	3.2

SAMPLE LOCATION: Transit Facility (T2)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
10:59 - 11:08	1.1	9.2
12:57 - 13:06	0.7	5.4
14:19 - 14:28	0.7	5.9
Average Concentration:	0.8	6.8

SAMPLE LOCATION: Oak & Brook Street (OB2) (Downwind site)

Averaging Period	Hydrocarbons (ppm)	Carbon Monoxide (ppm)
11:10 - 11:19	0.6	3.2
12:40 - 12:49	0.3	2.0
14:04 - 14:13	0.4	2.2
Average Concentration:	0.5	2.5

3.0 ANALYSIS OF RESULTS

Volatile Organic Compounds. Volatile organic compounds were principally monitored by means of 4-hour grab samples. These samples were subsequently analyzed for selected volatile organics by gas chromatography. Analytically, these samples represent the most accurate data available on ambient volatile organic compounds during the baseline survey. The analysis was restricted to those compounds known to be present onsite in the subsurface groundwater and soil (Table 2.1).

The data on volatile organics is presented in Appendix 2.0 indicates that no organic shown on Table 3.1 was detected on any of the samples taken during the entire study. No organics were observed at detection limits shown at the primary site within the transit facility or at the background site. As shown in Table 3.1 the detection limit is dependent on the specific organic of interest. The time weighted average for each compound is the acceptable exposure concentration in a work place environment. The detection limit is based on the highest value calculated over all samples. Nonetheless, the detection limit is, in general, well below the threshold time weighted average for each compound. The time weighted average for each compound is the acceptable exposure concentration in a work place environment. Based on the limited results recorded during the survey, the volatile organics in the groundwater and subsurface soils do not appear to be volatilizing at rates that would be of concern to workers in the area.

Other Air Quality Baseline Data. Other air quality baseline data was collected coincident with the above mentioned grab samples. Two pollutants were sampled by real-time analyzers, hydrocarbon (selected organic compounds) and carbon monoxide. These data were presented on

TABLE 3.1

DETECTION LIMITS FOR VOLATILE ORGANICS IN AIR* - ALL VALUES REPORTED AS MG/M^3

	CAS #	TWA[1], MG/M^3	DETECTION LIMIT MG/M^3
CHLOROMETHANE	74-87-3	105	<5.0
BROMOMETHANE	74-83-9	20	<5.0
VINYL CHLORIDE	75-01-4	10	<5.0
CHLOROETHANE	75-00-3	2600	<5.0
METHYLENE CHLORIDE	75-09-2	350	<5.0
TRICHLOROFLUOROMETHANE	75-69-4	5600	<5.0
1,1-DICHLOROETHYLENE	75-35-4	40	<5.0
1,1-DICHLOROETHANE	75-34-3	810	<5.0
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	<5.0
CHLOROFORM	67-66-3	50	<5.0
1,2-DICHLOROETHANE	107-06-2	40	<5.0
1,1,1-TRICHLOROETHANE	71-55-6	1900	<5.0
CARBON TETRACHLORIDE	56-23-5	30	<5.0
BROMODICHLOROMETHANE	75-25-4	NONE	<5.0
1,2-DICHLOROPROPANE	78-87-5	350	<5.0
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	<5.0
TRICHLOROETHYLENE	79-01-6	270	<5.0
DIBROMOCHLOROMETHANE	124-48-1	NONE	<5.0
CIS-1,3-DICHLOROPROPENE	542-75-6	350	<5.0
1,1,2-TRICHLOROETHANE	79-00-5	45	<5.0
BENZENE	71-43-2	30	<0.5
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	<5.0
BROMOFORM	75-25-2	5	<5.0
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	<5.0
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	<5.0
TOLUENE	108-88-3	375	<1.0
CHLOROBENZENE	108-90-7	350	<1.0
ETHYLBENZENE	100-41-4	435	<1.0

* All samples were analyzed for this list of Volatile Organic Compounds (VOC).

1 TWA - The threshold Limit Value-Time Weighted Average (TLV-TWA) - the time weighted average concentration for a normal 8 hour workday, and a 40 hour work week, to which nearly all workers may be repeatedly exposed, day-after-day, without adverse effect - American Conference of Governmental Industrial Hygienists, 1983-84

Table 2.4. The hydrocarbon analyzer used for real-time measurements respond to a host of volatile organic compounds including most of those listed as groundwater contaminants in Table 2.2. The levels monitored both at the primary site (P1), as well as the background site, are very close to the detection limit of the portable HNU analyzer. Most concentrations within the transit facility (T1 and T2) were typically 2 to 3 times the levels at the other sites.

A comparison of the grab sample data and the portable hydrocarbon analyzer indicates a general corresondence between sampling results; recognizing that there are significant differences in the sampling technique sensitivity to various organics of interest.

Carbon monoxide levels were monitored along with the real-time measurements of hydrocarbon. These data indicate that ambient background levels and onsite (P1) levels are well within standards. Again higher levels were observed within the Transit Facility but even at that location, concentrations are well within standards based on the reported data.

4.0 SUMMARY AND CONCLUSIONS

A baseline air quality survey was conducted with the primary purpose to define ambient selected volatile organic compounds levels. The study concentrated on detecting ambient air concentrations of volatile organic compounds known to contaminate subsurface groundwater and soils. The study was conducted over a period of 4 calendar days with a total of 21 air grab samples taken over three sampling locations.

The analytical laboratory results of grab samples of ambient air indicate that no volatile organic compounds present at the limit of detection of the instrumentation in the groundwater and subsurface soils are present in the ambient air either directly above the subsurface contamination, within the transit facility or either upwind or downwind of the MSBA site.

Therefore, based on the limited information collected during the 4-day baseline survey, the above surface air concentrations over the undisturbed site and in the other areas that were tested are not in excess of the NYSDEC Air Guide No. 1 Acceptable Ambient Levels for any of the volatile organic compounds identified in the subsurface soils or groundwater.

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APPENDIX 1.0

HYDROCARBON MONITORING PROCEDURES USING GRAB SAMPLERS

Nassau County Mass Transit Facility

26-29 September 1983

Camp Dresser & McKee

1.0 INTRODUCTION

A baseline air quality sampling program was conducted at the Mitchel Field Transit Facility site in order to access ambient air quality conditions prior to any remedial activities. This program will help define existing air quality for the protection of both the workers and investigators on-site, as well as the local population. The field investigations were conducted within applicable Safety and Health Plans, Generic Sampling and Analytical Protocols and Quality Assurance. Sampling and monitoring activities took place on four (4) consecutive days; September 25, 27, 28, and 29, 1983.

Air sampling was conducted at two permanent sites and one other location which varied according to wind direction as shown in Figure 1. The variable location was intended to represent either upwind or downwind conditions relative location P1. The locations are identified below:

Location P1: This primary sampling site was located adjacent to where the test pit at the contaminated subsurface area had been excavated. The sampler was located above 3 feet from the ground surface on the tripod of a temporary meteorological station.

Location T1 and T2: This sampling site was situated inside of the MSBA maintenance building. The sampler was situated approximately 4 feet above the garage floor between two bus bays. T1 was located near the outside wall and T2 was well inside the service terminal.

Location (Alternate): This sampling site was moved to three (3) different locations during the sampling. For samples marked 01, 02, and 03, the sampler was set-up on a fence post behind the abandoned oil storage tanks near the intersection of Oak Street and Commericial Avenue (OB1, Figure 1). For samples marked 04 and 05, the sampler was set-up on a fence post directly across Commericial Avenue from station P1 (C1, Figure 1). Sample 06 was obtained in the field near Oak Street (OB2, Figure 1).

Location D: This sample designation was used to identify sample blanks used in the quality control protocol.

2.0 EQUIPMENT/PROCEDURES

All samples were collected using a portable Bendix Super Sampler Pump (BDX - 44). Each pump collected two samples for volatile organic (hydrocarbon) analysis. Both sample tubes utilized activated charcol as the collection media, but one tube was a commercial glass tube and the other was a packed metal tube. Two samples were collected because analytical procedres required the use of different tubes.

Prior to collecting the air samples, each pump was calibrated to the desired flow rate using a Kurz air velocity meter and surrogate sample tubes.

Once the pumps were calibrated, the sample tubes were attached to the pump and positioned at the sampling locations specific for each test period. Due to greater resistance in the metal tube, it was determined that approximately 40% of the total air flow went through the metal, versus 60% in the glass tube. During the sampling period, the pumps were checked to verify the pumping rate. When appropriate, adjustments were made to maintain the predetermined pumping rate. At the conclusion of the sampling period, the sampling rates were verified and recorded in the log book.

Prior to the field investigations, a nominal flow rate for each tube was determined. Based on a 4-hour sampling period, it was determined that the outside ambient air samples should have total sample volume of 50-80 liters. The bus garage samples were to have a volume of 30-60 liters. Each ambient air sample pump was calibrated a flow rate of about 0.6 liter/minute, whereas the bus garage sample was calibrated to a flow rate of 0.4 liters per minute.

Prior to use, the sample tubes were stored in a glass jar in a sample storage chest containing dry ice. After sampling, the individual tubes were coded and capped to prevent contamination or loss of the sample. Each individual sample was then placed in a plastic bag and sealed. These bags were then returned to the sample storage chest for subsequent delivery to the CDM laboratory for analysis.

Operating data for each sample collected is presented in the following tabular summaries.

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GRAB SAMPLE DATA SHEETS

NASSAU COUNTY MASS TRANSIT FACILITY

26-29 September 1983

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Bus Garage Sampling Tube No.: A-1

Date: 9-26-83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 50 %

Additional Environmental Conditions: Wind from southwest at 6-8 mph

SAMPLING INFORMATION

Sample Type: Personal [XX] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [XX] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 1:55 AM [ ] PM [XX] Time Off: 5:25 AM [ ] PM [XX] Elapsed Time: 210 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)*

.6 l/min x 210 min = 126 l*

Potential Interferences: *Approximately 40% of total flow to metal tube and 60% to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Bus Garage Sampling Tube No.: A-2

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 39 %

Additional Environmental Conditions: Wind from southwest at 2-5 mph

SAMPLING INFORMATION

Sample Type: Personal [XX] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [XX] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 8 : 10 AM [XX] PM [ ] Time Off: 11 : 22 AM [X] PM [ ] Elapsed Time: 192 min

Initial Flow: .4 l/min Final Flow: .375 l/min Average Flow: .387 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.387 l/min x 192 min = 74 l*

Potential Interferences: *40% of total flow to metal tube and 60% to glass

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Bus Garage Sampling Tube No.: A-3

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 39 %

Additional Environmental Conditions: Wind from southwest at 2-5 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 1 : 02 AM [ ] PM [X] Time Off: 4:30 AM [ ] PM [X] Elapsed Time: 208 min

Initial Flow: .4 l/min Final Flow: .4 l/min Average Flow: .4 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.4 l/min x 208 min = 83 l*

Potential Interferences: *40% to metal tube; 60% to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Bus Garage Sampling Tube No.: A-4

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 58 F° Bar Pressure: NA mm Rel. Hum.: 35 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [XX] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [XX] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 10 : 12 AM [X] PM [ ] Time Off: 2 : 26 AM [ ] PM [X] Elapsed Time: 254 min

Initial Flow: .4 l/min Final Flow: .4 l/min Average Flow: .4 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.4 l/min x 254 min = 101 l*

Potential Interferences: *40% of flow to metal; 60% of flow to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Bus Garage Sampling Tube No.: A-5

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 58 F° Bar Pressure: NA mm Rel. Hum.: 35 %

Additional Environmental Conditions: Brisk wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 4 : 59 AM [ ] PM [X] Time Off: 9 : 09 AM [ ] PM [X] Elapsed Time: 248 min

Initial Flow: .4 l/min Final Flow: .4 l/min Average Flow: .4 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.4 l/min x 248 min = 99 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Bus Garage Sampling Tube No.: A-6

Date: 9/29/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 55 F° Bar Pressure: NA mm Rel. Hum.: 62 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 10:10 AM [X] PM [ ] Time Off: 2:30 AM [ ] PM [X] Elapsed Time: 260 min

Initial Flow: .4 l/min Final Flow: .34 l/min Average Flow: .37 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)*

.37 l/min x 260 min = 96 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Weather Station Sampling Tube No.: B-1

Date: 9/26/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 50 %

Additional Environmental Conditions: Wind from southwest at 6-8 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 2:03 AM [ ] PM [X] Time Off: 5:26 AM [ ] PM [X] Elapsed Time: 203 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate	x	Elapsed Time	=	Sample Volume (25°C, 760mm)
.6 l/min	x	203 min	=	122 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Weather Station Sampling Tube No.: B-2

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 39 %

Additional Environmental Conditions: Wind from southwest at 2-5 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ]

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ]

Time On: 8 : 08 AM [X] PM [ ] Time Off: 11 : 45 AM [X] PM [ ] Elapsed Time: 217 min

Initial Flow: .6 l/min Final Flow: .55 l/min Average Flow: .58 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.58 l/min x 217 min = 126 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ]

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information:

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Weather Station Sampling Tube No.: B-3

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 39 %

Additional Environmental Conditions: Wind from southwest at 2-5 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 1:07 AM [ ] PM [X] Time Off: 4:35 AM [ ] PM [X] Elapsed Time: 208 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.6 l/min x 208 min = 125 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Weather Station Sampling Tube No.: B-4

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 58 F° Bar Pressure: NA mm Rel. Hum.: 35 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 10:08 AM [X] PM [ ] Time Off: 2:16 AM [ ] PM [X] Elapsed Time: 248 min

Initial Flow: .6 l/min Final Flow: .56 l/min Average Flow: .58 l/m

Flow Rate	x	Elapsed Time	=	Sample Volume (25°C, 760mm)
.58 l/min	x	248 min	=	144 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Weather Station Sampling Tube No.: B-5

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 58 F° Bar Pressure: NA mm Rel. Hum.: 35 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 4 : 53 AM [ ] PM [X] Time Off: 8 : 43 AM [ ] PM [X] Elapsed Time: 240 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate	x	Elapsed Time	=	Sample Volume (25°C, 760mm)
.6 l/min	x	240 min	=	144 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Weather Station Sampling Tube No.: B-6

Date: 9/29/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 55 F° Bar Pressure: NA mm Rel. Hum.: 62 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 10:06 AM [X] PM [ ] Time Off: 1:59 AM [ ] PM [X] Elapsed Time: 233 min

Initial Flow: .6 l/min Final Flow: .58 l/min Average Flow: .59 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.59 l/min x 233 min = 137 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Behind oil storage tanks Sampling Tube No.: C-1

Date: 9/26/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 50 %

Additional Environmental Conditions: Wind from southwest at 6-8 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 2:15 AM [ ] PM [X] Time Off: 5:36 AM [ ] PM [X] Elapsed Time: 201 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.6 l/min x 201 min = 120 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [XX] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Behind oil storage tanks Sampling Tube No.: C-2

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 39 %

Additional Environmental Conditions: Wind from southwest at 2-5 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 8 : 15 AM [X] PM [ ] Time Off: 11 : 38 AM [X] PM [ ] Elapsed Time: 192 min

Initial Flow: .6 l/min Final Flow: .55 l/min Average Flow: .57 l/m

Flow Rate	x	Elapsed Time	=	Sample Volume (25°C, 760mm)
.57 l/min	x	192 min	=	109 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Behind oil storage tanks Sampling Tube No.: C-3

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 65 F° Bar Pressure: NA mm Rel. Hum.: 39 %

Additional Environmental Conditions: Wind from southeast at 2-5 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 1:15 AM [ ] PM [X] Time Off: 4:45 AM [ ] PM [X] Elapsed Time: 210 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate	x	Elapsed Time	=	Sample Volume (25°C, 760mm)
.6 l/min	x	210 min	=	126 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Commercial Ave. Sampling Tube No.: C-4

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 58 F° Bar Pressure: NA mm Rel. Humm.: 35 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 10:05 AM [X] PM [ ] Time Off: 2:15 AM [ ] PM [X] Elapsed Time: 250 min

Initial Flow: .6 l/min Final Flow: .58 l/min Average Flow: .59 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.59 l/min x 250 min = 148 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Commercial Ave. Sampling Tube No.: C-5

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 58 F° Bar Pressure: NA mm Rel. Hum.: 35 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [X] Breathing Zone [ ] Area [ ] Other [ ]

Collection Methods: Charcoal [X] Tenax [ ] Silica Gel [ ] Other [ ]

Time On: 4:57 AM [ ] PM [X] Time Off: 8:55 AM [ ] PM [X] Elapsed Time: 238 min

Initial Flow: .6 l/min Final Flow: .6 l/min Average Flow: .6 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.6 l/min x 238 min = 143 l*

Potential Interferences: *40% of flow to metal tube; 60% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ]

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information:

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Field behind oil storage tanks Sampling Tube No.: C-6

Date: 9/29/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: 55 F° Bar Pressure: NA mm Rel. Hum.: 62 %

Additional Environmental Conditions: Wind from northeast at 15-25 mph

SAMPLING INFORMATION

Sample Type: Personal [XX] Breathing Zone [ ] Area [ ] Other [ ] _____

Collection Methods: Charcoal [XX] Tenax [ ] Silica Gel [ ] Other [ ] _____

Time On: 10:17 AM [XX] PM [ ] Time Off: 2:14 AM [ ] PM [X] Elapsed Time: 237 min

Initial Flow: .6 l/min Final Flow: .56 l/min Average Flow: .58 l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

.58 l/min x 237 min = 137 l*

Potential Interferences: *39% of flow to metal tube; 61% of flow to glass tube.

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb [ ] Thermal Desorb [ ] Other [ ] _____

Analyses Requested: Priority Pollutant Volatile Organics

Additional Information: _____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Control Blank Sampling Tube No.: D-1

Date: 9/26/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: _____F° Bar Pressure: _____mm Rel. Hum.: _____%

Additional Environmental Conditions: _____

_____

SAMPLING INFORMATION

Sample Type: Personal ☐ Breathing Zone ☐ Area ☐ Other ☐ _____

Collection Methods: Charcoal ☐ Tenax ☐ Silica Gel ☐ Other ☐ _____

Time On: ___:___ AM ☐ PM ☐ Time Off: ___:___ AM ☐ PM ☐ Elapsed Time: _____min

Initial Flow: _____l/min Final Flow: _____l/min Average Flow: _____l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

_____l/min x _____min = _____l

Potential Interferences: _____

_____

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb ☐ Thermal Desorb ☐ Other ☐ _____

Analyses Requested: Priority Pollutant Volatile Organics

_____

Additional Information: _____

_____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Control Blank Sampling Tube No.: D-2

Date: 9/27/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: _____ F° Bar Pressure: _____ mm Rel. Hum.: _____ %

Additional Environmental Conditions: _____

_____

SAMPLING INFORMATION

Sample Type: Personal ☐ Breathing Zone ☐ Area ☐ Other ☐ _____

Collection Methods: Charcoal ☐ Tenax ☐ Silica Gel ☐ Other ☐ _____

Time On: ___ : ___ AM ☐ PM ☐ Time Off: ___ : ___ AM ☐ PM ☐ Elapsed Time: _____ min

Initial Flow: _____ l/min Final Flow: _____ l/min Average Flow: _____ l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

_____ l/min x _____ min = _____ l

Potential Interferences: _____

_____

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb ☐ Thermal Desorb ☐ Other ☐ _____

Analyses Requested: Priority Pollutant Volatile Organics

_____

Additional Information: _____

_____

AIR CONTAMINANT MONITORING DATA SHEET

GENERAL INFORMATION

Project: Nassau County MSBA Tests Project Number: 5044-4-DN-ARIM

Sampling Location: Control Blank Sampling Tube No.: D-3

Date: 9/28/83 Sample By: C.J.F.

ENVIRONMENTAL CONDITIONS

Temp: _____ F° Bar Pressure: _____ mm Rel. Hum.: _____ %

Additional Environmental Conditions: _____

_____

SAMPLING INFORMATION

Sample Type: Personal ☐ Breathing Zone ☐ Area ☐ Other ☐ _____

Collection Methods: Charcoal ☐ Tenax ☐ Silica Gel ☐ Other ☐ _____

Time On: ___ : ___ AM ☐ PM ☐ Time Off: ___ : ___ AM ☐ PM ☐ Elapsed Time: _____ min

Initial Flow: _____ l/min Final Flow: _____ l/min Average Flow: _____ l/m

Flow Rate x Elapsed Time = Sample Volume (25°C, 760mm)

_____ l/min x _____ min = _____ l

Potential Interferences: _____

_____

ANALYSES REQUESTED

Sample Pretreatment: CS_2 Desorb ☐ Thermal Desorb ☐ Other ☐ _____

Analyses Requested: Priority Pollutant Volatile Organics

_____

Additional Information: _____

_____

APPENDIX 2.0

ANALYTICAL LABORATORY PROCEDURES AND GRAB SAMPLE RESULTS

Nassau County Mass Transit Facility

26-29 September 1983

Camp Dresser & McKee

TABLE OF CONTENTS

SECTION 1.0
ANALYTICAL PROCEDURES

SECTION 1.0 Analytical Procedures

The samples were analyzed for volatile organic compounds in accordance with the procedures outlined in the NIOSH Manual of Analytical Methods, Second Edition, 1977. The samples were collected in glass collection tubes packed with charcoal. All samples were kept frozen at - 50°C prior to analysis.

Sample desorbtion was carrieed out by placing the collection tube charcoal into vials containing 0.5 ml of carbon disulfide. The vials were sealed and placed in a charcoal developer for one hour.

The resulting carbon disulfide solution was analyzed using glass capillary column gas chromatography with flame ionization detection. A 60 meter .75mm ID SPB-1 galss capillary column was used for the analysis. The specific operating conditions were as follows:

Sample Size	0.5 ul
Linear Velocity	20 cm/sec He
Range	x1
Attenuation	x256

The initial gas chromatograph oven temperature was held at 30°C for 8 minutes. It was then increased at a rate of 4° c/min to a maximum of 150°C.

SECTION 2.0
QUALITY CONTROL

SECTION 2.0 Quality Control

A 50 mg/m^3 quality control standard was prepared in Tedlar bag. The contents of the bag was pumped thru a charcoal collection tube and analyzed. Percent recoveries were calculated and are listed in the following table.

QUALITY CONTROL - DYNAMIC STANDARD PROCEDURE
RECOVERY DATA (50 mg/m³)

	CAS #	TWA[1], MG/M³	% RECOVERY
Chloroethane	75-00-3	2600	
Methylene Chloride	75-09-2	350	151%
Chloroform	67-66-3	50	25%
1,2-Dichloroethane	107-06-2	40	140%
1,1,1-Trichloroethane	71-55-6	1900	159%
Carbon Tetrachloride	56-23-5	30	49%
1,2-Dichloropropane	78-87-5	350	105%
Dibromochloromethane	124-48-1	NONE	88%
Benzene	71-43-2	30	122%
1,1,2,2-Tetrachloroethylene	127-18-4	335	65%
Toluene	108-88-3	375	83%
Chlorobenzene	108-90-7	350	71%
Ethylbenzene	100-41-4	435	84%

SECTION 3.0
DETECTION LIMITS

SECTION 3.0 DETECTION LIMITS FOR VOLATILE ORGANICS IN AIR - ALL VALUES REPORTED AS MG/M³

	CAS #	DETECTION LIMIT MG/M³
CHLOROMETHANE	74-87-3	<5.0
BROMOMETHANE	74-83-9	<5.0
VINYL CHLORIDE	75-01-4	<5.0
CHLOROETHANE	75-00-3	<5.0
METHYLENE CHLORIDE	75-09-2	<5.0
TRICHLOROFLUOROMETHANE	75-69-4	<5.0
1,1-DICHLOROETHYLENE	75-35-4	<5.0
1,1-DICHLOROETHANE	75-34-3	<5.0
TRANS-1,2-DICHLOROETHYLENE	540-59-0	<5.0
CHLOROFORM	67-66-3	<5.0
1,2-DICHLOROETHANE	107-06-2	<5.0
1,1,1-TRICHLOROETHANE	71-55-6	<5.0
CARBON TETRACHLORIDE	56-23-5	<5.0
BROMODICHLOROMETHANE	75-25-4	<5.0
1,2-DICHLOROPROPANE	78-87-5	<5.0
TRANS-1,3-DICHLOROPROPENE	542-75-6	<5.0
TRICHLOROETHYLENE	79-01-6	<5.0
DIBROMOCHLOROMETHANE	124-48-1	<5.0
CIS-1,3-DICHLOROPROPENE	542-75-6	<5.0
1,1,2-TRICHLOROETHANE	79-00-5	<5.0
BENZENE	71-43-2	<0.5
2-CHLOROETHYLVINYLETHER	110-75-8	<5.0
BROMOFORM	75-25-2	<5.0
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	<5.0
1,1,2,2-TETRACHLOROETHANE	79-34-5	<5.0
TOLUENE	108-88-3	<1.0
CHLOROBENZENE	108-90-7	<1.0
ETHYLBENZENE	100-41-4	<1.0

SECTION 4.0
SAMPLE TUBE INVENTORY

SAMPLE COLLECTION TUBE INVENTORY

TUBE #	CDM LAB#
A-1	13464
B-1	13465
C-1	13466
D-1	13467
A-2	13468
B-2	13469
C-2	13470
D-2	N.A.
A-3	13472
B-3	13473
C-3	13474
D-3	N.A.
A-4	13475
B-4	13476
C-4	13477
D-4	N.A.
A-5	13479
B-5	13480
C-5	13481
A-6	13482
B-6	13483
C-6	13484

N.A. = No Analyzed

SECTION 5.0
ANALYTICAL DATA

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/26 SAMPLE LOCATION: Bus Garage

SAMPLE # A-1 TUBE # A-1 TUBE TYPE: Charcoal

TIME ON: 1:55PM INITIAL FLOW: 366 ml/min

TIME OFF: 5:25PM FINAL FLOW: 366 ml/min

SAMPLE VOLUME M^3 0.0769

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/26 SAMPLE LOCATION: Weather Station

SAMPLE # B-1 TUBE # B-1 TUBE TYPE: Charcoal

TIME ON: 2:03PM INITIAL FLOW: 366 ml/min

TIME OFF: 5:26PM FINAL FLOW: 366 ml/min

SAMPLE VOLUME M^3 0.0743

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/26/83 SAMPLE LOCATION: Oak Street

SAMPLE # C-1 TUBE # C-1 TUBE TYPE: Charcoal

TIME ON: 2:15PM INITIAL FLOW: 336 ml/min

TIME OFF: 5:36PM FINAL FLOW: 336 ml/min

SAMPLE VOLUME M^3 0.0736

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/26/85 SAMPLE LOCATION: Blank

SAMPLE # D-1 TUBE # D-1 TUBE TYPE: Charcoal

TIME ON: _____ INITIAL FLOW: _____

TIME OFF: _____ FINAL FLOW: _____

SAMPLE VOLUME M^3 _____

NOTES: _____

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/27/83 SAMPLE LOCATION: Bus Garage

SAMPLE # A-2 TUBE # A-2 TUBE TYPE: Charcoal

TIME ON: 8:10AM INITIAL FLOW: 236 ml/min

TIME OFF: 11:22AM FINAL FLOW: 236 ml/min

SAMPLE VOLUME M^3 0.0453

NOTES: _____

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/27/83 SAMPLE LOCATION: Weather Station

SAMPLE # B-2 TUBE # B-2 TUBE TYPE: Charcoal

TIME ON: 8:08AM INITIAL FLOW: 351 ml/min

TIME OFF: 11:45MA FINAL FLOW: 351 ml/min

SAMPLE VOLUME M^3 0.076

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

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VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/27/83 SAMPLE LOCATION: Oak St.

SAMPLE # C-2 TUBE # C-2 TUBE TYPE: Charcoal

TIME ON: 8:15AM INITIAL FLOW: 351 ml/min

TIME OFF: 11:38AM FINAL FLOW: 351 ml/min

SAMPLE VOLUME M^3 0.0712

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
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CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/27 SAMPLE LOCATION: Bus Garage

SAMPLE # A-3 TUBE # A-3 TUBE TYPE: Ch-rcoal

TIME ON: 1:02PM INITIAL FLOW: 244 ml/min

TIME OFF: 4:30PM FINAL FLOW: 244 ml/min

SAMPLE VOLUME M^3 0.0508

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/27/83 SAMPLE LOCATION: Weather Station

SAMPLE # B-3 TUBE # B-3 TUBE TYPE: Charcoal

TIME ON: 1:07PM INITIAL FLOW: 366 ml/min

TIME OFF: 4:35PM FINAL FLOW: 366 ml/min

SAMPLE VOLUME M^3 0.0761

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/27/83 SAMPLE LOCATION: Oak St.

SAMPLE # C-3 TUBE # C-3 TUBE TYPE: Charcoal

TIME ON: 1:15PM INITIAL FLOW: 366 ml/min

TIME OFF: 4:45PM FINAL FLOW: 366 ml/min

SAMPLE VOLUME M^3 0.0769

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/28/83 SAMPLE LOCATION: Bus Garage

SAMPLE # A-4 TUBE # A-4 TUBE TYPE: Charcoal

TIME ON: 10:12AM INITIAL FLOW: 244 ml/min

TIME OFF: 2:26PM FINAL FLOW: 244 ml/min

SAMPLE VOLUME M^3 0.0620

NOTES: _____

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/28/83 SAMPLE LOCATION: Commercial St.

SAMPLE # C-4 TUBE # C-4 TUBE TYPE: Charcoal

TIME ON: 10:05AM INITIAL FLOW: 366 ml/min

TIME OFF: 2:15PM FINAL FLOW: 366 ml/min

SAMPLE VOLUME M^3 0.0915

NOTES: _____

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/28/83 SAMPLE LOCATION: Bus Garage

SAMPLE # A-5 TUBE # A-5 TUBE TYPE: Charcoal

TIME ON: 4:59 PM INITIAL FLOW: 400 ml/min

TIME OFF: 9:09 PM FINAL FLOW: 400 ml/min

SAMPLE VOLUME M^3 0.100

NOTES: _____

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/28/83 SAMPLE LOCATION: Weather Station

SAMPLE # B-5 TUBE # B-5 TUBE TYPE: Charcoal

TIME ON: 4:53 PM INITIAL FLOW: 600 ml/min

TIME OFF: 8:43 PM FINAL FLOW: 600 ml/min

SAMPLE VOLUME M^3 0.1380

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected -(See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/28/83 SAMPLE LOCATION: Commercial St.

SAMPLE # C-5 TUBE # C-5 TUBE TYPE: Charcoal

TIME ON: 4:57 PM INITIAL FLOW: 600 ml/min

TIME OFF: 8:55 PM FINAL FLOW: 600 ml/min

SAMPLE VOLUME M^3 0.1428

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/29/83 SAMPLE LOCATION: Bus Garage

SAMPLE # A-6 TUBE # A-6 TUBE TYPE: Charcoal

TIME ON: 10:15 AM INITIAL FLOW: 226 ml/min

TIME OFF: 2:30PM FINAL FLOW: 226 ml/min

SAMPLE VOLUME M^3 0.058

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/29/83 SAMPLE LOCATION: Weather Station

SAMPLE # B-6 TUBE # B-6 TUBE TYPE: Charcoal

TIME ON: 10:06AM INITIAL FLOW: 360 ml/min

TIME OFF: 1:59PM FINAL FLOW: 360 ml/min

SAMPLE VOLUME M^3 0.0839

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
1,1-DICHLOROETHYLENE	75-35-4	40	ND
1,1-DICHLOROETHANE	75-34-3	810	ND
TRANS-1,2-DICHLOROETHYLENE	540-59-0	790	ND
CHLOROFORM	67-66-3	50	ND
1,2-DICHLOROETHANE	107-06-2	40	ND
1,1,1-TRICHLOROETHANE	71-55-6	1900	ND
CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
CIS-1,3-DICHLOROPROPENE	542-75-6	350	ND
1,1,2-TRICHLOROETHANE	79-00-5	45	ND
BENZENE	71-43-2	30	ND
2-CHLOROETHYLVINYLETHER	110-75-8	NONE	ND
BROMOFORM	75-25-2	5	ND
1,1,2,2-TETRACHLOROETHYLENE	127-18-4	335	ND
1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
TOLUENE	108-88-3	375	ND
CHLOROBENZENE	108-90-7	350	ND
ETHYLBENZENE	100-41-4	435	ND

ND - Not Detected (See Section 3.0)

[1]TWA - THE THRESHOLD LIMIT VALUE-TIME WEIGHTED AVERAGE (TLV-TWA) - THE TIME WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY, AND A 40 HOUR WORK WEEK, TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED, DAY-AFTER-DAY, WITHOUT ADVERSE EFFECT - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 1983-4

VOLATILE ORGANICS IN AIR

- ALL VALUES REPORTED AS MG/M^3 -

DATE: 9/29/83 SAMPLE LOCATION: Field

SAMPLE # C-6 TUBE # C-6 TUBE TYPE: Charcoal

TIME ON: 10:17PM INITIAL FLOW: 354 ml/min

TIME OFF: 2:14 PM FINAL FLOW: 354 ml/min

SAMPLE VOLUME M^3 0.0627

NOTES:

	CAS #	TWA[1], MG/M^3	CONC., MG/M^3
CHLOROMETHANE	74-87-3	105	ND
BROMOMETHANE	74-83-9	20	ND
VINYL CHLORIDE	75-01-4	10	ND
CHLOROETHANE	75-00-3	2600	ND
METHYLENE CHLORIDE	75-09-2	350	ND
TRICHLOROFLUOROMETHANE	75-69-4	5600	ND
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CARBON TETRACHLORIDE	56-23-5	30	ND
BROMODICHLOROMETHANE	75-25-4	NONE	ND
1,2-DICHLOROPROPANE	78-87-5	350	ND
TRANS-1,3-DICHLOROPROPENE	542-75-6	5	ND
TRICHLOROETHYLENE	79-01-6	270	ND
DIBROMOCHLOROMETHANE	124-48-1	NONE	ND
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1,1,2-TRICHLOROETHANE	79-00-5	45	ND
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1,1,2,2-TETRACHLOROETHANE	79-34-5	7	ND
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CHLOROBENZENE	108-90-7	350	ND
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ND - Not Detected (See Section 3.0)

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SECTION 6.0

CHAIN OF CUSTODY RECORDS

SECTION 6.0
CHAIN OF CUSTODY RECORDS

CHAIN OF CUSTODY RECORD

Camp Dresser & McKee Inc. **CDM**

PROJECT NAME MSBA/Purex

PROJECT NUMBER

Field Log Book Reference No.

SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES: EXTR ORG.	ANALYSES: VOA	ANALYSES: PEST./PCB	ANALYSES: TRACE METALS	ANALYSES	ANALYSES	ANALYSES	NUMBER OF CONTAINERS	LOG BOOK & PG. NO.	REMARKS
A-1	9-27	2-6p	Bus Garage	Air		X						2		
B-1			Weather Station			X						2		
C-1			OAK St.			X						2		
D-1			BLANK			X						2		
A-2	9-27	8-12a	Bus Garage	Air		X						2		
B-2			Weather Station			X						2		
C-2			OAK St			X						2		
D-2			BLANK			X						2		
A-3	9-27	2-6p	Bus Garage	Air		X						2		
B-3			Weath. Station			X						2		
C-3			OAK St			X						2		

SAMPLED BY (SIGN) Chuck Fournie

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① Chuck Fournie	②		④	⑤
DATE/TIME (10/3 / 9A)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
hand carried	Chuck Fournie	G.W.S.	(/)

LEGEND: Original: Return to Sample Traffic Control Center - Copies: Ship with Samples

CHAIN OF CUSTODY RECORD

Camp Dresser & McKee Inc. **CDM**

PROJECT NAME MSBA / Purex

PROJECT NUMBER _____

Field Log Book Reference No. _____

SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES: EXTR. ORG.	ANALYSES: VOA	ANALYSES: PEST./PCB	ANALYSES: TRACE METALS	ANALYSES:	ANALYSES:	ANALYSES:	NUMBER OF CONTAINERS	LOG BOOK PG. NO.	REMARKS
A-4	9-28	10-2p	Bus Garage	Air		X						2		
B-4	↓		Weather Station	↓		X						2		
C-4			Commercial St.			X						2		
D-3	↓	10-9p	BLANK	↓		X						2		
A-5	9-28	5-9p	Bus Garage	Air		X						2		
B-5	↓		Weather Station	↓		X						2		
C-5	↓		Commercial St.	↓		X						2		
A-6	9-29	10-2	Bus Garage	Air		X						2		
B-6	↓		Weather Station	↓		X						2		
C-6	↓		Field	↓		X						2		
D-4	↓		Blank	↓		X						2		

SAMPLED BY (SIGN) Christopher Fournier

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① Christopher Fournier	②	③	④	⑤
DATE/TIME (10/3 / 90)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
①	②	③	④	⑤
DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)	DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME

LEGEND: Original: Return to Sample Traffic Control Center — Copies: Ship with Samples